

The wargame package

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Abstract

This package provides tools to typesetting manuals, board, and counters for wargames using L^AT_EX. Licensed under [Creative Commons Attribution-ShareAlike International License, version 4](https://creativecommons.org/licenses/by-sa/4.0/) ©©©.

Contents

1	Introduction	3
2	Hex Boards	4
2.1	Placing hexes	4
2.2	Styling hexes	5
2.3	Hex coordinate system	5
2.4	Terrains	7
2.4.1	Styling terrains	7
2.5	Ridges	10
2.5.1	Styling ridges	10
2.6	Labels	11
2.6.1	Styling labels	12
2.7	Towns	12
2.7.1	Styling towns	13
2.8	Extra graphics for hexes	13
2.9	Rivers, borders, and roads	13
2.10	Board clipping and frame	15
3	Chits	19
3.1	Styling chits	19
3.2	Defining preset chit types	21
4	NATO App 6(c) symbols	22

4.1	Faction and Command Selection	23
4.2	Unit Size (<code>echelon</code>)	25
4.3	Unit type identification	25
5	Implementation	25
5.1	The <code>wargame</code> package	25
5.2	The <code>wargame.util</code> TikZ library	28
5.2.1	Miscellaneous macros	28
5.2.2	Pictures in compound nodes	29
5.2.3	Nodes in compound nodes	31
5.2.4	Bounding boxes	32
5.2.5	Other Tikz utilities	34
5.2.6	Random IDs	36
5.3	The <code>wgexport</code> class	37
5.4	The <code>wargame.hex</code> TikZ library	48
5.4.1	Debugging	48
5.4.2	Suppress terrain pictures	48
5.4.3	Hex coordinate system	48
5.4.4	Hexes	54
5.4.5	Terrain	59
5.4.6	Ridges	282
5.4.7	Towns	284
5.4.8	Labels	285
5.4.9	Extra graphics	288
5.4.10	Some macros	289
5.4.11	Edges, borders, roads, rivers, and so on	289
5.4.12	Other paths	291
5.4.13	Move, attacks, retreats from hex to hex	292
5.4.14	Board clipping and frame	295
5.5	The <code>wargame.chit</code> TikZ library	300
5.5.1	Debugging	300
5.5.2	The <code>chit</code> key namespace	300
5.5.3	The <code>chit</code> styles	301
5.5.4	The <code>\chit</code> shape	302
5.5.5	The <code>\chit</code> wrapper macro	307
5.5.6	Predefined <code>chit</code> element pictures	308
5.5.7	Other pictures	310

5.5.8	Stacking of chits	310
5.5.9	Making order of battle charts	311
5.5.10	Table of chits	313
5.5.11	Some utilities	316
5.6	The <code>wargame.natoapp6c</code> TikZ library	317
5.6.1	Debugging	317
5.6.2	Colours	318
5.6.3	Some dimensions	318
5.6.4	Some utilities	319
5.6.5	Faction names as macros	320
5.6.6	Node shapes	320
5.6.7	‘Friendly’ node shapes	321
5.6.8	‘Hostile’ node shapes	328
5.6.9	‘Neutral’ node shapes	336
5.6.10	‘Unknown’ node shapes	343
5.6.11	Echelons	351
5.6.12	Text on symbols	352
5.6.13	Text <code>natoapp6c</code> namespace	353
5.6.14	The <code>natoapp6c</code> styles	356
5.6.15	The <code>\natoapp6c</code> shape	357
5.6.16	The <code>\natoapp</code> wrapper macro	362
5.6.17	Macros for markings	362
5.6.18	Utility macros used in the symbols	363
5.6.19	Symbols used when defining weaponry	364
5.6.20	The symbols	365
5.6.21	Some extra MIL-STD symbols	413
A	Generate draft VASSAL module	418
A.1	Example	419

1 Introduction

This package provides tools for typesetting classic, hex-based wargames. The package allows an author to design a board, or map, comprised of hex, using a relatively simple interface. Units are typeset using a similar interface. Unit types are identified using the NATO Joint Military Symbology [2] standard.

2 Hex Boards

The package provides a number of facilities to set-up a board comprised of hexagon fields (“hexes”).

2.1 Placing hexes

A hex can be added to the current `tikzpicture` using the macro `\hex`. It takes up to 4 arguments

```
\hex[<key-value-pairs>](<location>)(<name>)
```

The *<key-value-pairs>* specify the hex. Valid options are

`terrain=<terrain-keys>` specifies the terrain of the hex. More on in this in Section 2.4.

`ridges=<ridges-keys>` specifies where ridges are drawn in the hex. Section 2.5.

`label=<label-keys>` specifies the how to output the hex label, if any. This is expanded upon in Section 2.6.

`town=<town-keys>` specifies that a town (or similar) is present in the hex. The various keys are described in Section 2.7.

`extra=<extra-keys>` and `extra clipped=<extra-keys>` allows the user to put custom graphics in the hexes. See also Section 2.8 for more.

any style key defined for TikZ pictures.

The *<location>* argument specifies the coordinates, in the hex coordinate system where to put the hex. More about the coordinate system is given in Section 2.3. Note, the numbers starts from the lower-left corner.

The elements are rendered in the following order

1. The terrain, clipped to the hex shape.
2. The hex, including circumference and fill
3. The ridges, if any
4. The label, if any
5. Extra graphics clipped to the hex
6. Town, if any
7. Extra graphics which may extend beyond the confines of the hex.

Figure 1 illustrates some of the components of a hex. The hexes are 2 unit lengths wide. Typically, the unit length is one centimetre, which means the hexes are roughly $2\text{ cm} \times 1.86\text{ cmm}$ — or roughly $3/4'' \times 3/4''$ — big. This allows the hexes to fit chits (see Section ??) of size $12\text{ mm} \times 12\text{ mm}$ — or roughly $1/2'' \times 1/2''$ — nicely. If one wants larger chits or hexes one should take care to scale both by a similar amount.

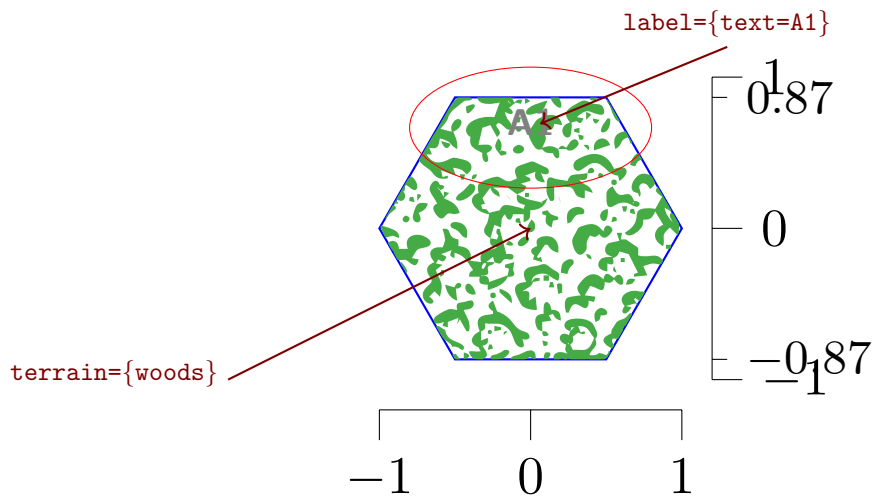


Figure 1: Hex parts. The bar on the bottom and to the right indicate two units of length.

2.2 Styling hexes

Typical TikZ options can be passed to the `\hex` macro. For example, if you want to draw the hex borders in red, simply pass `draw=red` in the `[[optional]]` arguments to `\hex`. Individual parts of the hexes can be styled separately. the default style used by `\hex` is `tikz/hex/hex`. Users can redefine this style to suit their needs. If one does not want to change the default style, or pass the same argument to all `\hex`s one can define the style `tikz/every hex`. For example, if one wants to auto label all hexes, one can do

```
\begin{tikzpicture}
  \begin{scope}[every hex/.style={label=auto}]
    % Hexes
  \end{scope}
\end{tikzpicture}
```

2.3 Hex coordinate system

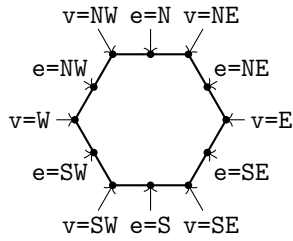
The package defines a coordinate system based on hexes. The centre of a hex is specified as `<column>-<row>` pairs, while vertexes and mid-point on edges can be specified separately. The syntax of the coordinates is

```
(hex cs:row=hex-row,column=hex-column,vertex=vertex,edge=edge)
```

where `<vertex>` and `<edge>` are optional. The hex row and column defaults both to 0 and can be decimal numbers. The `row`, `column`, `vertex`, and `edge` keywords may be shorted to `r`, `c`, `v`, and `e`, respectively. Possible vertexes and edges are listed in Table 1.

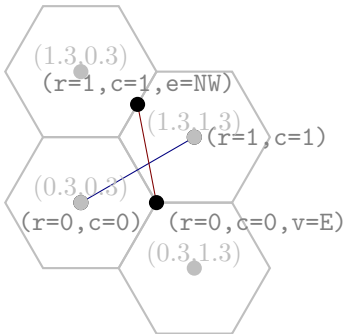
In Figure 2 is an example of a picture drawn in this coordinate system.

Important: When the horizontal distance to the centre of a hex becomes less than $-\cos 60^\circ$ or larger than $b - \cos 60^\circ$ we effectively have a new hex column, and the coordinates are shifted upward or downward for smaller or larger numbers. Figure ?? illustrates. this. This can make it a little hard to specify coordinates relative to a hex centre.



vertex=	Angle	edge=	Angle
east	E	0°	north east NE 30°
north east	NE	60°	north N 90°
north west	NW	120°	north west NW 150°
west	W	180°	south west SW 210°
south west	SW	240°	south S 270°
south east	SE	300°	south east SE 330°

Table 1: Vertex and edge positions



Hexes and lines drawn with

```

\hex(0,0)\hex(0,1)\hex(1,0)\hex(1,1)
\draw[blue!50!black] (hex cs:r=0,c=0) --
                    (hex cs:r=1,c=1);
\draw[red!50!black] (hex cs:r=0,c=0,vertex=E) --
                    (hex cs:r=1,c=1,edge=NW);
\fill[lightgray] (hex cs:r= .3,c= .3) circle(0.1);
\fill[lightgray] (hex cs:r=1.3,c= .3) circle(0.1);
\fill[lightgray] (hex cs:r=0.3,c=1.3) circle(0.1);
\fill[lightgray] (hex cs:r=1.3,c=1.3) circle(0.1);

```

Figure 2: Hex coordinate system

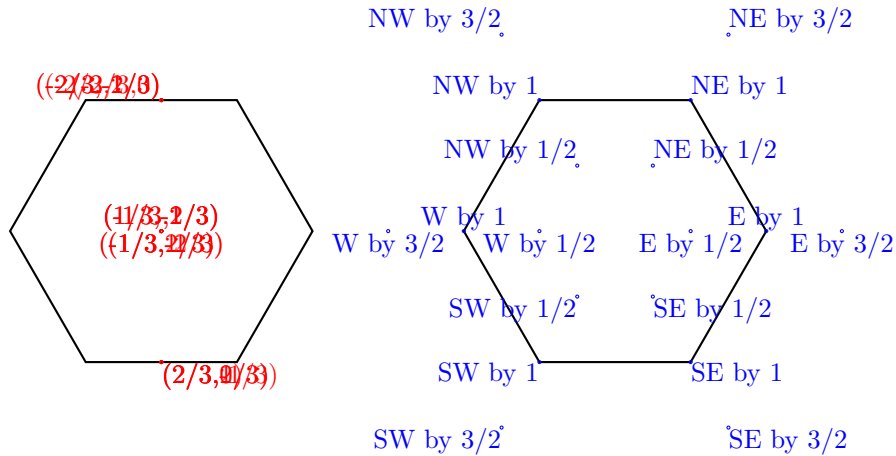


Figure 3: Relative coordinates

Alternatively one may use vertex or edge specifications together with a relative offset in those directions.

2.4 Terrains

Terrains are rendered using tile images or TikZ pictures. The available terrains are shown in Tables 2 and 3. Users can provide their own tile images and select those via `terrain={image=<image>}` or defined TikZ pictures and select those via `terrain={pic=<pic-name>}`. In all cases, the terrain graphics is clipped to the hex.

The terrain of a hex is selected via the multi-valued key `terrain`. Sub-keys of this key are

`image=<graphics-file>` Specifies terrain tile image *<graphics-file>*.

`pic=<picture-key>` Specifies terrain tile TikZ picture.

`code=<tikz-code>` Any valid TikZ code

`clip=<path(s)>` TikZ path specification to clip the terrain within the hex.

The terrain can be clipped by the sub-key `clip`. This can be useful if the game specifies movement costs in terms of hex-edge crossing, for example *First Blood* [1]. In that case, a hex may be, for example, a jungle hex, but some edges are clear. Thus movements across such an edge would count as moving into clear territory while moving over other edges will count as moving into a jungle. This is, of course, not how most games count movement costs, but this package nonetheless facilitates such rules. Table 4 shows a few examples of predefined clippings of terrain.

Users can define TikZ pictures that specify clipping paths as needed. For example, one could add clipping to the terrain to ensure that other graphics in the hex stands out.

2.4.1 Styling terrains

Terrains use the key `tikz/hex/terrain` to render the terrains. This is mainly useful for terrains made from TikZ pictures.

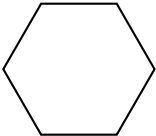
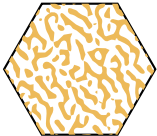


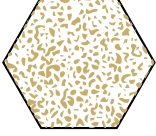
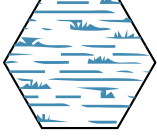

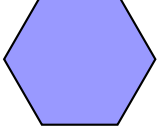
Symbol	Name	terrain={image=<image>}	Symbol	Name	terrain={image=<image>}
	Clear			Beach	{image=wargame.beach}
	Light woods	{image=wargame.light_woods}		Woods	{image=wargame.woods}
	Rough	{image=wargame.rough}		Swamp	{image=wargame.swamp}
	Mountains	{image=wargame.mountains}		Sea	{image=wargame.sea}

Table 2: Terrains specified via tile images


Symbol	Name	terrain={pic=<image>}
	Mountains	{pic=hex/terrain/mountain,line width=3pt}

Table 3: Terrains specified via TikZ pictures


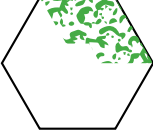
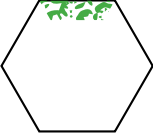

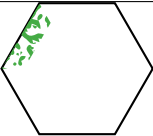

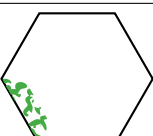
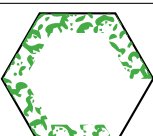
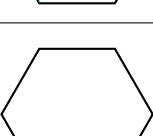
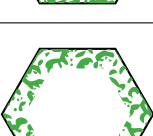
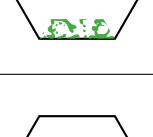
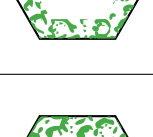
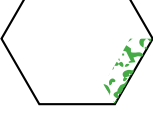

Symbol	terrain={clip=,...}	Symbol	terrain={clip=,...}
	{hex/sextant=NE}		{hex/large sextant=NE,hex/large sextant=N}
	{hex/sextant=N}		{hex/sextant=NE, hex/sextant=N, hex/sextant=NW}
	{hex/sextant=NW}		{hex/sextant=NE, hex/sextant=N, hex/sextant=NW, hex/sextant=SW}
	{hex/sextant=SW}		{hex/sextant=NE, hex/sextant=N, hex/sextant=NW, hex/sextant=SW, hex/sextant=S}
	{hex/sextant=S}		{hex/sextant=NE, hex/sextant=N, hex/sextant=NW, hex/sextant=SW, hex/sextant=S, hex/sextant=SE}
	{hex/sextant=SE}		{hex/sextant=NE, hex/sextant=N, hex/sextant=NW, hex/sextant=SW, hex/sextant=S, hex/sextant=SE, hex/sextant=C}
	{hex/sextant=C}		{hex/sextant=NE, hex/sextant=N, hex/sextant=S, hex/sextant=SE, hex/sextant=C}

Table 4: Terrain clipped via clip sub-key

2.5 Ridges

Ridges, or hill or mountain slopes, can be added to a hex via the keyword `ridges`. The keyword takes a list of hex edges and generates symbology for the ridge on the chosen edges. Note that the edges does not have to be continuous, as illustrated in the bottom right of Table 5, nor in any particular order. The edges are specified as compass direction

north east, north, north west, south west, south, south east.
NE, N, NW, SW, S, SE

Table 5 shows some examples.

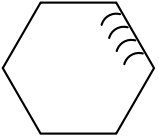
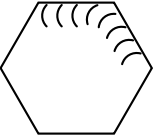
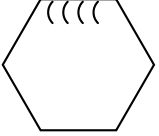

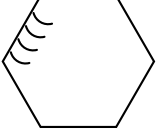

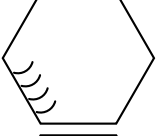

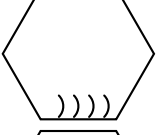
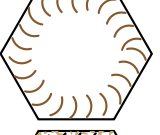
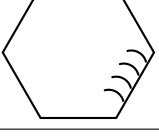
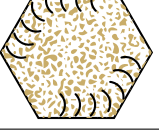
Symbol	ridges=	Symbol	ridges=
	NE		NE,N
	N		NE,N,NW
	NW		NE,N,NW,SW
	SW		NE,N,NW,SW,S,line width=3pt
	S		NE,N,NW,SW,S,SE,color=brown!70!black
	SE		N,S,NW,SE

Table 5: Ridges

2.5.1 Styling ridges

Every ridge is drawn with the style `tikz/hex/ridges`. Users can customise this style. The default is to draw thin black wave lines (TikZ decoration `waves`). The default style also takes care to auto scale line widths.

2.6 Labels

Labels can be placed on the hexes via the keyword `label`. The label can either be auto-generated or given explicitly. Table 6 shows the various choices.

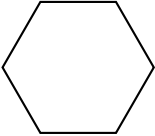
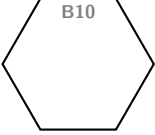
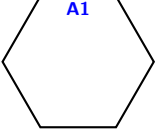
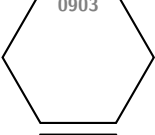
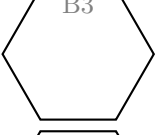
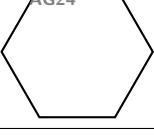
Symbol	Name	Column/Row	label=
	No label	n/a	none
	User specified	n/a	<code>text=B10</code>
	User specified	n/a	<code>{color=blue,text=A1}</code>
	Two-digit, zero padded numbers	9/3	auto
	Column letter, number row	2/3	<code>{auto=alpha column,font=\noexpand\rmfamily}</code> †
	Two letter column, two digit row	6/24	<code>{auto=alpha 2 column,anchor=north east}</code>

Table 6: Labels

†When specifying macros as key values in the options, for example the value `\rmfamily` for the key `font` above, we have to put a `\noexpand` in front if the macro. This is to prevent early expansion of the macro, which would cause errors. A minor nuisance.

The option `auto=inv y x plus 1` will label the rows inversely, and add one to the column number. This requires that the key `tikz/max hex row` has been set to the largest row number used.

In addition to the sub-keys `none`, `auto`, and `text`, one can also specify the following keys

`place=<coordinates>` specifies the Location of label within the hex. The anchor point of the text will be placed at this point.

`[</>]options`] at the start of the option (but inside braces `{...}`) can be used to give additional style options.

2.6.1 Styling labels

All labels use the style `tikz/hex/label`. By default, this places the label at the top of the hex, and renders the text as gray script sized text. Users can customise this style. If a user does not want to change the default style, or want to pass the same option to all labels, then one can set the key `tikz/every label` to those options.

2.7 Towns

Towns in hexes are made via the key `town`. This key takes several sub-keys, as illustrated in Table 7

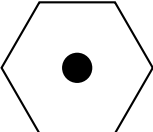
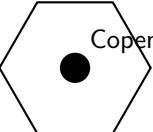
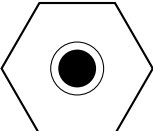
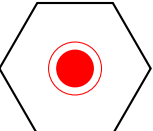
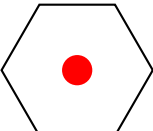
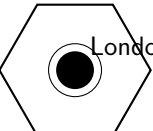
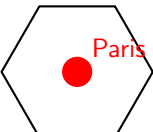

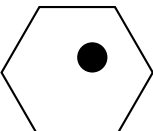
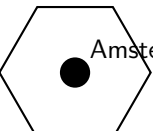
Symbol	town=	Symbol	town=
			<code>{name=Copenhagen}</code>
	<code>{pic=hex/town/city}</code>		<code>{red,pic=hex/town/city}</code>
	<code>{fill=red}</code>		<code>{name=London}</code>
	<code>{red,name=Paris}</code>		<code>{above=0.8,name=Berlin}</code>
	<code>{place={(.2,.2)}}</code>		<code>{font=\noexpand\itshape,name=Amsterdam} †</code>

Table 7: Towns

†When specifying macros as key values in the options, for example the value `\rmfamily` for the key `font` above, we have to put a `\noexpand` in front if the macro. This is to prevent early expansion of the macro, which would cause errors. A minor nuisance.

The sub-keys available for the `town` key are

`pic=⟨town-pic⟩` The name of a TikZ picture. Currently defined are `hex/town/town` and `hex/town/city`. Users can provide alternate definitions or new types by defining TikZ pictures.

`place=⟨coordinates⟩` Location of label within the hex. The anchor point of the text will be placed at this point.

`name=⟨name⟩` Name of town

2.7.1 Styling towns

Towns uses two styles: `tikz/hex/town` for the town graphics, and `tikz/hex/town name` for the name of the town. In addition, a user may set the key `tikz/every hex town` to contain options to be passed to all towns.

2.8 Extra graphics for hexes

Additional graphics for hexes can be added by the two keys `extra` and `extra clipped`. The difference between the two are that graphics specified by `extra clipped` are clipped (restricted) to the hex, while graphics given by `extra` may extend beyond the hex. Both keys accept a comma separated list of arguments, where each element has the syntax

```
[<options>](<placement>)<picture>
```

Both `<options>` and `<placement>` are optional, and specifies keys to draw `<picture>` with and the relative location in the hex, respectively. The required argument `<picture>` must name a TikZ picture, for example `hex/fortress`. This can be useful for marking hexes on the board. For example to mark a set-up hex for one faction of the game.

One could for example define the following pictures to define set-up points for a Sovjet and German faction

```
setup/sovjet/.pic={
  \path[fill=red,draw=yellow,pic actions]
    ( 90:.4)--(126:.15)--
    (162:.4)--(198:.15)--
    (234:.4)--(270:.15)--
    (306:.4)--(342:.15)--
    ( 18:.4)--( 54:.15)--cycle;},
setup/german/.pic={
  \path[fill,pic actions]
    (-.4, -.1) rectangle(.4,.1)
    (-.1, -.4) rectangle(.1,.4);
  \path[draw,pic actions]
    (-.4,-.2) -- (-.2,-.2) -- (-.2,-.4)
    (-.4, .2) -- (-.2, .2) -- (-.2, .4)
    (.4, .2) -- (.2, .2) -- (.2, .4)
    (.4,-.2) -- (.2,-.2) -- (.2,-.4);}
foo/large/.pic={
  \path[fill=gray,pic actions] (-1,-.5) rectangle(1,.5);},
}
```

We can place extra graphics in hexes as shown in Table 8.

To finish off this part on hexes and what we can do with those, we generate a map in Figure 4.

2.9 Rivers, borders, and roads

Rivers and borders follow the hex sides and are added to the current `tikzpicture` using `\river` and `\border` macros respectively. They are specified as regular TikZ paths. It is useful to utilise the hex coordinate system for this.

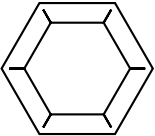

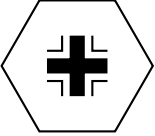


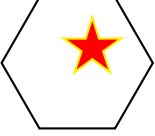
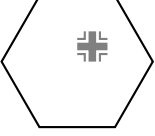
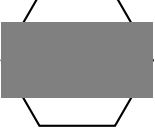
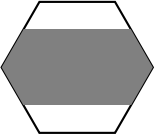
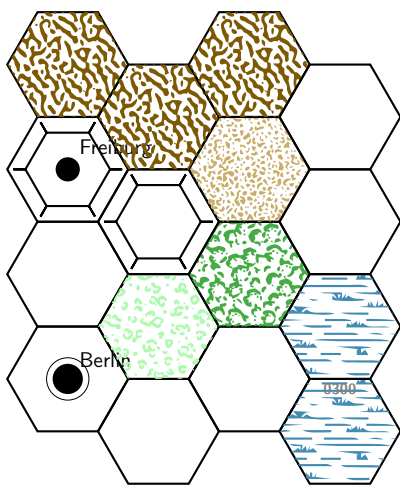
Symbol	extra=
	hex/fortress
	setup/sovjet
	setup/german
	{setup/german,hex/fortress} [†]
	{[line width=2pt,brown] fortress 2} [‡]
	{[shift={(.2,.2)}] setup/sovjet} [‡]
	{[shift={(.2,.2)},scale=.5,color=gray] setup/german} [‡]
	foo/large
Symbol	extra clipped=
	foo/large

Table 8: Hex extra graphics. Note that in the last line we use the graphics `foo/large` with `extra clipped` (compare to line just above) to restrict the graphics to the hex.

[†]When specifying more than one item, the list must be enclosed in braces (`{...}`)

[‡]When an item in the list of `extra` contains a comma (`,`), for example in a list of graphics options, then we need to enclose the inner list *and* the whole list in braces (`{...}`) to protect against unwanted expansion.



```

\hex[town={pic=hex/town/city,name=Berlin}] (r=0,c=0)
\hex[] (r=0,c=1)
\hex[] (r=0,c=2)
\hex[terrain={swamp},label=auto] (r=0,c=3)
\hex[] (r=1,c=0)
\hex[terrain={light woods}] (r=1,c=1)
\hex[terrain={woods}] (r=1,c=2)
\hex[terrain={swamp}] (r=1,c=3)
\hex[town={name=Freiburg},extra=hex/fortress] (r=2,c=0)
\hex[extra=hex/fortress] (r=2,c=1)
\hex[terrain={rough}] (r=2,c=2)
\hex[] (r=2,c=3)
\hex[terrain={mountains}] (r=3,c=0)
\hex[terrain={mountains}] (r=3,c=1)
\hex[terrain={mountains}] (r=3,c=2)
\hex[] (r=3,c=3)

```

Figure 4: Placing hexes

```

\river[options] path;
\border[options] path;

```

Rivers are essentially borders, but are randomized to give a more aesthetically pleasing output.

Roads and railroads typically go from hex-center to hex-center, and are added using the macro `\road`. The road or railroad is specified via a regular TikZ path.

```

\road[options] path;
\railroad[options] path;

```

Towns and cities conveniently serve as places to split up a road at.

2.10 Board clipping and frame

In the river, border, and road example above, the roads extend beyond the hexes, which does not look very nice. One way to deal with this, is to draw a clipping box around the hexes

This technique works fine for examples in a manual, it has a somewhat displeasing effect for a full board. The package therefore defines the macro `\boardclip` which clips the graphics according to the defined hexes.

```

\boardclip(lower-left)(upper-right){options}

```

A clipping path of that spans from the hex at *lower-left* to *upper-right*. Note, that both of these arguments should only specify the column and row keys. If *options* is non-empty, then the clipping path is drawn with those options.

This is particularly useful together with the `\boardframe` macro. This macro will put a frame around the board, optionally with a margin.

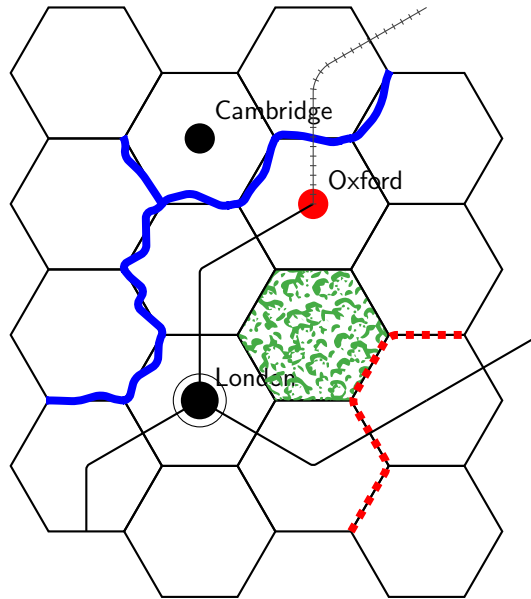


Figure 5: Adding rivers, borders, and roads

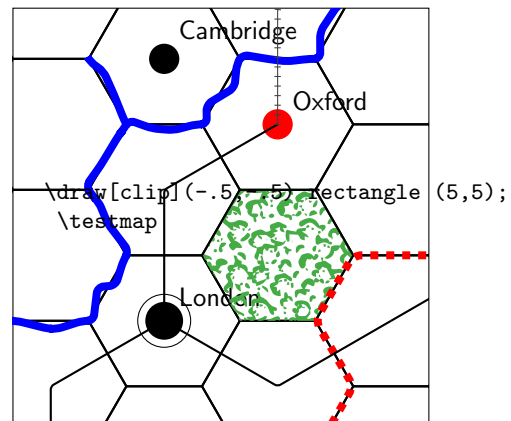


Figure 6: Clipping for a manual using a TikZ `\draw[clip]` command.

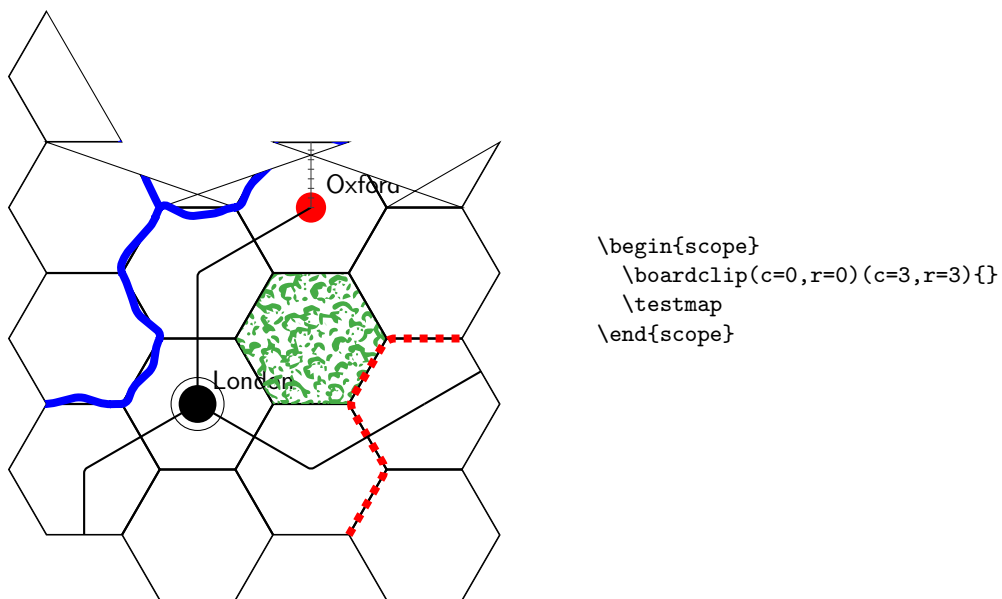


Figure 7: Snug-fit clipping of board using the macro `\boardclip`

```
\boardframe[margin](lower-left)upper-right
```

where *lower-left* and *upper-right* are as for `\boardclip`. The *margin* must be a number, and specifies an optional margin around the hexes. The argument *options* specifies how the frame is drawn. The idea is to first draw the frame, then the clipping shape, and then the hexes. One should take care to use the *options* argument to `\boardclip` to specify a default background color. The frame is drawn with the style `hex/board frame`

The `\boardframe` macro prints the position of the rectangle to the log output, if one needs to do some more stuff around the board.

3 Chits

Chits, or playing counters¹, can be made with the macro `\chit`. The syntax for rendering a chit is

```
\chit[⟨key-value-pairs⟩](⟨location⟩)(⟨name⟩)
```

Figure 9 shows an example of a chit.

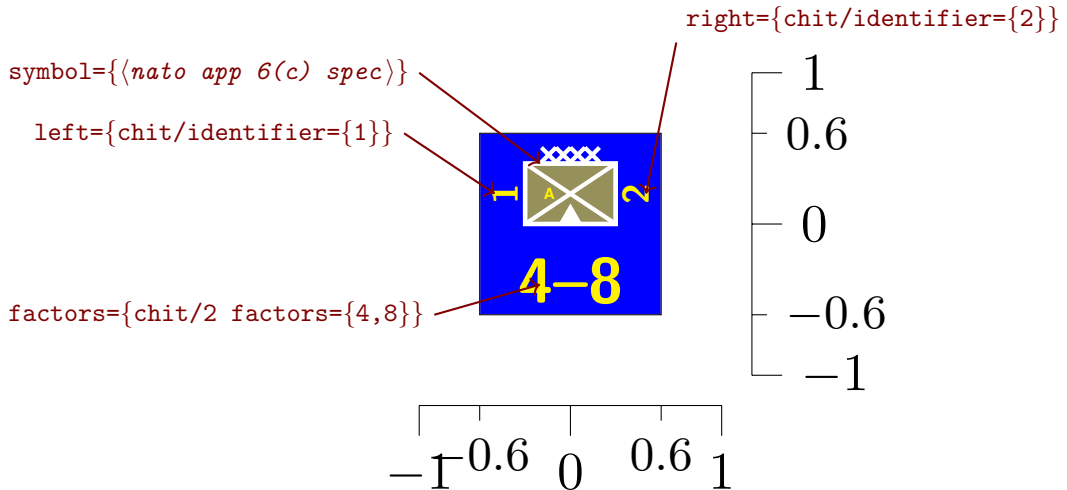


Figure 9: An example of a chit. The lines below and to the right shows two unit lengths. Other global options used are `color=white` to set the foreground colour, `fill=blue` for the background, and `text=yellow` to set the font colour to yellow. The `symbol` key also contains `frame={fill=yellow!50!black}` to set the frame fill colour, and `ultra thick` to set the line width of the NATO App6(C) symbol. Note that the line width is automatically scaled.

The example in Figure 9 shows an infantry mountaineer army unit with attack factor 4, and movement factor 8. The NATO App6(c) symbol is given in terms of keywords for the `\natoapp` macro (see Section 4). The other parts of the chit (`factors`, `left`, `right`, and `below`) are rendered onto the chit via `TikZ` pictures. This allows for a great deal of flexibility in generating chits. For example, above we use the pictures `chit/identifier` and `chit/2 factors` to render the left- and right-hand identifiers, and the factors, respectively.

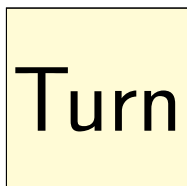
Full frame chits — that is chits which are not typically designating units or faction specific chits, e.g., a turn marker — can be made by using the key `full`. In that case, all other keys (`symbol`, `factors`, `left`, `right`, and `below`) are ignored. Figure 10 shows such an example.

The size of the chits are 1.2×1.2 unit lengths squared. This is tuned so that the chits will fit within the hexes produced by the `\hex` command (see Section). In Figure 11 we illustrate this. Typically the unit is one centimetre. which means the chits are $12\text{mm} \times 12\text{mm}$ — or roughly $1/2'' \times 1/2''$, which is a fairly good size for most games.

3.1 Styling chits

Typical `TikZ` options can be passed to the `\chit` macro. For example, if you want to draw the chit with a red foreground, simply pass `draw=red` in the `[⟨optional⟩]` arguments to `\chits`. Individual parts of the hexes can be

¹Since `TEX` has the concept of counters as in `\count` and `LATEX`'s `\newcounter`, we choose the name 'chit' for playing pieces instead.



chit made with

```
\tikzset{
  wg/big text/.pic={
    \node[font=\sffamily\fontsize{18}{0}%
      \selectfont]{#1};}
}
\tikz{
  \chit[full={wg/big text={Turn}},
    black,fill=yellow!20!white](0,0)
}
\end{tikzpicture}
```

Figure 10: An example of a full-frame chit.

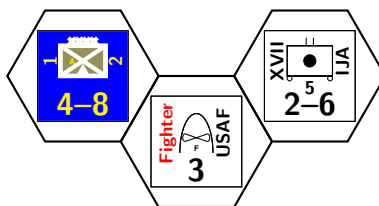


Figure 11: Example of chits fit within hexes.

styled separately.

Important: To set the colours of the various elements, one should use

`color=`*<foreground and text>* Selects the foreground colour of lines, text, and so on, including for the NATO App6(C) symbol.

`fill=`*<background>* Selects the background colour of the full chit. By default this is transparent.

`text=`*<text foreground>* Selects the colour used for text in the chit. This overrides `color` for text.

`draw=`*<foreground>* This sets the colour for foreground elements, excluding text.

TikZ allows one to pass a *<colour>* as arguments for drawing and understands that as giving the foreground and text colours. However, that key is *deprecated* for this library, as it does not properly propagate through².

The styles used by the `left`, `right`, `setup`, `factors`, and `symbol` elements are `tikz/chit/left`, `tikz/chit/right`, `tikz/setup`, `tikz/factors`, and `tikz/symbol` respectively. A user can redefine these to change the appearance of the chits. For example, one could make the symbol larger by setting a different `scale`, move the factors to the side by changing `shift`, and so on.

Pictures used by these elements are also styled by similar keys. For example, the picture `chit/identifier` is styled by `tikz/chit/identifier`.

In addition, one can define the key `tikz/every chit` to be the default options for all chits.

²The colour `pgfstrokecolor` is not modified by that.

3.2 Defining preset chit types

One can conveniently pre-define some chit styles. For example, given the style definition

```
\tikzset{
  my chit/.style={/chit/symbol={[
    faction=friendly,
    command=land,
    main=armoured]}},
  /chit/left={chit/identifier={Mine}},
  /chit/factors={chit/2 factors={2,4}}}}
```

We can use that to make different chits with some commonalities defined by that style. For example



where, in the second example, we have passed additional options to `\chit`. Note that we *must* give the full path to the `chit` keys when defining a style like this.

4 NATO App 6(c) symbols

The NATO markers are designed to fit within the template shown in Figure 12. The template serves as a placement guide of the various parts of the NATO marker as illustrated in Figurefig:natoapp:usage.

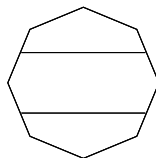


Figure 12: Template for NATO symbols

```
\natoapp[<key-value-pairs>](<location>)(<name>)
```

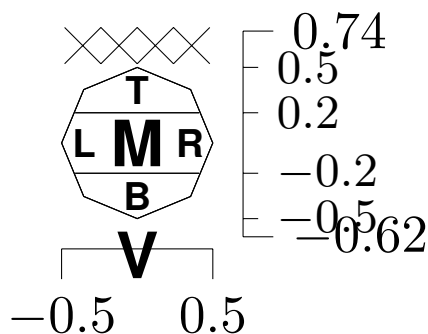
where all arguments are optional. Keys are defined to fill in the various parts of the markers. These keys are

faction=*<faction>* Selects the faction used for the symbol. See also Section 4.1.

command=*<command>* Selects the command used for the symbol. See also Section 4.1.

main=*<mains>* Specifies the main symbol(s). This can be a comma separated list of specifiers (delimited by braces $\{first,second,\dots\}$), and each symbol can be preceded by an optional argument to shift, scale, rotate, etc., the individual symbols. .

left=*<lefts>*, **right**=*<rights>*, **top**=*<tops>*, **bottom**=*<bottoms>*, **below**=*<belows>* Specifies the left-, right-hand, top, bottom, and lower symbol(s). The format of the arguments *<lefts>*, *<rights>*, *<tops>*, *<bottoms>*, and *<belows>* has the same format as *<mains>*.



The figure is typeset by

```
\natoapp[faction=none,
command=base,
echelon=army,
main={text=M},
top={text=T},
bottom={text=B},
left={text=L},
right={text=R},
below={text=V}]
```

Figure 13: Main keys of `\natoapp`. The bottom and right hand bars indicate one unit of length.

Other keys are available to further customise the appearance of the symbols

echelon=*<size>* The size of the unit described. Possible values are `team`, `squad`, `section`, `platoon`, `company`, `battalion`, `regiment`, `brigade`, `division`, `corps`, `army`, `army group`, `theatre`, and `command`.

`frame=<keys>` Extra keys for frame.

4.1 Faction and Command Selection

Table 9 shows the various bases used for the various *faction/command* combinations. Also shown in the table is the base template for main identifiers.

<i><command></i>	<i><faction></i>			
	friendly	hostile	neutral	unknown
air				
land				
equipment				
installation				
sea surface				
sub surface				
space				
activity				

Table 9: Frames for various combinations of *<faction>* and *<command>* combinations. These are drawn with the `pic` given by `natoapp6c/<faction>/<command>` with the options `draw=blue,fill=<faction>`. If no `fill` is specified, then the background will be transparent. Note, the template for main identifiers is also shown on top of each frame.

The fill color of the frame is set by the key `frame`. If this is or contains the special value `faction`, then the frame fill colour will be the standard for the faction as illustrated in figure 14.

Elements of the frame can be controlled by the key `frame`.

`frame=<keys>` Additional keys to pass to the frame drawing. The special option `faction` will make the frame be filled with the standard faction color.

Table 10 illustrates this.

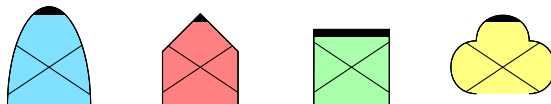


Figure 14: Illustration of using the special value `fraction` for the `frame` key

Example	<code>frame={color,...}</code>	<code>frame={fill,...}</code>	<code>frame={draw,...}</code>	<code>frame={line width,...}</code>
	red			thick
		yellow		thin
			blue	
		pink	magenta	
	red	green	blue	ultra thick

Table 10: Illustration of frame colour choices

4.2 Unit Size (echelon)

The size of a unit a marker represents is given by the `echelon` keyword. Table 11 shows the various markers and approximate unit sizes.

4.3 Unit type identification

References

- [1] Hanover,C., Hendrix,C.E., & Llewelyn,S., *First Blood*, 1997, <https://grognard.com/fb/>
- [2] *NATO Joint Military Symbology*, APP-6(C), May 2011, https://en.wikipedia.org/wiki/NATO_Joint_Military_Symbology.
- [3] *NATO Joint Military Symbology*, APP-6(D), October 2017, <https://nso.nato.int/nso/nsdd/main/standards/ap-details/1912/EN>
- [4] milsymb package, <https://www.ctan.org/pkg/MilSymb>.

5 Implementation

5.1 The wargame package

First, package identification

```
1 \ProvidesPackage{wargame}
```

Then needed packages

```
2 \RequirePackage[svgnames]{xcolor}
3 \RequirePackage{tikz}
```

A switch to include terrain pictures (which take a lot of memory for some reason).

```
4 \@ifundefined{ifhex@terrain@pic}{%
5   \newif\ifhex@terrain@pic
6   \hex@terrain@picfalse}{}
```

Options

```
7 \DeclareOption{notterrainpic}{%
8   \hex@terrain@picfalse}
9 \DeclareOption{terrainpic}{%
10  \hex@terrain@pictrue}
11 \ProcessOptions\relax
```

Finally, the used TikZ libraries

```
12 \usetikzlibrary{wargame.hex,wargame.natoapp6c,wargame.chit}
```















Example	echelon	Approx. size	Sub-units	Officer
	team	3-5	none	Corporal or Sergeant
	squad	5-10	1-2 teams	Sergeant
	section	7-13	2-3 teams	Sergeant
	platoon	25-40	Several squads/sections	Second Lieutenant
	company	60-250	Several platoons	Captain
	battalion	300-1000	2-6 companies	Lieutenant colonel
	regiment	500-2000	3-7 battalions	Colonel
	brigade	2000-5000	Several battalions	Colonel
	division	10000-20000	Several brigades/regiments	Major General
	corps	30000-60000	Several divisions	Lieutenant General
	army	100000	Several corps (5-10 divisions)	General
	army group	120000-500000	Several armies	Field Marshal
	theatre	250000+	Several army groups	Field Marshal
	command		Not a unit size, but designator	

Table 11: Illustration of echelon values. Approximate sizes and command officer titles are typical modern day United States of America army values and identifiers. Historically the unit sizes have changed, as has officer titles. Furthermore, both the unit sizes, names, and command officer titles may vary from country to country, even across command.

Symbol	Type & Abbreviation	
	Air assault	AA
	Air defence	ADA
	Airborne	AB
	Amphibious	AM
	Anti tank/armoured	AT
	Armoured	AR
	Chemical biological radiological nuclear	CB
	Combined arms	CAR
	Engineer	ENG
	Field artillery	FA
	Infantry	IN
	Mechanised infantry	M
	Mountaineer	MTN
	Naval	N
	Reconnaissance	REC
	Special Operations Forces	SOF
Symbol	Echelon & Abbreviation	
XXXXXX	Army group	AG
XXXXX	Army	A
XXX	Corps	-
XX	Division	D
X	Brigade	BD
	Regiment	REGT
	Battalion	BN
	Company	COY
●●●	Platoon	PLT
●●	Section	
●	Squad	

Table 12: Some abbreviations of unit type identifications

5.2 The `wargame.util` TikZ library

This library contains some utilities for use in the other libraries.

5.2.1 Miscellaneous macros

`\wg@dbg`

Debugging support. The counter `\wargamedbglvl` sets the debug level. The package code then uses `\wg@dbg` to print out debugging messages. This macro takes two arguments — the first is the *least* debug level at which the message is printed, and the second is the message it self.

```
13 \newcount\wargamedbglvl\wargamedbglvl=0
14 \def\wg@dbg#1#2{%
15   \ifnum#1>\wargamedbglvl\relax\else\message{^^J#2}\fi}
```

`\wg@addto@macro`

The macro `\wg@addto@macro{<macro>}{<other>}` adds the definition of the macro `<other>` to the macro `<macro>`. This uses the `\toks` trick of storing the *tokens* of the definition of a `<macro>` and `<other>` into `@` and expanding that token into the definition of `<macro>`. Effectively, this means that the top-level definition of `<macro>` and `<other>` are expanded (i.e., macros used in the definition of either macro is *not* expanded) and then that becomes the new definition of `<macro>`.

We will use this macro to do *shallow* definitions of macros to contain keys and such.

```
16 \long\def\wg@addto@macro#1#2{%
17   \begingroup
18   \toks@ \expandafter\expandafter\expandafter{\expandafter#1#2}%
19   \xdef#1{\the\toks@}%
20   \endgroup}
```

`\wg@sub@anchor`

Get anchor from sub node. We cannot use `\pgfpointanchor` since that returns the anchor coordinates in the global coordinate system.

```
21 \def\wg@sub@anchor#1#2{%
22   \wg@dbg{3}{^^JGet '#2' in '#1'}%
23   \@ifundefined{pgf@sh@ns@#1}{%
24     \pgf@x=0cm\pgf@y=0cm}{%
25     \pgf@process{%
26       \csname pgf@sh@ma@#1\endcsname% MW
27       \csname pgf@sh@np@#1\endcsname%
28       \pgf@sh@reanchor{\csname pgf@sh@ns@#1\endcsname}{#2}}}%
29   \wg@dbg{10}{-> \the\pgf@x,\the\pgf@y}%
30 }
```

Scratch dimensions

```
31 \newdimen\wg@tmpa
```

```

32 \newdimen\wg@tmpb
33 \newdimen\wg@tmpc
34 \newdimen\wg@tmpd

```

Macro to easy restore a saved path

```

35 \def\settosave#1{
36 \pgfsyssoftpath@setcurrentpath{#1}}

```

5.2.2 Pictures in compound nodes

`\wg@pic`

The macro `\wg@pic` will render a `pic`. This is used by the `natoapp6cs`, `chit`, and `hex` node shapes extensively. The arguments are

1. Prefix
2. Position
3. Fixed options
4. User options
5. Picture.

That is, the macro expects calls like

```
\wg@pic[<options>]<picture>\endwg@pic{<prefix>}{<position>}{<options>}
```

Note the `\endwg@pic` at the end of the call to swallow up `<picture>`. Typically this macro is used as

```
\edef\args{<something>} \expandafter\wg@pic\args\endwg@pic{<prefix>}{<position>}{<options>}
```

where `<something>` typically expands to `[<user option>]<picture>`

First, the top-level macro `\wg@pic` that looks for user options.

```

37 \def\wg@pic{%
38 \@ifnextchar[{\wg@@pic}{\wg@@pic[]}%
39 }

```

This macro then forwards to `\wg@@pic` to gobble up `<picture>`.

1. User options
2. Arguments

```

40 \def\wg@@pic[#1]#2\endwg@pic{%
41 \wg@dbg{2}{Options: '#1', picture: '#2'}%
42 \wg@@@pic{#1}{#2}%
43 }

```

1. User options

2. Arguments
3. Prefix
4. Coordinates
5. Fixed options

```

44 \def\wg@@pic#1#2#3#4#5{%
45 \ifx|#2|\wg@dbg{3}{No picture given}%
46 \else%
47 \wg@dbg{3}{^^JWG Pic:
48 ^^J User options: #1
49 ^^J Picture: #2
50 ^^J Prefix: #3
51 ^^J Coordinates: #4
52 ^^J Fixed options: #5}%
53 % \wg@dbg{2}{\string\pic[#5,#1] at (#4) {#3#2}}%
54 \pic[#5,#1] at (#4) {#3#2};%
55 \ifwg@s@ve%
56 \pgf@relevantforpicturesizetrue%
57 \begin{getbbl}%
58 \pic[draw=none,fill=none,transform shape] at (#4) {#3#2};%
59 \end{getbbl}%
60 \wg@dbg{5}{Clipping to local bounding box}%
61 \clip (L.south west) rectangle (L.north east);%
62 \pgf@relevantforpicturesizefalse \global\wg@s@vefalse%
63 \fi
64 \fi%
65 \wg@dbg{3}{End of WG Pic}
66 }

```

\wg@pic@all

This macro sets all pictures in a list.

1. List
2. Prefix
3. Position
4. Styles

```

67 \def\wg@pic@all#1#2#3#4{%
68 \wg@dbg{2}{WG picture loop
69 ^^J List: \meaning#1
70 ^^J Prefix: '#2'
71 ^^J Position: '#3'
72 ^^J Styles: '#4'}
73 \foreach \p in #1{%
74 \wg@dbg{2}{WG picture element: \meaning\p}%
75 \expandafter\wg@pic\p@endwg@pic {#2}{#3}{#4}%
76 }%
77 }

```

5.2.3 Nodes in compound nodes

`\wg@node`

The macro `\wg@node` will render a node. This can be used by the `natoapp6cs`, `chit`, and `hex` node shapes. The arguments are

1. Prefix
2. Position
3. Fixed options
4. User options
5. Body.

That is, the macro expects calls like

```
\wg@node[<options>]<body>\@endwg@node{<prefix>}{<position>}{<options>}
```

Note the `\@endwg@node` at the end of the call to swallow up *<body>*. Typically this macro is used as

```
\edef\args{<something>} \expandafter\wg@node\args\@endwg@node{<prefix>}{<position>}{<options>}
```

where *<something>* typically expands to [*<user option>*]*<body>*

First, the top-level macro `\wg@node` that looks for user options.

```
78 \def\wg@node{%
79   \@ifnextchar[{\wg@@node}{\wg@@node[]}%
80 }
```

This macro then forwards to `\wg@@node` to gobble up *<body>*.

1. User options
2. Arguments

```
81 \def\wg@@node[#1]#2\@endwg@node{%
82   \wg@dbg{2}{Options: '#1', body: '#2'}%
83   \wg@@@node{#1}{#2}%
84 }
```

1. User options
2. Arguments
3. Prefix
4. Coordinates
5. Fixed options

```

85 \def\wg@@@node#1#2#3#4#5{%
86   \ifx|#2|\wg@dbg{3}{No body given}%
87   \else%
88     \wg@dbg{3}{^^JWG Pic:
89     ^^J User options: #1
90     ^^J Body: #2
91     ^^J Prefix: #3
92     ^^J Coordinates: #4
93     ^^J Fixed options: #5}%
94   % \wg@dbg{2}{\string\pic[#5,#1] at (#4) {#3#2}}%
95   \node[#5,#1] at (#4) {#3#2};%
96   \fi%
97   \wg@dbg{3}{End of WG Node}
98 }

```

\wg@node@all

This macro sets all pictures in a list.

1. List
2. Prefix
3. Position
4. Styles

```

99 \def\wg@node@all#1#2#3#4{%
100  \wg@dbg{2}{WG picture loop
101  ^^J List: \meaning#1
102  ^^J Prefix: '#2'
103  ^^J Position: '#3'
104  ^^J Styles: '#4'}
105  \foreach \p in #1{%
106  \wg@dbg{2}{WG picture element: \meaning\p}%
107  \expandafter\wg@node\p\@endwg@node {#2}{#3}{#4}%
108  }%
109 }

```

5.2.4 Bounding boxes

Bounding box dimensions

```

110 \newdimen\wg@bb@minx
111 \newdimen\wg@bb@miny
112 \newdimen\wg@bb@maxx
113 \newdimen\wg@bb@maxy

```

Enable or disable bounding box tracking

```

114 \newif\ifwg@notrelevantforpathsize\wg@notrelevantforpathsizefalse

```


wg@resetbb

Reset the bounding box tracking dimensions

```
115 \def\wg@resetbb{%
116   \global\wg@bb@minx=16000pt\relax%
117   \global\wg@bb@miny=16000pt\relax%
118   \global\wg@bb@maxx=-16000pt\relax%
119   \global\wg@bb@maxy=-16000pt\relax%
120 }
```

\old@pgf@protocolsize

Save PGF's bounding box algorithm

```
121 \let\old@pgf@protocolsize\pgf@protocolsizes
```

\wg@protocolsizes

Our bounding box algorithm

```
122 \def\wg@protocolsizes#1#2{%
123   \old@pgf@protocolsize{#1}{#2}
124   \ifwg@notrelevantforpathsize\else%
125   \ifdim#1<\wg@bb@minx\global\wg@bb@minx#1\fi%
126   \ifdim#1>\wg@bb@maxx\global\wg@bb@maxx#1\fi%
127   \ifdim#2<\wg@bb@miny\global\wg@bb@miny#2\fi%
128   \ifdim#2>\wg@bb@maxy\global\wg@bb@maxy#2\fi%
129   \fi
130 }
```

`getbb1` (*env.*) Environment that tracks the local bounding box

```
131 \newenvironment{getbb1}{%
132   \wg@resetbb%
133   \wg@notrelevantforpathsizefalse%
134   \global\let\pgf@protocolsizes\wg@protocolsizes}{%
135   \gdef\pgf@sh@ns@L{rectangle}
136   \gdef\pgf@sh@np@L{%
137     \def\southwest{\pgfqpoint{\the\wg@bb@minx}{\the\wg@bb@miny}}%
138     \def\northeast{\pgfqpoint{\the\wg@bb@maxx}{\the\wg@bb@maxy}}%
139   }
140   \gdef\pgf@sh@nt@L{{1}{0}{0}{1}{0pt}{0pt}}
141   \gdef\pgf@sh@pi@L{\pgfpictureid}
142   \global\let\pgf@protocolsizes\old@pgf@protocolsize
143 }
```

`getbb` (*env.*) Environment to track global bounding box

```
144 \newenvironment{getbb}{%
```

```

145 \wg@resetbb%
146 \wg@notrelevantforpathsizefalse%
147 \global\let\pgf@protocolsizes\wg@protocolsizes}{%
148 \gdef\pgf@sh@ns@M{rectangle}
149 \gdef\pgf@sh@np@M{%
150   \def\southwest{\pgfqpoint{\the\wg@bb@minx}{\the\wg@bb@miny}}%
151   \def\northeast{\pgfqpoint{\the\wg@bb@maxx}{\the\wg@bb@maxy}}%
152 }
153 \gdef\pgf@sh@nt@M{{1}{0}{0}{1}{0pt}{0pt}}
154 % \pgfgettransform\pgf@temp%
155 % \xdef\pgf@sh@nt@M{\pgf@temp}
156 % \pgfgettransformentries{\wg@tmp@a}{\wg@tmp@b}{\wg@tmp@c}{\wg@tmp@d}{\pgf@temp}{\pgf@temp}
157 % \message{^^JTransform of M: \meaning\pgf@temp}
158 % \xdef\pgf@sh@nt@M{{\wg@tmp@a}{\wg@tmp@b}{\wg@tmp@c}{\wg@tmp@d}{0pt}{0pt}}%
159 % \message{^^JTransform of M: \meaning\pgf@sh@nt@M}
160 \gdef\pgf@sh@pi@M{\pgfpictureid}
161 \global\let\pgf@protocolsizes\old@pgf@protocolsize
162 }

```

5.2.5 Other Tikz utilities

tikz/reverseclip

A reverse clipping path. This is used to cut out stuff outside of path defined.

```

163 \tikzstyle{reverseclip}=[insert path={{(current bounding box.north east) --
164 (current bounding box.south east) --
165 (current bounding box.south west) --
166 (current bounding box.north west) --
167 (current bounding box.north east)}}]

```

tikz/clip even odd rule

A reverse clipping path

```

168 \tikzset{
169   clip even odd rule/.code={\pgfseteorule}, % Credit to Andrew Stacey
170 }

```

tikz/invclip

Inverse clipping. This should be an option *after* the path to do the inverse clipping by. This works by adding a *large* (page) path to the current path, and then use that as clipping.

```

171 \tikzset{
172   invclip/.style={
173     clip,insert path=
174     [clip even odd rule]{
175       [reset cm](-\maxdimen,-\maxdimen)rectangle(\maxdimen,\maxdimen)
176     }

```

```

177 },
178 }

```

save clip

An option for use with sub-elements of NATO App 6(c) or chit nodes. This will save the current path as a clipping path for the next paths to be drawn in the sub-element

```

179 \newif\ifwg@s@ve\wg@s@vefalse
180 \tikzset{
181   save clip/.is choice,
182   save clip/true/.code={\global\wg@s@vetrue},
183   save clip/false/.code={\global\wg@s@vefalse},
184   save clip/.default={true},
185   save clip/.initial={false},
186 }

```

scale line widths

Scales any line width specified in the node options.

Use like

```

\tikzset{
  some/.style={
    scale line widths,
    line width=1pt}
}

```

Note that the order is important.

```

187 \tikzset{
188   scale line widths/.style={%
189     /utils/exec=\def\tikz@semiaddlinewidth##1{%
190       \pgfgettransformentries{%
191         \wg@jaca}{%
192         \wg@jacb}{%
193         \wg@jacc}{%
194         \wg@jacd}{%
195         \wg@tmp}{%
196         \wg@tmp}%
197       \pgfmathsetmacro{\wg@jac}{sqrt(abs(\wg@jaca*\wg@jacd-\wg@jacb*\wg@jacc))}%
198       \wg@dbg{4}{Scaling line width ##1 by \wg@jac}
199       \pgfmathsetmacro{\wg@lw}{\wg@jac*##1}%
200       \wg@dbg{4}{Scaled ##1 -> \wg@lw}
201       \tikz@addoption{\pgfsetlinewidth{\wg@lw pt}}%
202       \wg@dbg{4}{Added scaled option \wg@lw}
203       \pgfmathsetlength\pgflinewidth{\wg@lw pt}
204       \wg@dbg{4}{Did set line width \wg@lw pt}
205     }},

```

```

206 relative line width/.style={%
207   /utils/exec=\def\tikz@semiaddlinewidth##1{%
208     \wg@dbg{4}{Relative line width #1 times ##1}%
209     \pgfmathsetmacro{\wg@lv}{#1*##1}%
210     \tikz@addoption{\pgfsetlinewidth{\wg@lv pt}}%
211     \pgfmathsetlength\pgflinewidth{\wg@lv pt}}
212 }

```

sub pic actions

This is key that propagates actions to sub pictures of pictures. The normal `pic actions` cannot be used as it causes an infinite loop.

```

213 \tikzset{
214   sub pic actions/.code={%
215     \tikz@picmode%
216     \edef\opts{%
217       \iftikz@mode@draw draw,\else draw=none,\fi
218       \iftikz@mode@fill fill\else fill=none\fi}
219     \wg@dbg{5}{^^JSub Mode: \meaning\tikz@picmode \meaning\opts}
220     \pgfset{/tikz/.cd}
221     \pgfkeysalsofrom\opts}
222 }

```

wg/debug show

Show debugging information

```

223 \tikzset{
224   wg/debug show/.code={%
225     \extractcolorspec{pgfstrokelcolor}{\wg@tmp@fg}
226     \def\wg@tmp@bg{none}
227     \@ifundefinedcolor{pgffillcolor}{}{
228       \extractcolorspec{pgffillcolor}{\wg@tmp@bg}}
229     \begingroup
230     \tikz@mode
231     \wargamedbglvl=#1
232     \wg@dbg{3}{Drawing with w/stroke '\wg@tmp@fg'
233       (\tikz@strokecolor,\iftikz@mode@draw\else not\space\fi drawing)
234       and fill '\wg@tmp@bg' (\tikz@fillcolor,\iftikz@mode@fill\else
235       not\space\fi filling)}
236     \endgroup
237   }
238 }

```

5.2.6 Random IDs

```

239 \def\wg@r@ndom@id{%
240   \def\wg@u@uid{}
241   \foreach \i in {1,...,8}{%
242     \pgfmathparse{Hex(random(0,15))}

```

```
243 \xdef\wg@uuid{\wg@uuid\pgfmathresult}}
```

5.3 The wgexport class

This document class is used for exporting game component to be used in a VASSAL module libraries.

Class identification and load wargame package

```
244 \ProvidesClass{wgexport}
245 \PassOptionsToClass{multi=tikzpicture,varwidth=false}{standalone}
246 \DeclareOption{noterrainpic}{%
247 \PassOptionsToPackage{\CurrentOption}{wargame}}
248 \DeclareOption{terrainpic}{%
249 \PassOptionsToPackage{\CurrentOption}{wargame}}
250 \DeclareOption*{%
251 \PassOptionsToClass{\CurrentOption}{standalone}}
252 \ProcessOptions\relax
253 \LoadClass{standalone}
254 \RequirePackage{wargame}
```

We need a few utilities before we get to the actual environment. First, we need a tools to write out literal left and right curly braces. We do a bit of catcode hackery to accomplish that.

```
255 \begingroup
256 \catcode'\^^I=12
257 \def\@tabchar{^^I}
258 \catcode'\<=1 \catcode'\>=2
259 \catcode'\{=12 \catcode'\}=12
260 \gdef\@lbchar{<}
261 \gdef\@rbchar{>}
262 \endgroup
```

Above, we temporarily set the tab, and left and right curly brace characters to be regular letters (12), and the catcodes of less than and greater than to be those of left and right curly braces respectively. We then define the macros \@tabchar, \@lbchar, and \@rbchar to produce literal characters. L^AT_EX already has \@percentchar.

Everything we do should go inside this environment. The single optional argument is the file name stem of the output JSON file.

```
263 \newenvironment{imagelist}[1][\jobname]{%
264 \newwrite\mk@out%
265 \def\mk@i{}}%
266 \def\mk@w{\immediate\write\mk@out}%
267 \immediate\openout\mk@out=#1.json
268 \mk@w{[}
269 ]{
270 \mk@w{\mk@i \@lbchar "name":"End of list", "category": "<<eol>>",
271 "subcategory": "" \@rbchar }
272 \mk@w{]}
273 \immediate\closeout\mk@out
274 }
```

Preceed all images (tikzpicture) with this command

First argument is the name of the image. This can be anything. Note that for counters, if the name ends in flipped then it is considered the backside of a counter.

Second argument is the type of image. Recognised types are

- `board` for boards
- `oob` for OOBs
- `chart` for charts
- `counter` for counters
- `front` for front page

Other types can be used, and the images will be exported, but the Python script pays no particular attention to those then. Use for example to prepare images for help or the like.

The third argument is the sub type. This is most relevant for the counters. Sub types can be anything, but since the counters will receive different prototypes based on the sub type, it makes sense to divide into sub types a la

- `factions`
- `common markers`

The faction sub types should just be the name of the faction. E.g., `Allies`, `Axis`, `Soviet`, `NATO`, `Warsaw Pact`. Spaces should not matter.

For common markers, there are a few names that are recognised specifically by the Python script. These are

- `common`
- `all`
- `marker`
- `markers`

Counters that has these sub-types will no be considered to belong to any faction.

Note that the Python script uses the faction names to guess the players of the game, and uses them in several places.

```
275 \def\info{%
276   \@ifstar{\@@info{,}}{\@@info{\@rbchar,}}
277 \def\@@info#1#2#3#4{%
278   \chit@dbg{2}{Making image '#2' of type '#3'/'#4' on page \thepage}%
279   \mk@w{ \@lbchar}%
280   \mk@w{ \space "name": "#2",}%
281   \mk@w{ \space "category": "#3",}%
282   \mk@w{ \space "subcategory": "#4", }%
283   \mk@w{ \space "number": \thepage #1}%
284   \let\oldmk@i\mk@i%
285   \ifx#1,\relax\edef\mk@i{\mk@i\space\space}\fi}
286 \def\end@info{%
287   \let\mk@i\oldmk@i%
288   \mk@w{ \space \@rbchar,}}
```

Make separate images for each counter (single sided).

```

289 \newcommand\chitimages[2] [] {%
290 \begingroup%
291 \let\chit@report\do@chit@report%
292 \let\natoapp@report\do@natoapp@report%
293 \chit@dbg{2}{chits to make images of '#2'}%
294 \foreach[count=\ti from 0] \t/\x in #2{%
295 \ifx\t\empty\else% Ignore empty rows
296 \chit@dbg{5}{^^JSubcategory: '\x' (default '#1') }
297 \ifx\t\x\def\x{#1}\fi% Take sub-category or default
298 \foreach \u/\m in \t{%
299 \ifx\u\empty\else% Ignore empty cells
300 \chit@dbg{2}{Next chit '\u' with possible multiplicity '\m'}%
301 \ifx\m\@empty\def\m{1}\fi% If not multiplicity defined
302 \ifx\u\m\def\m{1}\fi% If the same as unit
303 \chit@dbg{2}{Next chit '\u' multiplicity '\m'}%
304 %% We only make one copy of the chit, since we can duplicate
305 %% it in VASSAL
306 \info*{\u}{counter}{\x}
307 \begin{tikzpicture}
308 \chit[\u=\ti]%
309 \end{tikzpicture}
310 \end@info%
311 %% \foreach \n in {1,...,\m}{% Make a number of copies
312 %% \ifx\u\chit@blank%
313 %% \chit@dbg{3}{Ignoring blank chit:\u}%
314 %% \else%
315 %% \info{\u}{counter}{#2}
316 %% \begin{tikzpicture}
317 %% \chit[\u=\ti](\c,\r)%
318 %% \end{tikzpicture}
319 %% \fi%
320 %% }%
321 \fi%
322 }%
323 \chit@dbg{2}{End of inner loop}%
324 \fi%
325 }%
326 \chit@dbg{2}{End of outer loop}%
327 \endgroup%
328 }

```

Make separate images for each counter (double sided). The back-side counters must be defined by append ‘ flipped’ the front face name

```

329 \newcommand\doublechitimages[2] [] {%
330 \begingroup%
331 \let\chit@report\do@chit@report%
332 \let\natoapp@report\do@natoapp@report%
333 \foreach[count=\ti from 0] \t/\x in #2{%
334 \ifx\t\empty\else% Ignore empty rows
335 \chit@dbg{5}{^^JSubcategory: '\x' (default '#1') }
336 \ifx\t\x\def\x{#1}\fi% Take sub-category or default

```

```

337 \foreach \u/\m in \t{%
338 \ifx\u\empty\else% Ignore empty cells
339 \chit@dbg{2}{Next chit '\u' with possible multiplicity '\m'}%
340 \ifx\m\@empty\def\m{1}\fi% If not multiplicity defined
341 \ifx\u\m\def\m{1}\fi% If the same as unit
342 \chit@dbg{2}{Next chit '\u' multiplicity '\m'}%
343 %% Flipped chit
344 \edef\s{\u\space flipped}%
345 %% We only make one copy of the chit, since we can duplicate
346 %% it in VASSAL
347 \info*\u{counter}{\x}%
348 \begin{tikzpicture}%
349 \chit[\u=\ti]%
350 \end{tikzpicture}%
351 \end@info%
352 \info*\s{counter}{\x}%
353 \begin{tikzpicture}%
354 \chit[\s=\ti]%
355 \end{tikzpicture}%
356 \end@info%
357 %% \foreach \n in {1,...,\m}{% Make a number of copies
358 %% \ifx\u\chit@blank%
359 %% \chit@dbg{3}{Ignoring blank chit:\u}%
360 %% \else%
361 %% \info{\u}{counter}{#2}
362 %% \begin{tikzpicture}
363 %% \chit[\u=\ti](\c,\r)%
364 %% \end{tikzpicture}
365 %% \fi%
366 %% }%
367 \fi%
368 }%
369 \fi%
370 }%
371 \endgroup%
372 }

```

Special for boards, we have the environment `boardimage`. Like `\info` we must specify the name and sub-category of the board, but the category is assumed to be `board` (though the optional argument can specify a different category).

Within this environment some specific styles are defined that allows the user to specify VASSAL zones on the board. For this to work properly, the parent `tikzpicture` *must* have the style `zoned`. This style will record the bounding box of the picture which we will need to calculate VASSAL coordinates later on.

Other styles are `zone scope`, to be applied to `scopes` in the picture, and `zone path` to be applied to `paths` (or `\draw`, `\fill`, or the like) in the picture. These will record coordinates of these elements in side the picture. The Python script will then define VASSAL zones based on these coordinates.

For `zone scope` applied to a `scope`, what is recorded are

- The current coordinate transformation matrix
- The current translation
- The bounding box, within the current transformation and translation.

To define a zone in the board, simply enclose it in a

```
\begin{scope}[zone scope=name]
...
\end{scope}
```

The $\langle name \rangle$ will be the name of the scope. If this contains the sub-string **hex** (upper, lower, or mixed case), then the zone will get a hex grid with numbering attached to it.

If the $\langle name \rangle$ contains the sub-string **turn** (any case), then it is assumed to be a turn track and a rectangular grid will be attached. The column and row separator will be set to **T**, so that it won't collide with the main zone. Similar if $\langle name \rangle$ contains **oob**, except the separator is set to **O**.

If $\langle name \rangle$ contains the sub-string **pool**, then it is assumed to be a pool of counters, and *no* grid is attached.

For **zone path** applied to a **path**, what is recorded is the path coordinates (as straight line segments) in the global coordinate system.

Both styles take one argument — the name of the zone. If that name contains the sub-string **hex** anywhere in the name, then the zone is assumed to contain a hex grid. Otherwise, a rectangular grid (of fixed size) will be applied to it.

The environment **boardimage** also records the coordinate options currently in use (keys **hex/first row is**, **hex/row direction is**, and so on), as well as the current label option (as defined by **every hex** or **every hex node**).

All coordinates, and such are recorded in centimetres. It is worth remembering that the Tikz coordinate system has the y axis point upward, while typical image software has the y axis point down. **pdftocairo** typically assumes a 150 PPI (pixels-per-inch) resolution.

That means that scaling factor becomes

$$\frac{150\text{pixel}}{2.54\text{cm}} = 59.055 \frac{\text{pixel}}{\text{cm}}$$

The information extracted is written to the `\jobname.json` file as a sub-object (with name given by the first optional argument) of the image object. In that way, we can later on easily get the information from our catalogue of images.

Note, the styles **zoned**, **zone scope**, and **zone path** are defined in **wargame** to be dummies so that one can have them in the definition of the board without impact.

Since we want to write all dimensions in centimetres, we need to be able to convert **pt** dimensions to centimetres. We make two macros to do that for us.

The exact definition of 1pt is

$$1 \text{ pt} = \frac{249}{250} 12'' \frac{1}{864} = \frac{83}{6000} 1'' = 0.03513\bar{6}$$

```
373 % 2.54 / 72.27 = .03514598035145980351
374 % \def\pt@to@cm#1{\pgfmathparse{#1 * 0.0351460}}
375 \def\pt@to@cm#1{\pgfmathparse{#1 * 0.0351367}}
376 \def\ptpoint@to@cm#1#2{%
377   \pt@to@cm{#1}\edef\x{\pgfmathresult}%
378   \pt@to@cm{#2}\edef\y{\pgfmathresult}}

379 \def\mk@get@anchor#1#2{%
```

```

380 \pgfpointanchor{#1}{#2}%
381 \pgfgetlastxy\tmp@x\tmp@y%
382 \pt@to@cm{\tmp@x}\edef\tmp@x{\pgfmathresult}
383 \pt@to@cm{\tmp@y}\edef\tmp@y{\pgfmathresult}
384 }
385 \def\mk@get@global@anchor#1#2{%
386 \pgfpointanchor{#1}{#2}%
387 \pgfgetlastxy\tmp@x\tmp@y%
388 \pgfpointtransformed{\pgfpoint{\tmp@x}{\tmp@y}}
389 \pgf@xa=\pgf@x
390 \pgf@ya=\pgf@y
391 \pt@to@cm{the\pgf@xa}\edef\tmp@x{\pgfmathresult}
392 \pt@to@cm{the\pgf@ya}\edef\tmp@y{\pgfmathresult}
393 }
394 \def\get@bb#1{%
395 % \pgfpointanchor{#1}{south west}%
396 % \pgfgetlastxy\tmp@llx\tmp@lly%
397 % \pgfpointanchor{#1}{north east}%
398 % \pgfgetlastxy\tmp@urx\tmp@ury%
399 % \pt@to@cm{\tmp@llx}\edef\llx{\pgfmathresult}
400 % \pt@to@cm{\tmp@lly}\edef\lly{\pgfmathresult}
401 % \pt@to@cm{\tmp@urx}\edef\urx{\pgfmathresult}
402 % \pt@to@cm{\tmp@ury}\edef\ury{\pgfmathresult}
403 \mk@get@anchor{#1}{south west}
404 \edef\llx{\tmp@x}
405 \edef\lly{\tmp@y}
406 \mk@get@anchor{#1}{north east}
407 \edef\urx{\tmp@x}
408 \edef\ury{\tmp@y}
409 }

410 \def\mk@transform{%
411 \pgfgettransformentries{\mxx}{\mxy}{\myx}{\myy}{\ptdx}{\ptdy}
412 \pt@to@cm{\ptdx}\edef\dx{\pgfmathresult}
413 \pt@to@cm{\ptdy}\edef\dy{\pgfmathresult}
414 \mk@w{ \mk@i "xx": \mxx,}
415 \mk@w{ \mk@i "xy": \mxy,}
416 \mk@w{ \mk@i "yx": \myx,}
417 \mk@w{ \mk@i "yy": \myy,}
418 \mk@w{ \mk@i "dx": \dx,}
419 \mk@w{ \mk@i "dy": \dy,}
420 }

421 \def\mk@bb#1{%
422 \get@bb{#1}
423 \mk@w{ \mk@i "lower left": [\llx,\lly],}
424 \mk@w{ \mk@i "upper right": [\urx,\ury],}
425 \begingroup
426 % \pgftransforminvert
427 % \pgfpointanchor{#1}{south west}%
428 % \pgfgetlastxy\tmp@llx\tmp@lly%
429 % \pgfpointtransformed{\pgfpoint{\tmp@llx}{\tmp@lly}}
430 % \pgf@xa=\pgf@x
431 % \pgf@ya=\pgf@y

```

```

432 % %
433 % \pgfpointanchor{#1}{north east}%
434 % \pgfgetlastxy\tmp@urx\tmp@ury%
435 % \pgfgetlastxy\tmp@llx\tmp@lly%
436 % \pgfpointtransformed{\pgfpoint{\tmp@urx}{\tmp@ury}}
437 % \pgf@xb=\pgf@x
438 % \pgf@yb=\pgf@y
439 % \pt@to@cm{\the\pgf@xa}\edef\llx{\pgfmathresult}
440 % \pt@to@cm{\the\pgf@ya}\edef\lly{\pgfmathresult}
441 % \pt@to@cm{\the\pgf@xb}\edef\urx{\pgfmathresult}
442 % \pt@to@cm{\the\pgf@yb}\edef\ury{\pgfmathresult}x
443 \mk@get@global@anchor{#1}{south west}
444 \mk@w{ \mk@i "global lower left": [\tmp@x,\tmp@y],}
445 \mk@get@global@anchor{#1}{north east}
446 \mk@w{ \mk@i "global upper right": [\tmp@x,\tmp@y]}
447 \endgroup
448 }
449 \def\mk@pos#1(#2){%
450 \hex@dbg{10}{^^JMarking '#2' with '#1' - start}
451 \coordinate[transform shape] (tmp) at (#2) {};
452 \mk@get@anchor{tmp}{center}
453 \hex@dbg{3}{^^JMarking '#2' with '#1' - '\tmp@x',\tmp@y'}
454 \tikzset{zone point=#1}{\tmp@x}{\tmp@y}}
455 }

```

For the key `zone path` to work, we need to be able to record the path as it moves along. To that end, we make a custom decoration that will do that for us, and, once the path is finished, write the path to our JSON file.

```

456 \pgfdeclaredecoration{record path construction}{initial}{%
457 \state{initial}[width=0pt,next state=more]{
458 \begingroup
459 \pgf@decorate@inputsegment@first
460 \ptpoint@to@cm{\the\pgf@x}{\the\pgf@y}
461 \xdef\wg@path{[\x,\y]}
462 \endgroup
463 }%
464 \state{more}[width=\pgfdecoratedinputsegmentremainingdistance]{%
465 \begingroup
466 \pgf@decorate@inputsegment@last
467 \ptpoint@to@cm{\the\pgf@x}{\the\pgf@y}
468 \xdef\wg@path{\wg@path, [\x,\y]}
469 \endgroup
470 }
471 \state{final}{%
472 \begingroup
473 \pgf@decorate@inputsegment@last
474 \ptpoint@to@cm{\the\pgf@x}{\the\pgf@y}
475 \xdef\wg@path{\wg@path, [\x,\y]}
476 \endgroup
477 \mk@w{ \mk@i "zone path \wg@record@path@name": \@lbchar}
478 \mk@w{ \mk@i\space "path": [\wg@path] \@rbchar,}
479 }
480 }%

```

Now we can make our environment

The first thing we do is to use the `\info` macro to mark the image. Then we open our JSON file. We make a short-hand macro for writing to that file. The macro `\bd@i` records the current indention (which is important in JSON)

```

481 \newenvironment{boardimage}[3][board]{%
482   \def\bd@n{#2}
483   \newcount\mk@point
484   \mk@point=0
485   \let\oomk@i\mk@i%
486   \let\markpos\mk@pos%

```

Then, to extract the label option, we make a dummy node with the styles `every hex` and `every hex node`, so we can extract that option.

```

487 \info{dummy}{<<dummy>>}{}%
488 %\tikz{}%
489 \tikz{\scoped[every hex/.try, every hex node/.try]{%
490   \node[inner sep=0, outer sep=0]{%
491     \global\let\mk@label\hex@label}}}%

```

The next thing we do is to make an object. The first things we put in are the units used (“cm”), and the grid options.

```

492 \info*{#2}{#1}{#3}%
493 \mk@w{ \mk@i "zones": \@lbchar}%
494 \edef\mk@i{\mk@i\space}
495 %% Everything is made into centimeters
496 \mk@w{ \mk@i "units": "cm",}
497 \@ifundefined{mk@label}{\mk@w{ \mk@i "labels": "\mk@label",}}
498 %% Write out coordinate options as "coords" object
499 \mk@w{ \mk@i "coords": \@lbchar}%
500 \mk@w{ \mk@i "row": \@lbchar}%
501 \mk@w{ \mk@i\space "offset": \hex@coords@row@off,}%
502 \mk@w{ \mk@i\space "factor": \hex@coords@row@fac \@rbchar,}%
503 \mk@w{ \mk@i "column": \@lbchar}%
504 \mk@w{ \mk@i\space "offset": \hex@coords@col@off,}%
505 \mk@w{ \mk@i\space "factor": \hex@coords@col@fac,}%
506 \mk@w{ \mk@i\space "top short": "\hex@top@short@col",}%
507 \mk@w{ \mk@i\space "bottom short": "\hex@bot@short@col" \@rbchar}%
508 \mk@w{ \mk@i \@rbchar,}%

```

We then monkey-patch `\boardframe` to also output coordinates to our JSON file. Note that this will probably be embedded in a different object.

```

509 %%
510 \let\oldbo@rdframe\bo@rdframe%
511 \def\bo@rdframe[##1](##2)(##3){%
512   \oldbo@rdframe[##1](##2)(##3)%
513   \mk@w{ \mk@i "board frame": \@lbchar}
514   \mk@w{ \mk@i\space "lower left": [\llx,\lly],}
515   \mk@w{ \mk@i\space "upper right": [\urx,\ury],}
516   \mk@w{ \mk@i\space "margin": \margin,}
517   \mk@w{ \mk@i\space "width": \w,}
518   \mk@w{ \mk@i\space "height": \h \@rbchar,}%

```

Next, we make the style `zoned` to be applied to the `tikzpicture` environment. This records the bounding box of the full picture.

```

519 \tikzset{
520   zoned/.code={% Apply to whole picture
521     \pgfkeys{%
522       % This needs to be done in the picture!
523       /tikz/execute at end picture={%
524         \mk@w{ \mk@i "zoned": \@lbchar}
525         \mk@transform%
526         \mk@bb{current bounding box}
527         \mk@w{ \mk@i \@rbchar,}
528       }
529     }
530   },

```

The next style is the `zone scope`. At the start of the scope we record the current transformation matrix. Then we install a handler to extract the bounding box at the end of the scope. Note that we increase indentation here.

```

531   zone scope/.code={%
532     \mk@w{ \mk@i "zone scope ##1": \@lbchar}
533     \let\omk@i\mk@i
534     \edef\mk@i{\mk@i\space}
535     \mk@transform%
536     %\bd@w{ \@rbchar,}
537     \gdef\wg@export@box{##1}%
538     \pgfkeys{%
539       /tikz/local bounding box=wg export box,
540       /tikz/execute at end scope={
541         \mk@bb{wg export box}
542         \let\mk@i\omk@i
543         \mk@w{ \mk@i \@rbchar,}},
544     } % pgfkeys
545   }, % zone scope

```

The next style gets the global coordinates of the current (0,0) point - f.ex. in a node - and outputs that

```

546   zone point/.code n args={3}{
547     \pgf@xa=##2 cm
548     \pgf@ya=##3 cm
549     \pgfpointtransformed{\pgfpoint{\pgf@xa}{\pgf@ya}}
550     % \pgfpointtransformed{\pgfpoint{0pt}{0pt}}
551     \pgf@xa=\pgf@x
552     \pgf@ya=\pgf@y
553     \pt@to@cm{\the\pgf@xa}\edef\px{\pgfmathresult}
554     \pt@to@cm{\the\pgf@ya}\edef\py{\pgfmathresult}
555     \advance\mk@point1
556     \global\mk@point=\mk@point
557     \mk@w{ \mk@i "point\the\mk@point": \@lbchar "name": "##1", "type": "point", "coords": [\px,\py]
558       \@rbchar, }
559     %\message{^^JZone point \the\mk@point\space ##1: ##2,##3 -> \px,\py}
560   },
561   zone oob point/.code n args={3}{
562     \pgf@xa=##2 cm

```

```

563     \pgf@ya=##3 cm
564     \advance\pgf@xa.1cm
565     \advance\pgf@ya.1cm
566     \pgfpointtransformed{\pgfpoint{\pgf@xa}{\pgf@ya}}
567     % \pgfpointtransformed{\pgfpoint{0pt}{0pt}}
568     \pgf@xa=\pgf@x
569     \pgf@ya=\pgf@y
570     \pt@to@cm{\the\pgf@xa}\edef\px{\pgfmathresult}
571     \pt@to@cm{\the\pgf@ya}\edef\py{\pgfmathresult}
572     \advance\mk@point1
573     \global\mk@point=\mk@point
574     \mk@w{ \mk@i "point\the\mk@point": \@l@bchar "name": "##1", "type": "point", "coords": [\px,\py]
575         \@rbchar, }
576     %\message{^^JZone point \the\mk@point\space ##1: ##2,##3 -> \px,\py}
577 },
578 zone global point/.code n args={3}{
579     \advance\mk@point1
580     \global\mk@point=\mk@point
581     \mk@w{ \mk@i "point\the\mk@point": \@l@bchar "name": "##1", "type": "point", "coords": [\px,\py]
582         \@rbchar, }
583 },

```

The zone path style is a bit more simple, but only because the bulk of the work is done in a decoration. We need to be able to pass a name to that decoration, so we make a key for that. The user need not think about that though.

```

584     /pgf/decoration/record path name/.store in=\wg@record@path@name,
585     zone path/.style={%
586         postaction={decorate,decoration={
587             record path construction,
588             record path name=##1}}
589     } % zone path
590 }% tikzset
591 }

```

That finishes the first part of the environment. At the end of the environment, we simply write the name of the picture, and close our JSON output.

```

592 {%
593     \mk@w{ \mk@i "name": "\bd@n" }%
594     \let\mk@i\oomk@i%
595     \mk@w{ \mk@i \@rbchar}%
596     \end@info%
597 }

```

TO BE DONE: We could add hooks to both the `hex` and `chit` shapes that would allow us to write out the settings for each of these. This would allow us to make data files that contain the information available in the L^AT_EX code. For example, we could write a counters

- Left and right identifiers
- Upper left, upper right, lower left, and lower right identifiers. (some care must be taken if these contains graphics and not just text.)
- Factors

- NATO symbol
 - Faction, command, echelon
 - Mains
 - Left, right, top, and bottom attributes and modifiers
 - Below attribute

If one then assumed that for example the upper left corner holds the start-up hex, then one could use that information. The code below exports the chit information to the JSON file. Not sure how to use it though.

```

598 \tikzset{
599   zone turn/.store in=\zone@turn,
600   zone mult/.store in=\zone@mult
601 }
602 \def\do@chit@report{%
603   \mk@w{ \mk@i "chit": \@lbchar}
604   \@ifundefined{id}{\mk@w{ \mk@i\space "id":      "\id", }}%
605   \@ifundefined{chit@symbol}{\mk@w{ \mk@i\space "symbol": "true", }}%
606   \@ifundefined{chit@full}{\mk@w{ \mk@i\space "full":    "\chit@full", }}%
607   \@ifundefined{chit@factors}{\mk@w{ \mk@i\space "factors": "\chit@factors", }}%
608   \@ifundefined{chit@left}{\mk@w{ \mk@i\space "left":    "\chit@left", }}%
609   \@ifundefined{chit@right}{\mk@w{ \mk@i\space "right":   "\chit@right", }}%
610   \@ifundefined{chit@upper@left}{\mk@w{ \mk@i\space "upper left": "\chit@upper@left", }}%
611   \@ifundefined{chit@lower@left}{\mk@w{ \mk@i\space "lower left": "\chit@lower@left", }}%
612   \@ifundefined{chit@upper@right}{\mk@w{ \mk@i\space "upper right": "\chit@upper@right", }}%
613   \@ifundefined{chit@lower@right}{\mk@w{ \mk@i\space "lower right": "\chit@lower@right", }}%
614   \mk@w{ \mk@i\space "end": 0}
615   \@ifundefined{chit@symbol}{
616     \mk@w{ \mk@i \@rbchar }
617   }{
618     \mk@w{ \mk@i \@rbchar, }% NATOAPP6c will follow
619   }%
620 }
621 \def\do@natoapp@report{%
622   \mk@w{ \mk@i "natoapp6c": \@lbchar}
623   \@ifundefined{id}{\mk@w{ \mk@i\space "id": "\id", }}
624   \@ifundefined{natoapp@fac}{\mk@w{ \mk@i\space "faction": "\natoapp@fac", }}
625   \@ifundefined{natoapp@cmd}{\mk@w{ \mk@i\space "command": "\natoapp@cmd", }}
626   \@ifundefined{natoapp@ech}{\mk@w{ \mk@i\space "echelon": "\natoapp@ech", }}
627   \@ifundefined{natoapp@main}{\mk@w{ \mk@i\space "main": "\natoapp@main", }}
628   \@ifundefined{natoapp@left}{\mk@w{ \mk@i\space "left": "\natoapp@left", }}
629   \@ifundefined{natoapp@right}{\mk@w{ \mk@i\space "right": "\natoapp@right", }}
630   \@ifundefined{natoapp@upper}{\mk@w{ \mk@i\space "upper": "\natoapp@upper", }}
631   \@ifundefined{natoapp@lower}{\mk@w{ \mk@i\space "lower": "\natoapp@lower", }}
632   \@ifundefined{natoapp@below}{\mk@w{ \mk@i\space "below": "\natoapp@below", }}
633   \mk@w{ \mk@i\space "end": 0}
634   \mk@w{ \mk@i \@rbchar}
635 }

```

5.4 The wargame.hex TikZ library

Used TikZ libraries

```
636 \RequirePackage{alphalph}
637 \usetikzlibrary{calc}
638 \usetikzlibrary{arrows.meta}
639 \usetikzlibrary{arrows}
640 \usetikzlibrary{shapes.geometric}
641 \usetikzlibrary{shapes.symbols}
642 \usetikzlibrary{shapes.arrows}
643 \usetikzlibrary{decorations}
644 \usetikzlibrary{decorations.pathmorphing}
645 \usetikzlibrary{decorations.pathreplacing}
646 \usetikzlibrary{decorations.markings}
647 \usetikzlibrary{wargame.util}
```

```
\@ifempty
```

This is a utility macro we will use below.

```
648 \def\@ifempty#1{\def\temp{#1}\ifx\temp\@empty}
```

5.4.1 Debugging

The counter `\hexdbglvl` sets the debug level, and the macro `\hex@dbg` prints out (conditionally) debug messages.

```
\hexdbglvl
\hex@dbg
```

```
649 \newcount\hexdbglvl\hexdbglvl=\wargamedbglvl
650 \def\hex@dbg#1#2{%
651   \ifnum#1>\hexdbglvl\relax\else\message{^^J#2}\fi}
```

5.4.2 Suppress terrain pictures

```
652 \@ifundefined{ifhex@terrain@pic}{%
653   \newif\ifhex@terrain@pic
654   \hex@terrain@pictrue}{}
655 \def\markpos#1(#2){}
```

5.4.3 Hex coordinate system

```
\hex@xx
\hex@yy
```

Some offsets along x and y due to offset of every second hex column.

$$\delta_x = \cos 60^\circ$$

$$\delta_y = \sin 60^\circ$$

These numbers are calculated once here and then used several times in the following code.

```

656 \pgfmathparse{\cos(60)}          \xdef\hex@xx{\pgfmathresult}
657 \pgfmathparse{\sin(60)}          \xdef\hex@yy{\pgfmathresult}
658 \pgfmathparse{\hex@yy*\cos(30)}\xdef\hex@e@xx{\pgfmathresult}
659 \pgfmathparse{\hex@yy*\sin(30)}\xdef\hex@e@yy{\pgfmathresult}
660 \newdimen\hex@radius\hex@radius=1cm
661 \newdimen\hex@dx    \expandafter\hex@dx=\hex@xx cm
662 \newdimen\hex@dy    \expandafter\hex@dy=\hex@yy cm
663 \newdimen\hex@e@dx  \expandafter\hex@e@dx=\hex@e@xx cm
664 \newdimen\hex@e@dy  \expandafter\hex@e@dy=\hex@e@yy cm
665

```

Some code we need for some options

```

666 \newif\ifhex@label@is@name\hex@label@is@namefalse
667 \def\hex@short@col{isfalse}
668 \def\hex@got@short{isfalse}
669 \pgfmathdeclarefunction{isfalse}{1}{%
670   \begingroup
671   \def\pgfmathresult{0}%
672   \pgfmath@smuggleone\pgfmathresult
673   \endgroup}
674 \pgfmathdeclarefunction{istrue}{1}{%
675   \begingroup
676   \def\pgfmathresult{1}%
677   \pgfmath@smuggleone\pgfmathresult
678   \endgroup}

```

What follows is a way to configure the hex coordinate system. For example, if the rows goes down, then we can flag that, but still add hexes straightforwardly. Similar for columns. We can also specify that the first row or column has number 1 (instead of 0). Since this is dealt with a the coordinate level, it means most of the rest of the code is agnostic to these choices.

Which is the first coordinate (0 or 1)

```

679 \tikzset{
680   hex/first row is/.is choice,
681   hex/first row is/0/.code={\def\hex@coords@row@off{0}},
682   hex/first row is/1/.code={\def\hex@coords@row@off{-1}},
683   hex/first row is=0,
684   hex/first column is/.is choice,
685   hex/first column is/0/.code={\def\hex@coords@col@off{0}},
686   hex/first column is/1/.code={\def\hex@coords@col@off{-1}},
687   hex/first column is=0,
688   hex/first row and column are/.is choice,
689   hex/first row and column are/0/.style={
690     hex/first row is=0,%

```

```

691   hex/first column is=0},
692 hex/first row and column are/1/.style={
693   hex/first row is=1,%
694   hex/first column is=1},

```

Which way does the column and row numbers go

```

695 hex/row direction is/.is choice,
696 hex/row direction is/normal/.code={\def\hex@coords@row@fac{1}},
697 hex/row direction is/reversed/.code={\def\hex@coords@row@fac{-1}},
698 hex/row direction is/up/.style={hex/row direction is=normal},
699 hex/row direction is/down/.style={hex/row direction is=reversed},
700 hex/row direction is/positive/.style={hex/row direction is=normal},
701 hex/row direction is/negative/.style={hex/row direction is=reversed},
702 hex/row direction is=normal,
703 hex/column direction is/.is choice,
704 hex/column direction is/normal/.code={\def\hex@coords@col@fac{1}},
705 hex/column direction is/reversed/.code={\def\hex@coords@col@fac{-1}},
706 hex/column direction is/right/.style={hex/column direction is=normal},
707 hex/column direction is/left/.style={hex/column direction is=reversed},
708 hex/column direction is/positive/.style={hex/column direction is=normal},
709 hex/column direction is/negative/.style={hex/column direction is=reversed},
710 hex/column direction is=normal,

```

Make labels names of shapes of the hexes so we can use labels to place stuff

```

711 hex/label is name/.is if=hex@label@is@name,

```

If we have uneven number of rows in some columns.

```

712 hex/short bottom columns/.is choice,
713 hex/short bottom columns/odd/.code={%
714   \def\hex@bot@short@col{isodd}
715   \def\hex@got@bot@short{istrue}
716   \hex@dbg{4}{Short columns (odd): \meaning\hex@bot@short@col}},
717 hex/short bottom columns/even/.code={
718   \def\hex@bot@short@col{iseven}
719   \def\hex@got@bot@short{istrue}
720   \hex@dbg{4}{Short column (even): \meaning\hex@bot@short@col}},
721 hex/short bottom columns/none/.code={
722   \def\hex@bot@short@col{isfalse}
723   \def\hex@got@bot@short{isfalse}
724   \hex@dbg{4}{Short columns (none): \meaning\hex@bot@short@col}},
725 hex/short bottom columns=none,
726 hex/short columns/.forward to=hex/short bottom columns,
727 hex/short top columns/.is choice,
728 hex/short top columns/odd/.code={%
729   \def\hex@top@short@col{isodd}
730   \def\hex@got@top@short{istrue}
731   \hex@dbg{4}{Short columns (odd): \meaning\hex@top@short@col}},
732 hex/short top columns/even/.code={
733   \def\hex@top@short@col{iseven}
734   \def\hex@got@top@short{istrue}
735   \hex@dbg{4}{Short column (even): \meaning\hex@top@short@col}},

```

```

736 hex/short top columns/none/.code={
737   \def\hex@top@short@col{isfalse}
738   \def\hex@got@top@short{isfalse}
739   \hex@dbg{4}{Short columns (none): \meaning\hex@top@short@col}},
740 hex/short top columns=none,
741 }
742 \message{^^JInitial hex coordinate setup:
743 Rows: factor=\hex@coords@row@fac, offset=\hex@coords@row@off
744 Columns: factor=\hex@coords@col@fac, offset=\hex@coords@col@off}

```

```

hex/coords/column
hex/coords/row
hex/coords/vertex
hex/coords/edge
hex/coords/offset

```

We define the keys for hexagon coordinates. These are the `row`, `column`, possible `vertex` or `edge`. Vertices and edges are defined as multiple-choice. `offset` specifies the offset from the centre in the direction of a vertex or edge. By default, the offset is one, meaning all the way to the vertex or edge.

The key `inverse row` specifies that the rows are given from the top down, but coordinates should be calculated as if the row was negative. This (should) allow us to design boards where rows increase downward, while still keeping the interface and remaining code somewhat reasonable and agnostic.

Similarly, the key `column 1`, will allow us to start the columns with 1.

```

745 \tikzset{
746   /hex/coords/.cd,
747   column/.store in=\hex@col,
748   c/.store in=\hex@col,
749   row/.store in=\hex@row,
750   r/.store in=\hex@row,
751   offset/.store in=\hex@off,
752   o/.store in=\hex@off,
753   vertex/.is choice,
754   vertex/none/.code={\global\let\hex@vtx\@empty},
755   vertex/east/.code={\def\hex@vtx{0}},
756   vertex/north east/.code={\def\hex@vtx{60}},
757   vertex/north west/.code={\def\hex@vtx{120}},
758   vertex/west/.code={\def\hex@vtx{180}},
759   vertex/south west/.code={\def\hex@vtx{240}},
760   vertex/south east/.code={\def\hex@vtx{300}},
761   vertex/E/.code={\def\hex@vtx{0}},
762   vertex/NE/.code={\def\hex@vtx{60}},
763   vertex/NW/.code={\def\hex@vtx{120}},
764   vertex/W/.code={\def\hex@vtx{180}},
765   vertex/SW/.code={\def\hex@vtx{240}},
766   vertex/SE/.code={\def\hex@vtx{300}},
767   vertex/.default=none,
768   v/.forward to=/hex/coords/vertex=#1,
769   edge/.is choice,
770   edge/none/.code={\global\let\hex@edg\@empty},
771   edge/north east/.code={\def\hex@edg{30}},

```

```

772 edge/north/.code={\def\hex@edg{90}},
773 edge/north west/.code={\def\hex@edg{150}},
774 edge/south west/.code={\def\hex@edg{210}},
775 edge/south/.code={\def\hex@edg{270}},
776 edge/south east/.code={\def\hex@edg{330}},
777 edge/NE/.code={\def\hex@edg{30}},
778 edge/N/.code={\def\hex@edg{90}},
779 edge/NW/.code={\def\hex@edg{150}},
780 edge/SW/.code={\def\hex@edg{210}},
781 edge/S/.code={\def\hex@edg{270}},
782 edge/SE/.code={\def\hex@edg{330}},
783 edge/.default=none,
784 e/.forward to=/hex/coords/edge,
785 }

```

`\hex@coords@reset`

This macro resets the hex coordinates to default values. That is row and column 0, no vertex or edge.

```

786 \def\hex@coords@reset{%
787   \tikzset{%
788     /hex/coords/.cd,
789     column=0,
790     row=0,
791     edge=none,
792     vertex=none,
793     offset=1}}

```

The following calculates the Cartesian coordinates from Hex coordinates

```
(cs:hex column= $\langle C \rangle$ ,row= $\langle R \rangle$ ,vertex= $\langle V \rangle$ ,edge= $\langle E \rangle$ )
```

Given the hexagon column C and row R with hexagon radius r , the centre of the hexagon is at

$$\begin{aligned}
 x &= 2C\frac{3}{4}r \\
 y &= r(R - (C\%2) \sin 60^\circ)
 \end{aligned}$$

If $\langle V \rangle$ or $\langle E \rangle$ are given, then these are added to the centre point.

Note, C and R may be fractional numbers, which will specify a point inside a hex.

We set-up the translation to Cartesian coordinates. First thing is to reset keys in `/hex/coords`, and then parse out the keys given.

```

794 \def\hex@coords@conv#1{%
795   \hex@coords@reset%
796   \tikzset{/hex/coords/.cd, #1}%

```

Then we calculate the x coordinate and set the dimension `\pgf@x`. We do this by

$$x = c_e \frac{3}{2} ,$$

where

$$c_e = f_c(c + o_c) \quad ,$$

is the effective column (stored in `\hex@eff@col`) calculated from is the direction factor f_c (set by `hex/column direction is`) and the offset o_c (set by `hex/first column is`).

```

797 \pgfmathparse{int(\hex@coords@col@fac*(\hex@col+\hex@coords@col@off))}%
798 \xdef\hex@eff@col{\pgfmathresult}%
799 \hex@dbg{2}{Effective column: \hex@coords@col@fac * (\hex@col -
800   \hex@coords@col@off) -> \hex@eff@col}%
801 \pgfmathparse{\hex@eff@col*1.5}%
802 \xdef\hex@x{\pgfmathresult}%
803 \expandafter\pgf@x=\hex@x cm%
```

And then for the y coordinate and set the dimension `\pgf@y`.

$$y = 2(r_e - c_e \bmod 2) \cos 60^\circ \quad ,$$

where

$$r_e = 2f_r(r + o_r) - (c + o_c) \bmod 2 \quad ,$$

is the effective row (stored as `\hex@eff@row`) calculated from the the direction factor f_r (set by `hex/row direction is`) and the offset o_r (set by `hex/first row is`).

```

804 \pgfmathparse{int(\hex@coords@row@fac*(\hex@row+\hex@coords@row@off))}%
805 \xdef\hex@eff@row{\pgfmathresult}%
806 \hex@dbg{2}{Effective row: \hex@coords@row@fac * (\hex@row +
807   \hex@coords@row@off) -> \hex@eff@row}%
808 \pgfmathparse{(2*\hex@eff@row-mod(round((\hex@col+\hex@coords@col@off)),2))*\hex@yy}%
809 \xdef\hex@y{\pgfmathresult}%
810 \expandafter\pgf@x=\hex@y cm%
```

If we have a vertex specification add that location to the current coordinates. If not, set the point.

```

811 \ifx\hex@vtx@empty\pgfpointxy{\hex@x}{\hex@y}\else%
812 \pgfpointadd{\pgfpointxy{\hex@x}{\hex@y}}{%
813   \pgfpointscale{\hex@off}{\pgfpointpolarxy{\hex@vtx}{1}}}\fi%
```

If we have an edge specification add that location to the current coordinates.

```

814 \ifx\hex@edg@empty\else%
815 \pgfpointadd{\pgfpointxy{\hex@x}{\hex@y}}{%
816   \pgfpointscale{\hex@off}{\pgfpointpolarxy{\hex@edg}{\hex@yy}}}\fi%
```

For debugging, we can print out stuff.

```

817 \hex@dbg{2}{Hex coordinates: #1
818   ^^J c=\hex@col
819   ^^J r=\hex@row
820   ^^J v=\hex@vtx
821   ^^J e=\hex@edg
```

```

822   ^^J x=\hex@x
823   ^^J y=\hex@y}%
824 \global\let\hex@x\hex@x%
825 \global\let\hex@y\hex@y%
826 \global\let\hex@row\hex@row%
827 \global\let\hex@col\hex@col%
828 }
829 \tikzdeclarecoordinatesystem{hex}{%
830   \hex@coords@conv{#1}}

```

5.4.4 Hexes

In this part, we make macros etc. for the hexes.

A hex shape. We make a node of this shape if we are to give a name to the hex added. We add a bunch of anchors to it so we may easily refer to it. This is also where we actual fill stuff into the hex, such as terrain and so on.

```

831 \hex@dbg{5}{Base vertex: \hex@xx,\hex@yy}
832 \hex@dbg{5}{Base edges: \hex@e@xx,\hex@e@yy}
833 \pgfdeclareshape{hex/hex}{%
834   \saveddimen\radius{\pgf@x=\hex@radius}
835   \savedanchor{\east}{\pgfqpoint{\hex@radius}{0cm}}
836   \savedanchor{\west}{\pgfqpoint{-\hex@radius}{0cm}}
837   \savedanchor{\northeast}{\pgfqpoint{\hex@dx}{\hex@dy}}
838   \savedanchor{\northwest}{\pgfqpoint{-\hex@dx}{\hex@dy}}
839   \savedanchor{\southwest}{\pgfqpoint{-\hex@dx}{-\hex@dy}}
840   \savedanchor{\southeast}{\pgfqpoint{\hex@dx}{-\hex@dy}}
841   \savedanchor{\northedge}{\pgfqpoint{0cm}{\hex@dy}}
842   \savedanchor{\southedge}{\pgfqpoint{0cm}{-\hex@dy}}
843   \savedanchor{\northeastedge}{\pgfqpoint{\hex@e@dx}{\hex@e@dy}}
844   \savedanchor{\northwestedge}{\pgfqpoint{-\hex@e@dx}{\hex@e@dy}}
845   \savedanchor{\southwestedge}{\pgfqpoint{-\hex@e@dx}{-\hex@e@dy}}
846   \savedanchor{\southeastedge}{\pgfqpoint{\hex@e@dx}{-\hex@e@dy}}
847   \savedmacro\init{%
848     \def\hexpath{%
849       \pgfpathmoveto{\east}%
850       \pgfpathlineto{\northeast}%
851       \pgfpathlineto{\northwest}%
852       \pgfpathlineto{\west}%
853       \pgfpathlineto{\southwest}%
854       \pgfpathlineto{\southeast}%
855       \pgfpathclose}
856   }

```

These are the actual user callable anchors. We make anchors for each vertex and mid points on each edge.

```

857 %%
858 \anchor{center}{\pgfpointorigin}
859 \anchor{east}{\east}
860 \anchor{west}{\west}
861 \anchor{north east}{\northeast}
862 \anchor{north west}{\northwest}
863 \anchor{south west}{\southwest}
864 \anchor{south east}{\southeast}

```

```

865 \anchor{north edge}{ \northeastedge}
866 \anchor{south edge}{ \southwestedge}
867 \anchor{north east edge}{\northeastedge}
868 \anchor{north west edge}{\northwestedge}
869 \anchor{south west edge}{\southwestedge}
870 \anchor{south east edge}{\southeastedge}

```

Next we make some short hand aliases for each of these anchors.

```

871 \anchor{E}{ \east}
872 \anchor{W}{ \west}
873 \anchor{NE}{ \northeast}
874 \anchor{NW}{ \northwest}
875 \anchor{SW}{ \southwest}
876 \anchor{SE}{ \southeast}
877 \anchor{N edge}{ \northeastedge}
878 \anchor{S edge}{ \southwestedge}
879 \anchor{NE edge}{\northeastedge}
880 \anchor{NW edge}{\northwestedge}
881 \anchor{SW edge}{\southwestedge}
882 \anchor{SE edge}{\southeastedge}

```

The next part is commented out because its not obvious we'll use these.

```

883 %%
884 \savedanchor{\chitnorth}{ \pgfqpoint{ 0cm}{ 0.6cm}}
885 \savedanchor{\chitsouth}{ \pgfqpoint{ 0cm}{ -0.6cm}}
886 \savedanchor{\chiteast}{ \pgfqpoint{ 0.6cm}{ 0cm}}
887 \savedanchor{\chitwest}{ \pgfqpoint{-0.6cm}{ 0cm}}
888 \savedanchor{\chitnortheast}{\pgfqpoint{ 0.6cm}{ 0.6cm}}
889 \savedanchor{\chitnorthwest}{\pgfqpoint{-0.6cm}{ 0.6cm}}
890 \savedanchor{\chitsouthwest}{\pgfqpoint{-0.6cm}{-0.6cm}}
891 \savedanchor{\chitsoutheast}{\pgfqpoint{ 0.6cm}{-0.6cm}}
892 %
893 \anchor{chit north}{\chitnorth}
894 \anchor{chit south}{\chitsouth}
895 \anchor{chit east}{\chiteast}
896 \anchor{chit west}{\chitwest}
897 \anchor{chit north east}{\chitnortheast}
898 \anchor{chit north west}{\chitnorthwest}
899 \anchor{chit south west}{\chitsouthwest}
900 \anchor{chit south east}{\chitsoutheast}
901 %
902 \anchor{chit N}{\chitnorth}
903 \anchor{chit S}{\chitsouth}
904 \anchor{chit E}{\chiteast}
905 \anchor{chit W}{\chitwest}
906 \anchor{chit NE}{\chitnortheast}
907 \anchor{chit NW}{\chitnorthwest}
908 \anchor{chit SW}{\chitsouthwest}
909 \anchor{chit SE}{\chitsoutheast}
910 %

```

The background path. This path may be drawn when the node is drawn. However, we will do most of the work in

the `\behindbackgroundpath` which gets drawn *after* this path.

```
911 \backgroundpath{\init\hexpath}
```

The *behind* background path, where we do most of the work.

```
912 \behindforegroundpath{%
913   \hex@dbg{2}{Hex behind foreground path:
914     ^^JTerrain:      '\meaning\hex@terrain'
915     ^^JRidges:      '\meaning\hex@ridges'
916     ^^JTown:        '\meaning\hex@town'
917     ^^JExtra clipped: '\meaning\hex@extra@clip'
918     ^^JLabel:       '\meaning\hex@label'
919     ^^JExtra:       '\meaning\hex@extra'
920     ^^JLast node name: '\meaning\tikzlastnode'
921     ^^JHex row:     '\meaning\hex@row'
922     ^^JHex col:     '\meaning\hex@col'
923   }%
924   \init%
```

We start a scope and clip to the hex path first.

```
925 \scope%
926   \hexpath%
927   \pgfusepath{clip}%
```

Anything inside this scope is clipped to the hex path. The next step is to see if we have a specified terrain for the hex.

```
928   \@ifundefined{hex@terrain}{\let\hex@terrain\empty}{}%
929   \ifx\hex@terrain\empty\else\hex@do@terrain\fi%
```

This concludes the processing of the terrain of the hex. Next, we must see if the user specified ridges.

```
930   \@ifundefined{hex@ridges}{\let\hex@ridges\empty}{}%
931   \ifx\hex@ridges\empty\else\hex@do@ridges\fi%
```

This concludes the processing of the ridges of the hex. Next, we should process any extra (clipped) stuff specified. The user may pass options to each picture by preceding it with [*options*].

```
932   \@ifundefined{hex@extra@clip}{\let\hex@extra@clip\empty}{%
933   \ifx\hex@extra@clip\empty\else%
934     \hex@dbg{5}{Extra clipped: '\meaning\hex@extra'}
935     \pgfpointorigin\wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
936     \wg@pic@all{\hex@extra@clip}{\the\wg@tmpa,\the\wg@tmpb}{}%
937   \fi%
```

This concludes the extra stuff put in the hex. Next, we should place the label if specified. Note, we may know the hex row and column at this point, stored in `\hex@row` and `\hex@column`, respectively. We may want to name the generated node from these if the user specified that option (perhaps use `\pgfnoderename` or similar).

```
938   \@ifundefined{hex@label}{\let\hex@label\empty}{%
939   \ifx\hex@label\empty\else\hex@do@label\fi%
940   \endscope%
```


This concludes the label processing, and stuff that should be clipped to the hex shape. If the user specified a town, we can now make that.

```

941 \ifundefined{hex@town}{\let\hex@town\empty}{}
942 \ifundefined{hex@c@pic}{\let\hex@c@pic\empty}{}
943 \ifx\hex@town\empty\else\hex@do@town\fi%

```

We can now add extra (non-clipped) stuff. We assume that extra stuff is pictures. The user may pass options to each picture by preceding it with [*options*].

```

944 \ifundefined{hex@extra}{\let\hex@extra\empty}{}
945 \ifx\hex@extra\empty\else%
946 \hex@dbg{5}{Extra: '\meaning\hex@extra'}
947 \pgfpointorigin\wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
948 \wg@pic@all{\hex@extra}{\the\wg@tmpa,\the\wg@tmpb}{}%
949 \fi%
950 }
951 }

```

```

/hex/terrain
/hex/town
/hex/label
/hex/ridges
/hex/extra
/hex/extra clipped

```

Next, we set up the name space for hex keys. This is the top level name space for hexes. Sub keys **terrain**, **ridges**, **town**, **extra**, **label**, and **extra clipped**, store their arguments in macros and we expand these later on. This allows us to scope some of the keys given to those specific parts.

Define keys for hexagon options. These are

Name	Description
terrain	Terrain
label	Label on hex
town	Town in hex. Optionally with a name
ridges	Ridge markings on hex
extra	More
extra clipped	More clipped to hex

```

952 \tikzset{%
953 /hex/.search also={/tikz},%
954 /hex/.cd,%
955 terrain/.store in=\hex@terrain,%
956 ridges/.store in=\hex@ridges,%
957 town/.store in=\hex@town,%
958 extra/.store in=\hex@extra,%
959 label/.store in=\hex@label,%
960 extra clipped/.store in=\hex@extra@clip%
961 }

```

hex

The next key is the real work horse of the show. Specifying the `hex` key to a node effectively creates a hex for us. Now, there are some things we cannot do outright in the node shape code. For example, we cannot set the name of the node created from the shape code. Therefore, the use of `\hex` is often the right choice.

```
962 \tikzset{%
963   hex/hex/.style={
964     transform shape,
965     anchor=center,
966     draw=pgfstrokecolor,
967     fill=none,
968     thick,
969     solid},
970   hex/.code={%
971     \hex@dbg{1}{=== Hex with options: '#1'}%
972     \pgfkeys{/tikz/transform shape,/tikz/shape=hex/hex}
973     \pgfkeys{/hex/.cd,/tikz/hex/hex,/tikz/every hex/.try,#1}}
```

The first thing is to set the default graphics options. The key `every hex` can be set to hex options to be used for all hexes. For example, if one want to label all hexes with an auto-generated label, one can do

```
\tikzset{every hex/.style={label={auto=numbered}}}
```

This, coupled with the `hex/label is name` option allows us to set up the board with really minimal effort. We can then use the board coordinates when placing units, and other things.

Now we have set up these tools we can go on and define the user facing macro.

```
\hex
\hex@
\hex@@
```

This will add a hex to the output graphics. Note, the macro need not be followed by a semi-colon (;).

First argument is optional options.

```
974 \def\hex{%
975   \@ifnextchar[{\hex@}{\hex@[]}%
976 }
```

Second optional argument is the coordinates. These should be given in the hex coordinate system.

```
977 \def\hex@[#1]{%
978   \@ifnextchar({\hex@@[#1]}{%
979     \hex@@[#1](c=0,r=0)}%
980 }
```

Third argument is the name to be used.

```
981 \def\hex@@#1(#2){%
982   \@ifnextchar({\hex@@@[#1]{#2}}{\hex@@@[#1]{#2}()}%
983 }
```

Now for the real work-horse. First thing is to reset keys and parse them out from the arguments.

```

984 %      Third argument is name
985 \def\hex@@@#1#2(#3){%
986   \node[hex={#1}] (tmp) at (hex cs:#2) {};%
987   \hex@dbg{8}{=== Label text: '\meaning\hex@l@text'}
988   \ifx|#3|\relax%
989     \ifundefined{hex@l@text}{%
990       \hex@dbg{8}{=== Label text of hex (#2) not defined}%
991       \let\hex@l@text\empty%
992     }{}
993     \ifhex@label@is@name%
994       \hex@dbg{5}{=== Use label text of hex (#2) as name}%
995       \ifx\hex@l@text\empty%
996         \hex@dbg{8}{=== Argh! Label text is empty! '\meaning\hex@l@text'}
997       \else%
998         \hex@dbg{3}{=== Renaming hex to label text '\hex@l@text'}
999         \pgfnoderename{\hex@l@text}{tmp}%
1000       \fi%
1001     \fi%
1002   \else%
1003     \hex@dbg{3}{=== Renaming hex to user defined name '#3'}%
1004     \pgfnoderename{#3}{tmp}%
1005     \fi%
1006   \@ifnextchar;{\@gobble{}}%
1007 }

```

5.4.5 Terrain

With the above main routine for making hexes, we turn to decorating a hex with a terrain.

```

hex/terrain/image
hex/terrain/pic
hex/terrain/code
hex/terrain/clip

```

We make the namespace `/hex/terrain` to hold the specific terrain keys. Keys used by terrain identifiers are

Name	Description
<code>image</code>	Terrain tile image
<code>pic</code>	Terrain <i>TikZ</i> picture
<code>code</code>	Arbitrary <i>TikZ</i> code
<code>clip</code>	<i>TikZ</i> path to clip terrain

Now, we have the keys we'll need for selecting the terrain. These live in the namespace `/hex/terrain`, and we can select between pictures or images (external graphics files) for making the terrain. We define some short hands to easily select the common terrains.

```

1008 \tikzset{%
1009   /hex/terrain/.search also={/tikz},%
1010   /hex/terrain/.cd,%
1011   pic/.store in=\hex@t@pic,%
1012   image/.store in=\hex@t@image,%
1013   code/.store in=\hex@t@code,%

```

```

1014 clip/.store in=\hex@t@clip,%
1015 pic/.default=,
1016 image/.default=,
1017 code/.default=,
1018 clip/.default,
1019 }
1020 \iffalse
1021 \tikzset{
1022 /hex/terrain/.cd,%
1023 beach/.style={pic=hex/terrain/beach},
1024 light woods/.style={pic=hex/terrain/light woods},
1025 woods/.style={pic=hex/terrain/woods},
1026 swamp/.style={pic=hex/terrain/swamp},
1027 rough/.style={pic=hex/terrain/rough},
1028 mountains/.style={pic=hex/terrain/mountains},
1029 village/.style={pic=hex/terrain/village},
1030 town/.style={pic=hex/terrain/town},
1031 city/.style={pic=hex/terrain/city},
1032 }
1033 \else
1034 \tikzset{
1035 /hex/terrain/.cd,%
1036 beach/.style={image=wargame.beach},
1037 light woods/.style={image=wargame.light_woods},
1038 woods/.style={image=wargame.woods},
1039 swamp/.style={image=wargame.swamp},
1040 rough/.style={image=wargame.rough},
1041 mountains/.style={image=wargame.mountains},
1042 village/.style={image=wargame.village},
1043 town/.style={image=wargame.town},
1044 city/.style={image=wargame.city},
1045 }
1046 \fi

```

Before we go on, we define the macro that actually generates the terrain of a hex.

\hex@do@terrain

If we do have a terrain specified, we start a new scope, this time to clip the terrain by the clipping path specified by `hex={terrain={clip=...}}`. The first thing into the new scope is to process the keys specified in `hex={terrain=...}`. This will set the terrain and the clipping of the terrain.

```

1047 \def\hex@do@terrain{%
1048   \hex@dbg{5}{Terrain: \meaning\hex@terrain}%
1049   \edef\hex@t@tmp{[/hex/terrain/.cd,\hex@terrain]}%
1050   \expandafter\scope\hex@t@tmp% Scope for terrain clipping.
1051   \hex@dbg{5}{Terrain:
1052     ^^J pic: \meaning\hex@t@pic
1053     ^^J image: \meaning\hex@t@image
1054     ^^J code: \meaning\hex@t@code
1055     ^^J clip: \meaning\hex@t@clip}

```

We check to see if we have any clipping pictures. If so, we process these in turn and append the soft path to a macro.

Once this is done, we use the soft path as a clipping path for the rest of the (terrain) scope.

```

1056 \@ifundefined{hex@t@clip}{\let\hex@t@clip\empty}{}
1057 \ifx\hex@t@clip\empty\else%
1058   \def\hex@t@c{}
1059   \foreach \c in \hex@t@clip{%
1060     \hex@dbg{5}{Clipping to ‘\c’}
1061     \expandafter\wg@pic\c\@endwg@pic {}{\wg@tmpa,\wg@tmpb}{%
1062       save path=\hex@t@tmp}%
1063     \wg@addto@macro\hex@t@c\hex@t@tmp % Append to clipping
1064   }%
1065   \pgfsyssoftpath@setcurrentpath{\hex@t@c}% Set path
1066   \clip;% Clip to the path
1067 \fi % End of clipping terrain

```

We’re now ready to make the terrain. First, we check to see if the relevant storage macros are undefined and if so, \let them to \empty so that we can deal more easily with the various cases.

```

1068 %% Now switch between how to draw the terrain. If some of the
1069 %% macros are undefined, define them to be empty
1070 \@ifundefined{hex@t@pic}{\let\hex@t@pic\empty}{}
1071 \@ifundefined{hex@t@image}{\let\hex@t@image\empty}{}

```

First we check if we have not got terrain images, but terrain pictures. If we have that, we process these in turn. Note, the user can give options to each terrain picture by preceding the picture name with [*options*].

```

1072 % If we have no image, check if we have pictures.
1073 \ifx\hex@t@image\empty%
1074   \hex@dbg{8}{No terrain images}%
1075   \ifx\hex@t@pic\empty\else%
1076     % We have pictures
1077     \hex@dbg{5}{Terrain pictures}%
1078     \pgfpointorigin\wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
1079     \wg@pic@all{\hex@t@pic}{\the\wg@tmpa,\the\wg@tmpb}{}%
1080   \fi% We have pictures.

```

If the user specified images rather than pictures, then we process these in turn. Again, the user can specify options to each terrain image by preceding the image file name with [*options*].

```

1081 \else % We have images
1082   \hex@dbg{5}{Terrain images}%
1083   \pgfpointorigin\wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
1084   \foreach \i in \hex@t@image{%
1085     \hex@dbg{10}{Terrain image: ‘\meaning\i’}
1086     \expandafter\wg@node{%
1087       \includegraphics[width=2cm]{\i}\@endwg@node %
1088     }{\wg@tmpa,\wg@tmpb}{%
1089       shape=rectangle,%
1090       anchor=center,%
1091       transform shape,%
1092       draw=none}%
1093   }
1094 \fi%
1095 \endscope% End of terrain scope
1096 }% End of terrain

```

Next, we define some example clippings of the terrain images. Specifically, we make clippings to sextants. We do this by first defining a macro.

```
\hex@make@sextants
```

When executed this macro will generate some paths that will clip to sextants. The first argument is the inner radius of the sextant and the second argument is the (possible empty) prefix to put in front of the `sextant` name.

```

1097 \def\hex@x@r{.7}
1098 \def\hex@make@sextants#1#2{%
1099   \tikzset{%
1100     pics/hex/#2sextant/.is choice,
1101     pics/hex/#2sextant/north east/.style={
1102       code={
1103         \path[pic actions]( 0:1)--( 60:1)--( 60:#1)--( 0:#1)--cycle;}},
1104     pics/hex/#2sextant/north/.style={
1105       code={
1106         \path[pic actions]( 60:1)--(120:1)--(120:#1)--( 60:#1)--cycle;}},
1107     pics/hex/#2sextant/north west/.style={
1108       code={
1109         \path[pic actions](120:1)--(180:1)--(180:#1)--(120:#1)--cycle;}},
1110     pics/hex/#2sextant/south west/.style={
1111       code={
1112         \path[pic actions](180:1)--(240:1)--(240:#1)--(180:#1)--cycle;}},
1113     pics/hex/#2sextant/south/.style={
1114       code={
1115         \path[pic actions](240:1)--(300:1)--(300:#1)--(240:#1)--cycle;}},
1116     pics/hex/#2sextant/south east/.style={
1117       code={
1118         \path[pic actions](300:1)--(360:1)--(360:#1)--(300:#1)--cycle;}},
1119     pics/hex/#2sextant/center/.style={
1120       code={
1121         \path[pic actions]
1122         (0:#1)--
1123         (60:#1)--
1124         (120:#1)--
1125         (180:#1)--
1126         (240:#1)--
1127         (300:#1)--cycle;}},
1128     pics/hex/#2sextant/NE/.style=hex/#2sextant/north east,
1129     pics/hex/#2sextant/NE/.style=hex/#2sextant/north east,
1130     pics/hex/#2sextant/N/.style=hex/#2sextant/north,
1131     pics/hex/#2sextant/NW/.style=hex/#2sextant/north west,
1132     pics/hex/#2sextant/SW/.style=hex/#2sextant/south west,
1133     pics/hex/#2sextant/S/.style=hex/#2sextant/south,
1134     pics/hex/#2sextant/SE/.style=hex/#2sextant/south east,
1135     pics/hex/#2sextant/C/.style=hex/#2sextant/center,
1136   }
1137 }

1138 \hex@make@sextants{.7}{ }
1139 \hex@make@sextants{.3}{large }
1140 \hex@make@sextants{0}{full }

```

Next, we define some styles for styling the terrain pictures. Users can change these styles (e.g., by appending to them) to change say the colour of the terrain graphics.

```
hex/terrain/beach
```

The style for beach hexes. The pattern is filled with a yellowish colour, and drawing of the outline is disabled.

```
1141 \tikzset{
1142   hex/terrain/beach/.style={%
1143     fill={rgb,100:red,93;green,73;blue,35},%
1144     draw=none%
1145   }%
1146 }
```

Now for the actual patterns. We go in the same order as above — i.e, we start with the beach pattern. This is rather long.

```
hex/terrain/beach
```

```
1147 \ifhex@terrain@pic
1148 \tikzset{
1149   hex/terrain/beach/.pic={
1150     \path[hex/terrain/beach,pic actions,draw=none]
1151       (-0.4931, 0.8848)
1152       -- (-0.4998, 0.8734)
1153       .. controls (-0.4908, 0.8731) and (-0.4813, 0.8762) .. (-0.4762, 0.8847)
1154       --cycle
1155       (-0.4032, 0.8841)
1156       .. controls (-0.4004, 0.8804) and (-0.3988, 0.8794) .. (-0.3956, 0.8745)
1157       .. controls (-0.3760, 0.8443) and (-0.3811, 0.8330) .. (-0.3456, 0.8112)
1158       .. controls (-0.3250, 0.7986) and (-0.2712, 0.7770) .. (-0.2531, 0.8032)
1159       .. controls (-0.2294, 0.8375) and (-0.2984, 0.8503) .. (-0.3193, 0.8690)
1160       .. controls (-0.3243, 0.8735) and (-0.3281, 0.8785) .. (-0.3321, 0.8835)
1161       --cycle
1162       (-0.2462, 0.8828)
1163       .. controls (-0.2425, 0.8681) and (-0.2383, 0.8546) .. (-0.2293, 0.8461)
1164       .. controls (-0.2102, 0.8280) and (-0.1892, 0.8390) .. (-0.1859, 0.8669)
1165       .. controls (-0.1854, 0.8711) and (-0.1871, 0.8772) .. (-0.1875, 0.8822)
1166       --cycle
1167       (-0.0997, 0.8815)
1168       .. controls (-0.0971, 0.8706) and (-0.0941, 0.8597) .. (-0.0907, 0.8493)
1169       -- (-0.0570, 0.8578)
1170       .. controls (-0.0570, 0.8629) and (-0.0560, 0.8730) .. (-0.0553, 0.8812)
1171       --cycle
1172       ( 0.0213, 0.8805)
1173       .. controls ( 0.0222, 0.8725) and ( 0.0235, 0.8650) .. ( 0.0262, 0.8587)
1174       .. controls ( 0.0391, 0.8281) and ( 0.0706, 0.8199) .. ( 0.0917, 0.7894)
1175       .. controls ( 0.1112, 0.7609) and ( 0.1058, 0.7286) .. ( 0.1050, 0.6961)
1176       -- ( 0.1731, 0.7216)
1177       -- ( 0.1203, 0.8649)
1178       -- ( 0.1097, 0.8797)
1179       --cycle
```

```

1180 ( 0.2978, 0.8781)
1181 .. controls ( 0.2985, 0.8773) and ( 0.3002, 0.8756) .. ( 0.3008, 0.8749)
1182 .. controls ( 0.2854, 0.8687) and ( 0.2549, 0.8572) .. ( 0.2421, 0.8487)
1183 .. controls ( 0.2026, 0.8224) and ( 0.1905, 0.7567) .. ( 0.2046, 0.7132)
1184 .. controls ( 0.2146, 0.6819) and ( 0.2330, 0.6680) .. ( 0.2394, 0.6280)
1185 .. controls ( 0.2413, 0.6160) and ( 0.2468, 0.5527) .. ( 0.2446, 0.5437)
1186 .. controls ( 0.2396, 0.5232) and ( 0.2211, 0.5122) .. ( 0.2231, 0.4913)
1187 .. controls ( 0.2261, 0.4603) and ( 0.2686, 0.4388) .. ( 0.2891, 0.4194)
1188 .. controls ( 0.3020, 0.4071) and ( 0.3136, 0.3895) .. ( 0.3281, 0.3799)
1189 .. controls ( 0.3688, 0.3533) and ( 0.3905, 0.3863) .. ( 0.4199, 0.3902)
1190 .. controls ( 0.4350, 0.3921) and ( 0.4560, 0.3849) .. ( 0.4710, 0.3812)
1191 -- ( 0.4795, 0.4067)
1192 -- ( 0.4965, 0.4067)
1193 .. controls ( 0.5008, 0.3961) and ( 0.5009, 0.3893) .. ( 0.5112, 0.3811)
1194 .. controls ( 0.5112, 0.3811) and ( 0.6172, 0.3385) .. ( 0.6481, 0.3037)
1195 .. controls ( 0.6729, 0.2758) and ( 0.6641, 0.2532) .. ( 0.6667, 0.2206)
1196 -- ( 0.7004, 0.2206)
1197 .. controls ( 0.7839, 0.2118) and ( 0.7047, 0.0740) .. ( 0.7057, 0.0568)
1198 .. controls ( 0.7067, 0.0396) and ( 0.7865,-0.0424) .. ( 0.8032,-0.0520)
1199 .. controls ( 0.8251,-0.0644) and ( 0.8703,-0.0686) .. ( 0.8572,-0.0293)
1200 .. controls ( 0.8518,-0.0131) and ( 0.7996, 0.0474) .. ( 0.7843, 0.0564)
1201 .. controls ( 0.7724, 0.0633) and ( 0.7645, 0.0636) .. ( 0.7518, 0.0664)
1202 .. controls ( 0.7688, 0.1093) and ( 0.7993, 0.1905) .. ( 0.7930, 0.2362)
1203 .. controls ( 0.7869, 0.2804) and ( 0.7252, 0.2982) .. ( 0.6946, 0.3268)
1204 .. controls ( 0.6664, 0.3531) and ( 0.6746, 0.3662) .. ( 0.6323, 0.3966)
1205 .. controls ( 0.5760, 0.4371) and ( 0.5386, 0.4324) .. ( 0.5250, 0.4601)
1206 .. controls ( 0.5090, 0.4927) and ( 0.5578, 0.6035) .. ( 0.5969, 0.5911)
1207 .. controls ( 0.6199, 0.5839) and ( 0.6224, 0.5471) .. ( 0.6341, 0.5291)
1208 .. controls ( 0.6488, 0.5064) and ( 0.7020, 0.4614) .. ( 0.7263, 0.4493)
1209 -- ( 0.7373, 0.4768)
1210 -- ( 0.6866, 0.5671)
1211 -- ( 0.6756, 0.5720)
1212 -- ( 0.6766, 0.5850)
1213 -- ( 0.6331, 0.6627)
1214 .. controls ( 0.6280, 0.6613) and ( 0.6239, 0.6599) .. ( 0.6157, 0.6589)
1215 -- ( 0.5646, 0.6589)
1216 .. controls ( 0.5375, 0.6557) and ( 0.5277, 0.6432) .. ( 0.4965, 0.6489)
1217 .. controls ( 0.4716, 0.6520) and ( 0.4306, 0.6774) .. ( 0.4104, 0.6489)
1218 .. controls ( 0.3809, 0.6093) and ( 0.4627, 0.6240) .. ( 0.4837, 0.5772)
1219 .. controls ( 0.4958, 0.5502) and ( 0.4652, 0.4811) .. ( 0.4429, 0.4648)
1220 -- ( 0.3523, 0.4350)
1221 .. controls ( 0.3178, 0.4372) and ( 0.3207, 0.4766) .. ( 0.3153, 0.5004)
1222 .. controls ( 0.3090, 0.5282) and ( 0.2968, 0.5398) .. ( 0.2922, 0.5684)
1223 .. controls ( 0.2896, 0.6035) and ( 0.3061, 0.6276) .. ( 0.2922, 0.6621)
1224 .. controls ( 0.2756, 0.6961) and ( 0.2422, 0.7190) .. ( 0.2525, 0.7640)
1225 .. controls ( 0.2650, 0.8188) and ( 0.3165, 0.7932) .. ( 0.3324, 0.8417)
1226 .. controls ( 0.3359, 0.8522) and ( 0.3385, 0.8648) .. ( 0.3399, 0.8778)
1227 --cycle
1228 ( 0.4261, 0.8770)
1229 -- ( 0.4333, 0.8493)
1230 -- ( 0.4845, 0.7440)
1231 .. controls ( 0.4963, 0.7304) and ( 0.5450, 0.6930) .. ( 0.5630, 0.6989)
1232 .. controls ( 0.5735, 0.7024) and ( 0.5838, 0.7169) .. ( 0.5932, 0.7337)

```



```

1233 -- ( 0.5612, 0.7909)
1234 .. controls ( 0.5537, 0.7875) and ( 0.5468, 0.7852) .. ( 0.5403, 0.7864)
1235 .. controls ( 0.5078, 0.7926) and ( 0.5191, 0.8406) .. ( 0.5145, 0.8567)
1236 .. controls ( 0.5121, 0.8651) and ( 0.5076, 0.8710) .. ( 0.5025, 0.8764)
1237 --cycle
1238 ( 0.3773, 0.8153)
1239 .. controls ( 0.3625, 0.7892) and ( 0.2993, 0.7161) .. ( 0.3316, 0.6877)
1240 .. controls ( 0.3432, 0.6774) and ( 0.3866, 0.6728) .. ( 0.4029, 0.6706)
1241 -- ( 0.3973, 0.7472)
1242 -- ( 0.4029, 0.8153)
1243 --cycle
1244 (-0.4224, 0.8088)
1245 .. controls (-0.4416, 0.8077) and (-0.4585, 0.7826) .. (-0.4275, 0.7562)
1246 -- (-0.3971, 0.7387)
1247 .. controls (-0.4780, 0.6942) and (-0.4752, 0.6640) .. (-0.4591, 0.5855)
1248 .. controls (-0.4391, 0.4887) and (-0.4527, 0.5347) .. (-0.4103, 0.4493)
1249 .. controls (-0.3870, 0.4026) and (-0.4070, 0.3747) .. (-0.3460, 0.3642)
1250 -- (-0.3352, 0.4823)
1251 .. controls (-0.3409, 0.5024) and (-0.3617, 0.5113) .. (-0.3739, 0.5281)
1252 -- (-0.4164, 0.6287)
1253 .. controls (-0.4188, 0.6375) and (-0.4186, 0.6444) .. (-0.4164, 0.6528)
1254 .. controls (-0.4067, 0.6807) and (-0.3521, 0.7255) .. (-0.3274, 0.6931)
1255 .. controls (-0.3070, 0.6694) and (-0.3336, 0.6432) .. (-0.3274, 0.6221)
1256 .. controls (-0.3249, 0.6055) and (-0.3059, 0.6028) .. (-0.2950, 0.6162)
1257 .. controls (-0.2867, 0.6265) and (-0.2838, 0.6558) .. (-0.2829, 0.6692)
1258 .. controls (-0.2775, 0.7444) and (-0.3333, 0.7652) .. (-0.3955, 0.7472)
1259 .. controls (-0.3950, 0.7586) and (-0.3916, 0.7684) .. (-0.3955, 0.7803)
1260 .. controls (-0.3986, 0.8016) and (-0.4109, 0.8096) .. (-0.4224, 0.8088)
1261 --cycle
1262 (-0.1391, 0.8077)
1263 .. controls (-0.1634, 0.8024) and (-0.1582, 0.7647) .. (-0.1487, 0.7492)
1264 .. controls (-0.1306, 0.7190) and (-0.1004, 0.7270) .. (-0.0652, 0.7073)
1265 -- (-0.0226, 0.6801)
1266 -- ( 0.0282, 0.6560)
1267 .. controls ( 0.0622, 0.6331) and ( 0.0955, 0.5639) .. ( 0.1219, 0.5259)
1268 .. controls ( 0.2125, 0.5714) and ( 0.1427, 0.6114) .. ( 0.1219, 0.6453)
1269 -- ( 0.1054, 0.6768)
1270 .. controls ( 0.0862, 0.7028) and ( 0.0448, 0.7080) .. ( 0.0115, 0.7299)
1271 .. controls (-0.0377, 0.7622) and (-0.0173, 0.7726) .. (-0.0822, 0.7918)
1272 .. controls (-0.0961, 0.7958) and (-0.1270, 0.8103) .. (-0.1391, 0.8077)
1273 --cycle
1274 (-0.5460, 0.7940)
1275 -- (-0.5911, 0.7166)
1276 .. controls (-0.5649, 0.7015) and (-0.5397, 0.7188) .. (-0.5308, 0.7556)
1277 .. controls (-0.5251, 0.7788) and (-0.5335, 0.7873) .. (-0.5460, 0.7940)
1278 --cycle
1279 (-0.2382, 0.7423)
1280 .. controls (-0.2453, 0.7424) and (-0.2512, 0.7383) .. (-0.2550, 0.7274)
1281 .. controls (-0.2635, 0.7026) and (-0.2353, 0.6726) .. (-0.2229, 0.6536)
1282 .. controls (-0.2031, 0.6234) and (-0.2020, 0.6105) .. (-0.1928, 0.5770)
1283 .. controls (-0.1763, 0.5803) and (-0.1499, 0.5890) .. (-0.1342, 0.5831)
1284 .. controls (-0.1112, 0.5745) and (-0.1047, 0.5481) .. (-0.0866, 0.5338)
1285 -- (-0.0397, 0.5102)

```

```

1286 -- ( 0.0664, 0.4219)
1287 .. controls ( 0.0874, 0.3954) and ( 0.0785, 0.3655) .. ( 0.1070, 0.3502)
1288 .. controls ( 0.1367, 0.3343) and ( 0.1690, 0.3592) .. ( 0.1732, 0.3899)
1289 .. controls ( 0.1755, 0.4075) and ( 0.1545, 0.4554) .. ( 0.1475, 0.4748)
1290 .. controls ( 0.0838, 0.4666) and ( 0.0509, 0.4836) .. ( 0.0454, 0.5515)
1291 .. controls (-0.0576, 0.5778) and (-0.0955, 0.6323) .. (-0.1754, 0.6949)
1292 .. controls (-0.1861, 0.7034) and (-0.2171, 0.7418) .. (-0.2382, 0.7423)
1293 --cycle
1294 (-0.5068, 0.6706)
1295 .. controls (-0.5119, 0.6724) and (-0.5194, 0.6726) .. (-0.5299, 0.6701)
1296 .. controls (-0.5512, 0.6413) and (-0.5242, 0.6333) .. (-0.5102, 0.6400)
1297 .. controls (-0.4981, 0.6457) and (-0.4916, 0.6653) .. (-0.5068, 0.6706)
1298 --cycle
1299 (-0.6356, 0.6402)
1300 -- (-0.6681, 0.5845)
1301 -- (-0.6588, 0.5684)
1302 .. controls (-0.6473, 0.5521) and (-0.6323, 0.5371) .. (-0.6265, 0.5174)
1303 .. controls (-0.6174, 0.4865) and (-0.6614, 0.4161) .. (-0.6950, 0.4206)
1304 .. controls (-0.7111, 0.4226) and (-0.7174, 0.4376) .. (-0.7460, 0.4507)
1305 -- (-0.7632, 0.4212)
1306 .. controls (-0.7629, 0.4042) and (-0.7611, 0.3875) .. (-0.7546, 0.3789)
1307 .. controls (-0.7424, 0.3626) and (-0.7129, 0.3612) .. (-0.6966, 0.3297)
1308 .. controls (-0.6823, 0.3022) and (-0.6963, 0.2741) .. (-0.6808, 0.2598)
1309 .. controls (-0.6602, 0.2410) and (-0.6495, 0.2720) .. (-0.6484, 0.2878)
1310 .. controls (-0.6461, 0.3229) and (-0.6488, 0.4046) .. (-0.6080, 0.4204)
1311 .. controls (-0.5750, 0.4330) and (-0.4980, 0.3514) .. (-0.4929, 0.3217)
1312 .. controls (-0.4895, 0.3019) and (-0.5044, 0.2671) .. (-0.4860, 0.2550)
1313 .. controls (-0.4691, 0.2439) and (-0.4582, 0.2679) .. (-0.4535, 0.2796)
1314 .. controls (-0.4450, 0.3015) and (-0.4273, 0.3562) .. (-0.4401, 0.3771)
1315 .. controls (-0.4495, 0.3922) and (-0.5019, 0.4172) .. (-0.5296, 0.4507)
1316 .. controls (-0.5656, 0.4941) and (-0.5734, 0.5631) .. (-0.5973, 0.6021)
1317 .. controls (-0.6099, 0.6226) and (-0.6226, 0.6316) .. (-0.6356, 0.6402)
1318 --cycle
1319 ( 0.2242, 0.6110)
1320 -- ( 0.1816, 0.6025)
1321 -- ( 0.1816, 0.5855)
1322 .. controls ( 0.2117, 0.5815) and ( 0.2140, 0.5821) .. ( 0.2242, 0.6110)
1323 --cycle
1324 ( 0.3924, 0.6049)
1325 .. controls ( 0.3895, 0.6048) and ( 0.3860, 0.6036) .. ( 0.3820, 0.6011)
1326 .. controls ( 0.3535, 0.5835) and ( 0.3670, 0.5238) .. ( 0.3773, 0.5004)
1327 -- ( 0.3944, 0.5004)
1328 -- ( 0.4061, 0.5429)
1329 .. controls ( 0.4082, 0.5540) and ( 0.4130, 0.6056) .. ( 0.3924, 0.6049)
1330 --cycle
1331 (-0.2864, 0.5940)
1332 .. controls (-0.2904, 0.5793) and (-0.2950, 0.5676) .. (-0.2919, 0.5518)
1333 .. controls (-0.2769, 0.4768) and (-0.1616, 0.5041) .. (-0.2162, 0.5623)
1334 .. controls (-0.2236, 0.5702) and (-0.2346, 0.5747) .. (-0.2443, 0.5790)
1335 --cycle
1336 (-0.7010, 0.5280)
1337 -- (-0.7269, 0.4835)
1338 .. controls (-0.7207, 0.4876) and (-0.7144, 0.4952) .. (-0.7081, 0.5094)

```

```

1339  --cycle
1340  (-0.0992, 0.4748)
1341  -- (-0.2099, 0.4556)
1342  -- (-0.2888, 0.3790)
1343  -- (-0.3460, 0.3557)
1344  -- (-0.3389, 0.3218)
1345  .. controls (-0.3310, 0.2959) and (-0.3026, 0.2636) .. (-0.2781, 0.2927)
1346  .. controls (-0.2745, 0.2971) and (-0.2504, 0.3947) .. (-0.1948, 0.3764)
1347  .. controls (-0.1607, 0.3651) and (-0.1697, 0.2984) .. (-0.1588, 0.2536)
1348  -- (-0.1503, 0.2536)
1349  -- (-0.1503, 0.2450)
1350  -- (-0.1163, 0.2366)
1351  .. controls (-0.0968, 0.3059) and (-0.1262, 0.3371) .. (-0.1239, 0.3982)
1352  .. controls (-0.1229, 0.4261) and (-0.1067, 0.4484) .. (-0.0992, 0.4748)
1353  --cycle
1354  (-0.1503, 0.2450)
1355  -- (-0.1588, 0.2536)
1356  .. controls (-0.2292, 0.2544) and (-0.2730, 0.2893) .. (-0.2677, 0.2195)
1357  -- (-0.2609, 0.1855)
1358  .. controls (-0.2393, 0.1890) and (-0.2005, 0.2039) .. (-0.1909, 0.1753)
1359  .. controls (-0.1709, 0.1163) and (-0.2582, 0.0953) .. (-0.2387, 0.0533)
1360  .. controls (-0.2275, 0.0292) and (-0.1430, 0.0537) .. (-0.1361, 0.0692)
1361  .. controls (-0.1250, 0.0859) and (-0.1359, 0.1083) .. (-0.1361, 0.1259)
1362  .. controls (-0.1437, 0.1788) and (-0.1186, 0.1766) .. (-0.1503, 0.2450)
1363  --cycle
1364  ( 0.7348, 0.4408)
1365  .. controls ( 0.7113, 0.3774) and ( 0.7569, 0.3513) .. ( 0.7901, 0.3824)
1366  -- ( 0.7585, 0.4390)
1367  --cycle
1368  ( 0.2071, 0.4153)
1369  .. controls ( 0.1984, 0.3706) and ( 0.2118, 0.3204) .. ( 0.2582, 0.3046)
1370  .. controls ( 0.2685, 0.3631) and ( 0.2706, 0.3931) .. ( 0.2071, 0.4153)
1371  --cycle
1372  (-0.0567, 0.3982)
1373  .. controls (-0.0558, 0.3230) and (-0.0460, 0.3456) .. (-0.0210, 0.2876)
1374  -- ( 0.0067, 0.1940)
1375  .. controls ( 0.0180, 0.1513) and ( 0.0026, 0.1332) .. ( 0.0454, 0.1089)
1376  -- ( 0.0767, 0.1940)
1377  -- ( 0.0546, 0.2621)
1378  -- ( 0.0406, 0.3185)
1379  -- (-0.0258, 0.3896)
1380  --cycle
1381  (-0.7969, 0.3634)
1382  -- (-0.8570, 0.2602)
1383  .. controls (-0.8515, 0.2550) and (-0.8469, 0.2514) .. (-0.8414, 0.2450)
1384  .. controls (-0.8020, 0.1990) and (-0.8201, 0.1971) .. (-0.7629, 0.1540)
1385  .. controls (-0.7462, 0.1414) and (-0.7054, 0.1023) .. (-0.6834, 0.1181)
1386  .. controls (-0.6662, 0.1304) and (-0.6813, 0.1625) .. (-0.6882, 0.1768)
1387  .. controls (-0.7213, 0.2456) and (-0.7865, 0.2417) .. (-0.8004, 0.2965)
1388  .. controls (-0.8052, 0.3154) and (-0.7990, 0.3413) .. (-0.7969, 0.3634)
1389  --cycle
1390  ( 0.8244, 0.3214)
1391  .. controls ( 0.8136, 0.3128) and ( 0.8080, 0.2984) .. ( 0.8114, 0.2706)

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1392 .. controls ( 0.8314, 0.2739) and ( 0.8424, 0.2735) .. ( 0.8526, 0.2710)
1393 --cycle
1394 ( 0.5015, 0.3207)
1395 .. controls ( 0.4943, 0.3196) and ( 0.4861, 0.3171) .. ( 0.4766, 0.3130)
1396 .. controls ( 0.4611, 0.2827) and ( 0.4839, 0.2747) .. ( 0.5028, 0.2521)
1397 -- ( 0.5376, 0.1972)
1398 .. controls ( 0.5529, 0.1772) and ( 0.5728, 0.1698) .. ( 0.5845, 0.1426)
1399 .. controls ( 0.5979, 0.1115) and ( 0.5837, 0.0732) .. ( 0.5987, 0.0532)
1400 .. controls ( 0.6095, 0.0384) and ( 0.6236, 0.0428) .. ( 0.6350, 0.0532)
1401 .. controls ( 0.6681, 0.0842) and ( 0.6456, 0.1087) .. ( 0.6482, 0.1429)
1402 .. controls ( 0.6481, 0.1614) and ( 0.6596, 0.1802) .. ( 0.6482, 0.1967)
1403 .. controls ( 0.6390, 0.2131) and ( 0.5992, 0.2239) .. ( 0.5768, 0.2483)
1404 .. controls ( 0.5547, 0.2722) and ( 0.5524, 0.3288) .. ( 0.5015, 0.3207)
1405 --cycle
1406 (-0.5678, 0.3115)
1407 .. controls (-0.5832, 0.3118) and (-0.6140, 0.2810) .. (-0.6269, 0.2706)
1408 .. controls (-0.6185, 0.2412) and (-0.5926, 0.1953) .. (-0.5973, 0.1685)
1409 .. controls (-0.6029, 0.1373) and (-0.6320, 0.1239) .. (-0.6369, 0.0996)
1410 .. controls (-0.6406, 0.0816) and (-0.6303, 0.0652) .. (-0.6237, 0.0493)
1411 .. controls (-0.6147, 0.0275) and (-0.6000,-0.0443) .. (-0.5641,-0.0258)
1412 .. controls (-0.5134,-0.0018) and (-0.5902, 0.0606) .. (-0.5641, 0.1074)
1413 .. controls (-0.5332, 0.1697) and (-0.4913, 0.1444) .. (-0.4481, 0.1593)
1414 .. controls (-0.3913, 0.1792) and (-0.3439, 0.2446) .. (-0.3545, 0.3046)
1415 -- (-0.4568, 0.2201)
1416 -- (-0.5588, 0.2201)
1417 .. controls (-0.5549, 0.2390) and (-0.5305, 0.3109) .. (-0.5678, 0.3115)
1418 --cycle
1419 ( 0.2243, 0.2813)
1420 -- ( 0.1631, 0.2450)
1421 -- ( 0.0965, 0.2281)
1422 -- ( 0.1689, 0.1131)
1423 -- ( 0.2065, 0.0861)
1424 .. controls ( 0.2453, 0.0564) and ( 0.2384, 0.0410) .. ( 0.2923, 0.0323)
1425 -- ( 0.2988,-0.0188)
1426 .. controls ( 0.2994,-0.0695) and ( 0.2657,-0.0796) .. ( 0.2249,-0.0579)
1427 .. controls ( 0.1337,-0.0093) and ( 0.1545, 0.0219) .. ( 0.1102, 0.0744)
1428 .. controls ( 0.0914, 0.0967) and ( 0.0807, 0.1010) .. ( 0.0539, 0.1089)
1429 .. controls ( 0.0562, 0.0613) and ( 0.0756,-0.0434) .. ( 0.0403,-0.0825)
1430 .. controls ( 0.0293,-0.0948) and (-0.0336,-0.1168) .. (-0.0567,-0.1294)
1431 .. controls (-0.0615,-0.1087) and (-0.0777,-0.0729) .. (-0.0703,-0.0546)
1432 .. controls (-0.0586,-0.0251) and ( 0.0562, 0.0040) .. (-0.0152, 0.0389)
1433 -- (-0.0397, 0.0480)
1434 -- (-0.0737, 0.0578)
1435 .. controls (-0.0806, 0.0391) and (-0.0849, 0.0192) .. (-0.1018, 0.0068)
1436 .. controls (-0.1154,-0.0032) and (-0.1352,-0.0018) .. (-0.1438,-0.0212)
1437 .. controls (-0.1562,-0.0491) and (-0.1117,-0.1243) .. (-0.0874,-0.1373)
1438 .. controls (-0.0745,-0.1434) and (-0.0687,-0.1394) .. (-0.0567,-0.1373)
1439 .. controls (-0.0358,-0.2033) and (-0.0062,-0.1612) .. ( 0.0370,-0.1500)
1440 -- ( 0.1050,-0.1379)
1441 .. controls ( 0.0882,-0.0871) and ( 0.0808,-0.0999) .. ( 0.0965,-0.0443)
1442 .. controls ( 0.1454,-0.0619) and ( 0.1336,-0.0743) .. ( 0.1664,-0.0940)
1443 .. controls ( 0.1897,-0.1081) and ( 0.2226,-0.1052) .. ( 0.2361,-0.1388)
1444 .. controls ( 0.2495,-0.1724) and ( 0.2245,-0.1963) .. ( 0.2412,-0.2584)

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1445 .. controls ( 0.2526,-0.2569) and ( 0.2622,-0.2548) .. ( 0.2735,-0.2584)
1446 .. controls ( 0.2987,-0.2708) and ( 0.3225,-0.3241) .. ( 0.3212,-0.3506)
1447 .. controls ( 0.3203,-0.3711) and ( 0.3053,-0.3950) .. ( 0.3008,-0.4443)
1448 -- ( 0.2497,-0.4187)
1449 .. controls ( 0.2599,-0.4479) and ( 0.2621,-0.4475) .. ( 0.2905,-0.4528)
1450 .. controls ( 0.2877,-0.4715) and ( 0.2799,-0.4998) .. ( 0.2905,-0.5182)
1451 .. controls ( 0.2991,-0.5392) and ( 0.3228,-0.5357) .. ( 0.3346,-0.5182)
1452 .. controls ( 0.3506,-0.4943) and ( 0.3355,-0.4515) .. ( 0.3532,-0.4203)
1453 .. controls ( 0.3716,-0.3881) and ( 0.4096,-0.3844) .. ( 0.4084,-0.3499)
1454 .. controls ( 0.4074,-0.3241) and ( 0.3866,-0.3087) .. ( 0.3728,-0.2897)
1455 -- ( 0.3426,-0.2337)
1456 -- ( 0.2989,-0.1879)
1457 .. controls ( 0.2810,-0.1587) and ( 0.2976,-0.1327) .. ( 0.3187,-0.1323)
1458 .. controls ( 0.3342,-0.1319) and ( 0.3489,-0.1451) .. ( 0.3603,-0.1541)
1459 .. controls ( 0.3817,-0.1712) and ( 0.4026,-0.1894) .. ( 0.4144,-0.2146)
1460 .. controls ( 0.4299,-0.2477) and ( 0.4289,-0.2977) .. ( 0.4712,-0.3110)
1461 .. controls ( 0.4957,-0.3188) and ( 0.5167,-0.3024) .. ( 0.5044,-0.2753)
1462 .. controls ( 0.4967,-0.2585) and ( 0.4769,-0.2471) .. ( 0.4676,-0.2227)
1463 .. controls ( 0.4582,-0.1981) and ( 0.4681,-0.1743) .. ( 0.4488,-0.1492)
1464 .. controls ( 0.4286,-0.1227) and ( 0.3809,-0.1095) .. ( 0.3621,-0.0696)
1465 .. controls ( 0.3402,-0.0230) and ( 0.3896, 0.0270) .. ( 0.3092, 0.0408)
1466 -- ( 0.3532, 0.1933)
1467 -- ( 0.3944, 0.2536)
1468 -- ( 0.3433, 0.2765)
1469 --cycle
1470 ( 0.2497, 0.2450)
1471 -- ( 0.2782, 0.2025)
1472 .. controls ( 0.2843, 0.1911) and ( 0.2884, 0.1815) .. ( 0.2900, 0.1685)
1473 .. controls ( 0.3021, 0.0654) and ( 0.1495, 0.1479) .. ( 0.2135, 0.2245)
1474 .. controls ( 0.2246, 0.2378) and ( 0.2346, 0.2396) .. ( 0.2497, 0.2450)
1475 --cycle
1476 ( 0.8836, 0.2157)
1477 .. controls ( 0.8688, 0.2061) and ( 0.8571, 0.1889) .. ( 0.8687, 0.1736)
1478 .. controls ( 0.8785, 0.1608) and ( 0.8967, 0.1613) .. ( 0.9161, 0.1578)
1479 --cycle
1480 (-0.3035, 0.1940)
1481 .. controls (-0.3340, 0.1390) and (-0.3508, 0.1491) .. (-0.3624, 0.1300)
1482 .. controls (-0.3738, 0.1112) and (-0.3588, 0.0896) .. (-0.3288, 0.0972)
1483 .. controls (-0.2842, 0.1084) and (-0.2392, 0.1714) .. (-0.3035, 0.1940)
1484 --cycle
1485 ( 0.4710, 0.1940)
1486 .. controls ( 0.4330, 0.1525) and ( 0.3961, 0.1447) .. ( 0.4114, 0.0833)
1487 .. controls ( 0.4294, 0.0897) and ( 0.4596, 0.1056) .. ( 0.4776, 0.0984)
1488 .. controls ( 0.5010, 0.0888) and ( 0.5182, 0.0420) .. ( 0.4925, 0.0231)
1489 .. controls ( 0.4698, 0.0064) and ( 0.4500, 0.0299) .. ( 0.3944, 0.0153)
1490 .. controls ( 0.4243,-0.0189) and ( 0.4618,-0.0333) .. ( 0.4765,-0.0621)
1491 .. controls ( 0.4928,-0.0939) and ( 0.4729,-0.1183) .. ( 0.4881,-0.1406)
1492 .. controls ( 0.4977,-0.1549) and ( 0.5241,-0.1630) .. ( 0.5425,-0.1894)
1493 .. controls ( 0.5557,-0.2085) and ( 0.5562,-0.2282) .. ( 0.5657,-0.2485)
1494 -- ( 0.6122,-0.3251)
1495 .. controls ( 0.6335,-0.3720) and ( 0.6160,-0.3973) .. ( 0.6323,-0.4443)
1496 .. controls ( 0.6532,-0.5042) and ( 0.6754,-0.5231) .. ( 0.6973,-0.5440)
1497 -- ( 0.7289,-0.4899)

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1498 .. controls ( 0.7138,-0.4739) and ( 0.6992,-0.4579) .. ( 0.6886,-0.4358)
1499 -- ( 0.6489,-0.2690)
1500 .. controls ( 0.6485,-0.2445) and ( 0.6654,-0.2180) .. ( 0.6598,-0.2002)
1501 .. controls ( 0.6522,-0.1752) and ( 0.6202,-0.1899) .. ( 0.5938,-0.1612)
1502 .. controls ( 0.5619,-0.1263) and ( 0.5907,-0.0980) .. ( 0.5797,-0.0720)
1503 .. controls ( 0.5714,-0.0525) and ( 0.5434,-0.0441) .. ( 0.5374,-0.0184)
1504 .. controls ( 0.5319, 0.0056) and ( 0.5522, 0.0300) .. ( 0.5533, 0.0578)
1505 .. controls ( 0.5548, 0.0943) and ( 0.4981, 0.1701) .. ( 0.4710, 0.1940)
1506 --cycle
1507 (-0.9001, 0.1862)
1508 -- (-0.9386, 0.1201)
1509 .. controls (-0.9374, 0.1181) and (-0.9371, 0.1158) .. (-0.9356, 0.1139)
1510 .. controls (-0.9242, 0.0996) and (-0.9046, 0.0893) .. (-0.8911, 0.0660)
1511 .. controls (-0.8684, 0.0268) and (-0.8960, 0.0297) .. (-0.8592,-0.0296)
1512 .. controls (-0.8262,-0.0830) and (-0.8655,-0.1092) .. (-0.7971,-0.1209)
1513 -- (-0.7875, 0.0068)
1514 -- (-0.8579, 0.1174)
1515 --cycle
1516 (-0.4453, 0.0979)
1517 .. controls (-0.4922, 0.0916) and (-0.4988, 0.0347) .. (-0.4759, 0.0116)
1518 .. controls (-0.4491,-0.0149) and (-0.4165, 0.0208) .. (-0.3900, 0.0116)
1519 .. controls (-0.3555,-0.0011) and (-0.3800,-0.0410) .. (-0.3751,-0.0698)
1520 -- (-0.3537,-0.1294)
1521 .. controls (-0.3428,-0.1879) and (-0.4042,-0.1777) .. (-0.3801,-0.2656)
1522 .. controls (-0.3617,-0.2531) and (-0.3352,-0.2292) .. (-0.3122,-0.2330)
1523 .. controls (-0.2845,-0.2375) and (-0.2669,-0.2694) .. (-0.2543,-0.2911)
1524 .. controls (-0.2183,-0.3533) and (-0.2004,-0.3613) .. (-0.2184,-0.4358)
1525 .. controls (-0.3300,-0.4097) and (-0.2723,-0.5065) .. (-0.2483,-0.5549)
1526 -- (-0.2129,-0.6314)
1527 .. controls (-0.2017,-0.6508) and (-0.1900,-0.6661) .. (-0.1670,-0.6712)
1528 .. controls (-0.1211,-0.6813) and (-0.1100,-0.6527) .. (-0.1163,-0.6145)
1529 .. controls (-0.1327,-0.6119) and (-0.1427,-0.6118) .. (-0.1568,-0.6009)
1530 .. controls (-0.1780,-0.5845) and (-0.2123,-0.5041) .. (-0.2042,-0.4783)
1531 .. controls (-0.1947,-0.4484) and (-0.1575,-0.4121) .. (-0.1333,-0.3932)
1532 -- (-0.1527,-0.3251)
1533 -- (-0.1588,-0.2656)
1534 .. controls (-0.2187,-0.2715) and (-0.2083,-0.2536) .. (-0.2457,-0.2163)
1535 .. controls (-0.2684,-0.1935) and (-0.2911,-0.1886) .. (-0.2996,-0.1546)
1536 -- (-0.2996,-0.1209)
1537 -- (-0.3232,-0.0698)
1538 .. controls (-0.3283,-0.0435) and (-0.3124,-0.0260) .. (-0.3175,-0.0041)
1539 .. controls (-0.3251, 0.0283) and (-0.3891, 0.0917) .. (-0.4227, 0.0973)
1540 .. controls (-0.4311, 0.0987) and (-0.4386, 0.0989) .. (-0.4453, 0.0979)
1541 --cycle
1542 (-0.1163,-0.6145)
1543 -- (-0.0812,-0.6009)
1544 -- (-0.0509,-0.4868)
1545 -- (-0.0567,-0.4528)
1546 .. controls (-0.1227,-0.4845) and (-0.1350,-0.5483) .. (-0.1163,-0.6145)
1547 --cycle
1548 ( 0.9165, 0.0573)
1549 .. controls ( 0.8982, 0.0512) and ( 0.8800, 0.0260) .. ( 0.8880,-0.0013)
1550 .. controls ( 0.8973,-0.0334) and ( 0.9330,-0.0408) .. ( 0.9466,-0.0703)

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1551 .. controls ( 0.9528,-0.0838) and ( 0.9514,-0.0964) .. ( 0.9506,-0.1091)
1552 -- ( 1.0000,-0.0243)
1553 .. controls ( 0.9816,-0.0179) and ( 0.9678,-0.0119) .. ( 0.9563, 0.0077)
1554 .. controls ( 0.9465, 0.0244) and ( 0.9476, 0.0488) .. ( 0.9340, 0.0564)
1555 .. controls ( 0.9288, 0.0593) and ( 0.9227, 0.0593) .. ( 0.9165, 0.0573)
1556 --cycle
1557 (-0.7064, 0.0069)
1558 .. controls (-0.7128, 0.0077) and (-0.7187, 0.0075) .. (-0.7237, 0.0061)
1559 .. controls (-0.7255, 0.0030) and (-0.7310, 0.0025) .. (-0.7316,-0.0115)
1560 .. controls (-0.7321,-0.0230) and (-0.7071,-0.1058) .. (-0.6984,-0.1096)
1561 .. controls (-0.6872,-0.1176) and (-0.6721,-0.1116) .. (-0.6609,-0.1096)
1562 .. controls (-0.6502,-0.1046) and (-0.6316,-0.0986) .. (-0.6242,-0.0900)
1563 .. controls (-0.5901,-0.0507) and (-0.6615, 0.0017) .. (-0.7064, 0.0069)
1564 --cycle
1565 (-1.0000, 0.0068)
1566 -- (-1.0000, 0.0020)
1567 -- (-0.9548,-0.0788)
1568 .. controls (-0.9170,-0.0310) and (-0.9342,-0.0158) .. (-1.0000, 0.0068)
1569 --cycle
1570 (-0.2643, 0.0054)
1571 .. controls (-0.2853,-0.0295) and (-0.2523,-0.0713) .. (-0.2182,-0.0843)
1572 .. controls (-0.2024,-0.0902) and (-0.1781,-0.0944) .. (-0.1687,-0.0757)
1573 .. controls (-0.1530,-0.0441) and (-0.2378, 0.0095) .. (-0.2643, 0.0054)
1574 --cycle
1575 ( 0.6299,-0.0102)
1576 .. controls ( 0.6155,-0.0145) and ( 0.6071,-0.0342) .. ( 0.6128,-0.0510)
1577 .. controls ( 0.6198,-0.0721) and ( 0.6440,-0.0790) .. ( 0.6606,-0.0986)
1578 .. controls ( 0.6738,-0.1143) and ( 0.6761,-0.1328) .. ( 0.6948,-0.1437)
1579 .. controls ( 0.7092,-0.1520) and ( 0.7311,-0.1484) .. ( 0.7401,-0.1664)
1580 .. controls ( 0.7461,-0.1784) and ( 0.7351,-0.2363) .. ( 0.7348,-0.2570)
1581 .. controls ( 0.7336,-0.3524) and ( 0.7289,-0.3324) .. ( 0.7620,-0.4187)
1582 .. controls ( 0.7631,-0.4216) and ( 0.7642,-0.4246) .. ( 0.7652,-0.4275)
1583 -- ( 0.8003,-0.3672)
1584 .. controls ( 0.7976,-0.3636) and ( 0.7942,-0.3606) .. ( 0.7918,-0.3568)
1585 .. controls ( 0.7778,-0.3349) and ( 0.7645,-0.2537) .. ( 0.7970,-0.2417)
1586 .. controls ( 0.8206,-0.2330) and ( 0.8347,-0.2671) .. ( 0.8432,-0.2822)
1587 -- ( 0.8469,-0.2872)
1588 -- ( 0.8787,-0.2326)
1589 -- ( 0.8594,-0.1993)
1590 .. controls ( 0.8496,-0.1847) and ( 0.7996,-0.1314) .. ( 0.7847,-0.1281)
1591 .. controls ( 0.7712,-0.1229) and ( 0.7642,-0.1268) .. ( 0.7518,-0.1281)
1592 .. controls ( 0.7451,-0.1148) and ( 0.7397,-0.1014) .. ( 0.7293,-0.0886)
1593 -- ( 0.6461,-0.0117)
1594 .. controls ( 0.6402,-0.0090) and ( 0.6347,-0.0087) .. ( 0.6299,-0.0102)
1595 --cycle
1596 (-0.5178,-0.0844)
1597 .. controls (-0.5451,-0.0820) and (-0.5852,-0.0947) .. (-0.5902,-0.1144)
1598 .. controls (-0.6007,-0.1557) and (-0.5621,-0.1731) .. (-0.5414,-0.1997)
1599 .. controls (-0.5274,-0.2177) and (-0.5229,-0.2355) .. (-0.5044,-0.2525)
1600 .. controls (-0.4888,-0.2669) and (-0.4706,-0.2705) .. (-0.4543,-0.2923)
1601 .. controls (-0.4420,-0.3087) and (-0.4220,-0.3707) .. (-0.4141,-0.3932)
1602 .. controls (-0.3620,-0.3875) and (-0.3060,-0.4031) .. (-0.3060,-0.3592)
1603 .. controls (-0.3060,-0.3272) and (-0.3358,-0.3272) .. (-0.3716,-0.3008)

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1604 .. controls (-0.4367,-0.2529) and (-0.4253,-0.2451) .. (-0.4621,-0.1914)
1605 .. controls (-0.4700,-0.1800) and (-0.4814,-0.1685) .. (-0.4867,-0.1556)
1606 .. controls (-0.4970,-0.1308) and (-0.4804,-0.1088) .. (-0.4966,-0.0923)
1607 .. controls (-0.5011,-0.0877) and (-0.5087,-0.0853) .. (-0.5178,-0.0844)
1608 --cycle
1609 (-0.4165,-0.0846)
1610 .. controls (-0.4357,-0.0807) and (-0.4622,-0.1075) .. (-0.4395,-0.1440)
1611 .. controls (-0.4316,-0.1566) and (-0.4254,-0.1571) .. (-0.4141,-0.1634)
1612 .. controls (-0.4094,-0.1522) and (-0.4042,-0.1415) .. (-0.4019,-0.1294)
1613 .. controls (-0.3960,-0.1004) and (-0.4049,-0.0870) .. (-0.4165,-0.0846)
1614 --cycle
1615 (-0.9358,-0.1125)
1616 -- (-0.8813,-0.2098)
1617 .. controls (-0.8768,-0.1903) and (-0.8656,-0.1673) .. (-0.8723,-0.1485)
1618 .. controls (-0.8801,-0.1269) and (-0.9022,-0.1274) .. (-0.9358,-0.1125)
1619 --cycle
1620 ( 0.1455,-0.1458)
1621 .. controls ( 0.1402,-0.1449) and ( 0.1336,-0.1452) .. ( 0.1255,-0.1471)
1622 .. controls ( 0.0901,-0.1850) and ( 0.1064,-0.2454) .. ( 0.1360,-0.2301)
1623 .. controls ( 0.1569,-0.2194) and ( 0.1827,-0.1522) .. ( 0.1455,-0.1458)
1624 --cycle
1625 (-0.1477,-0.1474)
1626 .. controls (-0.1646,-0.1458) and (-0.1813,-0.1543) .. (-0.1847,-0.1659)
1627 .. controls (-0.1889,-0.1806) and (-0.1612,-0.2953) .. (-0.1163,-0.2315)
1628 -- (-0.0420,-0.4418)
1629 .. controls (-0.0291,-0.4661) and (-0.0068,-0.4600) .. ( 0.0136,-0.4880)
1630 .. controls ( 0.0294,-0.5097) and ( 0.0259,-0.5331) .. ( 0.0419,-0.5487)
1631 .. controls ( 0.0694,-0.5755) and ( 0.1462,-0.5710) .. ( 0.1798,-0.6001)
1632 -- ( 0.2188,-0.6436)
1633 .. controls ( 0.2392,-0.6605) and ( 0.2566,-0.6577) .. ( 0.2804,-0.6838)
1634 .. controls ( 0.3122,-0.7186) and ( 0.3037,-0.7586) .. ( 0.3603,-0.7592)
1635 .. controls ( 0.3537,-0.7217) and ( 0.3358,-0.6781) .. ( 0.3603,-0.6427)
1636 .. controls ( 0.3743,-0.6222) and ( 0.3978,-0.6232) .. ( 0.4032,-0.6039)
1637 .. controls ( 0.4084,-0.5852) and ( 0.3901,-0.5654) .. ( 0.3712,-0.5741)
1638 .. controls ( 0.3573,-0.5804) and ( 0.3558,-0.5936) .. ( 0.3518,-0.6044)
1639 .. controls ( 0.3319,-0.6046) and ( 0.2996,-0.6092) .. ( 0.2842,-0.6044)
1640 .. controls ( 0.2568,-0.5917) and ( 0.2515,-0.5648) .. ( 0.2231,-0.5501)
1641 .. controls ( 0.1960,-0.5359) and ( 0.1632,-0.5421) .. ( 0.1413,-0.5292)
1642 -- ( 0.0626,-0.4601)
1643 .. controls ( 0.0525,-0.4430) and ( 0.0547,-0.4207) .. ( 0.0440,-0.4065)
1644 .. controls ( 0.0320,-0.3906) and ( 0.0076,-0.3898) .. (-0.0104,-0.3714)
1645 .. controls (-0.0515,-0.3289) and ( 0.0146,-0.2721) .. (-0.0737,-0.2358)
1646 .. controls (-0.0903,-0.2290) and (-0.0917,-0.2313) .. (-0.1098,-0.2315)
1647 -- (-0.1098,-0.1892)
1648 .. controls (-0.1137,-0.1607) and (-0.1308,-0.1491) .. (-0.1477,-0.1474)
1649 --cycle
1650 (-0.7679,-0.1481)
1651 .. controls (-0.8119,-0.1523) and (-0.8157,-0.2051) .. (-0.8303,-0.2401)
1652 -- (-0.8453,-0.2740)
1653 -- (-0.8299,-0.3015)
1654 .. controls (-0.7861,-0.2968) and (-0.8116,-0.2403) .. (-0.7732,-0.2278)
1655 .. controls (-0.7561,-0.2223) and (-0.7349,-0.2415) .. (-0.7204,-0.2497)
1656 .. controls (-0.6711,-0.2774) and (-0.6473,-0.2864) .. (-0.6524,-0.3506)

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```

1657 -- (-0.6787,-0.3422)
1658 .. controls (-0.6786,-0.3475) and (-0.6826,-0.3544) .. (-0.6787,-0.3655)
1659 .. controls (-0.6635,-0.4244) and (-0.5943,-0.3658) .. (-0.5763,-0.3760)
1660 .. controls (-0.5586,-0.3861) and (-0.5497,-0.4251) .. (-0.5357,-0.4418)
1661 .. controls (-0.5118,-0.4701) and (-0.4694,-0.4662) .. (-0.4504,-0.5047)
1662 .. controls (-0.4231,-0.5599) and (-0.4535,-0.6772) .. (-0.4451,-0.7421)
1663 .. controls (-0.4389,-0.7901) and (-0.4023,-0.8005) .. (-0.3912,-0.8443)
1664 .. controls (-0.3883,-0.8558) and (-0.3874,-0.8667) .. (-0.3869,-0.8774)
1665 -- (-0.3386,-0.8778)
1666 .. controls (-0.3371,-0.8645) and (-0.3342,-0.8523) .. (-0.3394,-0.8358)
1667 .. controls (-0.3448,-0.8167) and (-0.3914,-0.7567) .. (-0.3962,-0.6996)
1668 .. controls (-0.4039,-0.6074) and (-0.3294,-0.5871) .. (-0.3545,-0.4954)
1669 -- (-0.3886,-0.5039)
1670 -- (-0.4196,-0.4442)
1671 -- (-0.4864,-0.4090)
1672 -- (-0.5345,-0.3241)
1673 -- (-0.6106,-0.2802)
1674 -- (-0.6106,-0.1975)
1675 .. controls (-0.6301,-0.2027) and (-0.6486,-0.2101) .. (-0.6694,-0.2022)
1676 .. controls (-0.7004,-0.1904) and (-0.7133,-0.1559) .. (-0.7464,-0.1495)
1677 .. controls (-0.7544,-0.1479) and (-0.7616,-0.1475) .. (-0.7679,-0.1481)
1678 --cycle
1679 ( 0.0029,-0.2060)
1680 .. controls (-0.0139,-0.2731) and ( 0.0196,-0.2608) .. ( 0.0476,-0.3014)
1681 .. controls ( 0.0682,-0.3314) and ( 0.0511,-0.3569) .. ( 0.0750,-0.3784)
1682 .. controls ( 0.0974,-0.3988) and ( 0.1304,-0.3876) .. ( 0.1549,-0.4019)
1683 .. controls ( 0.1795,-0.4164) and ( 0.1878,-0.4529) .. ( 0.1987,-0.4783)
1684 .. controls ( 0.2461,-0.4539) and ( 0.2519,-0.4021) .. ( 0.2180,-0.3618)
1685 .. controls ( 0.1964,-0.3362) and ( 0.1652,-0.3426) .. ( 0.1414,-0.3257)
1686 .. controls ( 0.1198,-0.3103) and ( 0.1183,-0.2881) .. ( 0.1007,-0.2689)
1687 .. controls ( 0.0838,-0.2504) and ( 0.0265,-0.2166) .. ( 0.0029,-0.2060)
1688 --cycle
1689 ( 0.2327,-0.2826)
1690 .. controls ( 0.1961,-0.2955) and ( 0.1961,-0.3123) .. ( 0.2327,-0.3251)
1691 --cycle
1692 (-0.7548,-0.3137)
1693 .. controls (-0.7774,-0.3164) and (-0.7890,-0.3323) .. (-0.7986,-0.3573)
1694 -- (-0.7759,-0.3979)
1695 .. controls (-0.7735,-0.3968) and (-0.7711,-0.3964) .. (-0.7688,-0.3946)
1696 -- (-0.7205,-0.3166)
1697 .. controls (-0.7341,-0.3135) and (-0.7454,-0.3126) .. (-0.7548,-0.3137)
1698 --cycle
1699 ( 0.4114,-0.3847)
1700 .. controls ( 0.4216,-0.4136) and ( 0.4238,-0.4142) .. ( 0.4540,-0.4102)
1701 -- ( 0.4540,-0.3932)
1702 --cycle
1703 ( 0.5395,-0.3997)
1704 .. controls ( 0.5263,-0.3990) and ( 0.5044,-0.4032) .. ( 0.4625,-0.4018)
1705 -- ( 0.4780,-0.4954)
1706 .. controls ( 0.4757,-0.5287) and ( 0.4518,-0.5542) .. ( 0.4648,-0.5776)
1707 .. controls ( 0.4852,-0.6142) and ( 0.5202,-0.5603) .. ( 0.5614,-0.5929)
1708 .. controls ( 0.5752,-0.6038) and ( 0.6063,-0.6359) .. ( 0.6275,-0.6638)
1709 -- ( 0.6570,-0.6132)

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1710 .. controls ( 0.6460,-0.6042) and ( 0.6347,-0.5954) .. ( 0.6268,-0.5865)
1711 -- ( 0.5937,-0.5346)
1712 .. controls ( 0.5648,-0.5023) and ( 0.5031,-0.4880) .. ( 0.5646,-0.4273)
1713 .. controls ( 0.5574,-0.4062) and ( 0.5528,-0.4005) .. ( 0.5395,-0.3997)
1714 --cycle
1715 (-0.6609,-0.4273)
1716 .. controls (-0.7027,-0.4247) and (-0.7300,-0.4414) .. (-0.7397,-0.4624)
1717 -- (-0.7047,-0.5249)
1718 .. controls (-0.7013,-0.5263) and (-0.6989,-0.5282) .. (-0.6950,-0.5294)
1719 .. controls (-0.6935,-0.4878) and (-0.6933,-0.4806) .. (-0.6609,-0.4528)
1720 --cycle
1721 (-0.5689,-0.4528)
1722 .. controls (-0.6368,-0.4677) and (-0.6352,-0.5020) .. (-0.6354,-0.5634)
1723 -- (-0.5757,-0.6071)
1724 -- (-0.5162,-0.6826)
1725 .. controls (-0.5073,-0.6508) and (-0.5037,-0.6125) .. (-0.5241,-0.5838)
1726 .. controls (-0.5384,-0.5639) and (-0.5622,-0.5584) .. (-0.5689,-0.5361)
1727 .. controls (-0.5775,-0.5167) and (-0.5648,-0.4918) .. (-0.5689,-0.4528)
1728 --cycle
1729 (-0.6354,-0.5634)
1730 .. controls (-0.6583,-0.5576) and (-0.6713,-0.5579) .. (-0.6839,-0.5619)
1731 -- (-0.6487,-0.6248)
1732 .. controls (-0.6395,-0.6053) and (-0.6326,-0.5852) .. (-0.6354,-0.5634)
1733 --cycle
1734 (-0.0056,-0.5890)
1735 .. controls (-0.0554,-0.6155) and (-0.0426,-0.6370) .. (-0.0606,-0.6818)
1736 -- (-0.1199,-0.7847)
1737 .. controls (-0.1298,-0.8015) and (-0.1531,-0.8317) .. (-0.1499,-0.8510)
1738 .. controls (-0.1482,-0.8615) and (-0.1397,-0.8702) .. (-0.1295,-0.8795)
1739 -- (-0.0507,-0.8802)
1740 .. controls (-0.0629,-0.8583) and (-0.0745,-0.8380) .. (-0.0742,-0.8358)
1741 .. controls (-0.0792,-0.8239) and (-0.0776,-0.8135) .. (-0.0742,-0.8027)
1742 .. controls (-0.0460,-0.7520) and ( 0.0016,-0.7834) .. ( 0.0277,-0.7780)
1743 .. controls ( 0.0760,-0.7679) and ( 0.1284,-0.6914) .. ( 0.1207,-0.6405)
1744 .. controls ( 0.1150,-0.6017) and ( 0.0841,-0.6082) .. ( 0.0711,-0.6267)
1745 .. controls ( 0.0620,-0.6397) and ( 0.0556,-0.7141) .. ( 0.0539,-0.7336)
1746 .. controls (-0.0413,-0.7085) and ( 0.0139,-0.6637) .. (-0.0056,-0.5890)
1747 --cycle
1748 ( 0.4284,-0.6571)
1749 .. controls ( 0.4285,-0.7307) and ( 0.4284,-0.7652) .. ( 0.5135,-0.7336)
1750 .. controls ( 0.5170,-0.7469) and ( 0.5220,-0.7585) .. ( 0.5179,-0.7726)
1751 .. controls ( 0.5091,-0.8019) and ( 0.4473,-0.8546) .. ( 0.4851,-0.8847)
1752 -- ( 0.4987,-0.8848)
1753 -- ( 0.5768,-0.7509)
1754 .. controls ( 0.5767,-0.7509) and ( 0.5767,-0.7507) .. ( 0.5767,-0.7507)
1755 .. controls ( 0.5412,-0.6652) and ( 0.5083,-0.6726) .. ( 0.4284,-0.6571)
1756 --cycle
1757 (-0.2914,-0.6672)
1758 .. controls (-0.2998,-0.6666) and (-0.3106,-0.6686) .. (-0.3250,-0.6743)
1759 .. controls (-0.3545,-0.7128) and (-0.3081,-0.7358) .. (-0.2850,-0.7678)
1760 .. controls (-0.2710,-0.7873) and (-0.2601,-0.8137) .. (-0.2351,-0.8216)
1761 .. controls (-0.2083,-0.8301) and (-0.1916,-0.8105) .. (-0.1960,-0.7845)
1762 .. controls (-0.2008,-0.7566) and (-0.2232,-0.7418) .. (-0.2396,-0.7216)

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1763 .. controls (-0.2612,-0.6950) and (-0.2660,-0.6690) .. (-0.2914,-0.6672)
1764 --cycle
1765 (-0.5641,-0.6998)
1766 .. controls (-0.5850,-0.6984) and (-0.5808,-0.7367) .. (-0.5766,-0.7507)
1767 .. controls (-0.5748,-0.7566) and (-0.5723,-0.7598) .. (-0.5702,-0.7648)
1768 -- (-0.5492,-0.8022)
1769 .. controls (-0.5310,-0.8247) and (-0.5120,-0.8367) .. (-0.5052,-0.8613)
1770 .. controls (-0.5044,-0.8642) and (-0.5062,-0.8717) .. (-0.5063,-0.8763)
1771 -- (-0.4585,-0.8767)
1772 .. controls (-0.4596,-0.7984) and (-0.5013,-0.7963) .. (-0.5234,-0.7583)
1773 .. controls (-0.5344,-0.7394) and (-0.5352,-0.7120) .. (-0.5535,-0.7030)
1774 .. controls (-0.5576,-0.7010) and (-0.5611,-0.7000) .. (-0.5641,-0.6998)
1775 --cycle
1776 ( 0.1990,-0.7341)
1777 .. controls ( 0.1094,-0.7768) and ( 0.2330,-0.8330) .. ( 0.2586,-0.8828)
1778 -- ( 0.3183,-0.8833)
1779 .. controls ( 0.3165,-0.8684) and ( 0.3066,-0.8565) .. ( 0.2991,-0.8428)
1780 .. controls ( 0.2762,-0.8010) and ( 0.2508,-0.7418) .. ( 0.1990,-0.7341)
1781 --cycle
1782 ( 0.3603,-0.7592)
1783 -- ( 0.3859,-0.8188)
1784 .. controls ( 0.4178,-0.7853) and ( 0.4108,-0.7527) .. ( 0.3603,-0.7592)
1785 --cycle
1786 ( 0.4369,-0.8443)
1787 .. controls ( 0.4147,-0.8480) and ( 0.3837,-0.8661) .. ( 0.3628,-0.8837)
1788 -- ( 0.4240,-0.8842)
1789 .. controls ( 0.4307,-0.8690) and ( 0.4358,-0.8541) .. ( 0.4369,-0.8443)
1790 --cycle
1791 (-0.3205,-0.8528)
1792 -- (-0.3266,-0.8779)
1793 -- (-0.2773,-0.8783)
1794 .. controls (-0.2800,-0.8719) and (-0.2850,-0.8655) .. (-0.2963,-0.8600)
1795 --cycle
1796 ( 0.1093,-0.8568)
1797 .. controls ( 0.0964,-0.8568) and ( 0.0834,-0.8587) .. ( 0.0710,-0.8600)
1798 .. controls ( 0.0605,-0.8611) and ( 0.0403,-0.8617) .. ( 0.0312,-0.8664)
1799 .. controls ( 0.0240,-0.8701) and ( 0.0203,-0.8751) .. ( 0.0184,-0.8808)
1800 -- ( 0.1002,-0.8815)
1801 -- ( 0.1050,-0.8698)
1802 -- ( 0.1085,-0.8815)
1803 -- ( 0.1641,-0.8820)
1804 .. controls ( 0.1606,-0.8757) and ( 0.1553,-0.8698) .. ( 0.1463,-0.8649)
1805 .. controls ( 0.1347,-0.8586) and ( 0.1221,-0.8568) .. ( 0.1093,-0.8568)
1806 --cycle
1807 ;
1808 }
1809 }
1810 \fi

```

hex/terrain/light woods

The draw style for light woods. The pattern is filled with light green, and outline is not drawn.

```
1811 \tikzset{
```

```

1812 hex/terrain/light woods/.style={
1813   draw=none,
1814   fill={rgb,100:red,69;green,98;blue,69}
1815 }
1816 }

```

hex/terrain/light woods

Next, we have light woods.

```

1817 \ifhex@terrain@pic
1818 \tikzset{
1819   hex/terrain/light woods/.pic={
1820     \path[hex/terrain/light woods,pic actions,draw=none]
1821       (-0.4795, 0.8736)
1822       -- (-0.5104, 0.8207)
1823       .. controls (-0.5041, 0.8191) and (-0.4967, 0.8182) .. (-0.4854, 0.8192)
1824       -- (-0.4770, 0.8108)
1825       -- (-0.4854, 0.7856)
1826       -- (-0.5190, 0.8023)
1827       .. controls (-0.5219, 0.7975) and (-0.5245, 0.7958) .. (-0.5272, 0.7916)
1828       -- (-0.5881, 0.6872)
1829       .. controls (-0.5849, 0.6876) and (-0.5819, 0.6876) .. (-0.5782, 0.6885)
1830       .. controls (-0.5524, 0.6946) and (-0.5387, 0.7153) .. (-0.5182, 0.7298)
1831       .. controls (-0.4841, 0.7540) and (-0.4420, 0.7539) .. (-0.4346, 0.7864)
1832       .. controls (-0.4295, 0.8088) and (-0.4470, 0.8265) .. (-0.4572, 0.8444)
1833       .. controls (-0.4631, 0.8549) and (-0.4670, 0.8646) .. (-0.4707, 0.8736)
1834     --cycle
1835     (-0.3185, 0.8722)
1836     .. controls (-0.3478, 0.8487) and (-0.3526, 0.8080) .. (-0.3290, 0.7808)
1837     .. controls (-0.3140, 0.7633) and (-0.2394, 0.7433) .. (-0.2165, 0.7459)
1838     .. controls (-0.1895, 0.7488) and (-0.1787, 0.7643) .. (-0.1561, 0.7725)
1839     .. controls (-0.1380, 0.7791) and (-0.1179, 0.7766) .. (-0.1025, 0.7906)
1840     .. controls (-0.0719, 0.8182) and (-0.0936, 0.8427) .. (-0.1240, 0.8528)
1841     -- (-0.1323, 0.8192)
1842     -- (-0.1912, 0.8359)
1843     .. controls (-0.1985, 0.8023) and (-0.1999, 0.7965) .. (-0.2332, 0.7856)
1844     .. controls (-0.2512, 0.8363) and (-0.2775, 0.8009) .. (-0.2909, 0.8240)
1845     .. controls (-0.2975, 0.8355) and (-0.2884, 0.8535) .. (-0.2756, 0.8719)
1846     --cycle
1847     (-0.1660, 0.8709)
1848     .. controls (-0.1609, 0.8538) and (-0.1460, 0.8596) .. (-0.1371, 0.8707)
1849     --cycle
1850     ( 0.0768, 0.8689)
1851     .. controls ( 0.0767, 0.8688) and ( 0.0765, 0.8686) .. ( 0.0764, 0.8685)
1852     .. controls ( 0.0704, 0.8503) and ( 0.0779, 0.7592) .. ( 0.1533, 0.7700)
1853     .. controls ( 0.1955, 0.7761) and ( 0.1956, 0.8018) .. ( 0.1871, 0.8359)
1854     -- ( 0.1366, 0.8108)
1855     -- ( 0.1510, 0.8683)
1856     --cycle
1857     ( 0.1840, 0.8680)
1858     .. controls ( 0.1910, 0.8650) and ( 0.1993, 0.8662) .. ( 0.2081, 0.8678)
1859     --cycle

```

```

1860 ( 0.2214, 0.8677)
1861 -- ( 0.2459, 0.7939)
1862 .. controls ( 0.1903, 0.7716) and ( 0.2267, 0.7399) .. ( 0.2534, 0.7490)
1863 .. controls ( 0.2925, 0.7624) and ( 0.2842, 0.8066) .. ( 0.2735, 0.8359)
1864 .. controls ( 0.2690, 0.8483) and ( 0.2655, 0.8586) .. ( 0.2619, 0.8674)
1865 --cycle
1866 ( 0.4057, 0.8661)
1867 .. controls ( 0.4149, 0.8349) and ( 0.4483, 0.8068) .. ( 0.4873, 0.8349)
1868 .. controls ( 0.4993, 0.8436) and ( 0.5001, 0.8496) .. ( 0.5065, 0.8612)
1869 .. controls ( 0.5170, 0.8447) and ( 0.5269, 0.8297) .. ( 0.5405, 0.8189)
1870 -- ( 0.5145, 0.8652)
1871 --cycle
1872 (-0.0288, 0.8391)
1873 .. controls (-0.0335, 0.8388) and (-0.0390, 0.8377) .. (-0.0453, 0.8356)
1874 .. controls (-0.0698, 0.8019) and (-0.0347, 0.7882) .. (-0.0173, 0.7966)
1875 .. controls ( 0.0001, 0.8052) and ( 0.0042, 0.8413) .. (-0.0288, 0.8391)
1876 --cycle
1877 ( 0.3888, 0.7856)
1878 -- ( 0.3719, 0.7687)
1879 -- ( 0.3719, 0.7604)
1880 -- ( 0.3888, 0.7435)
1881 -- ( 0.3972, 0.7435)
1882 -- ( 0.4140, 0.7604)
1883 --cycle
1884 (-0.0821, 0.7138)
1885 .. controls (-0.0999, 0.7158) and (-0.1171, 0.7050) .. (-0.1211, 0.6922)
1886 .. controls (-0.1297, 0.6650) and (-0.0695, 0.6250) .. (-0.0468, 0.6186)
1887 .. controls (-0.0352, 0.6169) and (-0.0107, 0.6175) .. ( 0.0022, 0.6186)
1888 .. controls (-0.0326, 0.5765) and (-0.0411, 0.5767) .. (-0.0909, 0.5922)
1889 .. controls (-0.0924, 0.5799) and (-0.0959, 0.5731) .. (-0.0909, 0.5597)
1890 .. controls (-0.0591, 0.4605) and ( 0.1221, 0.6255) .. ( 0.0020, 0.6581)
1891 .. controls (-0.0090, 0.6597) and (-0.0281, 0.6592) .. (-0.0399, 0.6581)
1892 .. controls (-0.0462, 0.6969) and (-0.0645, 0.7118) .. (-0.0821, 0.7138)
1893 --cycle
1894 ( 0.3704, 0.7106)
1895 .. controls ( 0.3510, 0.7072) and ( 0.3332, 0.6943) .. ( 0.3224, 0.6679)
1896 .. controls ( 0.3172, 0.6530) and ( 0.3220, 0.6121) .. ( 0.3224, 0.5922)
1897 -- ( 0.3056, 0.6154)
1898 .. controls ( 0.2531, 0.6742) and ( 0.2322, 0.5554) .. ( 0.2966, 0.5454)
1899 .. controls ( 0.3239, 0.5412) and ( 0.3417, 0.5630) .. ( 0.3972, 0.5670)
1900 .. controls ( 0.4005, 0.5473) and ( 0.4019, 0.5314) .. ( 0.4237, 0.5231)
1901 .. controls ( 0.4541, 0.5116) and ( 0.4961, 0.5392) .. ( 0.4841, 0.5736)
1902 .. controls ( 0.4794, 0.5870) and ( 0.4556, 0.5991) .. ( 0.4331, 0.6106)
1903 .. controls ( 0.4972, 0.6497) and ( 0.4277, 0.7210) .. ( 0.3704, 0.7106)
1904 --cycle
1905 (-0.4679, 0.7004)
1906 .. controls (-0.5116, 0.6983) and (-0.4629, 0.6153) .. (-0.4266, 0.6632)
1907 .. controls (-0.4200, 0.6718) and (-0.4201, 0.6786) .. (-0.4182, 0.6846)
1908 -- (-0.4434, 0.6958)
1909 .. controls (-0.4536, 0.6993) and (-0.4618, 0.7007) .. (-0.4679, 0.7004)
1910 --cycle
1911 ( 0.5653, 0.7002)
1912 .. controls ( 0.5661, 0.6911) and ( 0.5658, 0.6799) .. ( 0.5704, 0.6702)

```

```

1913 .. controls ( 0.5856, 0.6381) and ( 0.6183, 0.6504) .. ( 0.6246, 0.6688)
1914 -- ( 0.6102, 0.6944)
1915 .. controls ( 0.6066, 0.6965) and ( 0.6036, 0.6986) .. ( 0.5984, 0.7002)
1916 .. controls ( 0.5884, 0.7016) and ( 0.5757, 0.7012) .. ( 0.5653, 0.7002)
1917 --cycle
1918 ( 0.1310, 0.6925)
1919 .. controls ( 0.1003, 0.6568) and ( 0.1392, 0.6414) .. ( 0.1582, 0.6530)
1920 .. controls ( 0.1772, 0.6646) and ( 0.1778, 0.7030) .. ( 0.1310, 0.6925)
1921 --cycle
1922 (-0.3425, 0.6846)
1923 .. controls (-0.3485, 0.6703) and (-0.3540, 0.6584) .. (-0.3564, 0.6427)
1924 .. controls (-0.3714, 0.5438) and (-0.2673, 0.5839) .. (-0.3103, 0.6583)
1925 .. controls (-0.3198, 0.6747) and (-0.3272, 0.6765) .. (-0.3425, 0.6846)
1926 --cycle
1927 (-0.1828, 0.6763)
1928 .. controls (-0.2468, 0.6411) and (-0.2396, 0.5532) .. (-0.1659, 0.5602)
1929 .. controls (-0.1273, 0.5639) and (-0.0946, 0.6066) .. (-0.1492, 0.6258)
1930 -- (-0.1828, 0.6006)
1931 --cycle
1932 ( 0.3972, 0.6763)
1933 -- ( 0.4287, 0.6131)
1934 .. controls ( 0.4206, 0.6173) and ( 0.4113, 0.6217) .. ( 0.4056, 0.6258)
1935 -- ( 0.3719, 0.6006)
1936 .. controls ( 0.3635, 0.6415) and ( 0.3652, 0.6489) .. ( 0.3972, 0.6763)
1937 --cycle
1938 ( 0.5737, 0.6319)
1939 -- ( 0.5485, 0.6258)
1940 .. controls ( 0.5516, 0.6201) and ( 0.5520, 0.6138) .. ( 0.5614, 0.6043)
1941 .. controls ( 0.6074, 0.5569) and ( 0.6453, 0.6371) .. ( 0.5737, 0.6319)
1942 --cycle
1943 (-0.6211, 0.6305)
1944 -- (-0.6755, 0.5370)
1945 -- (-0.6787, 0.5166)
1946 .. controls (-0.6809, 0.5180) and (-0.6832, 0.5188) .. (-0.6854, 0.5203)
1947 -- (-0.7191, 0.4623)
1948 -- (-0.7291, 0.4073)
1949 .. controls (-0.7367, 0.4126) and (-0.7403, 0.4136) .. (-0.7456, 0.4169)
1950 -- (-0.7651, 0.3834)
1951 .. controls (-0.7455, 0.3798) and (-0.7239, 0.3727) .. (-0.7052, 0.3845)
1952 .. controls (-0.6739, 0.3993) and (-0.6763, 0.4662) .. (-0.6703, 0.4998)
1953 .. controls (-0.6178, 0.4665) and (-0.6044, 0.4826) .. (-0.5611, 0.5204)
1954 .. controls (-0.5440, 0.5353) and (-0.5267, 0.5491) .. (-0.5345, 0.5748)
1955 .. controls (-0.5466, 0.6149) and (-0.5841, 0.6243) .. (-0.6211, 0.6305)
1956 --cycle
1957 (-0.6450, 0.5670)
1958 -- (-0.5862, 0.5670)
1959 .. controls (-0.6029, 0.5328) and (-0.6086, 0.5274) .. (-0.6450, 0.5166)
1960 --cycle
1961 ( 0.5940, 0.5141)
1962 .. controls ( 0.5876, 0.5135) and ( 0.5814, 0.5119) .. ( 0.5737, 0.5105)
1963 .. controls ( 0.5529, 0.5005) and ( 0.5203, 0.4878) .. ( 0.5123, 0.4644)
1964 .. controls ( 0.5022, 0.4349) and ( 0.5312, 0.3332) .. ( 0.5982, 0.3551)
1965 .. controls ( 0.6173, 0.3612) and ( 0.6614, 0.3963) .. ( 0.6651, 0.4168)

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1966 .. controls ( 0.6700, 0.4432) and ( 0.6406, 0.5019) .. ( 0.6149, 0.5105)
1967 .. controls ( 0.6066, 0.5139) and ( 0.6003, 0.5146) .. ( 0.5940, 0.5141)
1968 --cycle
1969 ( 0.0525, 0.5036)
1970 .. controls ( 0.0223, 0.5016) and ( 0.0014, 0.4715) .. (-0.0147, 0.4493)
1971 .. controls (-0.0480, 0.4823) and (-0.1271, 0.5502) .. (-0.1240, 0.4493)
1972 -- (-0.0819, 0.4661)
1973 .. controls (-0.0631, 0.4289) and ( 0.0054, 0.3259) .. ( 0.0443, 0.3176)
1974 .. controls ( 0.1031, 0.3051) and ( 0.1431, 0.3862) .. ( 0.0694, 0.3989)
1975 .. controls ( 0.0551, 0.3118) and ( 0.0044, 0.4056) .. ( 0.0316, 0.4326)
1976 .. controls ( 0.0741, 0.4748) and ( 0.1233, 0.3699) .. ( 0.1388, 0.4261)
1977 .. controls ( 0.1477, 0.4584) and ( 0.0813, 0.5057) .. ( 0.0525, 0.5036)
1978 --cycle
1979 ( 0.6073, 0.4745)
1980 -- ( 0.6242, 0.4241)
1981 -- ( 0.5569, 0.3989)
1982 -- ( 0.5569, 0.4493)
1983 --cycle
1984 (-0.3498, 0.4626)
1985 .. controls (-0.3744, 0.4586) and (-0.3998, 0.4069) .. (-0.3941, 0.3847)
1986 .. controls (-0.3893, 0.3661) and (-0.3650, 0.3651) .. (-0.3503, 0.3798)
1987 -- (-0.3257, 0.4157)
1988 .. controls (-0.3295, 0.3698) and (-0.2940, 0.3485) .. (-0.2697, 0.3592)
1989 .. controls (-0.2492, 0.3684) and (-0.2611, 0.3898) .. (-0.2697, 0.4024)
1990 .. controls (-0.2865, 0.4277) and (-0.3149, 0.4682) .. (-0.3498, 0.4626)
1991 --cycle
1992 ( 0.7488, 0.4472)
1993 .. controls ( 0.7446, 0.4429) and ( 0.7413, 0.4378) .. ( 0.7395, 0.4315)
1994 .. controls ( 0.7338, 0.4111) and ( 0.7612, 0.3277) .. ( 0.8087, 0.3352)
1995 .. controls ( 0.8094, 0.3354) and ( 0.8102, 0.3361) .. ( 0.8109, 0.3364)
1996 --cycle
1997 (-0.1492, 0.4409)
1998 .. controls (-0.1577, 0.3701) and (-0.1298, 0.3577) .. (-0.0651, 0.3568)
1999 .. controls (-0.0461, 0.3027) and (-0.0025, 0.3462) .. (-0.0567, 0.3652)
2000 -- (-0.0567, 0.3568)
2001 -- (-0.0651, 0.3652)
2002 -- (-0.0567, 0.3652)
2003 -- (-0.0567, 0.3989)
2004 -- (-0.0988, 0.3905)
2005 .. controls (-0.1116, 0.4252) and (-0.1112, 0.4344) .. (-0.1492, 0.4409)
2006 --cycle
2007 ( 0.2869, 0.4351)
2008 .. controls ( 0.2475, 0.4293) and ( 0.2234, 0.3681) .. ( 0.2795, 0.3485)
2009 -- ( 0.3048, 0.3905)
2010 .. controls ( 0.3028, 0.3760) and ( 0.3013, 0.3442) .. ( 0.3278, 0.3583)
2011 .. controls ( 0.3557, 0.3731) and ( 0.3437, 0.4227) .. ( 0.3046, 0.4338)
2012 .. controls ( 0.2985, 0.4356) and ( 0.2925, 0.4359) .. ( 0.2869, 0.4351)
2013 --cycle
2014 (-0.5352, 0.4038)
2015 .. controls (-0.5519, 0.4042) and (-0.5689, 0.3932) .. (-0.5778, 0.3652)
2016 -- (-0.5358, 0.3652)
2017 -- (-0.5442, 0.3149)
2018 -- (-0.6030, 0.3401)

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2019 .. controls (-0.6099, 0.3078) and (-0.5933, 0.2580) .. (-0.5523, 0.2636)
2020 .. controls (-0.5251, 0.2673) and (-0.4980, 0.3070) .. (-0.4910, 0.3316)
2021 .. controls (-0.4799, 0.3705) and (-0.5072, 0.4030) .. (-0.5352, 0.4038)
2022 --cycle
2023 ( 0.4056, 0.3989)
2024 .. controls ( 0.4011, 0.3650) and ( 0.4064, 0.3627) .. ( 0.4392, 0.3568)
2025 .. controls ( 0.4340, 0.3865) and ( 0.4336, 0.3876) .. ( 0.4056, 0.3989)
2026 --cycle
2027 (-0.2248, 0.3737)
2028 -- (-0.2164, 0.3401)
2029 -- (-0.1828, 0.3568)
2030 --cycle
2031 ( 0.4558, 0.3414)
2032 .. controls ( 0.4424, 0.3419) and ( 0.4339, 0.3363) .. ( 0.4224, 0.3316)
2033 -- ( 0.4340, 0.2885)
2034 .. controls ( 0.4635, 0.2154) and ( 0.5405, 0.3381) .. ( 0.4558, 0.3414)
2035 --cycle
2036 (-0.3179, 0.3382)
2037 .. controls (-0.3270, 0.3401) and (-0.3357, 0.3403) .. (-0.3425, 0.3381)
2038 .. controls (-0.3762, 0.3275) and (-0.3957, 0.2970) .. (-0.4013, 0.2644)
2039 -- (-0.3341, 0.2892)
2040 .. controls (-0.3207, 0.2121) and (-0.2456, 0.2402) .. (-0.2545, 0.2892)
2041 .. controls (-0.2586, 0.3110) and (-0.2906, 0.3324) .. (-0.3179, 0.3382)
2042 --cycle
2043 ( 0.3611, 0.3359)
2044 .. controls ( 0.3110, 0.3372) and ( 0.2179, 0.3015) .. ( 0.2626, 0.2392)
2045 -- ( 0.2207, 0.2056)
2046 -- ( 0.2123, 0.2308)
2047 -- ( 0.1955, 0.2308)
2048 .. controls ( 0.1691, 0.1342) and ( 0.2461, 0.1660) .. ( 0.2711, 0.1678)
2049 .. controls ( 0.3105, 0.1704) and ( 0.3525, 0.1635) .. ( 0.3836, 0.2013)
2050 .. controls ( 0.4000, 0.2213) and ( 0.3935, 0.2469) .. ( 0.3552, 0.2434)
2051 .. controls ( 0.3256, 0.2408) and ( 0.3193, 0.2282) .. ( 0.3048, 0.2056)
2052 .. controls ( 0.2927, 0.2510) and ( 0.2970, 0.2476) .. ( 0.3131, 0.2897)
2053 -- ( 0.3552, 0.2728)
2054 -- ( 0.3636, 0.2980)
2055 -- ( 0.3719, 0.2644)
2056 .. controls ( 0.4287, 0.2825) and ( 0.4092, 0.3226) .. ( 0.3795, 0.3331)
2057 .. controls ( 0.3746, 0.3349) and ( 0.3683, 0.3357) .. ( 0.3611, 0.3359)
2058 --cycle
2059 (-0.7326, 0.3304)
2060 .. controls (-0.7558, 0.2996) and (-0.7303, 0.2839) .. (-0.7147, 0.2917)
2061 .. controls (-0.6982, 0.3000) and (-0.6941, 0.3349) .. (-0.7326, 0.3304)
2062 --cycle
2063 ( 0.5316, 0.3064)
2064 .. controls ( 0.5417, 0.2779) and ( 0.5439, 0.2772) .. ( 0.5737, 0.2813)
2065 .. controls ( 0.5591, 0.3056) and ( 0.5600, 0.3049) .. ( 0.5316, 0.3064)
2066 --cycle
2067 ( 0.7063, 0.2870)
2068 .. controls ( 0.6995, 0.2880) and ( 0.6923, 0.2874) .. ( 0.6840, 0.2844)
2069 .. controls ( 0.6531, 0.2731) and ( 0.6307, 0.2270) .. ( 0.6242, 0.1972)
2070 -- ( 0.6914, 0.2056)
2071 -- ( 0.6914, 0.2475)

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2072 -- ( 0.7166, 0.2139)
2073 -- ( 0.7670, 0.2224)
2074 -- ( 0.7670, 0.1887)
2075 -- ( 0.8091, 0.1804)
2076 -- ( 0.7755, 0.1047)
2077 -- ( 0.8343, 0.1131)
2078 .. controls ( 0.8409, 0.1435) and ( 0.8409, 0.1473) .. ( 0.8679, 0.1636)
2079 .. controls ( 0.8652, 0.1490) and ( 0.8470, 0.0581) .. ( 0.8896, 0.0809)
2080 .. controls ( 0.9211, 0.0965) and ( 0.9103, 0.1720) .. ( 0.8896, 0.1909)
2081 .. controls ( 0.8668, 0.2094) and ( 0.8421, 0.2029) .. ( 0.8174, 0.1972)
2082 .. controls ( 0.8135, 0.2098) and ( 0.8137, 0.2162) .. ( 0.8041, 0.2272)
2083 .. controls ( 0.7922, 0.2408) and ( 0.7748, 0.2458) .. ( 0.7601, 0.2552)
2084 .. controls ( 0.7419, 0.2667) and ( 0.7266, 0.2841) .. ( 0.7063, 0.2870)
2085 --cycle
2086 ( 0.6242, 0.1972)
2087 .. controls ( 0.6061, 0.1985) and ( 0.5845, 0.2023) .. ( 0.5690, 0.1902)
2088 .. controls ( 0.5426, 0.1695) and ( 0.5550, 0.1248) .. ( 0.5909, 0.1110)
2089 .. controls ( 0.6168, 0.1011) and ( 0.6421, 0.1125) .. ( 0.6679, 0.1215)
2090 .. controls ( 0.6663, 0.1076) and ( 0.6658, 0.0850) .. ( 0.6679, 0.0720)
2091 .. controls ( 0.6961, -0.0135) and ( 0.8163, 0.0895) .. ( 0.7250, 0.1215)
2092 -- ( 0.6998, 0.0795)
2093 -- ( 0.7166, 0.1299)
2094 -- ( 0.6830, 0.1804)
2095 -- ( 0.6578, 0.1636)
2096 --cycle
2097 ( 0.0950, 0.2671)
2098 .. controls ( 0.0367, 0.2427) and ( 0.0851, 0.1985) .. ( 0.1112, 0.2040)
2099 .. controls ( 0.1427, 0.2110) and ( 0.1597, 0.2672) .. ( 0.0950, 0.2671)
2100 --cycle
2101 (-0.0988, 0.2609)
2102 .. controls (-0.1426, 0.2672) and (-0.2761, 0.1879) .. (-0.1828, 0.1551)
2103 -- (-0.1743, 0.1972)
2104 -- (-0.1240, 0.1804)
2105 -- (-0.0904, 0.2308)
2106 -- (-0.1071, 0.1720)
2107 .. controls (-0.0221, 0.1543) and (-0.0435, 0.2528) .. (-0.0988, 0.2609)
2108 --cycle
2109 (-0.8142, 0.2071)
2110 .. controls (-0.8258, 0.2070) and (-0.8375, 0.2012) .. (-0.8466, 0.1869)
2111 .. controls (-0.8534, 0.1760) and (-0.8533, 0.1669) .. (-0.8551, 0.1551)
2112 -- (-0.7963, 0.1636)
2113 -- (-0.8132, 0.1215)
2114 .. controls (-0.8020, 0.1234) and (-0.7923, 0.1232) .. (-0.7821, 0.1301)
2115 .. controls (-0.7447, 0.1557) and (-0.7793, 0.2072) .. (-0.8142, 0.2071)
2116 --cycle
2117 (-0.2584, 0.2056)
2118 -- (-0.2584, 0.1636)
2119 .. controls (-0.2445, 0.1848) and (-0.2445, 0.1843) .. (-0.2584, 0.2056)
2120 --cycle
2121 (-0.7132, 0.1953)
2122 .. controls (-0.7373, 0.1910) and (-0.7568, 0.1647) .. (-0.7459, 0.1215)
2123 -- (-0.6955, 0.1551)
2124 .. controls (-0.7015, 0.1043) and (-0.7057, 0.0835) .. (-0.6450, 0.0963)

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2125 -- (-0.6535, 0.0711)
2126 .. controls (-0.5898, 0.0580) and (-0.5907, 0.1071) .. (-0.6081, 0.1249)
2127 .. controls (-0.6203, 0.1374) and (-0.6375, 0.1370) .. (-0.6535, 0.1383)
2128 .. controls (-0.6607, 0.1823) and (-0.6892, 0.1997) .. (-0.7132, 0.1953)
2129 --cycle
2130 (-0.4097, 0.1720)
2131 -- (-0.3845, 0.1215)
2132 -- (-0.4097, 0.0963)
2133 -- (-0.4349, 0.1047)
2134 .. controls (-0.4598,-0.0134) and (-0.2772, 0.1076) .. (-0.3690, 0.1621)
2135 .. controls (-0.3821, 0.1699) and (-0.3951, 0.1703) .. (-0.4097, 0.1720)
2136 --cycle
2137 ( 0.4374, 0.1711)
2138 .. controls ( 0.4200, 0.1682) and ( 0.4016, 0.1543) .. ( 0.3888, 0.1299)
2139 -- ( 0.4477, 0.1299)
2140 .. controls ( 0.4703, 0.1056) and ( 0.4891, 0.1252) .. ( 0.4798, 0.1463)
2141 .. controls ( 0.4711, 0.1661) and ( 0.4548, 0.1741) .. ( 0.4374, 0.1711)
2142 --cycle
2143 (-0.4594, 0.1707)
2144 .. controls (-0.4648, 0.1719) and (-0.4705, 0.1718) .. (-0.4752, 0.1698)
2145 .. controls (-0.4878, 0.1646) and (-0.4954, 0.1508) .. (-0.4982, 0.1382)
2146 .. controls (-0.5096, 0.0875) and (-0.4448, 0.0609) .. (-0.4602, 0.1299)
2147 .. controls (-0.4304, 0.1504) and (-0.4433, 0.1669) .. (-0.4594, 0.1707)
2148 --cycle
2149 (-0.0230, 0.1592)
2150 .. controls (-0.0727, 0.1609) and (-0.0799, 0.1002) .. (-0.1492, 0.0795)
2151 -- (-0.1576, 0.0374)
2152 .. controls (-0.1940, 0.0779) and (-0.1965, 0.0894) .. (-0.2500, 0.0711)
2153 -- (-0.2584, 0.0795)
2154 -- (-0.2332, 0.1383)
2155 .. controls (-0.2779, 0.1347) and (-0.3158, 0.0997) .. (-0.2855, 0.0563)
2156 .. controls (-0.2695, 0.0332) and (-0.2481, 0.0337) .. (-0.2256, 0.0248)
2157 .. controls (-0.1803, 0.0069) and (-0.1541,-0.0311) .. (-0.1155, 0.0290)
2158 .. controls (-0.0607, 0.0067) and (-0.0553,-0.0150) .. (-0.0307,-0.0232)
2159 .. controls ( 0.0157,-0.0389) and ( 0.0524, 0.0035) .. ( 0.0442, 0.0543)
2160 .. controls ( 0.0843, 0.0613) and ( 0.1010, 0.0937) .. ( 0.0727, 0.1263)
2161 .. controls ( 0.0598, 0.1414) and (-0.0030, 0.1586) .. (-0.0230, 0.1592)
2162 --cycle
2163 (-0.0230, 0.1215)
2164 -- ( 0.0442, 0.1131)
2165 .. controls ( 0.0289, 0.0705) and ( 0.0228, 0.0356) .. (-0.0230, 0.0207)
2166 .. controls (-0.0339, 0.0543) and (-0.0383, 0.0572) .. (-0.0735, 0.0543)
2167 -- (-0.0819, 0.0627)
2168 --cycle
2169 (-0.8973, 0.1131)
2170 .. controls (-0.9051, 0.0492) and (-0.8679, 0.0676) .. (-0.8321, 0.0457)
2171 .. controls (-0.7996, 0.0258) and (-0.7906,-0.0272) .. (-0.7039,-0.0046)
2172 .. controls (-0.6977,-0.0167) and (-0.6964,-0.0237) .. (-0.6846,-0.0331)
2173 .. controls (-0.6146,-0.0891) and (-0.5741, 0.0485) .. (-0.6619, 0.0396)
2174 .. controls (-0.6723, 0.0384) and (-0.6856, 0.0326) .. (-0.6955, 0.0290)
2175 .. controls (-0.7145, 0.0487) and (-0.7442, 0.0435) .. (-0.7712, 0.0459)
2176 -- (-0.7771, 0.0746)
2177 --cycle

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2178 ( 0.7839, 0.0627)
2179 .. controls ( 0.7798, 0.0513) and ( 0.7748, 0.0421) .. ( 0.7752, 0.0292)
2180 .. controls ( 0.7776,-0.0409) and ( 0.8888, 0.0073) .. ( 0.8169, 0.0493)
2181 .. controls ( 0.8064, 0.0555) and ( 0.7952, 0.0587) .. ( 0.7839, 0.0627)
2182 --cycle
2183 ( 0.6399, 0.0543)
2184 .. controls ( 0.6341, 0.0555) and ( 0.6275, 0.0553) .. ( 0.6207, 0.0536)
2185 .. controls ( 0.5899, 0.0092) and ( 0.6489,-0.0145) .. ( 0.6606, 0.0149)
2186 .. controls ( 0.6690, 0.0359) and ( 0.6576, 0.0510) .. ( 0.6399, 0.0543)
2187 --cycle
2188 ( 0.2228, 0.0528)
2189 .. controls ( 0.1887, 0.0319) and ( 0.2131,-0.0076) .. ( 0.2361,-0.0078)
2190 .. controls ( 0.2619,-0.0080) and ( 0.2726, 0.0432) .. ( 0.2228, 0.0528)
2191 --cycle
2192 ( 0.4509, 0.0479)
2193 .. controls ( 0.4394, 0.0460) and ( 0.4290, 0.0332) .. ( 0.4224, 0.0038)
2194 .. controls ( 0.3826, 0.0304) and ( 0.3797, 0.0371) .. ( 0.3300, 0.0301)
2195 .. controls ( 0.3175, 0.0283) and ( 0.3021, 0.0266) .. ( 0.2915, 0.0192)
2196 .. controls ( 0.2691, 0.0036) and ( 0.2444,-0.0690) .. ( 0.3552,-0.0718)
2197 -- ( 0.3131,-0.0046)
2198 .. controls ( 0.3436,-0.0165) and ( 0.3418,-0.0171) .. ( 0.3719,-0.0046)
2199 .. controls ( 0.3961,-0.0513) and ( 0.4113,-0.0431) .. ( 0.4560,-0.0298)
2200 -- ( 0.4560, 0.0038)
2201 -- ( 0.4812,-0.0466)
2202 .. controls ( 0.4281,-0.0863) and ( 0.4953,-0.1091) .. ( 0.5137,-0.0706)
2203 .. controls ( 0.5296,-0.0376) and ( 0.4853, 0.0538) .. ( 0.4509, 0.0479)
2204 --cycle
2205 (-0.9381, 0.0440)
2206 .. controls (-0.9573, 0.0465) and (-0.9752, 0.0361) .. (-0.9800, 0.0016)
2207 -- (-0.9774,-0.0032)
2208 -- (-0.9308, 0.0123)
2209 .. controls (-0.9260, 0.0012) and (-0.9218,-0.0135) .. (-0.9103,-0.0200)
2210 .. controls (-0.8939,-0.0290) and (-0.8783,-0.0112) .. (-0.8895, 0.0115)
2211 .. controls (-0.8962, 0.0252) and (-0.9176, 0.0414) .. (-0.9381, 0.0440)
2212 --cycle
2213 ( 0.9435, 0.0207)
2214 -- ( 0.9184, 0.0123)
2215 -- ( 0.9435,-0.0046)
2216 --cycle
2217 ( 0.8999,-0.0129)
2218 .. controls ( 0.9000,-0.0216) and ( 0.8974,-0.0282) .. ( 0.8999,-0.0376)
2219 .. controls ( 0.9043,-0.0955) and ( 0.9800,-0.0453) .. ( 0.9254,-0.0191)
2220 .. controls ( 0.9173,-0.0151) and ( 0.9098,-0.0148) .. ( 0.8999,-0.0129)
2221 --cycle
2222 (-0.5187,-0.0249)
2223 .. controls (-0.5448,-0.0284) and (-0.5586,-0.0592) .. (-0.5611,-0.0886)
2224 -- (-0.5022,-0.0718)
2225 .. controls (-0.5038,-0.1199) and (-0.4832,-0.1244) .. (-0.4434,-0.1054)
2226 -- (-0.4349,-0.1139)
2227 -- (-0.5106,-0.1811)
2228 -- (-0.5442,-0.1475)
2229 -- (-0.5274,-0.1139)
2230 .. controls (-0.5482,-0.1103) and (-0.5717,-0.1068) .. (-0.5806,-0.1326)

```

```

2231 .. controls (-0.5943,-0.1714) and (-0.5235,-0.2179) .. (-0.5014,-0.2194)
2232 .. controls (-0.4612,-0.2223) and (-0.4187,-0.1658) .. (-0.4108,-0.1306)
2233 .. controls (-0.4075,-0.1185) and (-0.4054,-0.1026) .. (-0.4108,-0.0911)
2234 .. controls (-0.4193,-0.0753) and (-0.4422,-0.0688) .. (-0.4571,-0.0576)
2235 -- (-0.4884,-0.0315)
2236 .. controls (-0.4999,-0.0256) and (-0.5100,-0.0237) .. (-0.5187,-0.0249)
2237 --cycle
2238 ( 0.2098,-0.0382)
2239 .. controls ( 0.1959,-0.0434) and ( 0.1851,-0.0663) .. ( 0.1925,-0.0882)
2240 .. controls ( 0.2035,-0.1206) and ( 0.2830,-0.1639) .. ( 0.2964,-0.0882)
2241 .. controls ( 0.2773,-0.0896) and ( 0.2586,-0.0934) .. ( 0.2447,-0.0768)
2242 .. controls ( 0.2363,-0.0666) and ( 0.2352,-0.0463) .. ( 0.2242,-0.0396)
2243 .. controls ( 0.2194,-0.0367) and ( 0.2145,-0.0365) .. ( 0.2098,-0.0382)
2244 --cycle
2245 (-0.2960,-0.0452)
2246 .. controls (-0.3231,-0.0465) and (-0.3530,-0.0602) .. (-0.3592,-0.0683)
2247 .. controls (-0.3758,-0.0903) and (-0.3560,-0.1221) .. (-0.3845,-0.1979)
2248 -- (-0.4013,-0.1727)
2249 -- (-0.4182,-0.1727)
2250 .. controls (-0.4336,-0.2291) and (-0.4124,-0.2782) .. (-0.3803,-0.2577)
2251 .. controls (-0.3601,-0.2446) and (-0.3538,-0.2099) .. (-0.3392,-0.1970)
2252 .. controls (-0.3137,-0.1743) and (-0.2596,-0.2064) .. (-0.2752,-0.1306)
2253 -- (-0.3257,-0.1558)
2254 -- (-0.3341,-0.1475)
2255 -- (-0.3341,-0.0970)
2256 -- (-0.2500,-0.0970)
2257 .. controls (-0.2447,-0.0551) and (-0.2689,-0.0439) .. (-0.2960,-0.0452)
2258 --cycle
2259 ( 0.6563,-0.0662)
2260 .. controls ( 0.6458,-0.0662) and ( 0.6374,-0.0668) .. ( 0.6332,-0.0685)
2261 .. controls ( 0.5970,-0.0835) and ( 0.6057,-0.1189) .. ( 0.6332,-0.1391)
2262 -- ( 0.6493,-0.0970)
2263 -- ( 0.6662,-0.0970)
2264 .. controls ( 0.6850,-0.1248) and ( 0.6940,-0.1204) .. ( 0.7250,-0.1139)
2265 -- ( 0.7081,-0.1475)
2266 .. controls ( 0.7837,-0.1829) and ( 0.7876,-0.1033) .. ( 0.7490,-0.0804)
2267 .. controls ( 0.7374,-0.0735) and ( 0.6877,-0.0664) .. ( 0.6563,-0.0662)
2268 --cycle
2269 ( 0.7081,-0.1475)
2270 .. controls ( 0.6742,-0.1429) and ( 0.6720,-0.1483) .. ( 0.6662,-0.1811)
2271 .. controls ( 0.6162,-0.1289) and ( 0.6115,-0.1833) .. ( 0.6244,-0.2044)
2272 .. controls ( 0.6426,-0.2346) and ( 0.6823,-0.2320) .. ( 0.7016,-0.2044)
2273 .. controls ( 0.7147,-0.1858) and ( 0.7107,-0.1681) .. ( 0.7081,-0.1475)
2274 --cycle
2275 ( 0.0544,-0.0769)
2276 .. controls ( 0.0466,-0.0773) and ( 0.0382,-0.0797) .. ( 0.0297,-0.0845)
2277 -- (-0.0147,-0.1139)
2278 .. controls (-0.0057,-0.1396) and (-0.0069,-0.1385) .. ( 0.0189,-0.1475)
2279 .. controls (-0.0074,-0.2147) and ( 0.0346,-0.2081) .. ( 0.0553,-0.1870)
2280 .. controls ( 0.0667,-0.1752) and ( 0.0961,-0.1299) .. ( 0.0958,-0.1139)
2281 .. controls ( 0.0955,-0.0925) and ( 0.0776,-0.0759) .. ( 0.0544,-0.0769)
2282 --cycle
2283 ( 0.3572,-0.0881)

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2284 .. controls ( 0.3447,-0.0867) and ( 0.3392,-0.1053) .. ( 0.3450,-0.1208)
2285 .. controls ( 0.3587,-0.1579) and ( 0.4169,-0.1493) .. ( 0.4239,-0.1208)
2286 .. controls ( 0.4287,-0.1010) and ( 0.4113,-0.0745) .. ( 0.3888,-0.0970)
2287 -- ( 0.3719,-0.0970)
2288 .. controls ( 0.3663,-0.0912) and ( 0.3613,-0.0886) .. ( 0.3572,-0.0881)
2289 --cycle
2290 ( 0.7250,-0.1054)
2291 -- ( 0.7333,-0.1054)
2292 -- ( 0.7333,-0.1139)
2293 --cycle
2294 (-0.7357,-0.1221)
2295 .. controls (-0.7405,-0.1203) and (-0.7472,-0.1201) .. (-0.7562,-0.1227)
2296 .. controls (-0.7721,-0.1527) and (-0.7463,-0.1606) .. (-0.7339,-0.1532)
2297 .. controls (-0.7244,-0.1475) and (-0.7214,-0.1275) .. (-0.7357,-0.1221)
2298 --cycle
2299 (-0.8606,-0.1378)
2300 .. controls (-0.8718,-0.1386) and (-0.8832,-0.1446) .. (-0.8941,-0.1518)
2301 -- (-0.8728,-0.1897)
2302 -- (-0.8468,-0.1811)
2303 -- (-0.8613,-0.2102)
2304 -- (-0.8317,-0.2631)
2305 .. controls (-0.7953,-0.2270) and (-0.7967,-0.1536) .. (-0.8471,-0.1391)
2306 .. controls (-0.8514,-0.1378) and (-0.8560,-0.1374) .. (-0.8606,-0.1378)
2307 --cycle
2308 ( 0.9187,-0.1555)
2309 .. controls ( 0.9083,-0.1585) and ( 0.8971,-0.1627) .. ( 0.8847,-0.1675)
2310 .. controls ( 0.8669,-0.1743) and ( 0.8469,-0.1785) .. ( 0.8399,-0.1989)
2311 .. controls ( 0.8307,-0.2247) and ( 0.8481,-0.2329) .. ( 0.8679,-0.2399)
2312 -- ( 0.8847,-0.2063)
2313 .. controls ( 0.8863,-0.2068) and ( 0.8871,-0.2069) .. ( 0.8886,-0.2074)
2314 --cycle
2315 ( 0.8679,-0.2399)
2316 .. controls ( 0.8663,-0.2432) and ( 0.8651,-0.2468) .. ( 0.8637,-0.2502)
2317 -- ( 0.8693,-0.2405)
2318 .. controls ( 0.8687,-0.2402) and ( 0.8685,-0.2401) .. ( 0.8679,-0.2399)
2319 --cycle
2320 ( 0.4392,-0.1558)
2321 -- ( 0.4332,-0.1807)
2322 .. controls ( 0.4281,-0.2431) and ( 0.5089,-0.2120) .. ( 0.4618,-0.1688)
2323 .. controls ( 0.4519,-0.1597) and ( 0.4457,-0.1593) .. ( 0.4392,-0.1558)
2324 --cycle
2325 (-0.6846,-0.1952)
2326 .. controls (-0.6966,-0.1951) and (-0.7082,-0.2013) .. (-0.7157,-0.2171)
2327 .. controls (-0.7203,-0.2268) and (-0.7199,-0.2378) .. (-0.7207,-0.2483)
2328 -- (-0.6787,-0.2399)
2329 -- (-0.6703,-0.2735)
2330 .. controls (-0.6096,-0.2523) and (-0.6488,-0.1955) .. (-0.6846,-0.1952)
2331 --cycle
2332 (-0.1120,-0.2035)
2333 .. controls (-0.1188,-0.2048) and (-0.1255,-0.2071) .. (-0.1323,-0.2089)
2334 .. controls (-0.1785,-0.2217) and (-0.2021,-0.2285) .. (-0.1912,-0.2819)
2335 -- (-0.0988,-0.2483)
2336 -- (-0.0651,-0.2740)

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2337 .. controls (-0.0333,-0.3228) and (-0.0165,-0.2917) .. (-0.0209,-0.2740)
2338 .. controls (-0.0243,-0.2616) and (-0.0384,-0.2481) .. (-0.0474,-0.2386)
2339 .. controls (-0.0590,-0.2264) and (-0.0744,-0.2085) .. (-0.0911,-0.2040)
2340 .. controls (-0.0982,-0.2021) and (-0.1052,-0.2023) .. (-0.1120,-0.2035)
2341 --cycle
2342 ( 0.1647,-0.2053)
2343 .. controls ( 0.1471,-0.2058) and ( 0.1297,-0.2092) .. ( 0.1164,-0.2148)
2344 .. controls ( 0.0833,-0.2632) and ( 0.1207,-0.3872) .. ( 0.1933,-0.3346)
2345 .. controls ( 0.2031,-0.3275) and ( 0.2109,-0.3165) .. ( 0.2178,-0.3068)
2346 .. controls ( 0.2722,-0.2297) and ( 0.2177,-0.2039) .. ( 0.1647,-0.2053)
2347 --cycle
2348 ( 0.3262,-0.2328)
2349 .. controls ( 0.3073,-0.2617) and ( 0.3314,-0.2707) .. ( 0.3420,-0.2638)
2350 .. controls ( 0.3522,-0.2572) and ( 0.3585,-0.2285) .. ( 0.3262,-0.2328)
2351 --cycle
2352 ( 0.1534,-0.2399)
2353 -- ( 0.2039,-0.2483)
2354 -- ( 0.1534,-0.2987)
2355 --cycle
2356 ( 0.5217,-0.2636)
2357 .. controls ( 0.5071,-0.2632) and ( 0.4918,-0.2708) .. ( 0.4798,-0.2909)
2358 .. controls ( 0.4713,-0.3051) and ( 0.4736,-0.3094) .. ( 0.4728,-0.3240)
2359 -- ( 0.4812,-0.3240)
2360 -- ( 0.4812,-0.3324)
2361 -- ( 0.5232,-0.2987)
2362 -- ( 0.5232,-0.3492)
2363 .. controls ( 0.6028,-0.3358) and ( 0.5655,-0.2645) .. ( 0.5217,-0.2636)
2364 --cycle
2365 ( 0.4812,-0.3324)
2366 -- ( 0.4728,-0.3240)
2367 .. controls ( 0.4525,-0.3209) and ( 0.4056,-0.3074) .. ( 0.3892,-0.3106)
2368 .. controls ( 0.3596,-0.3163) and ( 0.3503,-0.3437) .. ( 0.3892,-0.3660)
2369 -- ( 0.3972,-0.3407)
2370 .. controls ( 0.4281,-0.3611) and ( 0.4279,-0.3612) .. ( 0.4644,-0.3576)
2371 -- ( 0.4560,-0.4080)
2372 .. controls ( 0.5104,-0.3986) and ( 0.5053,-0.3736) .. ( 0.4812,-0.3324)
2373 --cycle
2374 ( 0.7282,-0.2775)
2375 .. controls ( 0.7176,-0.2768) and ( 0.7066,-0.2782) .. ( 0.6965,-0.2822)
2376 .. controls ( 0.6458,-0.3532) and ( 0.7574,-0.3899) .. ( 0.7782,-0.3306)
2377 .. controls ( 0.7887,-0.3013) and ( 0.7602,-0.2797) .. ( 0.7282,-0.2775)
2378 --cycle
2379 (-0.2465,-0.2903)
2380 .. controls (-0.2987,-0.3042) and (-0.2344,-0.4071) .. (-0.2306,-0.4102)
2381 .. controls (-0.1938,-0.4396) and (-0.1663,-0.4010) .. (-0.1299,-0.4027)
2382 .. controls (-0.1140,-0.4034) and (-0.0666,-0.4182) .. (-0.0557,-0.3820)
2383 .. controls (-0.0504,-0.3644) and (-0.0676,-0.3334) .. (-0.0988,-0.3744)
2384 -- (-0.1181,-0.3407)
2385 -- (-0.1308,-0.3168)
2386 .. controls (-0.1675,-0.2582) and (-0.1759,-0.3435) .. (-0.1781,-0.3492)
2387 .. controls (-0.1841,-0.3653) and (-0.1898,-0.3700) .. (-0.1996,-0.3828)
2388 -- (-0.2164,-0.2903)
2389 .. controls (-0.2291,-0.2881) and (-0.2389,-0.2883) .. (-0.2465,-0.2903)

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2390 --cycle
2391 (-0.5947,-0.3156)
2392 -- (-0.6030,-0.3407)
2393 -- (-0.5778,-0.3240)
2394 --cycle
2395 (-0.0014,-0.3194)
2396 .. controls (-0.0278,-0.3131) and (-0.0544,-0.3497) .. (-0.0058,-0.3694)
2397 .. controls ( 0.0049,-0.3738) and ( 0.0162,-0.3735) .. ( 0.0273,-0.3744)
2398 .. controls ( 0.0265,-0.3636) and ( 0.0269,-0.3522) .. ( 0.0223,-0.3420)
2399 .. controls ( 0.0163,-0.3283) and ( 0.0074,-0.3214) .. (-0.0014,-0.3194)
2400 --cycle
2401 (-0.6508,-0.3284)
2402 .. controls (-0.6656,-0.3290) and (-0.6816,-0.3373) .. (-0.6955,-0.3576)
2403 .. controls (-0.7159,-0.3441) and (-0.7363,-0.3292) .. (-0.7624,-0.3378)
2404 .. controls (-0.7705,-0.3405) and (-0.7771,-0.3450) .. (-0.7829,-0.3501)
2405 -- (-0.7599,-0.3912)
2406 -- (-0.7543,-0.3744)
2407 -- (-0.6619,-0.4164)
2408 -- (-0.6619,-0.3660)
2409 -- (-0.6367,-0.4164)
2410 .. controls (-0.5723,-0.3945) and (-0.6064,-0.3266) .. (-0.6508,-0.3284)
2411 --cycle
2412 (-0.5287,-0.3512)
2413 .. controls (-0.5489,-0.3498) and (-0.5690,-0.3591) .. (-0.5764,-0.3751)
2414 .. controls (-0.5966,-0.4192) and (-0.5398,-0.3912) .. (-0.5274,-0.3828)
2415 -- (-0.5190,-0.4500)
2416 -- (-0.5358,-0.4333)
2417 -- (-0.5358,-0.4248)
2418 -- (-0.5611,-0.4248)
2419 .. controls (-0.5664,-0.4641) and (-0.5605,-0.4735) .. (-0.5442,-0.5088)
2420 -- (-0.5274,-0.5088)
2421 .. controls (-0.4972,-0.4701) and (-0.4647,-0.4466) .. (-0.4806,-0.3915)
2422 .. controls (-0.4882,-0.3649) and (-0.5085,-0.3527) .. (-0.5287,-0.3512)
2423 --cycle
2424 ( 0.5485,-0.3594)
2425 .. controls ( 0.5504,-0.3686) and ( 0.5513,-0.3797) .. ( 0.5560,-0.3899)
2426 .. controls ( 0.5831,-0.4490) and ( 0.6446,-0.3809) .. ( 0.5811,-0.3594)
2427 .. controls ( 0.5706,-0.3579) and ( 0.5594,-0.3583) .. ( 0.5485,-0.3594)
2428 --cycle
2429 ( 0.3311,-0.3646)
2430 .. controls ( 0.3201,-0.3659) and ( 0.3103,-0.3791) .. ( 0.3084,-0.3917)
2431 .. controls ( 0.3035,-0.4255) and ( 0.3481,-0.5315) .. ( 0.4140,-0.4669)
2432 .. controls ( 0.4439,-0.4932) and ( 0.4962,-0.5278) .. ( 0.5388,-0.5107)
2433 .. controls ( 0.5684,-0.4989) and ( 0.5806,-0.4516) .. ( 0.5232,-0.4333)
2434 -- ( 0.5232,-0.4669)
2435 .. controls ( 0.4932,-0.4550) and ( 0.4949,-0.4563) .. ( 0.4644,-0.4669)
2436 -- ( 0.4560,-0.4248)
2437 -- ( 0.4224,-0.4417)
2438 -- ( 0.3888,-0.4080)
2439 -- ( 0.3617,-0.4500)
2440 -- ( 0.3617,-0.4080)
2441 .. controls ( 0.3546,-0.3735) and ( 0.3422,-0.3632) .. ( 0.3311,-0.3646)
2442 --cycle

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2443 ( 0.0862,-0.3828)
2444 .. controls ( 0.0086,-0.4104) and ( 0.1258,-0.4856) .. ( 0.1453,-0.4236)
2445 .. controls ( 0.1495,-0.4116) and ( 0.1465,-0.4028) .. ( 0.1453,-0.3912)
2446 -- ( 0.0946,-0.4080)
2447 --cycle
2448 (-0.3761,-0.4056)
2449 .. controls (-0.4460,-0.4310) and (-0.4022,-0.4833) .. (-0.3686,-0.4756)
2450 .. controls (-0.3385,-0.4686) and (-0.3150,-0.4102) .. (-0.3761,-0.4056)
2451 --cycle
2452 (-0.1407,-0.4164)
2453 .. controls (-0.1510,-0.4360) and (-0.1606,-0.4518) .. (-0.1524,-0.4748)
2454 .. controls (-0.1401,-0.5093) and (-0.0958,-0.5218) .. (-0.0687,-0.4961)
2455 .. controls (-0.0363,-0.4652) and (-0.0685,-0.4086) .. (-0.0988,-0.4753)
2456 --cycle
2457 (-0.7345,-0.4223)
2458 .. controls (-0.7375,-0.4223) and (-0.7393,-0.4233) .. (-0.7417,-0.4237)
2459 -- (-0.7259,-0.4519)
2460 -- (-0.7123,-0.4248)
2461 .. controls (-0.7212,-0.4230) and (-0.7284,-0.4222) .. (-0.7345,-0.4223)
2462 --cycle
2463 (-0.6450,-0.4333)
2464 -- (-0.6283,-0.4753)
2465 -- (-0.6959,-0.5053)
2466 -- (-0.6728,-0.5467)
2467 .. controls (-0.6597,-0.5415) and (-0.6464,-0.5310) .. (-0.6353,-0.5238)
2468 .. controls (-0.6229,-0.5161) and (-0.6029,-0.5082) .. (-0.5949,-0.4962)
2469 .. controls (-0.5673,-0.4552) and (-0.6118,-0.4359) .. (-0.6450,-0.4333)
2470 --cycle
2471 ( 0.7515,-0.4421)
2472 .. controls ( 0.7404,-0.4518) and ( 0.7330,-0.4660) .. ( 0.7289,-0.4814)
2473 -- ( 0.7518,-0.4421)
2474 .. controls ( 0.7518,-0.4422) and ( 0.7516,-0.4421) .. ( 0.7515,-0.4421)
2475 --cycle
2476 (-0.7203,-0.4618)
2477 -- (-0.7004,-0.4973)
2478 .. controls (-0.6944,-0.4774) and (-0.6993,-0.4695) .. (-0.7203,-0.4618)
2479 --cycle
2480 ( 0.1694,-0.4873)
2481 .. controls ( 0.1182,-0.4851) and ( 0.0606,-0.5165) .. ( 0.1114,-0.5509)
2482 .. controls ( 0.1043,-0.5681) and ( 0.0968,-0.5809) .. ( 0.1030,-0.6004)
2483 .. controls ( 0.1160,-0.6424) and ( 0.2092,-0.6560) .. ( 0.1955,-0.5761)
2484 -- ( 0.1450,-0.6013)
2485 -- ( 0.1199,-0.5425)
2486 -- ( 0.1282,-0.5341)
2487 .. controls ( 0.1602,-0.5459) and ( 0.1584,-0.5438) .. ( 0.1871,-0.5257)
2488 .. controls ( 0.1977,-0.5856) and ( 0.2311,-0.5564) .. ( 0.2301,-0.5337)
2489 .. controls ( 0.2287,-0.5019) and ( 0.2002,-0.4885) .. ( 0.1694,-0.4873)
2490 --cycle
2491 ( 0.3143,-0.5168)
2492 .. controls ( 0.2653,-0.5233) and ( 0.3123,-0.5809) .. ( 0.3334,-0.5398)
2493 .. controls ( 0.3375,-0.5319) and ( 0.3370,-0.5251) .. ( 0.3384,-0.5168)
2494 --cycle
2495 ( 0.5821,-0.5172)

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2496 -- ( 0.5905,-0.5425)
2497 .. controls ( 0.5223,-0.5546) and ( 0.5461,-0.6299) .. ( 0.5965,-0.6187)
2498 .. controls ( 0.6116,-0.6153) and ( 0.6642,-0.5952) .. ( 0.6693,-0.5808)
2499 .. controls ( 0.6859,-0.5354) and ( 0.6147,-0.5138) .. ( 0.5821,-0.5172)
2500 --cycle
2501 (-0.2667,-0.5315)
2502 .. controls (-0.3091,-0.5364) and (-0.3818,-0.5868) .. (-0.3173,-0.6098)
2503 .. controls (-0.3409,-0.7049) and (-0.2257,-0.7182) .. (-0.2332,-0.6265)
2504 -- (-0.2752,-0.6434)
2505 -- (-0.3173,-0.6013)
2506 .. controls (-0.2964,-0.5962) and (-0.2716,-0.5851) .. (-0.2511,-0.5945)
2507 .. controls (-0.2356,-0.6015) and (-0.2239,-0.6203) .. (-0.2131,-0.6252)
2508 .. controls (-0.1929,-0.6345) and (-0.1822,-0.6134) .. (-0.1883,-0.5942)
2509 .. controls (-0.1944,-0.5749) and (-0.2315,-0.5384) .. (-0.2508,-0.5323)
2510 .. controls (-0.2552,-0.5310) and (-0.2606,-0.5308) .. (-0.2667,-0.5315)
2511 --cycle
2512 ( 0.5989,-0.5509)
2513 -- ( 0.6073,-0.5509)
2514 -- ( 0.6073,-0.5593)
2515 --cycle
2516 (-0.0485,-0.5624)
2517 .. controls (-0.0662,-0.5623) and (-0.0842,-0.5741) .. (-0.0904,-0.6098)
2518 -- (-0.0483,-0.6013)
2519 .. controls (-0.0229,-0.6296) and ( 0.0007,-0.6067) .. (-0.0083,-0.5860)
2520 .. controls (-0.0134,-0.5744) and (-0.0308,-0.5625) .. (-0.0485,-0.5624)
2521 --cycle
2522 (-0.4918,-0.5707)
2523 .. controls (-0.5107,-0.5708) and (-0.5309,-0.5802) .. (-0.5442,-0.6013)
2524 -- (-0.5778,-0.5846)
2525 -- (-0.5862,-0.6181)
2526 .. controls (-0.5249,-0.6353) and (-0.5439,-0.6523) .. (-0.4854,-0.6098)
2527 -- (-0.4937,-0.6770)
2528 -- (-0.5442,-0.6854)
2529 -- (-0.5442,-0.7022)
2530 .. controls (-0.4313,-0.7520) and (-0.4409,-0.6069) .. (-0.4465,-0.5962)
2531 .. controls (-0.4550,-0.5800) and (-0.4728,-0.5707) .. (-0.4918,-0.5707)
2532 --cycle
2533 ( 0.3300,-0.5846)
2534 -- ( 0.3300,-0.6098)
2535 -- ( 0.3552,-0.6098)
2536 -- ( 0.3552,-0.5846)
2537 --cycle
2538 ( 0.3726,-0.6221)
2539 .. controls ( 0.2948,-0.6226) and ( 0.2995,-0.7351) .. ( 0.3726,-0.7632)
2540 .. controls ( 0.4265,-0.7841) and ( 0.4818,-0.7181) .. ( 0.4056,-0.6938)
2541 -- ( 0.3719,-0.7275)
2542 -- ( 0.3719,-0.7027)
2543 .. controls ( 0.3796,-0.6524) and ( 0.4200,-0.6879) .. ( 0.4450,-0.6792)
2544 .. controls ( 0.4638,-0.6728) and ( 0.4659,-0.6470) .. ( 0.4510,-0.6352)
2545 .. controls ( 0.4434,-0.6293) and ( 0.3843,-0.6220) .. ( 0.3726,-0.6221)
2546 --cycle
2547 ( 0.0022,-0.6349)
2548 -- ( 0.0189,-0.6686)

```

```

2549 -- ( 0.0189,-0.6349)
2550 --cycle
2551 (-0.1244,-0.6794)
2552 .. controls (-0.1314,-0.6810) and (-0.1382,-0.6846) .. (-0.1441,-0.6904)
2553 .. controls (-0.1605,-0.7066) and (-0.1526,-0.7279) .. (-0.1607,-0.7464)
2554 -- (-0.1786,-0.7721)
2555 .. controls (-0.1852,-0.7840) and (-0.1929,-0.8079) .. (-0.1728,-0.8122)
2556 .. controls (-0.1636,-0.8142) and (-0.1224,-0.7844) .. (-0.1071,-0.7778)
2557 -- (-0.1155,-0.7106)
2558 -- (-0.0735,-0.7275)
2559 .. controls (-0.0800,-0.6898) and (-0.1033,-0.6748) .. (-0.1244,-0.6794)
2560 --cycle
2561 ( 0.1863,-0.6829)
2562 .. controls ( 0.1792,-0.6828) and ( 0.1712,-0.6837) .. ( 0.1618,-0.6854)
2563 -- ( 0.1618,-0.7022)
2564 -- ( 0.2123,-0.7442)
2565 -- ( 0.1282,-0.7190)
2566 .. controls ( 0.1336,-0.7372) and ( 0.1344,-0.7442) .. ( 0.1476,-0.7594)
2567 .. controls ( 0.1538,-0.7664) and ( 0.1626,-0.7738) .. ( 0.1704,-0.7788)
2568 .. controls ( 0.2127,-0.8054) and ( 0.2462,-0.7806) .. ( 0.2481,-0.7530)
2569 .. controls ( 0.2492,-0.7403) and ( 0.2417,-0.7279) .. ( 0.2353,-0.7175)
2570 .. controls ( 0.2199,-0.6926) and ( 0.2075,-0.6832) .. ( 0.1863,-0.6829)
2571 --cycle
2572 ( 0.5905,-0.6889)
2573 .. controls ( 0.5769,-0.6869) and ( 0.5692,-0.6908) .. ( 0.5569,-0.6938)
2574 -- ( 0.5569,-0.7106)
2575 -- ( 0.5821,-0.7190)
2576 .. controls ( 0.5823,-0.7234) and ( 0.5836,-0.7260) .. ( 0.5844,-0.7296)
2577 -- ( 0.6046,-0.6948)
2578 .. controls ( 0.6001,-0.6927) and ( 0.5958,-0.6898) .. ( 0.5905,-0.6889)
2579 --cycle
2580 (-0.0391,-0.7245)
2581 .. controls (-0.0667,-0.7229) and (-0.0839,-0.7453) .. (-0.0753,-0.7947)
2582 .. controls (-0.0651,-0.8529) and (-0.0367,-0.8483) .. (-0.0106,-0.8698)
2583 -- ( 0.0547,-0.8704)
2584 .. controls ( 0.0548,-0.8616) and ( 0.0567,-0.8516) .. ( 0.0610,-0.8367)
2585 -- ( 0.0189,-0.8367)
2586 .. controls ( 0.0024,-0.8190) and ( 0.0000,-0.8231) .. (-0.0230,-0.8283)
2587 .. controls (-0.0380,-0.7923) and (-0.0454,-0.7840) .. (-0.0399,-0.7442)
2588 -- (-0.0230,-0.7442)
2589 -- (-0.0147,-0.7778)
2590 -- ( 0.0694,-0.7778)
2591 -- ( 0.0525,-0.8199)
2592 -- ( 0.1424,-0.8295)
2593 .. controls ( 0.1612,-0.8227) and ( 0.1619,-0.8006) .. ( 0.1424,-0.7877)
2594 .. controls ( 0.1265,-0.7801) and ( 0.1112,-0.7837) .. ( 0.0946,-0.7877)
2595 .. controls ( 0.0866,-0.7388) and ( 0.0598,-0.7228) .. ( 0.0189,-0.7526)
2596 .. controls (-0.0021,-0.7351) and (-0.0224,-0.7255) .. (-0.0391,-0.7245)
2597 --cycle
2598 (-0.5605,-0.7471)
2599 -- (-0.5242,-0.8116)
2600 .. controls (-0.5223,-0.8116) and (-0.5211,-0.8114) .. (-0.5190,-0.8115)
2601 -- (-0.5201,-0.8191)

```

```

2602 -- (-0.4998,-0.8552)
2603 .. controls (-0.4770,-0.8370) and (-0.4696,-0.8098) .. (-0.4974,-0.7815)
2604 --cycle
2605 (-0.3761,-0.7611)
2606 -- (-0.3845,-0.7694)
2607 -- (-0.3845,-0.7863)
2608 -- (-0.3761,-0.7947)
2609 -- (-0.3593,-0.7947)
2610 -- (-0.3508,-0.7863)
2611 -- (-0.3508,-0.7694)
2612 -- (-0.3593,-0.7611)
2613 --cycle
2614 ( 0.3384,-0.8347)
2615 .. controls ( 0.3106,-0.8395) and ( 0.2888,-0.8533) .. ( 0.2775,-0.8723)
2616 -- ( 0.3442,-0.8729)
2617 -- ( 0.3467,-0.8702)
2618 -- ( 0.3561,-0.8730)
2619 -- ( 0.4348,-0.8736)
2620 .. controls ( 0.4345,-0.8731) and ( 0.4345,-0.8727) .. ( 0.4341,-0.8721)
2621 .. controls ( 0.4186,-0.8512) and ( 0.3640,-0.8304) .. ( 0.3384,-0.8347)
2622 --cycle
2623 (-0.0904,-0.8535)
2624 .. controls (-0.1018,-0.8579) and (-0.1087,-0.8586) .. (-0.1185,-0.8680)
2625 .. controls (-0.1188,-0.8683) and (-0.1189,-0.8687) .. (-0.1192,-0.8690)
2626 -- (-0.0904,-0.8692)
2627 --cycle
2628 (-0.3081,-0.8645)
2629 .. controls (-0.3140,-0.8641) and (-0.3192,-0.8651) .. (-0.3238,-0.8672)
2630 -- (-0.2954,-0.8675)
2631 .. controls (-0.2996,-0.8660) and (-0.3039,-0.8648) .. (-0.3081,-0.8645)
2632 --cycle
2633 ;
2634 }
2635 }
2636 \fi

```

hex/terrain/woods

The style for woods. The pattern is filled with a darker green, and outlines are not drawn.

```

2637 \tikzset{
2638   hex/terrain/woods/.style={
2639     draw=none,
2640     fill={rgb,100:red,27;green,67;blue,27}
2641   }
2642 }

```

hex/terrain/woods

Regular woods.

```

2643 \ifhex@terrain@pic
2644 \tikzset{

```

```

2645 hex/terrain/woods/.pic={
2646   \path[hex/terrain/woods,pic actions,draw=none]
2647   (-0.2656, 0.8694)
2648   .. controls (-0.3133, 0.8640) and (-0.3608, 0.8400) .. (-0.3541, 0.8219)
2649   .. controls (-0.3417, 0.7629) and (-0.2512, 0.7779) .. (-0.2082, 0.7875)
2650   -- (-0.2424, 0.6937)
2651   .. controls (-0.2916, 0.7000) and (-0.3535, 0.6915) .. (-0.3950, 0.6606)
2652   .. controls (-0.4299, 0.6330) and (-0.4373, 0.5909) .. (-0.3950, 0.5657)
2653   .. controls (-0.4092, 0.5022) and (-0.3694, 0.4908) .. (-0.3191, 0.4633)
2654   .. controls (-0.3291, 0.3852) and (-0.2535, 0.3866) .. (-0.2935, 0.4633)
2655   .. controls (-0.2488, 0.4801) and (-0.2488, 0.5071) .. (-0.2778, 0.5156)
2656   .. controls (-0.2888, 0.5201) and (-0.3300, 0.5153) .. (-0.3447, 0.5156)
2657   -- (-0.3191, 0.6255)
2658   -- (-0.2680, 0.6425)
2659   -- (-0.2253, 0.5657)
2660   .. controls (-0.2136, 0.5780) and (-0.2023, 0.5853) .. (-0.2092, 0.6046)
2661   .. controls (-0.2132, 0.6161) and (-0.2403, 0.6366) .. (-0.2260, 0.6502)
2662   .. controls (-0.2044, 0.6711) and (-0.1779, 0.6203) .. (-0.1564, 0.6147)
2663   .. controls (-0.1363, 0.6094) and (-0.1262, 0.6240) .. (-0.1328, 0.6430)
2664   .. controls (-0.1449, 0.6778) and (-0.1661, 0.6737) .. (-0.1741, 0.7278)
2665   .. controls (-0.1213, 0.6943) and (-0.1063, 0.7287) .. (-0.1485, 0.7534)
2666   -- (-0.1058, 0.7875)
2667   -- (-0.0718, 0.7789)
2668   -- (-0.0633, 0.8046)
2669   .. controls (-0.0937, 0.8085) and (-0.0917, 0.8079) .. (-0.1143, 0.7875)
2670   -- (-0.1311, 0.8194)
2671   .. controls (-0.0764, 0.8223) and (-0.0450, 0.8485) .. (-0.0671, 0.8554)
2672   .. controls (-0.1156, 0.8701) and (-0.1015, 0.8233) .. (-0.1806, 0.8398)
2673   .. controls (-0.1900, 0.8580) and (-0.2089, 0.8664) .. (-0.2307, 0.8694)
2674   --cycle
2675   ( 0.3814, 0.8694)
2676   .. controls ( 0.3767, 0.8683) and ( 0.3712, 0.8666) .. ( 0.3632, 0.8643)
2677   -- ( 0.3974, 0.8387)
2678   .. controls ( 0.3974, 0.8591) and ( 0.3972, 0.8674) .. ( 0.3911, 0.8694)
2679   --cycle
2680   (-0.2452, 0.8541)
2681   .. controls (-0.2324, 0.8571) and (-0.2266, 0.8501) .. (-0.2079, 0.8422)
2682   -- (-0.2167, 0.8284)
2683   .. controls (-0.2397, 0.8309) and (-0.2848, 0.8202) .. (-0.2983, 0.8284)
2684   .. controls (-0.3215, 0.8378) and (-0.2860, 0.8342) .. (-0.2614, 0.8473)
2685   .. controls (-0.2547, 0.8509) and (-0.2496, 0.8531) .. (-0.2452, 0.8541)
2686   --cycle
2687   (-0.4331, 0.8427)
2688   .. controls (-0.4534, 0.8538) and (-0.5066, 0.7937) .. (-0.5170, 0.7773)
2689   .. controls (-0.5802, 0.6871) and (-0.6279, 0.5503) .. (-0.6704, 0.5650)
2690   .. controls (-0.6703, 0.5117) and (-0.7322, 0.4917) .. (-0.7340, 0.4547)
2691   .. controls (-0.7365, 0.4053) and (-0.6948, 0.3832) .. (-0.6621, 0.3593)
2692   .. controls (-0.6271, 0.3335) and (-0.6254, 0.2860) .. (-0.5409, 0.3014)
2693   -- (-0.5409, 0.3184)
2694   -- (-0.5750, 0.3099)
2695   -- (-0.5836, 0.3524)
2696   -- (-0.4898, 0.3184)
2697   -- (-0.5068, 0.3696)

```

```

2698 .. controls (-0.4593, 0.3586) and (-0.4552, 0.3659) .. (-0.4214, 0.3269)
2699 .. controls (-0.3754, 0.3528) and (-0.3794, 0.4022) .. (-0.4295, 0.4177)
2700 .. controls (-0.4450, 0.4224) and (-0.4931, 0.4354) .. (-0.5068, 0.4333)
2701 .. controls (-0.5383, 0.4284) and (-0.6200, 0.3557) .. (-0.6774, 0.4548)
2702 -- (-0.6432, 0.4548)
2703 -- (-0.6603, 0.4975)
2704 .. controls (-0.6019, 0.4851) and (-0.6021, 0.5053) .. (-0.5921, 0.5572)
2705 .. controls (-0.4969, 0.5307) and (-0.5431, 0.5224) .. (-0.4812, 0.4890)
2706 .. controls (-0.4749, 0.5293) and (-0.4896, 0.5637) .. (-0.5068, 0.5998)
2707 .. controls (-0.4948, 0.6064) and (-0.4850, 0.6107) .. (-0.4746, 0.6204)
2708 .. controls (-0.4177, 0.6740) and (-0.4877, 0.7151) .. (-0.5154, 0.6423)
2709 .. controls (-0.5225, 0.6240) and (-0.5189, 0.6174) .. (-0.5154, 0.5998)
2710 -- (-0.5889, 0.6190)
2711 .. controls (-0.5889, 0.6190) and (-0.5470, 0.6607) .. (-0.5396, 0.6879)
2712 .. controls (-0.5254, 0.7392) and (-0.4740, 0.7624) .. (-0.4378, 0.7960)
2713 .. controls (-0.4256, 0.8071) and (-0.3322, 0.7872) .. (-0.4331, 0.8427)
2714 --cycle
2715 ( 0.1374, 0.8418)
2716 .. controls ( 0.1320, 0.8428) and ( 0.1261, 0.8424) .. ( 0.1202, 0.8403)
2717 .. controls ( 0.1031, 0.8066) and ( 0.1641, 0.7460) .. ( 0.1812, 0.7545)
2718 .. controls ( 0.1999, 0.7639) and ( 0.1758, 0.8354) .. ( 0.1374, 0.8418)
2719 --cycle
2720 (-0.0462, 0.8217)
2721 -- (-0.0462, 0.7789)
2722 -- (-0.0121, 0.7961)
2723 --cycle
2724 ( 0.3717, 0.8217)
2725 -- ( 0.3717, 0.8046)
2726 -- ( 0.4059, 0.7961)
2727 -- ( 0.4144, 0.8217)
2728 --cycle
2729 ( 0.4898, 0.8122)
2730 .. controls ( 0.4741, 0.8124) and ( 0.4748, 0.7893) .. ( 0.4981, 0.7754)
2731 .. controls ( 0.5017, 0.7550) and ( 0.5313, 0.6452) .. ( 0.5686, 0.6689)
2732 .. controls ( 0.5928, 0.6844) and ( 0.5339, 0.7103) .. ( 0.5653, 0.7412)
2733 .. controls ( 0.5710, 0.7471) and ( 0.5728, 0.7507) .. ( 0.5731, 0.7536)
2734 -- ( 0.5703, 0.7583)
2735 .. controls ( 0.5582, 0.7647) and ( 0.5121, 0.7531) .. ( 0.5343, 0.7796)
2736 .. controls ( 0.5145, 0.8036) and ( 0.4992, 0.8122) .. ( 0.4898, 0.8122)
2737 --cycle
2738 ( 0.3291, 0.7997)
2739 .. controls ( 0.3112, 0.7975) and ( 0.2934, 0.7843) .. ( 0.2780, 0.7757)
2740 .. controls ( 0.2235, 0.7455) and ( 0.1913, 0.7199) .. ( 0.2438, 0.6595)
2741 .. controls ( 0.2287, 0.6542) and ( 0.2176, 0.6521) .. ( 0.2063, 0.6389)
2742 .. controls ( 0.1704, 0.5968) and ( 0.2192, 0.5413) .. ( 0.2430, 0.5712)
2743 .. controls ( 0.2494, 0.5791) and ( 0.2509, 0.6061) .. ( 0.2523, 0.6170)
2744 .. controls ( 0.2545, 0.6376) and ( 0.2547, 0.6388) .. ( 0.2523, 0.6595)
2745 -- ( 0.2865, 0.6681)
2746 .. controls ( 0.3094, 0.6426) and ( 0.3194, 0.6608) .. ( 0.3291, 0.6852)
2747 -- ( 0.2865, 0.6937)
2748 .. controls ( 0.3061, 0.7101) and ( 0.3276, 0.7308) .. ( 0.3547, 0.7322)
2749 .. controls ( 0.3792, 0.7335) and ( 0.4787, 0.6707) .. ( 0.4596, 0.7446)
2750 .. controls ( 0.4487, 0.7866) and ( 0.4132, 0.7751) .. ( 0.3912, 0.7800)

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```

2751 .. controls ( 0.3681, 0.7853) and ( 0.3549, 0.8026) .. ( 0.3291, 0.7997)
2752 --cycle
2753 ( 0.0971, 0.7996)
2754 .. controls ( 0.0971, 0.7996) and (-0.0371, 0.7713) .. (-0.0393, 0.7247)
2755 .. controls (-0.0408, 0.6927) and ( 0.0217, 0.7175) .. ( 0.0521, 0.7277)
2756 .. controls ( 0.0789, 0.7366) and ( 0.0971, 0.7996) .. ( 0.0971, 0.7996)
2757 --cycle
2758 (-0.1571, 0.7961)
2759 -- (-0.1485, 0.7961)
2760 -- (-0.1485, 0.7875)
2761 -- (-0.1400, 0.7875)
2762 -- (-0.1400, 0.7789)
2763 -- (-0.1485, 0.7875)
2764 --cycle
2765 (-0.3689, 0.7733)
2766 .. controls (-0.3791, 0.7835) and (-0.4247, 0.7612) .. (-0.4247, 0.7612)
2767 .. controls (-0.4247, 0.7612) and (-0.4258, 0.7138) .. (-0.4104, 0.7184)
2768 .. controls (-0.3965, 0.7227) and (-0.3586, 0.7631) .. (-0.3689, 0.7733)
2769 --cycle
2770 ( 0.3462, 0.7278)
2771 -- ( 0.3462, 0.6766)
2772 -- ( 0.3804, 0.7107)
2773 --cycle
2774 ( 0.1142, 0.7077)
2775 .. controls ( 0.1016, 0.7065) and ( 0.0878, 0.7029) .. ( 0.0733, 0.6974)
2776 .. controls ( 0.0595, 0.6920) and ( 0.0449, 0.6883) .. ( 0.0332, 0.6789)
2777 .. controls ( 0.0192, 0.6678) and ( 0.0113, 0.6500) .. ( 0.0014, 0.6354)
2778 .. controls (-0.0079, 0.6219) and (-0.0221, 0.6074) .. (-0.0243, 0.5905)
2779 .. controls (-0.0267, 0.5713) and ( 0.0128, 0.4923) .. ( 0.0326, 0.4877)
2780 .. controls ( 0.0455, 0.4824) and ( 0.0530, 0.4866) .. ( 0.0647, 0.4877)
2781 .. controls ( 0.0870, 0.4591) and ( 0.0975, 0.4638) .. ( 0.1331, 0.4633)
2782 .. controls ( 0.1499, 0.4110) and ( 0.1908, 0.4198) .. ( 0.1671, 0.4890)
2783 .. controls ( 0.1267, 0.5142) and ( 0.1094, 0.5105) .. ( 0.0647, 0.4975)
2784 .. controls ( 0.0889, 0.5509) and ( 0.0981, 0.5486) .. ( 0.0733, 0.6084)
2785 .. controls ( 0.1221, 0.6144) and ( 0.1333, 0.6047) .. ( 0.1415, 0.6510)
2786 -- ( 0.1927, 0.6425)
2787 .. controls ( 0.1814, 0.6932) and ( 0.1526, 0.7111) .. ( 0.1142, 0.7077)
2788 --cycle
2789 ( 0.1671, 0.4890)
2790 -- ( 0.2182, 0.4890)
2791 .. controls ( 0.2474, 0.4580) and ( 0.2982, 0.5061) .. ( 0.2981, 0.5238)
2792 .. controls ( 0.2981, 0.5425) and ( 0.2721, 0.5720) .. ( 0.2418, 0.5318)
2793 -- ( 0.2182, 0.4975)
2794 .. controls ( 0.1923, 0.5152) and ( 0.1850, 0.5158) .. ( 0.1671, 0.4890)
2795 --cycle
2796 (-0.1058, 0.6937)
2797 -- (-0.0973, 0.6595)
2798 -- (-0.0802, 0.6595)
2799 -- (-0.0718, 0.6937)
2800 --cycle
2801 ( 0.3889, 0.6852)
2802 .. controls ( 0.3954, 0.6469) and ( 0.4108, 0.6416) .. ( 0.4314, 0.6766)
2803 --cycle

```

```

2804 ( 0.4826, 0.6852)
2805 -- ( 0.4562, 0.6475)
2806 .. controls ( 0.4460, 0.6335) and ( 0.4249, 0.5852) .. ( 0.4639, 0.5976)
2807 .. controls ( 0.4953, 0.6076) and ( 0.5058, 0.6583) .. ( 0.4998, 0.6852)
2808 --cycle
2809 (-0.0879, 0.6326)
2810 .. controls (-0.1189, 0.6139) and (-0.0956, 0.5976) .. (-0.0822, 0.6003)
2811 .. controls (-0.0699, 0.6027) and (-0.0544, 0.6253) .. (-0.0879, 0.6326)
2812 --cycle
2813 ( 0.3034, 0.6255)
2814 -- ( 0.2694, 0.6170)
2815 -- ( 0.2694, 0.5998)
2816 -- ( 0.3034, 0.5913)
2817 --cycle
2818 ( 0.6085, 0.6015)
2819 .. controls ( 0.5969, 0.6043) and ( 0.5796, 0.6004) .. ( 0.5688, 0.5964)
2820 .. controls ( 0.5189, 0.5780) and ( 0.5216, 0.5317) .. ( 0.5338, 0.4890)
2821 .. controls ( 0.5892, 0.5200) and ( 0.5513, 0.5451) .. ( 0.6191, 0.5657)
2822 .. controls ( 0.6318, 0.5296) and ( 0.6176, 0.4979) .. ( 0.6703, 0.5572)
2823 .. controls ( 0.6580, 0.5662) and ( 0.6196, 0.5989) .. ( 0.6085, 0.6015)
2824 --cycle
2825 ( 0.6703, 0.5572)
2826 .. controls ( 0.6650, 0.4639) and ( 0.7377, 0.4434) .. ( 0.6703, 0.5572)
2827 --cycle
2828 ( 0.2950, 0.5828)
2829 -- ( 0.3034, 0.5487)
2830 -- ( 0.3206, 0.5487)
2831 -- ( 0.3291, 0.5572)
2832 -- ( 0.3291, 0.5743)
2833 --cycle
2834 (-0.2167, 0.5572)
2835 .. controls (-0.2524, 0.4984) and (-0.2378, 0.4949) .. (-0.1997, 0.4463)
2836 -- (-0.1656, 0.4548)
2837 -- (-0.1656, 0.4719)
2838 -- (-0.1997, 0.4804)
2839 -- (-0.1997, 0.4719)
2840 -- (-0.2082, 0.4804)
2841 -- (-0.1997, 0.4804)
2842 .. controls (-0.1944, 0.5170) and (-0.1913, 0.5288) .. (-0.2167, 0.5572)
2843 --cycle
2844 ( 0.4528, 0.5567)
2845 .. controls ( 0.4208, 0.5591) and ( 0.3875, 0.5291) .. ( 0.3974, 0.4804)
2846 -- ( 0.4998, 0.5146)
2847 .. controls ( 0.4909, 0.5422) and ( 0.4721, 0.5552) .. ( 0.4528, 0.5567)
2848 --cycle
2849 (-0.5836, 0.5401)
2850 .. controls (-0.5724, 0.5036) and (-0.5428, 0.4697) .. (-0.5238, 0.5231)
2851 --cycle
2852 (-0.0890, 0.5163)
2853 .. controls (-0.1486, 0.4959) and (-0.1212, 0.4523) .. (-0.0806, 0.4615)
2854 .. controls (-0.0429, 0.4702) and (-0.0388, 0.5108) .. (-0.0890, 0.5163)
2855 --cycle
2856 ( 0.3494, 0.5160)

```

```

2857 .. controls ( 0.3442, 0.5162) and ( 0.3376, 0.5157) .. ( 0.3291, 0.5146)
2858 -- ( 0.3632, 0.4804)
2859 .. controls ( 0.3666, 0.5059) and ( 0.3648, 0.5149) .. ( 0.3494, 0.5160)
2860 --cycle
2861 ( 0.6832, 0.4635)
2862 .. controls ( 0.6577, 0.4592) and ( 0.6354, 0.4224) .. ( 0.6277, 0.3866)
2863 -- ( 0.6618, 0.3781)
2864 .. controls ( 0.6758, 0.4215) and ( 0.6897, 0.4164) .. ( 0.7299, 0.4293)
2865 .. controls ( 0.7150, 0.4573) and ( 0.6984, 0.4662) .. ( 0.6832, 0.4635)
2866 --cycle
2867 ( 0.3846, 0.4569)
2868 .. controls ( 0.3643, 0.4547) and ( 0.3427, 0.4484) .. ( 0.3206, 0.4379)
2869 .. controls ( 0.2993, 0.4278) and ( 0.2743, 0.4198) .. ( 0.2665, 0.3948)
2870 .. controls ( 0.2602, 0.3747) and ( 0.2710, 0.3497) .. ( 0.2940, 0.3491)
2871 .. controls ( 0.3208, 0.3484) and ( 0.3628, 0.4037) .. ( 0.4059, 0.3999)
2872 .. controls ( 0.4648, 0.3948) and ( 0.4817, 0.3238) .. ( 0.5508, 0.3184)
2873 -- ( 0.5594, 0.2842)
2874 .. controls ( 0.6325, 0.3301) and ( 0.6184, 0.4000) .. ( 0.5253, 0.3610)
2875 .. controls ( 0.4966, 0.4310) and ( 0.4457, 0.4630) .. ( 0.3846, 0.4569)
2876 --cycle
2877 ( 0.0020, 0.4093)
2878 .. controls (-0.0096, 0.4099) and (-0.0218, 0.4039) .. (-0.0547, 0.3920)
2879 .. controls (-0.0742, 0.3851) and (-0.1009, 0.3815) .. (-0.1085, 0.3591)
2880 .. controls (-0.1143, 0.3413) and (-0.1036, 0.3179) .. (-0.0973, 0.3014)
2881 .. controls (-0.1114, 0.2946) and (-0.1334, 0.2825) .. (-0.1485, 0.2820)
2882 .. controls (-0.1767, 0.2809) and (-0.1949, 0.3055) .. (-0.2182, 0.3110)
2883 .. controls (-0.2417, 0.3165) and (-0.3307, 0.2833) .. (-0.3437, 0.2635)
2884 .. controls (-0.3530, 0.2471) and (-0.3474, 0.2253) .. (-0.3437, 0.2075)
2885 .. controls (-0.4324, 0.1756) and (-0.3706, 0.0831) .. (-0.2765, 0.0710)
2886 .. controls (-0.2795, 0.0550) and (-0.2801, 0.0364) .. (-0.2860, 0.0213)
2887 .. controls (-0.2997,-0.0142) and (-0.3382,-0.0416) .. (-0.2680,-0.0825)
2888 -- (-0.2424, 0.0027)
2889 -- (-0.1997,-0.0143)
2890 .. controls (-0.1918, 0.0295) and (-0.2082, 0.0371) .. (-0.1741, 0.0710)
2891 .. controls (-0.1600, 0.0270) and (-0.1316, 0.0212) .. (-0.1230, 0.0710)
2892 -- (-0.0547, 0.0710)
2893 -- (-0.0547, 0.0198)
2894 .. controls (-0.0089, 0.0346) and (-0.0127, 0.0528) .. (-0.0121, 0.0966)
2895 .. controls ( 0.0434, 0.0981) and ( 0.0809, 0.1179) .. ( 0.0988, 0.1733)
2896 -- ( 0.0561, 0.1477)
2897 -- ( 0.0647, 0.1477)
2898 -- ( 0.0647, 0.1392)
2899 -- ( 0.0561, 0.1477)
2900 -- (-0.0333, 0.1681)
2901 -- (-0.0973, 0.1990)
2902 .. controls (-0.1035, 0.1519) and (-0.0915, 0.1406) .. (-0.0462, 0.1307)
2903 -- (-0.0547, 0.1051)
2904 .. controls (-0.0809, 0.1134) and (-0.1575, 0.1376) .. (-0.1816, 0.1275)
2905 .. controls (-0.1979, 0.1207) and (-0.2008, 0.1105) .. (-0.2082, 0.0966)
2906 -- (-0.2765, 0.0796)
2907 .. controls (-0.2913, 0.1042) and (-0.2904, 0.1037) .. (-0.3191, 0.1051)
2908 -- (-0.3277, 0.1307)
2909 -- (-0.3020, 0.1392)

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2910 -- (-0.3191, 0.1733)
2911 -- (-0.2680, 0.2416)
2912 .. controls (-0.2555, 0.2025) and (-0.2434, 0.1999) .. (-0.2082, 0.1819)
2913 .. controls (-0.2103, 0.2198) and (-0.2204, 0.2217) .. (-0.2509, 0.2416)
2914 -- (-0.1571, 0.2416)
2915 -- (-0.0973, 0.1990)
2916 .. controls (-0.0622, 0.2159) and (-0.0506, 0.2107) .. (-0.0376, 0.2501)
2917 -- (-0.0718, 0.2672)
2918 -- (-0.0121, 0.2842)
2919 -- (-0.0121, 0.3014)
2920 -- (-0.0462, 0.3184)
2921 -- ( 0.0221, 0.3439)
2922 .. controls ( 0.0070, 0.2950) and ( 0.0355, 0.2771) .. ( 0.0818, 0.2757)
2923 -- ( 0.0561, 0.3354)
2924 .. controls ( 0.1139, 0.3092) and ( 0.1160, 0.3517) .. ( 0.0949, 0.3683)
2925 -- ( 0.0561, 0.3859)
2926 .. controls ( 0.0248, 0.4010) and ( 0.0136, 0.4085) .. ( 0.0020, 0.4093)
2927 --cycle
2928 (-0.2680,-0.0825)
2929 .. controls (-0.2752,-0.1245) and (-0.2656,-0.1332) .. (-0.2253,-0.1423)
2930 .. controls (-0.2780,-0.1694) and (-0.3487,-0.1517) .. (-0.3277,-0.2360)
2931 -- (-0.3958,-0.2275)
2932 .. controls (-0.3850,-0.1662) and (-0.4133,-0.1372) .. (-0.4727,-0.1337)
2933 -- (-0.4727,-0.0910)
2934 .. controls (-0.5590,-0.0763) and (-0.5042,-0.0134) .. (-0.5750,-0.0228)
2935 .. controls (-0.5589,-0.0849) and (-0.5477,-0.0819) .. (-0.5750,-0.1423)
2936 .. controls (-0.6476,-0.1314) and (-0.6815,-0.1792) .. (-0.6262,-0.2360)
2937 .. controls (-0.6614,-0.2507) and (-0.6863,-0.2704) .. (-0.6674,-0.3120)
2938 .. controls (-0.6596,-0.3292) and (-0.6399,-0.3442) .. (-0.6461,-0.3629)
2939 .. controls (-0.6528,-0.3836) and (-0.7224,-0.4151) .. (-0.6960,-0.4711)
2940 .. controls (-0.6692,-0.5273) and (-0.5938,-0.5008) .. (-0.6603,-0.4579)
2941 -- (-0.6262,-0.4237)
2942 -- (-0.5921,-0.4579)
2943 .. controls (-0.5645,-0.3552) and (-0.5902,-0.3724) .. (-0.6177,-0.2872)
2944 -- (-0.5750,-0.2531)
2945 -- (-0.6177,-0.2446)
2946 -- (-0.6006,-0.2190)
2947 .. controls (-0.5707,-0.2398) and (-0.5626,-0.2347) .. (-0.5494,-0.2019)
2948 -- (-0.5836,-0.1848)
2949 -- (-0.5153,-0.1592)
2950 .. controls (-0.5297,-0.1903) and (-0.5326,-0.1983) .. (-0.4983,-0.2105)
2951 -- (-0.4983,-0.1763)
2952 .. controls (-0.4268,-0.1951) and (-0.4189,-0.2337) .. (-0.3789,-0.2872)
2953 .. controls (-0.4036,-0.3020) and (-0.4028,-0.3012) .. (-0.4044,-0.3299)
2954 -- (-0.3362,-0.3299)
2955 .. controls (-0.3465,-0.3786) and (-0.3284,-0.3796) .. (-0.2850,-0.3811)
2956 -- (-0.2850,-0.4151)
2957 .. controls (-0.2401,-0.4035) and (-0.1731,-0.3767) .. (-0.1571,-0.3299)
2958 .. controls (-0.1233,-0.3324) and (-0.1022,-0.3221) .. (-0.1230,-0.2872)
2959 -- (-0.1143,-0.2360)
2960 -- (-0.1741,-0.2531)
2961 -- (-0.1741,-0.2701)
2962 -- (-0.1485,-0.2787)

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2963 -- (-0.1571,-0.3214)
2964 -- (-0.2765,-0.3640)
2965 .. controls (-0.2785,-0.3286) and (-0.2853,-0.3271) .. (-0.3191,-0.3214)
2966 -- (-0.3191,-0.3299)
2967 -- (-0.3277,-0.3214)
2968 -- (-0.3191,-0.3214)
2969 .. controls (-0.3191,-0.3214) and (-0.2922,-0.3221) .. (-0.2850,-0.3128)
2970 .. controls (-0.2781,-0.3038) and (-0.2850,-0.2787) .. (-0.2850,-0.2787)
2971 .. controls (-0.2850,-0.2462) and (-0.2522,-0.2669) .. (-0.2424,-0.2360)
2972 -- (-0.2935,-0.2360)
2973 -- (-0.2509,-0.2019)
2974 -- (-0.2424,-0.2360)
2975 .. controls (-0.1852,-0.2624) and (-0.2046,-0.2259) .. (-0.1740,-0.2170)
2976 .. controls (-0.1599,-0.2119) and (-0.1427,-0.2266) .. (-0.1281,-0.2170)
2977 .. controls (-0.1166,-0.2109) and (-0.1070,-0.1747) .. (-0.1656,-0.1848)
2978 -- (-0.2082,-0.0228)
2979 -- (-0.2253,-0.0228)
2980 .. controls (-0.2307,-0.0463) and (-0.2347,-0.0485) .. (-0.2167,-0.0654)
2981 -- (-0.2253,-0.0910)
2982 --cycle
2983 ( 0.7385, 0.3781)
2984 .. controls ( 0.7464, 0.3334) and ( 0.7712, 0.3235) .. ( 0.7897, 0.3696)
2985 --cycle
2986 ( 0.3825, 0.3684)
2987 .. controls ( 0.3722, 0.3709) and ( 0.3598, 0.3638) .. ( 0.3547, 0.3341)
2988 -- ( 0.3712, 0.3341)
2989 .. controls ( 0.4107, 0.3328) and ( 0.3998, 0.3641) .. ( 0.3825, 0.3684)
2990 --cycle
2991 ( 0.3547, 0.3341)
2992 -- ( 0.3034, 0.3280)
2993 .. controls ( 0.2587, 0.3223) and ( 0.2449, 0.3331) .. ( 0.2267, 0.2842)
2994 -- ( 0.1515, 0.2970)
2995 .. controls ( 0.1395, 0.3001) and ( 0.1217, 0.3113) .. ( 0.1096, 0.3062)
2996 .. controls ( 0.0947, 0.3000) and ( 0.0955, 0.2804) .. ( 0.0944, 0.2671)
2997 .. controls ( 0.0897, 0.2118) and ( 0.0889, 0.2059) .. ( 0.1158, 0.1563)
2998 -- ( 0.1331, 0.1563)
2999 -- ( 0.1415, 0.1648)
3000 -- ( 0.1415, 0.2501)
3001 -- ( 0.2449, 0.2446)
3002 .. controls ( 0.2870, 0.2248) and ( 0.2549, 0.1801) .. ( 0.3376, 0.1733)
3003 -- ( 0.3376, 0.2245)
3004 -- ( 0.3889, 0.2075)
3005 .. controls ( 0.3692, 0.2680) and ( 0.3319, 0.2493) .. ( 0.3034, 0.2928)
3006 .. controls ( 0.3440, 0.2858) and ( 0.3561, 0.2934) .. ( 0.3547, 0.3341)
3007 --cycle
3008 ( 0.4285, 0.3341)
3009 .. controls ( 0.4111, 0.3048) and ( 0.4418, 0.2997) .. ( 0.4508, 0.3082)
3010 .. controls ( 0.4603, 0.3170) and ( 0.4582, 0.3376) .. ( 0.4285, 0.3341)
3011 --cycle
3012 ( 0.7199, 0.3309)
3013 .. controls ( 0.7120, 0.3311) and ( 0.7041, 0.3301) .. ( 0.6963, 0.3276)
3014 .. controls ( 0.6516, 0.3141) and ( 0.5998, 0.2127) .. ( 0.6788, 0.2075)
3015 -- ( 0.6874, 0.1819)

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3016 .. controls ( 0.6908, 0.1882) and ( 0.6948, 0.1871) .. ( 0.6958, 0.2009)
3017 .. controls ( 0.6967, 0.2152) and ( 0.6850, 0.2341) .. ( 0.6875, 0.2482)
3018 .. controls ( 0.6912, 0.2697) and ( 0.7185, 0.2790) .. ( 0.7404, 0.2558)
3019 -- ( 0.7556, 0.2330)
3020 .. controls ( 0.8209, 0.2699) and ( 0.7743, 0.3292) .. ( 0.7199, 0.3309)
3021 --cycle
3022 (-0.4641, 0.3269)
3023 -- (-0.4556, 0.2928)
3024 -- (-0.4386, 0.2928)
3025 -- (-0.4300, 0.3269)
3026 --cycle
3027 (-0.3532, 0.3269)
3028 .. controls (-0.3838, 0.3252) and (-0.3857, 0.3233) .. (-0.3874, 0.2928)
3029 .. controls (-0.3613, 0.3019) and (-0.3623, 0.3007) .. (-0.3532, 0.3269)
3030 --cycle
3031 (-0.7723, 0.3114)
3032 .. controls (-0.9303, 0.2491) and (-0.8236, 0.1766) .. (-0.9066, 0.1318)
3033 .. controls (-0.9222, 0.1231) and (-0.9315, 0.1156) .. (-0.9385, 0.1084)
3034 -- (-0.9505, 0.0875)
3035 .. controls (-0.9537, 0.0757) and (-0.9542, 0.0621) .. (-0.9542, 0.0410)
3036 -- (-0.9333, 0.0454)
3037 .. controls (-0.9116, 0.1020) and (-0.8383, 0.0970) .. (-0.8943, 0.1349)
3038 .. controls (-0.8577, 0.1472) and (-0.8473, 0.1249) .. (-0.8748, 0.1652)
3039 -- (-0.8414, 0.1559)
3040 .. controls (-0.8055, 0.1614) and (-0.8119, 0.2075) .. (-0.8279, 0.2170)
3041 .. controls (-0.8020, 0.2197) and (-0.8300, 0.2698) .. (-0.8062, 0.2572)
3042 .. controls (-0.7862, 0.2467) and (-0.7713, 0.2258) .. (-0.7547, 0.2261)
3043 .. controls (-0.7211, 0.2267) and (-0.7384, 0.2895) .. (-0.7723, 0.3114)
3044 --cycle
3045 ( 0.5167, 0.2928)
3046 -- ( 0.5083, 0.2842)
3047 -- ( 0.5083, 0.2672)
3048 -- ( 0.5167, 0.2587)
3049 -- ( 0.5338, 0.2587)
3050 -- ( 0.5423, 0.2672)
3051 -- ( 0.5423, 0.2842)
3052 -- ( 0.5338, 0.2928)
3053 --cycle
3054 ( 0.8233, 0.2914)
3055 .. controls ( 0.8159, 0.2897) and ( 0.8101, 0.2823) .. ( 0.8101, 0.2664)
3056 .. controls ( 0.8101, 0.2592) and ( 0.7901, 0.2245) .. ( 0.7943, 0.2184)
3057 .. controls ( 0.8010, 0.2085) and ( 0.8177, 0.1916) .. ( 0.8341, 0.1843)
3058 -- ( 0.7897, 0.1051)
3059 .. controls ( 0.7638, 0.1109) and ( 0.6977, 0.1143) .. ( 0.6790, 0.0913)
3060 .. controls ( 0.6678, 0.0772) and ( 0.6727, 0.0528) .. ( 0.6644, 0.0283)
3061 .. controls ( 0.6511,-0.0104) and ( 0.6263,-0.0275) .. ( 0.5936,-0.0484)
3062 .. controls ( 0.5977,-0.0521) and ( 0.6009,-0.0593) .. ( 0.6125,-0.0633)
3063 .. controls ( 0.6432,-0.0738) and ( 0.6954,-0.0310) .. ( 0.7067,-0.0043)
3064 .. controls ( 0.7123, 0.0088) and ( 0.7121, 0.0229) .. ( 0.7130, 0.0368)
3065 .. controls ( 0.7585, 0.0333) and ( 0.7707, 0.0484) .. ( 0.7897, 0.0881)
3066 -- ( 0.8409, 0.0027)
3067 .. controls ( 0.7828,-0.0157) and ( 0.7583,-0.0941) .. ( 0.8409,-0.1337)
3068 .. controls ( 0.8561,-0.0647) and ( 0.8176,-0.0742) .. ( 0.8836,-0.0143)

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3069 -- ( 0.9348,-0.0654)
3070 .. controls ( 0.9443,-0.0311) and ( 0.9398,-0.0319) .. ( 0.9430,-0.0008)
3071 .. controls ( 0.9475, 0.0433) and ( 0.9603, 0.0556) .. ( 0.8921, 0.0796)
3072 -- ( 0.8836, 0.0710)
3073 -- ( 0.8836, 0.0540)
3074 -- ( 0.9006, 0.0198)
3075 .. controls ( 0.8705, 0.0555) and ( 0.8589, 0.0671) .. ( 0.8494, 0.1137)
3076 -- ( 0.8921, 0.0881)
3077 .. controls ( 0.9100, 0.1275) and ( 0.9093, 0.1211) .. ( 0.9077, 0.1641)
3078 .. controls ( 0.8502, 0.2199) and ( 0.8502, 0.2055) .. ( 0.8245, 0.2294)
3079 .. controls ( 0.8511, 0.2387) and ( 0.8571, 0.2533) .. ( 0.8546, 0.2660)
3080 -- ( 0.8445, 0.2834)
3081 .. controls ( 0.8380, 0.2892) and ( 0.8301, 0.2928) .. ( 0.8233, 0.2914)
3082 --cycle
3083 (-0.6221, 0.2851)
3084 .. controls (-0.6403, 0.2814) and (-0.6578, 0.2533) .. (-0.6578, 0.2330)
3085 .. controls (-0.6578, 0.2083) and (-0.6228, 0.1685) .. (-0.6090, 0.1392)
3086 .. controls (-0.6712, 0.1174) and (-0.6013, 0.0486) .. (-0.5914, 0.0454)
3087 .. controls (-0.5625, 0.0361) and (-0.5594, 0.0690) .. (-0.5384, 0.0751)
3088 .. controls (-0.5161, 0.0820) and (-0.5142, 0.0619) .. (-0.4641, 0.0796)
3089 .. controls (-0.4838, 0.1372) and (-0.5135, 0.1504) .. (-0.5665, 0.1733)
3090 -- (-0.5323, 0.2075)
3091 -- (-0.5665, 0.2160)
3092 -- (-0.5665, 0.1819)
3093 -- (-0.5921, 0.2245)
3094 -- (-0.6006, 0.2330)
3095 -- (-0.6090, 0.2416)
3096 -- (-0.6006, 0.2416)
3097 -- (-0.6006, 0.2330)
3098 -- (-0.5921, 0.2330)
3099 -- (-0.5921, 0.2245)
3100 .. controls (-0.5591, 0.2361) and (-0.5513, 0.2585) .. (-0.5921, 0.2587)
3101 .. controls (-0.5999, 0.2809) and (-0.6112, 0.2874) .. (-0.6221, 0.2851)
3102 --cycle
3103 (-0.4001, 0.2659)
3104 -- (-0.4398, 0.2231)
3105 -- (-0.4713, 0.1989)
3106 .. controls (-0.5030, 0.1708) and (-0.4873, 0.1496) .. (-0.4486, 0.1607)
3107 .. controls (-0.4215, 0.1683) and (-0.3832, 0.1951) .. (-0.3704, 0.2199)
3108 .. controls (-0.3565, 0.2464) and (-0.3702, 0.2690) .. (-0.4001, 0.2659)
3109 --cycle
3110 ( 0.5167, 0.2501)
3111 .. controls ( 0.4726, 0.2275) and ( 0.4751, 0.2109) .. ( 0.4771, 0.1648)
3112 .. controls ( 0.4776, 0.1495) and ( 0.4771, 0.1247) .. ( 0.4946, 0.1178)
3113 .. controls ( 0.5149, 0.1096) and ( 0.5288, 0.1359) .. ( 0.5681, 0.1435)
3114 .. controls ( 0.6164, 0.1530) and ( 0.6391, 0.1274) .. ( 0.6568, 0.1214)
3115 .. controls ( 0.6669, 0.1180) and ( 0.6795, 0.1163) .. ( 0.6862, 0.1272)
3116 .. controls ( 0.7003, 0.1512) and ( 0.6673, 0.1556) .. ( 0.6532, 0.1563)
3117 .. controls ( 0.6261, 0.2314) and ( 0.5966, 0.1859) .. ( 0.5605, 0.1960)
3118 .. controls ( 0.5390, 0.2022) and ( 0.5268, 0.2319) .. ( 0.5167, 0.2501)
3119 --cycle
3120 (-0.0462, 0.2075)
3121 -- (-0.0462, 0.1819)

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3122 -- (-0.0206, 0.1819)
3123 -- (-0.0206, 0.2075)
3124 --cycle
3125 (-0.7371, 0.1990)
3126 -- (-0.7371, 0.1563)
3127 -- (-0.7115, 0.1905)
3128 -- (-0.7200, 0.1990)
3129 --cycle
3130 (-0.1656, 0.1905)
3131 -- (-0.1400, 0.1648)
3132 --cycle
3133 (-0.7797, 0.1819)
3134 -- (-0.7883, 0.1733)
3135 -- (-0.7883, 0.1563)
3136 -- (-0.7542, 0.1477)
3137 -- (-0.7627, 0.1819)
3138 --cycle
3139 ( 0.1671, 0.1819)
3140 -- ( 0.1841, 0.1477)
3141 --cycle
3142 ( 0.6447, 0.1477)
3143 -- ( 0.6532, 0.1477)
3144 -- ( 0.6532, 0.1392)
3145 --cycle
3146 (-0.7081, 0.1437)
3147 .. controls (-0.7387, 0.1429) and (-0.7462, 0.1254) .. (-0.7593, 0.0844)
3148 .. controls (-0.7628, 0.0670) and (-0.7720, 0.0499) .. (-0.7593, 0.0321)
3149 .. controls (-0.7496, 0.0145) and (-0.7241, 0.0137) .. (-0.7173, 0.0321)
3150 .. controls (-0.7114, 0.0479) and (-0.7222, 0.0657) .. (-0.7285, 0.0796)
3151 .. controls (-0.6938, 0.0968) and (-0.6811, 0.1011) .. (-0.6688, 0.1392)
3152 .. controls (-0.6852, 0.1425) and (-0.6979, 0.1439) .. (-0.7081, 0.1437)
3153 --cycle
3154 ( 0.8921, 0.1392)
3155 -- ( 0.9006, 0.1392)
3156 -- ( 0.9006, 0.1307)
3157 --cycle
3158 ( 0.5765, 0.1222)
3159 -- ( 0.5850, 0.0881)
3160 -- ( 0.6021, 0.0881)
3161 -- ( 0.6106, 0.1222)
3162 --cycle
3163 ( 0.2872, 0.1175)
3164 .. controls ( 0.2767, 0.1166) and ( 0.2651, 0.1135) .. ( 0.2533, 0.1071)
3165 .. controls ( 0.2151, 0.0867) and ( 0.2220, 0.0479) .. ( 0.2267, 0.0113)
3166 .. controls ( 0.2625, 0.0237) and ( 0.2504, 0.0254) .. ( 0.2701, 0.0519)
3167 .. controls ( 0.2958, 0.0863) and ( 0.3249, 0.0559) .. ( 0.3338, 0.0822)
3168 .. controls ( 0.3402, 0.1009) and ( 0.3185, 0.1198) .. ( 0.2872, 0.1175)
3169 --cycle
3170 ( 0.4845, 0.1051)
3171 .. controls ( 0.4706, 0.1009) and ( 0.4616, 0.0995) .. ( 0.4512, 0.0905)
3172 .. controls ( 0.4040, 0.0493) and ( 0.4796,-0.0172) .. ( 0.4845, 0.0710)
3173 .. controls ( 0.4877, 0.0867) and ( 0.4856, 0.0907) .. ( 0.4845, 0.1051)
3174 --cycle

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3175 ( 0.6362, 0.1051)
3176 -- ( 0.6277, 0.0966)
3177 -- ( 0.6277, 0.0796)
3178 -- ( 0.6618, 0.0710)
3179 -- ( 0.6532, 0.1051)
3180 --cycle
3181 ( 0.0988, 0.0966)
3182 -- ( 0.0647, 0.0881)
3183 -- ( 0.0647, 0.0710)
3184 -- ( 0.0902, 0.0625)
3185 .. controls ( 0.0813, 0.0194) and ( 0.0842, 0.0065) .. ( 0.1244,-0.0143)
3186 -- ( 0.1331, 0.0283)
3187 -- ( 0.1671, 0.0368)
3188 -- ( 0.1671, 0.0540)
3189 .. controls ( 0.1326, 0.0659) and ( 0.1186, 0.0637) .. ( 0.0988, 0.0966)
3190 --cycle
3191 (-0.8125, 0.0621)
3192 .. controls (-0.8490, 0.0401) and (-0.8237, 0.0162) .. (-0.8062, 0.0190)
3193 .. controls (-0.7883, 0.0219) and (-0.7704, 0.0544) .. (-0.8125, 0.0621)
3194 --cycle
3195 ( 0.5167, 0.0540)
3196 -- ( 0.5083, 0.0198)
3197 -- ( 0.5423, 0.0283)
3198 -- ( 0.5423, 0.0454)
3199 -- ( 0.5338, 0.0540)
3200 --cycle
3201 (-0.0973, 0.0454)
3202 -- (-0.1058, 0.0368)
3203 -- (-0.1058, 0.0198)
3204 -- (-0.0718, 0.0113)
3205 -- (-0.0802, 0.0454)
3206 --cycle
3207 (-0.0035, 0.0368)
3208 -- (-0.0210, 0.0109)
3209 .. controls (-0.0655,-0.0708) and ( 0.0385,-0.0566) .. ( 0.0166, 0.0109)
3210 .. controls ( 0.0120, 0.0245) and ( 0.0056, 0.0275) .. (-0.0035, 0.0368)
3211 --cycle
3212 (-0.4977, 0.0207)
3213 .. controls (-0.5147, 0.0204) and (-0.5312, 0.0080) .. (-0.5211,-0.0096)
3214 .. controls (-0.5118,-0.0261) and (-0.4926,-0.0166) .. (-0.4645,-0.0487)
3215 .. controls (-0.4440,-0.0720) and (-0.4524,-0.0706) .. (-0.4214,-0.0825)
3216 .. controls (-0.4050,-0.0235) and (-0.4308, 0.0217) .. (-0.4977, 0.0207)
3217 --cycle
3218 ( 0.3756, 0.0075)
3219 .. controls ( 0.3646, 0.0069) and ( 0.3522, 0.0045) .. ( 0.3376, 0.0002)
3220 .. controls ( 0.3227,-0.0042) and ( 0.3054,-0.0075) .. ( 0.2946,-0.0193)
3221 -- ( 0.2742,-0.0568)
3222 .. controls ( 0.2649,-0.0745) and ( 0.2554,-0.0861) .. ( 0.2571,-0.1073)
3223 .. controls ( 0.2601,-0.1471) and ( 0.2967,-0.2295) .. ( 0.3408,-0.1666)
3224 .. controls ( 0.3653,-0.1317) and ( 0.3284,-0.1299) .. ( 0.3717,-0.0654)
3225 .. controls ( 0.4033,-0.0789) and ( 0.4049,-0.0788) .. ( 0.4314,-0.0568)
3226 .. controls ( 0.4664,-0.1165) and ( 0.5153,-0.0409) .. ( 0.5152,-0.0308)
3227 .. controls ( 0.5148,-0.0111) and ( 0.4690, 0.0277) .. ( 0.4571,-0.0399)

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3228 .. controls ( 0.4280,-0.0054) and ( 0.4082, 0.0095) .. ( 0.3756, 0.0075)
3229 --cycle
3230 (-0.9801, 0.0047)
3231 -- (-0.9427,-0.0792)
3232 -- (-0.8931,-0.0669)
3233 -- (-0.8538,-0.0818)
3234 .. controls (-0.8464,-0.0219) and (-0.9339,-0.0180) .. (-0.9801, 0.0047)
3235 --cycle
3236 ( 0.5423,-0.0484)
3237 -- ( 0.5594,-0.0997)
3238 .. controls ( 0.5416,-0.1040) and ( 0.4986,-0.1096) .. ( 0.4864,-0.1181)
3239 .. controls ( 0.4658,-0.1324) and ( 0.4601,-0.1677) .. ( 0.4793,-0.1854)
3240 .. controls ( 0.4883,-0.1938) and ( 0.5053,-0.1981) .. ( 0.5167,-0.2019)
3241 .. controls ( 0.4933,-0.2045) and ( 0.4609,-0.2005) .. ( 0.4427,-0.2156)
3242 .. controls ( 0.4166,-0.2372) and ( 0.4089,-0.2872) .. ( 0.4826,-0.2957)
3243 -- ( 0.4826,-0.2446)
3244 .. controls ( 0.5217,-0.2597) and ( 0.5287,-0.2486) .. ( 0.5167,-0.2105)
3245 .. controls ( 0.5424,-0.2023) and ( 0.5512,-0.1934) .. ( 0.5594,-0.1677)
3246 -- ( 0.6191,-0.1848)
3247 -- ( 0.6788,-0.3042)
3248 -- ( 0.6532,-0.3128)
3249 -- ( 0.6532,-0.3299)
3250 -- ( 0.7385,-0.3214)
3251 -- ( 0.7130,-0.2617)
3252 .. controls ( 0.7337,-0.2558) and ( 0.7608,-0.2439) .. ( 0.7812,-0.2454)
3253 .. controls ( 0.7973,-0.2453) and ( 0.8226,-0.2581) .. ( 0.8346,-0.2454)
3254 .. controls ( 0.8523,-0.2285) and ( 0.8216,-0.2043) .. ( 0.8067,-0.1989)
3255 .. controls ( 0.7691,-0.1854) and ( 0.7439,-0.2093) .. ( 0.6805,-0.1933)
3256 -- ( 0.6805,-0.1448)
3257 -- ( 0.6017,-0.0907)
3258 -- ( 0.5680,-0.0907)
3259 -- ( 0.5765,-0.0484)
3260 --cycle
3261 (-0.7372,-0.0610)
3262 .. controls (-0.7812,-0.0612) and (-0.8222,-0.0885) .. (-0.7969,-0.1508)
3263 -- (-0.8546,-0.1518)
3264 .. controls (-0.8578,-0.0809) and (-0.9199,-0.0961) .. (-0.9322,-0.1220)
3265 -- (-0.9145,-0.1528)
3266 .. controls (-0.9119,-0.1539) and (-0.9110,-0.1554) .. (-0.9080,-0.1566)
3267 .. controls (-0.8746,-0.1628) and (-0.8911,-0.2081) .. (-0.8709,-0.2184)
3268 .. controls (-0.8479,-0.2301) and (-0.8289,-0.2160) .. (-0.8075,-0.2238)
3269 .. controls (-0.7880,-0.2309) and (-0.7418,-0.2959) .. (-0.7285,-0.2190)
3270 -- (-0.7712,-0.2105)
3271 .. controls (-0.7608,-0.1935) and (-0.7474,-0.1633) .. (-0.7309,-0.1535)
3272 .. controls (-0.7132,-0.1433) and (-0.6647,-0.1458) .. (-0.6532,-0.1225)
3273 .. controls (-0.6410,-0.0974) and (-0.6763,-0.0776) .. (-0.6945,-0.0697)
3274 .. controls (-0.7075,-0.0641) and (-0.7225,-0.0610) .. (-0.7372,-0.0610)
3275 --cycle
3276 ( 0.0790,-0.0703)
3277 .. controls ( 0.0586,-0.0724) and ( 0.0391,-0.0799) .. ( 0.0314,-0.0938)
3278 .. controls ( 0.0258,-0.1059) and ( 0.0293,-0.1207) .. ( 0.0314,-0.1337)
3279 .. controls (-0.0051,-0.1451) and (-0.0235,-0.1672) .. ( 0.0136,-0.1933)
3280 -- ( 0.0050,-0.2190)

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3281 -- ( 0.0647,-0.2360)
3282 -- ( 0.0561,-0.2019)
3283 -- ( 0.0391,-0.2105)
3284 -- ( 0.0307,-0.2019)
3285 -- ( 0.0818,-0.1251)
3286 -- ( 0.0988,-0.1251)
3287 .. controls ( 0.1190,-0.1566) and ( 0.1311,-0.1660) .. ( 0.1671,-0.1763)
3288 .. controls ( 0.1712,-0.1381) and ( 0.1680,-0.1029) .. ( 0.1325,-0.0792)
3289 .. controls ( 0.1208,-0.0715) and ( 0.0994,-0.0682) .. ( 0.0790,-0.0703)
3290 --cycle
3291 (-0.0347,-0.0729)
3292 .. controls (-0.0400,-0.0723) and (-0.0465,-0.0725) .. (-0.0547,-0.0739)
3293 .. controls (-0.1154,-0.1097) and (-0.0914,-0.1419) .. (-0.0629,-0.1331)
3294 .. controls (-0.0318,-0.1235) and ( 0.0014,-0.0769) .. (-0.0347,-0.0729)
3295 --cycle
3296 (-0.1485,-0.0997)
3297 -- (-0.1656,-0.1166)
3298 -- (-0.1656,-0.1251)
3299 .. controls (-0.1656,-0.1251) and (-0.1284,-0.1383) .. (-0.1230,-0.1251)
3300 .. controls (-0.1184,-0.1140) and (-0.1485,-0.0997) .. (-0.1485,-0.0997)
3301 --cycle
3302 ( 0.8579,-0.1251)
3303 -- ( 0.8579,-0.1508)
3304 -- ( 0.8921,-0.1508)
3305 -- ( 0.8921,-0.1251)
3306 --cycle
3307 ( 0.3462,-0.1848)
3308 .. controls ( 0.3553,-0.2111) and ( 0.3541,-0.2099) .. ( 0.3804,-0.2190)
3309 .. controls ( 0.3789,-0.1929) and ( 0.3722,-0.1863) .. ( 0.3462,-0.1848)
3310 --cycle
3311 ( 0.5680,-0.2105)
3312 -- ( 0.5680,-0.2360)
3313 -- ( 0.5936,-0.2360)
3314 -- ( 0.5936,-0.2105)
3315 --cycle
3316 ( 0.2429,-0.2175)
3317 .. controls ( 0.2301,-0.2183) and ( 0.2146,-0.2250) .. ( 0.2042,-0.2351)
3318 .. controls ( 0.1851,-0.2515) and ( 0.1867,-0.2802) .. ( 0.1841,-0.3042)
3319 -- ( 0.2267,-0.3128)
3320 .. controls ( 0.2366,-0.2535) and ( 0.2673,-0.2625) .. ( 0.2665,-0.2351)
3321 .. controls ( 0.2661,-0.2218) and ( 0.2558,-0.2167) .. ( 0.2429,-0.2175)
3322 --cycle
3323 (-0.8394,-0.2360)
3324 .. controls (-0.8657,-0.2452) and (-0.8037,-0.2814) .. (-0.8128,-0.3076)
3325 .. controls (-0.7841,-0.3060) and (-0.8155,-0.2595) .. (-0.8394,-0.2360)
3326 --cycle
3327 (-0.3106,-0.2446)
3328 .. controls (-0.3061,-0.2411) and (-0.2935,-0.2446) .. (-0.2935,-0.2446)
3329 .. controls (-0.2935,-0.2446) and (-0.3063,-0.2847) .. (-0.3191,-0.2787)
3330 .. controls (-0.3297,-0.2736) and (-0.3199,-0.2518) .. (-0.3106,-0.2446)
3331 --cycle
3332 ( 0.0809,-0.2495)
3333 .. controls ( 0.0629,-0.2468) and ( 0.0475,-0.2563) .. ( 0.0307,-0.2602)

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3334 .. controls ( 0.0102,-0.2651) and (-0.0913,-0.2616) .. (-0.0376,-0.3640)
3335 .. controls (-0.1141,-0.3685) and (-0.1262,-0.4016) .. (-0.0926,-0.4664)
3336 .. controls (-0.0856,-0.4795) and (-0.0758,-0.5040) .. (-0.0668,-0.5138)
3337 .. controls (-0.0449,-0.5377) and ( 0.0001,-0.5440) .. ( 0.0307,-0.5431)
3338 -- ( 0.0221,-0.4579)
3339 -- (-0.0206,-0.4833)
3340 .. controls (-0.0180,-0.4388) and (-0.0055,-0.4140) .. (-0.0633,-0.4237)
3341 .. controls (-0.0215,-0.3935) and (-0.0083,-0.4022) .. ( 0.0050,-0.3640)
3342 -- ( 0.0476,-0.3555)
3343 -- ( 0.0476,-0.3384)
3344 .. controls ( 0.0149,-0.3341) and ( 0.0150,-0.3375) .. (-0.0035,-0.3640)
3345 .. controls (-0.0031,-0.3175) and ( 0.0507,-0.3021) .. ( 0.0895,-0.3132)
3346 .. controls ( 0.0967,-0.3153) and ( 0.1020,-0.3182) .. ( 0.1069,-0.3214)
3347 -- ( 0.0733,-0.3214)
3348 -- ( 0.0733,-0.3555)
3349 -- ( 0.1073,-0.3555)
3350 -- ( 0.1073,-0.3217)
3351 .. controls ( 0.1209,-0.3306) and ( 0.1314,-0.3431) .. ( 0.1671,-0.3555)
3352 .. controls ( 0.1861,-0.3011) and ( 0.1658,-0.3044) .. ( 0.1276,-0.2793)
3353 .. controls ( 0.1121,-0.2692) and ( 0.1003,-0.2524) .. ( 0.0809,-0.2495)
3354 --cycle
3355 ( 0.5253,-0.2617)
3356 .. controls ( 0.5159,-0.2894) and ( 0.5137,-0.2935) .. ( 0.5423,-0.3042)
3357 --cycle
3358 (-0.5836,-0.2872)
3359 -- (-0.5921,-0.3299)
3360 .. controls (-0.5632,-0.3196) and (-0.5624,-0.3175) .. (-0.5665,-0.2872)
3361 --cycle
3362 ( 0.4825,-0.3113)
3363 .. controls ( 0.4709,-0.3098) and ( 0.4621,-0.3187) .. ( 0.4571,-0.3470)
3364 .. controls ( 0.4065,-0.2945) and ( 0.3565,-0.3080) .. ( 0.3141,-0.3613)
3365 .. controls ( 0.3029,-0.3754) and ( 0.2880,-0.3874) .. ( 0.2903,-0.4075)
3366 .. controls ( 0.2921,-0.4247) and ( 0.3027,-0.4361) .. ( 0.3120,-0.4493)
3367 .. controls ( 0.2945,-0.4516) and ( 0.2350,-0.4574) .. ( 0.2234,-0.4665)
3368 .. controls ( 0.2011,-0.4843) and ( 0.2099,-0.5378) .. ( 0.2182,-0.5602)
3369 -- ( 0.2352,-0.5602)
3370 .. controls ( 0.2421,-0.5417) and ( 0.2492,-0.5116) .. ( 0.2706,-0.5071)
3371 .. controls ( 0.3048,-0.4961) and ( 0.3439,-0.5674) .. ( 0.3618,-0.5071)
3372 -- ( 0.3618,-0.4833)
3373 -- ( 0.3974,-0.4919)
3374 -- ( 0.4059,-0.4579)
3375 -- ( 0.3376,-0.4493)
3376 -- ( 0.3717,-0.3896)
3377 .. controls ( 0.4306,-0.3991) and ( 0.4623,-0.4570) .. ( 0.4656,-0.3640)
3378 .. controls ( 0.4971,-0.3707) and ( 0.5062,-0.3751) .. ( 0.5253,-0.3470)
3379 -- ( 0.5451,-0.3694)
3380 .. controls ( 0.6171,-0.4271) and ( 0.5795,-0.2610) .. ( 0.5253,-0.3384)
3381 .. controls ( 0.5089,-0.3248) and ( 0.4943,-0.3128) .. ( 0.4825,-0.3113)
3382 --cycle
3383 ( 0.6371,-0.3426)
3384 .. controls ( 0.6165,-0.3414) and ( 0.6075,-0.3499) .. ( 0.6021,-0.3811)
3385 .. controls ( 0.6375,-0.3781) and ( 0.6440,-0.3786) .. ( 0.6618,-0.3470)
3386 .. controls ( 0.6521,-0.3447) and ( 0.6439,-0.3431) .. ( 0.6371,-0.3426)

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3387 --cycle
3388 ( 0.1158,-0.3640)
3389 -- ( 0.1073,-0.3981)
3390 -- ( 0.1415,-0.3981)
3391 -- ( 0.1331,-0.3640)
3392 --cycle
3393 (-0.4660,-0.3701)
3394 .. controls (-0.4757,-0.3670) and (-0.4894,-0.3727) .. (-0.4983,-0.3981)
3395 -- (-0.5580,-0.3811)
3396 .. controls (-0.5508,-0.4276) and (-0.5277,-0.4685) .. (-0.4812,-0.4833)
3397 -- (-0.4898,-0.4066)
3398 .. controls (-0.4444,-0.4042) and (-0.4498,-0.3750) .. (-0.4660,-0.3701)
3399 --cycle
3400 ( 0.1671,-0.3724)
3401 -- ( 0.1585,-0.3811)
3402 -- ( 0.1671,-0.4407)
3403 -- ( 0.1927,-0.4322)
3404 -- ( 0.1927,-0.3811)
3405 -- ( 0.1841,-0.3724)
3406 --cycle
3407 (-0.4061,-0.3746)
3408 .. controls (-0.4337,-0.3682) and (-0.4432,-0.4275) .. (-0.3933,-0.4421)
3409 .. controls (-0.3807,-0.4474) and (-0.3733,-0.4433) .. (-0.3617,-0.4421)
3410 .. controls (-0.3654,-0.4287) and (-0.3677,-0.4184) .. (-0.3740,-0.4070)
3411 .. controls (-0.3858,-0.3861) and (-0.3969,-0.3767) .. (-0.4061,-0.3746)
3412 --cycle
3413 (-0.2091,-0.4066)
3414 -- (-0.2091,-0.4298)
3415 -- (-0.1315,-0.5004)
3416 .. controls (-0.1221,-0.4446) and (-0.1606,-0.4228) .. (-0.2091,-0.4066)
3417 --cycle
3418 ( 0.6634,-0.4202)
3419 .. controls ( 0.6063,-0.4164) and ( 0.5403,-0.4628) .. ( 0.5936,-0.5175)
3420 .. controls ( 0.5533,-0.5676) and ( 0.6039,-0.5913) .. ( 0.6362,-0.5261)
3421 -- ( 0.6021,-0.5175)
3422 -- ( 0.6618,-0.5004)
3423 -- ( 0.6874,-0.5261)
3424 -- ( 0.6532,-0.4749)
3425 -- ( 0.6618,-0.4664)
3426 .. controls ( 0.6767,-0.4763) and ( 0.6924,-0.4939) .. ( 0.7031,-0.4938)
3427 .. controls ( 0.7482,-0.4516) and ( 0.7588,-0.4217) .. ( 0.6869,-0.4249)
3428 .. controls ( 0.6795,-0.4222) and ( 0.6716,-0.4207) .. ( 0.6634,-0.4202)
3429 --cycle
3430 (-0.2595,-0.4322)
3431 -- (-0.2680,-0.4407)
3432 -- (-0.2680,-0.4579)
3433 -- (-0.2595,-0.4664)
3434 -- (-0.2424,-0.4664)
3435 -- (-0.2338,-0.4579)
3436 -- (-0.2338,-0.4407)
3437 -- (-0.2424,-0.4322)
3438 --cycle
3439 (-0.3947,-0.4820)

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3440 .. controls (-0.4064,-0.4819) and (-0.4202,-0.4884) .. (-0.4300,-0.4906)
3441 .. controls (-0.4705,-0.5000) and (-0.4926,-0.4888) .. (-0.4812,-0.5431)
3442 .. controls (-0.4962,-0.5405) and (-0.5172,-0.5356) .. (-0.5319,-0.5380)
3443 .. controls (-0.5497,-0.5409) and (-0.6218,-0.5786) .. (-0.6276,-0.5954)
3444 .. controls (-0.6443,-0.6458) and (-0.5896,-0.6294) .. (-0.5665,-0.6198)
3445 -- (-0.5750,-0.6455)
3446 -- (-0.5409,-0.6540)
3447 -- (-0.5409,-0.6198)
3448 -- (-0.4727,-0.5943)
3449 -- (-0.4812,-0.6370)
3450 -- (-0.4641,-0.6028)
3451 -- (-0.4214,-0.6796)
3452 -- (-0.4044,-0.6796)
3453 .. controls (-0.3922,-0.6110) and (-0.4199,-0.5974) .. (-0.4386,-0.5431)
3454 -- (-0.4053,-0.5384)
3455 .. controls (-0.3682,-0.5271) and (-0.3698,-0.4934) .. (-0.3840,-0.4848)
3456 .. controls (-0.3872,-0.4829) and (-0.3908,-0.4821) .. (-0.3947,-0.4820)
3457 --cycle
3458 (-0.2509,-0.4833)
3459 .. controls (-0.2897,-0.5056) and (-0.2886,-0.5289) .. (-0.2509,-0.5516)
3460 -- (-0.2509,-0.5688)
3461 .. controls (-0.3046,-0.5780) and (-0.3807,-0.5721) .. (-0.3362,-0.6796)
3462 .. controls (-0.3905,-0.7060) and (-0.4127,-0.7567) .. (-0.3447,-0.7820)
3463 -- (-0.3305,-0.8084)
3464 .. controls (-0.3952,-0.8150) and (-0.4330,-0.7851) .. (-0.3796,-0.8551)
3465 .. controls (-0.3707,-0.8560) and (-0.2665,-0.8846) .. (-0.3191,-0.8587)
3466 .. controls (-0.2670,-0.8376) and (-0.2955,-0.8083) .. (-0.3191,-0.7735)
3467 .. controls (-0.2852,-0.7626) and (-0.2805,-0.7579) .. (-0.2850,-0.7222)
3468 -- (-0.3277,-0.7393)
3469 -- (-0.3277,-0.6796)
3470 .. controls (-0.2965,-0.6680) and (-0.3000,-0.6597) .. (-0.3020,-0.6285)
3471 .. controls (-0.2349,-0.6402) and (-0.2059,-0.6119) .. (-0.1513,-0.6666)
3472 .. controls (-0.1144,-0.7033) and (-0.1214,-0.7764) .. (-0.0716,-0.7828)
3473 .. controls (-0.0398,-0.7870) and (-0.0581,-0.7438) .. (-0.0633,-0.7307)
3474 .. controls (-0.0105,-0.7419) and (-0.0101,-0.7107) .. (-0.0259,-0.6944)
3475 .. controls (-0.0416,-0.6781) and (-0.0638,-0.6847) .. (-0.0920,-0.6613)
3476 .. controls (-0.1363,-0.6245) and (-0.1312,-0.5893) .. (-0.2253,-0.5516)
3477 --cycle
3478 ( 0.0893,-0.4928)
3479 .. controls ( 0.0854,-0.4941) and ( 0.0816,-0.4977) .. ( 0.0781,-0.5045)
3480 .. controls ( 0.0717,-0.5167) and ( 0.0733,-0.5538) .. ( 0.0733,-0.5688)
3481 .. controls (-0.0068,-0.5661) and ( 0.0229,-0.6522) .. ( 0.0360,-0.6661)
3482 .. controls ( 0.0456,-0.6761) and ( 0.0531,-0.6759) .. ( 0.0647,-0.6796)
3483 -- ( 0.0647,-0.6198)
3484 -- ( 0.1244,-0.6113)
3485 -- ( 0.1073,-0.5773)
3486 -- ( 0.1331,-0.5688)
3487 .. controls ( 0.1502,-0.5983) and ( 0.1514,-0.6011) .. ( 0.1841,-0.6113)
3488 .. controls ( 0.1815,-0.5647) and ( 0.1767,-0.5414) .. ( 0.1244,-0.5431)
3489 -- ( 0.1174,-0.5185)
3490 .. controls ( 0.1127,-0.5047) and ( 0.1008,-0.4886) .. ( 0.0893,-0.4928)
3491 --cycle
3492 ( 0.0647,-0.6796)

```

```

3493 .. controls ( 0.0651,-0.7162) and ( 0.0755,-0.7152) .. ( 0.1073,-0.7052)
3494 .. controls ( 0.0927,-0.6800) and ( 0.0939,-0.6798) .. ( 0.0647,-0.6796)
3495 --cycle
3496 ( 0.4429,-0.5307)
3497 .. controls ( 0.4305,-0.5311) and ( 0.4171,-0.5380) .. ( 0.4059,-0.5558)
3498 .. controls ( 0.3999,-0.5655) and ( 0.3989,-0.5750) .. ( 0.3994,-0.5861)
3499 .. controls ( 0.3998,-0.5978) and ( 0.4033,-0.6088) .. ( 0.4059,-0.6198)
3500 .. controls ( 0.4351,-0.6096) and ( 0.4347,-0.6075) .. ( 0.4400,-0.5773)
3501 .. controls ( 0.5088,-0.5860) and ( 0.4802,-0.5296) .. ( 0.4429,-0.5307)
3502 --cycle
3503 ( 0.6296,-0.5636)
3504 .. controls ( 0.6201,-0.5648) and ( 0.6129,-0.5872) .. ( 0.5850,-0.6007)
3505 .. controls ( 0.5662,-0.6071) and ( 0.5466,-0.6101) .. ( 0.5358,-0.6303)
3506 .. controls ( 0.5238,-0.6524) and ( 0.5014,-0.6717) .. ( 0.5092,-0.6929)
3507 .. controls ( 0.4879,-0.7051) and ( 0.4594,-0.7105) .. ( 0.4574,-0.7383)
3508 .. controls ( 0.4557,-0.7622) and ( 0.5198,-0.8058) .. ( 0.5459,-0.7885)
3509 .. controls ( 0.5602,-0.7791) and ( 0.4924,-0.7612) .. ( 0.5176,-0.7262)
3510 -- ( 0.5713,-0.7309)
3511 .. controls ( 0.6461,-0.7123) and ( 0.5265,-0.6556) .. ( 0.6262,-0.6344)
3512 .. controls ( 0.6303,-0.6340) and ( 0.6389,-0.6314) .. ( 0.6474,-0.6278)
3513 -- ( 0.6629,-0.6006)
3514 .. controls ( 0.6611,-0.5976) and ( 0.6583,-0.5944) .. ( 0.6541,-0.5908)
3515 .. controls ( 0.6418,-0.5698) and ( 0.6353,-0.5628) .. ( 0.6296,-0.5636)
3516 --cycle
3517 ( 0.2723,-0.5991)
3518 .. controls ( 0.2592,-0.6003) and ( 0.2468,-0.6028) .. ( 0.2363,-0.6064)
3519 .. controls ( 0.1997,-0.6189) and ( 0.1915,-0.6622) .. ( 0.2438,-0.6796)
3520 -- ( 0.2524,-0.6540)
3521 -- ( 0.2694,-0.6540)
3522 -- ( 0.2438,-0.6796)
3523 -- ( 0.2352,-0.7052)
3524 .. controls ( 0.1815,-0.6689) and ( 0.1445,-0.7418) .. ( 0.2182,-0.7649)
3525 .. controls ( 0.2103,-0.7956) and ( 0.2084,-0.7983) .. ( 0.2267,-0.8246)
3526 .. controls ( 0.1155,-0.7748) and ( 0.1095,-0.9097) .. ( 0.1942,-0.8505)
3527 -- ( 0.2141,-0.8675)
3528 .. controls ( 0.2535,-0.8323) and ( 0.2056,-0.8655) .. ( 0.2756,-0.8643)
3529 -- ( 0.2903,-0.8720)
3530 -- ( 0.3279,-0.8720)
3531 -- ( 0.3427,-0.8612)
3532 .. controls ( 0.3869,-0.8663) and ( 0.4661,-0.8748) .. ( 0.4741,-0.8502)
3533 .. controls ( 0.5431,-0.8855) and ( 0.5233,-0.7888) .. ( 0.5039,-0.8143)
3534 .. controls ( 0.4752,-0.7958) and ( 0.5046,-0.8131) .. ( 0.4741,-0.8331)
3535 .. controls ( 0.3949,-0.7997) and ( 0.4522,-0.8406) .. ( 0.3683,-0.8327)
3536 .. controls ( 0.3744,-0.7942) and ( 0.4288,-0.7829) .. ( 0.4051,-0.7307)
3537 .. controls ( 0.4260,-0.7007) and ( 0.4185,-0.6946) .. ( 0.4051,-0.6626)
3538 .. controls ( 0.3990,-0.6503) and ( 0.3940,-0.6359) .. ( 0.3839,-0.6265)
3539 .. controls ( 0.3585,-0.6027) and ( 0.3119,-0.5953) .. ( 0.2723,-0.5991)
3540 --cycle
3541 (-0.2424,-0.6455)
3542 -- (-0.2424,-0.6796)
3543 -- (-0.1997,-0.6711)
3544 -- (-0.1997,-0.6540)
3545 --cycle

```

```

3546 ( 0.2950,-0.6455)
3547 .. controls ( 0.3615,-0.6477) and ( 0.3567,-0.6705) .. ( 0.3974,-0.7222)
3548 .. controls ( 0.3592,-0.8249) and ( 0.3353,-0.7947) .. ( 0.2609,-0.7990)
3549 -- ( 0.2438,-0.7649)
3550 .. controls ( 0.2681,-0.7474) and ( 0.2638,-0.7424) .. ( 0.2609,-0.7137)
3551 -- ( 0.2950,-0.6881)
3552 .. controls ( 0.3035,-0.6916) and ( 0.3102,-0.6959) .. ( 0.3198,-0.6974)
3553 .. controls ( 0.3496,-0.7020) and ( 0.3487,-0.6665) .. ( 0.3120,-0.6881)
3554 --cycle
3555 (-0.6122,-0.6460)
3556 .. controls (-0.6202,-0.6484) and (-0.6222,-0.6534) .. (-0.6220,-0.6591)
3557 -- (-0.6084,-0.6829)
3558 .. controls (-0.6039,-0.6880) and (-0.6001,-0.6940) .. (-0.5958,-0.6974)
3559 .. controls (-0.5822,-0.7078) and (-0.5979,-0.7175) .. (-0.5836,-0.7137)
3560 -- (-0.5557,-0.7397)
3561 .. controls (-0.5863,-0.7181) and (-0.4852,-0.7770) .. (-0.5233,-0.7812)
3562 .. controls (-0.4643,-0.7650) and (-0.4542,-0.8172) .. (-0.4400,-0.7940)
3563 .. controls (-0.4310,-0.7794) and (-0.4454,-0.7672) .. (-0.4569,-0.7609)
3564 .. controls (-0.5042,-0.7356) and (-0.5468,-0.7364) .. (-0.5580,-0.6711)
3565 .. controls (-0.5740,-0.6662) and (-0.5960,-0.6410) .. (-0.6122,-0.6460)
3566 --cycle
3567 (-0.2799,-0.6723)
3568 .. controls (-0.2946,-0.6977) and (-0.2726,-0.7009) .. (-0.2645,-0.6954)
3569 .. controls (-0.2563,-0.6899) and (-0.2508,-0.6683) .. (-0.2799,-0.6723)
3570 --cycle
3571 (-0.1741,-0.6796)
3572 -- (-0.1826,-0.6881)
3573 -- (-0.1826,-0.7052)
3574 -- (-0.1571,-0.6796)
3575 --cycle
3576 ( 0.0647,-0.7393)
3577 -- ( 0.0733,-0.7735)
3578 -- ( 0.0902,-0.7735)
3579 -- ( 0.0988,-0.7649)
3580 -- ( 0.0988,-0.7478)
3581 --cycle
3582 ( 0.2267,-0.7564)
3583 -- ( 0.2352,-0.7564)
3584 -- ( 0.2352,-0.7649)
3585 --cycle
3586 (-0.2765,-0.7649)
3587 -- (-0.2850,-0.7990)
3588 -- (-0.2509,-0.7905)
3589 -- (-0.2595,-0.7649)
3590 --cycle
3591 (-0.1620,-0.7999)
3592 .. controls (-0.1665,-0.7994) and (-0.1723,-0.7994) .. (-0.1792,-0.8003)
3593 .. controls (-0.2378,-0.8436) and (-0.2549,-0.8217) .. (-0.2658,-0.8441)
3594 .. controls (-0.2799,-0.8733) and (-0.2098,-0.8685) .. (-0.1746,-0.8466)
3595 .. controls (-0.1557,-0.8347) and (-0.1302,-0.8033) .. (-0.1620,-0.7999)
3596 --cycle
3597 (-0.0021,-0.8033)
3598 .. controls (-0.0289,-0.7979) and (-0.0697,-0.8240) .. (-0.0817,-0.8284)

```

```

3599 .. controls (-0.1018,-0.8361) and (-0.1245,-0.8333) .. (-0.1384,-0.8539)
3600 .. controls (-0.1534,-0.8760) and (-0.1093,-0.8641) .. (-0.0866,-0.8639)
3601 .. controls (-0.0704,-0.8637) and (-0.0573,-0.8695) .. (-0.0331,-0.8549)
3602 .. controls ( 0.0004,-0.8348) and (-0.0157,-0.8559) .. ( 0.0221,-0.8587)
3603 .. controls ( 0.0252,-0.8212) and ( 0.0141,-0.8066) .. (-0.0021,-0.8033)
3604 --cycle
3605 ( 0.1096,-0.8160)
3606 .. controls ( 0.1044,-0.8138) and ( 0.0965,-0.8137) .. ( 0.0850,-0.8167)
3607 .. controls ( 0.0624,-0.8514) and ( 0.0794,-0.8648) .. ( 0.0988,-0.8546)
3608 .. controls ( 0.1148,-0.8462) and ( 0.1249,-0.8224) .. ( 0.1096,-0.8160)
3609 --cycle
3610 (-0.4386,-0.8161)
3611 -- (-0.4386,-0.8587)
3612 .. controls (-0.3929,-0.8508) and (-0.3929,-0.8240) .. (-0.4386,-0.8161)
3613 --cycle
3614 (-0.4898,-0.8246)
3615 -- (-0.5227,-0.8312)
3616 -- (-0.5082,-0.8563)
3617 .. controls (-0.5034,-0.8573) and (-0.4999,-0.8586) .. (-0.4898,-0.8587)
3618 -- (-0.4878,-0.8720)
3619 -- (-0.4837,-0.8720)
3620 -- (-0.4565,-0.8673)
3621 --cycle
3622 ;
3623 }
3624 }
3625 \fi

```

hex/terrain/swamp

The pattern for swamps. The pattern is filled with a light blue.

```

3626 \tikzset{
3627   hex/terrain/swamp/.style={
3628     draw=none,
3629     fill={rgb,100:red,26;green,55;blue,70}
3630   }
3631 }

```

hex/terrain/swamp

Swamps. This is probably the shortest of the terrain patterns.

```

3632 \ifhex@terrain@pic
3633 \tikzset{
3634   hex/terrain/swamp/.pic={
3635     \path[hex/terrain/swamp,pic actions,draw=none]
3636       (-0.5026, 0.8699)
3637       -- (-0.5041, 0.8672)
3638       .. controls (-0.3586, 0.8441) and (-0.1148, 0.8722) .. ( 0.0006, 0.8697)
3639       -- ( 0.2386, 0.8529)
3640       -- ( 0.2386, 0.8699)
3641     --cycle

```

```

3642 ( 0.4257, 0.8699)
3643 -- ( 0.4257, 0.8529)
3644 -- ( 0.5112, 0.8558)
3645 -- ( 0.5033, 0.8699)
3646 --cycle
3647 ( 0.3067, 0.8359)
3648 -- ( 0.2897, 0.7848)
3649 -- ( 0.2726, 0.8188)
3650 -- ( 0.2556, 0.8188)
3651 -- ( 0.2217, 0.7509)
3652 -- ( 0.5719, 0.7509)
3653 -- ( 0.5621, 0.7679)
3654 -- ( 0.5617, 0.7679)
3655 -- ( 0.3746, 0.7848)
3656 -- ( 0.3746, 0.8359)
3657 --cycle
3658 (-0.3225, 0.7848)
3659 -- (-0.3225, 0.7509)
3660 -- ( 0.0856, 0.7509)
3661 -- ( 0.0856, 0.7848)
3662 --cycle
3663 (-0.5555, 0.7782)
3664 -- (-0.5713, 0.7509)
3665 -- (-0.5097, 0.7509)
3666 --cycle
3667 ( 0.2789, 0.6696)
3668 .. controls ( 0.2234, 0.6713) and ( 0.1659, 0.6658) .. ( 0.1195, 0.6658)
3669 -- (-0.6117, 0.6658)
3670 -- (-0.6117, 0.6318)
3671 -- ( 0.4257, 0.6318)
3672 .. controls ( 0.3878, 0.6597) and ( 0.3344, 0.6681) .. ( 0.2789, 0.6696)
3673 --cycle
3674 ( 0.6297, 0.6318)
3675 -- ( 0.6297, 0.5468)
3676 -- ( 0.5617, 0.5807)
3677 .. controls ( 0.5449, 0.5387) and ( 0.5194, 0.5474) .. ( 0.4764, 0.5468)
3678 -- ( 0.2047, 0.5468)
3679 .. controls ( 0.2857, 0.5146) and ( 0.5508, 0.5135) .. ( 0.7089, 0.5136)
3680 -- ( 0.6740, 0.5740)
3681 -- ( 0.6638, 0.5637)
3682 --cycle
3683 (-0.6684, 0.5591)
3684 .. controls (-0.6731, 0.5588) and (-0.6784, 0.5577) .. (-0.6832, 0.5571)
3685 -- (-0.6990, 0.5298)
3686 -- (-0.5777, 0.5298)
3687 .. controls (-0.6139, 0.5561) and (-0.6407, 0.5608) .. (-0.6684, 0.5591)
3688 --cycle
3689 (-0.3396, 0.5468)
3690 .. controls (-0.2194, 0.4991) and (-0.1285, 0.5826) .. (-0.0845, 0.4447)
3691 -- (-0.1525, 0.4957)
3692 -- (-0.1525, 0.4277)
3693 .. controls (-0.0482, 0.4023) and ( 0.2732, 0.3989) .. ( 0.3746, 0.4277)
3694 .. controls ( 0.2597, 0.4733) and ( 0.2397, 0.4045) .. ( 0.1026, 0.4957)

```

```

3695 -- ( 0.0686, 0.4617)
3696 -- ( 0.0516, 0.4617)
3697 -- ( 0.0686, 0.5298)
3698 -- ( 0.0006, 0.4447)
3699 -- ( 0.0006, 0.5468)
3700 --cycle
3701 (-0.0675, 0.5127)
3702 -- (-0.0164, 0.5127)
3703 -- (-0.0505, 0.4447)
3704 --cycle
3705 (-0.7435, 0.4527)
3706 -- (-0.7580, 0.4277)
3707 -- (-0.6797, 0.4277)
3708 .. controls (-0.6982, 0.4394) and (-0.7200, 0.4471) .. (-0.7435, 0.4527)
3709 --cycle
3710 (-0.5266, 0.4447)
3711 .. controls (-0.4681, 0.4018) and (-0.4413, 0.4086) .. (-0.3736, 0.4277)
3712 --cycle
3713 ( 0.5787, 0.4277)
3714 -- ( 0.5447, 0.3257)
3715 -- ( 0.5108, 0.3257)
3716 -- ( 0.4597, 0.4107)
3717 -- ( 0.4597, 0.3257)
3718 -- ( 0.4257, 0.3937)
3719 -- ( 0.4087, 0.3257)
3720 -- ( 0.2897, 0.3257)
3721 .. controls ( 0.3725, 0.2928) and ( 0.6913, 0.3087) .. ( 0.7998, 0.3087)
3722 .. controls ( 0.7426, 0.3376) and ( 0.7264, 0.3382) .. ( 0.6638, 0.3257)
3723 -- ( 0.6638, 0.3767)
3724 -- ( 0.5787, 0.3257)
3725 --cycle
3726 (-0.7817, 0.3257)
3727 -- (-0.7137, 0.2407)
3728 -- (-0.7988, 0.2746)
3729 .. controls (-0.8162, 0.2534) and (-0.8404, 0.2432) .. (-0.8672, 0.2385)
3730 -- (-0.8857, 0.2066)
3731 -- (-0.6627, 0.2066)
3732 .. controls (-0.5059, 0.2059) and (-0.2690, 0.1655) .. (-0.1185, 0.2066)
3733 .. controls (-0.2358, 0.2532) and (-0.4834, 0.1773) .. (-0.5607, 0.2746)
3734 -- (-0.6287, 0.2237)
3735 -- (-0.6457, 0.2407)
3736 .. controls (-0.5823, 0.3108) and (-0.5667, 0.3074) .. (-0.4756, 0.3087)
3737 --cycle
3738 ( 0.8338, 0.2576)
3739 -- ( 0.7998, 0.2066)
3740 -- ( 0.8906, 0.1990)
3741 -- ( 0.8567, 0.2576)
3742 --cycle
3743 (-0.0164, 0.2237)
3744 .. controls ( 0.0715, 0.1799) and ( 0.3189, 0.1896) .. ( 0.4257, 0.1896)
3745 -- ( 0.4257, 0.2237)
3746 --cycle
3747 (-0.2716, 0.1216)

```



```

3748 -- (-0.2716, 0.0876)
3749 -- ( 0.1501, 0.0876)
3750 -- ( 0.1434, 0.1042)
3751 -- ( 0.0345, 0.1216)
3752 --cycle
3753 ( 0.1501, 0.0876)
3754 -- ( 0.1536, 0.0789)
3755 -- ( 0.1536, 0.0876)
3756 --cycle
3757 ( 0.1536, 0.0789)
3758 -- ( 0.1536, 0.0196)
3759 -- ( 0.0856, 0.0534)
3760 -- ( 0.0686,-0.0145)
3761 -- ( 0.7658,-0.0145)
3762 .. controls ( 0.6332, 0.0380) and ( 0.4479,-0.0524) .. ( 0.3406, 0.0534)
3763 -- ( 0.3236, 0.0534)
3764 -- ( 0.2897, 0.0196)
3765 -- ( 0.2897, 0.0876)
3766 -- ( 0.2556, 0.0196)
3767 -- ( 0.2386, 0.0876)
3768 -- ( 0.1705, 0.0365)
3769 --cycle
3770 ( 0.3917, 0.1216)
3771 -- ( 0.3917, 0.0876)
3772 -- ( 0.8678, 0.0876)
3773 .. controls ( 0.7768, 0.1266) and ( 0.5022, 0.1216) .. ( 0.3917, 0.1216)
3774 --cycle
3775 (-0.9351, 0.1208)
3776 -- (-0.9518, 0.0921)
3777 -- (-0.9518, 0.0876)
3778 -- (-0.6117, 0.1045)
3779 --cycle
3780 (-0.9144, 0.0213)
3781 .. controls (-0.9468, 0.0204) and (-0.9775, 0.0109) .. (-0.9996,-0.0116)
3782 -- (-0.9982,-0.0141)
3783 -- (-0.8158, 0.0026)
3784 .. controls (-0.8449, 0.0142) and (-0.8804, 0.0222) .. (-0.9144, 0.0213)
3785 --cycle
3786 (-0.6287, 0.0196)
3787 .. controls (-0.5470,-0.0404) and (-0.2796,-0.0145) .. (-0.1695,-0.0145)
3788 -- (-0.1695, 0.0196)
3789 --cycle
3790 (-0.9488,-0.0996)
3791 -- (-0.9292,-0.1335)
3792 -- (-0.4756,-0.1335)
3793 -- (-0.4756,-0.0996)
3794 --cycle
3795 (-0.2886,-0.0996)
3796 -- (-0.2886,-0.1335)
3797 -- ( 0.2726,-0.1335)
3798 .. controls ( 0.2164,-0.0920) and ( 0.1871,-0.0997) .. ( 0.1195,-0.0996)
3799 --cycle
3800 ( 0.5478,-0.1025)

```

```

3801 .. controls ( 0.5070,-0.1018) and ( 0.4651,-0.1086) .. ( 0.4257,-0.1165)
3802 -- ( 0.6638,-0.1335)
3803 .. controls ( 0.6286,-0.1113) and ( 0.5887,-0.1031) .. ( 0.5478,-0.1025)
3804 --cycle
3805 ( 0.8928,-0.1132)
3806 .. controls ( 0.8481,-0.1114) and ( 0.8007,-0.1165) .. ( 0.7658,-0.1165)
3807 -- ( 0.9264,-0.1394)
3808 -- ( 0.9384,-0.1186)
3809 .. controls ( 0.9238,-0.1157) and ( 0.9087,-0.1137) .. ( 0.8928,-0.1132)
3810 --cycle
3811 (-0.2982,-0.2002)
3812 .. controls (-0.3469,-0.2010) and (-0.3950,-0.2053) .. (-0.4416,-0.2185)
3813 -- (-0.0505,-0.2355)
3814 -- ( 0.7827,-0.2355)
3815 .. controls ( 0.6739,-0.1909) and ( 0.4335,-0.2017) .. ( 0.3067,-0.2016)
3816 -- (-0.1525,-0.2016)
3817 .. controls (-0.2005,-0.2016) and (-0.2496,-0.1992) .. (-0.2982,-0.2002)
3818 --cycle
3819 (-0.8328,-0.2016)
3820 .. controls (-0.7894,-0.2498) and (-0.7244,-0.2355) .. (-0.6627,-0.2355)
3821 -- (-0.6627,-0.3034)
3822 -- (-0.6967,-0.2696)
3823 -- (-0.7137,-0.2696)
3824 .. controls (-0.7385,-0.3064) and (-0.7772,-0.3191) .. (-0.8200,-0.3227)
3825 -- (-0.8113,-0.3377)
3826 .. controls (-0.6682,-0.3440) and (-0.4684,-0.3376) .. (-0.3906,-0.3376)
3827 -- (-0.4586,-0.2696)
3828 -- (-0.5266,-0.3034)
3829 -- (-0.5097,-0.2355)
3830 -- (-0.5607,-0.3206)
3831 -- (-0.5777,-0.2355)
3832 -- (-0.6457,-0.3034)
3833 -- (-0.6287,-0.2185)
3834 --cycle
3835 ( 0.8169,-0.2866)
3836 -- ( 0.7489,-0.3206)
3837 .. controls ( 0.7652,-0.3284) and ( 0.7871,-0.3345) .. ( 0.8114,-0.3386)
3838 -- ( 0.8324,-0.3020)
3839 --cycle
3840 ( 0.2076,-0.3170)
3841 .. controls ( 0.0913,-0.3168) and (-0.0288,-0.3206) .. (-0.0845,-0.3206)
3842 -- ( 0.2509,-0.3621)
3843 -- ( 0.2897,-0.4056)
3844 -- ( 0.2556,-0.3716)
3845 -- ( 0.2386,-0.3716)
3846 -- ( 0.2386,-0.4566)
3847 -- ( 0.4257,-0.4566)
3848 -- ( 0.3746,-0.3716)
3849 -- ( 0.3067,-0.4226)
3850 -- ( 0.3067,-0.3547)
3851 -- ( 0.4766,-0.3376)
3852 .. controls ( 0.4363,-0.3215) and ( 0.3237,-0.3172) .. ( 0.2076,-0.3170)
3853 --cycle

```

```

3854 (-0.7622,-0.4226)
3855 -- (-0.7427,-0.4566)
3856 -- (-0.5607,-0.4566)
3857 -- (-0.5607,-0.4226)
3858 --cycle
3859 (-0.3396,-0.4226)
3860 -- (-0.3396,-0.4566)
3861 -- (-0.0164,-0.4566)
3862 -- (-0.0164,-0.4226)
3863 --cycle
3864 ( 0.5787,-0.4226)
3865 .. controls ( 0.6179,-0.4661) and ( 0.6835,-0.4595) .. ( 0.7407,-0.4607)
3866 -- ( 0.7528,-0.4400)
3867 .. controls ( 0.6947,-0.4396) and ( 0.6370,-0.4368) .. ( 0.5787,-0.4226)
3868 --cycle
3869 (-0.2496,-0.5239)
3870 .. controls (-0.2827,-0.5212) and (-0.3176,-0.5246) .. (-0.3566,-0.5246)
3871 -- (-0.7034,-0.5246)
3872 -- (-0.6873,-0.5524)
3873 .. controls (-0.6429,-0.5639) and (-0.5972,-0.5587) .. (-0.5436,-0.5587)
3874 -- (-0.1525,-0.5587)
3875 .. controls (-0.1848,-0.5349) and (-0.2163,-0.5263) .. (-0.2496,-0.5239)
3876 --cycle
3877 (-0.0164,-0.5417)
3878 .. controls ( 0.0514,-0.5917) and ( 0.1065,-0.5717) .. ( 0.1876,-0.5736)
3879 .. controls ( 0.2932,-0.5761) and ( 0.5300,-0.5848) .. ( 0.6766,-0.5720)
3880 -- ( 0.6872,-0.5538)
3881 -- ( 0.4937,-0.5417)
3882 --cycle
3883 (-0.6255,-0.6593)
3884 -- (-0.6248,-0.6607)
3885 -- (-0.6117,-0.6607)
3886 --cycle
3887 (-0.5777,-0.6607)
3888 -- (-0.5777,-0.7287)
3889 -- (-0.5856,-0.7287)
3890 -- (-0.5659,-0.7627)
3891 -- (-0.3906,-0.7627)
3892 -- (-0.1695,-0.7627)
3893 -- (-0.4246,-0.7287)
3894 -- (-0.4076,-0.6607)
3895 -- (-0.4416,-0.7287)
3896 -- (-0.4756,-0.7287)
3897 -- (-0.4756,-0.6607)
3898 -- (-0.5097,-0.6607)
3899 -- (-0.5097,-0.7287)
3900 --cycle
3901 ( 0.0686,-0.7457)
3902 .. controls ( 0.1464,-0.8028) and ( 0.3428,-0.7798) .. ( 0.4427,-0.7798)
3903 -- ( 0.4427,-0.7457)
3904 --cycle
3905 (-0.3736,-0.8478)
3906 -- (-0.3736,-0.8722)

```

```

3907 -- (-0.2203,-0.8722)
3908 .. controls (-0.2708,-0.8419) and (-0.3097,-0.8478) .. (-0.3736,-0.8478)
3909 --cycle
3910 (-0.0172,-0.8544)
3911 .. controls (-0.0398,-0.8556) and (-0.0623,-0.8586) .. (-0.0845,-0.8648)
3912 .. controls (-0.0753,-0.8684) and (-0.0664,-0.8700) .. (-0.0573,-0.8722)
3913 -- ( 0.5033,-0.8722)
3914 -- ( 0.5088,-0.8626)
3915 .. controls ( 0.3892,-0.8602) and ( 0.2527,-0.8649) .. ( 0.1876,-0.8648)
3916 .. controls ( 0.1186,-0.8647) and ( 0.0502,-0.8509) .. (-0.0172,-0.8544)
3917 --cycle
3918 ;
3919 }
3920 }
3921 \fi

```

hex/terrain/rough

The style for rough hexes. The pattern is filled with a light brown, and outlines are not drawn.

```

3922 \tikzset{
3923   hex/terrain/rough/.style={
3924     draw=none,
3925     fill={rgb,100:red,79;green,68;blue,41}
3926   }
3927 }

```

hex/terrain/rough

Roughs. Again, a bit long.

```

3928 \ifhex@terrain@pic
3929 \tikzset{
3930   hex/terrain/rough/.pic={
3931     \path[hex/terrain/rough,pic actions,draw=none]
3932       (-0.2701, 0.8873)
3933       .. controls (-0.2982, 0.8927) and (-0.3250, 0.8675) .. (-0.3296, 0.8537)
3934       .. controls (-0.3363, 0.8337) and (-0.3058, 0.8263) .. (-0.2820, 0.8610)
3935       .. controls (-0.2717, 0.8450) and (-0.2591, 0.8228) .. (-0.2441, 0.8112)
3936       .. controls (-0.2057, 0.7817) and (-0.1394, 0.7709) .. (-0.1208, 0.8270)
3937       -- (-0.2226, 0.8355)
3938       .. controls (-0.2359, 0.8698) and (-0.2532, 0.8840) .. (-0.2701, 0.8873)
3939       --cycle
3940       (-0.1081, 0.8792)
3941       .. controls (-0.1371, 0.8680) and (-0.1265, 0.8900) .. (-0.1377, 0.8610)
3942       .. controls (-0.1121, 0.8691) and (-0.1163, 0.8536) .. (-0.1081, 0.8792)
3943       --cycle
3944       ( 0.1762, 0.8752)
3945       -- ( 0.1761, 0.8710)
3946       .. controls ( 0.1746, 0.8556) and ( 0.1707, 0.8704) .. ( 0.1822, 0.8575)
3947       .. controls ( 0.1958, 0.8423) and ( 0.2514, 0.8065) .. ( 0.2435, 0.8694)
3948       --cycle
3949       ( 0.3216, 0.8740)

```

```

3950 .. controls ( 0.3061, 0.8744) and ( 0.2932, 0.8668) .. ( 0.2896, 0.8414)
3951 .. controls ( 0.2869, 0.8222) and ( 0.3049, 0.8110) .. ( 0.3122, 0.7930)
3952 -- ( 0.3292, 0.7930)
3953 -- ( 0.3377, 0.8440)
3954 -- ( 0.3874, 0.8438)
3955 -- ( 0.3702, 0.8584)
3956 .. controls ( 0.3556, 0.8652) and ( 0.3372, 0.8736) .. ( 0.3216, 0.8740)
3957 --cycle
3958 ( 0.4696, 0.8697)
3959 .. controls ( 0.4362, 0.8687) and ( 0.4116, 0.8113) .. ( 0.4594, 0.7865)
3960 -- ( 0.4565, 0.8238)
3961 -- ( 0.5034, 0.8485)
3962 .. controls ( 0.4927, 0.8641) and ( 0.4807, 0.8700) .. ( 0.4696, 0.8697)
3963 --cycle
3964 (-0.0783, 0.8695)
3965 -- (-0.0698, 0.8185)
3966 -- (-0.0528, 0.8185)
3967 .. controls (-0.0488, 0.8507) and (-0.0499, 0.8533) .. (-0.0783, 0.8695)
3968 --cycle
3969 ( 0.0321, 0.8695)
3970 .. controls (-0.0074, 0.8534) and (-0.0195, 0.8453) .. (-0.0104, 0.8015)
3971 .. controls ( 0.0252, 0.8183) and ( 0.0356, 0.8295) .. ( 0.0321, 0.8695)
3972 --cycle
3973 (-0.4155, 0.8596)
3974 .. controls (-0.4417, 0.8307) and (-0.4165, 0.8213) .. (-0.4032, 0.8284)
3975 .. controls (-0.3903, 0.8353) and (-0.3789, 0.8639) .. (-0.4155, 0.8596)
3976 --cycle
3977 (-0.4857, 0.8525)
3978 .. controls (-0.4972, 0.8321) and (-0.5172, 0.8207) .. (-0.5389, 0.8116)
3979 -- (-0.5595, 0.7763)
3980 .. controls (-0.5377, 0.7748) and (-0.5144, 0.7944) .. (-0.4942, 0.8100)
3981 -- (-0.4857, 0.7845)
3982 .. controls (-0.4503, 0.8051) and (-0.4552, 0.8169) .. (-0.4688, 0.8525)
3983 --cycle
3984 ( 0.1002, 0.8511)
3985 .. controls ( 0.0869, 0.8528) and ( 0.0769, 0.8478) .. ( 0.0696, 0.8260)
3986 -- ( 0.1509, 0.8185)
3987 -- ( 0.1509, 0.8355)
3988 .. controls ( 0.1302, 0.8408) and ( 0.1135, 0.8493) .. ( 0.1002, 0.8511)
3989 --cycle
3990 ( 0.2485, 0.8268)
3991 .. controls ( 0.2378, 0.8296) and ( 0.2250, 0.8213) .. ( 0.2103, 0.7930)
3992 .. controls ( 0.2410, 0.7676) and ( 0.2451, 0.7555) .. ( 0.2867, 0.7591)
3993 .. controls ( 0.2791, 0.7861) and ( 0.2665, 0.8220) .. ( 0.2485, 0.8268)
3994 --cycle
3995 (-0.3754, 0.8100)
3996 -- (-0.3754, 0.7930)
3997 -- (-0.3330, 0.7930)
3998 -- (-0.3330, 0.8100)
3999 --cycle
4000 ( 0.5066, 0.8010)
4001 -- ( 0.5131, 0.7667)
4002 -- ( 0.5443, 0.7538)

```

```

4003 -- ( 0.5566, 0.7611)
4004 -- ( 0.5392, 0.7958)
4005 --cycle
4006 (-0.4008, 0.7930)
4007 -- (-0.4348, 0.7591)
4008 --cycle
4009 ( 0.1509, 0.7930)
4010 -- ( 0.1254, 0.7676)
4011 .. controls ( 0.1432, 0.7361) and ( 0.1497, 0.7365) .. ( 0.1849, 0.7336)
4012 .. controls ( 0.1820, 0.7688) and ( 0.1824, 0.7753) .. ( 0.1509, 0.7930)
4013 --cycle
4014 ( 0.0301, 0.7854)
4015 .. controls ( 0.0240, 0.7861) and ( 0.0162, 0.7858) .. ( 0.0066, 0.7845)
4016 -- ( 0.0490, 0.7421)
4017 .. controls ( 0.0527, 0.7709) and ( 0.0486, 0.7831) .. ( 0.0301, 0.7854)
4018 --cycle
4019 (-0.2757, 0.7847)
4020 .. controls (-0.2819, 0.7857) and (-0.2896, 0.7857) .. (-0.2990, 0.7845)
4021 -- (-0.2820, 0.7411)
4022 .. controls (-0.3010, 0.7423) and (-0.3576, 0.7485) .. (-0.3704, 0.7411)
4023 .. controls (-0.3832, 0.7314) and (-0.3819, 0.7137) .. (-0.3644, 0.7089)
4024 .. controls (-0.3522, 0.7029) and (-0.3199, 0.7069) .. (-0.3075, 0.7089)
4025 .. controls (-0.2647, 0.7227) and (-0.2326, 0.7776) .. (-0.2757, 0.7847)
4026 --cycle
4027 ( 0.3631, 0.7676)
4028 -- ( 0.3122, 0.7479)
4029 .. controls ( 0.3064, 0.6995) and ( 0.3021, 0.7030) .. ( 0.3546, 0.7166)
4030 .. controls ( 0.3550, 0.6777) and ( 0.3499, 0.6644) .. ( 0.3886, 0.6488)
4031 .. controls ( 0.3854, 0.7398) and ( 0.3467, 0.6989) .. ( 0.3631, 0.7676)
4032 --cycle
4033 ( 0.5753, 0.7676)
4034 .. controls ( 0.5837, 0.7354) and ( 0.5927, 0.7219) .. ( 0.6097, 0.7131)
4035 -- ( 0.5796, 0.7669)
4036 .. controls ( 0.5781, 0.7670) and ( 0.5768, 0.7674) .. ( 0.5753, 0.7676)
4037 --cycle
4038 (-0.5536, 0.7591)
4039 -- (-0.5706, 0.7082)
4040 -- (-0.5621, 0.6997)
4041 -- (-0.5027, 0.6997)
4042 .. controls (-0.5136, 0.7365) and (-0.5192, 0.7422) .. (-0.5536, 0.7591)
4043 --cycle
4044 (-0.1361, 0.7534)
4045 .. controls (-0.1512, 0.7509) and (-0.1612, 0.7304) .. (-0.1462, 0.6912)
4046 -- (-0.0953, 0.7082)
4047 .. controls (-0.1007, 0.7406) and (-0.1210, 0.7560) .. (-0.1361, 0.7534)
4048 --cycle
4049 (-0.4655, 0.7519)
4050 .. controls (-0.4811, 0.7476) and (-0.4887, 0.7146) .. (-0.4551, 0.6911)
4051 .. controls (-0.4447, 0.6838) and (-0.4376, 0.6846) .. (-0.4263, 0.6827)
4052 -- (-0.4362, 0.7201)
4053 .. controls (-0.4440, 0.7466) and (-0.4562, 0.7544) .. (-0.4655, 0.7519)
4054 --cycle
4055 (-0.2311, 0.7421)

```

```

4056 -- (-0.2480, 0.7082)
4057 -- (-0.1971, 0.6827)
4058 -- (-0.2141, 0.7421)
4059 --cycle
4060 ( 0.4819, 0.7421)
4061 -- ( 0.5244, 0.7082)
4062 -- ( 0.5329, 0.7166)
4063 -- ( 0.5329, 0.7336)
4064 --cycle
4065 ( 0.4140, 0.7336)
4066 .. controls ( 0.4091, 0.6951) and ( 0.4180, 0.6863) .. ( 0.4565, 0.6912)
4067 --cycle
4068 ( 0.1000, 0.7166)
4069 .. controls ( 0.0969, 0.7064) and ( 0.0893, 0.6845) .. ( 0.0896, 0.6747)
4070 .. controls ( 0.0911, 0.6142) and ( 0.1603, 0.6571) .. ( 0.1849, 0.6658)
4071 -- ( 0.2260, 0.6725)
4072 .. controls ( 0.2381, 0.6766) and ( 0.2515, 0.6891) .. ( 0.2429, 0.7019)
4073 .. controls ( 0.2330, 0.7185) and ( 0.1897, 0.7058) .. ( 0.1756, 0.7019)
4074 -- ( 0.1339, 0.6827)
4075 --cycle
4076 ( 0.0321, 0.7082)
4077 -- (-0.0019, 0.6318)
4078 .. controls ( 0.0528, 0.6362) and ( 0.0992, 0.6731) .. ( 0.0321, 0.7082)
4079 --cycle
4080 ( 0.5074, 0.6997)
4081 .. controls ( 0.5090, 0.6563) and ( 0.5107, 0.6351) .. ( 0.5584, 0.6572)
4082 --cycle
4083 (-0.6116, 0.6867)
4084 -- (-0.6413, 0.6359)
4085 .. controls (-0.6321, 0.6229) and (-0.6158, 0.6171) .. (-0.6009, 0.6289)
4086 .. controls (-0.5820, 0.6437) and (-0.5846, 0.6623) .. (-0.5876, 0.6827)
4087 --cycle
4088 (-0.3414, 0.6742)
4089 .. controls (-0.3515, 0.6371) and (-0.3559, 0.6083) .. (-0.3075, 0.6148)
4090 -- (-0.3245, 0.6742)
4091 --cycle
4092 (-0.5112, 0.6657)
4093 -- (-0.5112, 0.6318)
4094 -- (-0.4772, 0.6233)
4095 -- (-0.5027, 0.5893)
4096 -- (-0.5027, 0.5808)
4097 -- (-0.4857, 0.5638)
4098 .. controls (-0.4400, 0.6074) and (-0.4373, 0.6597) .. (-0.5112, 0.6657)
4099 --cycle
4100 (-0.2905, 0.6657)
4101 .. controls (-0.2682, 0.6064) and (-0.2058, 0.5997) .. (-0.2141, 0.6657)
4102 --cycle
4103 (-0.0953, 0.6488)
4104 -- (-0.1547, 0.6403)
4105 -- (-0.1377, 0.5553)
4106 -- (-0.1208, 0.5553)
4107 .. controls (-0.0926, 0.5982) and (-0.0954, 0.5977) .. (-0.0953, 0.6488)
4108 --cycle

```

```

4109 ( 0.0915, 0.6403)
4110 .. controls ( 0.0497, 0.6269) and ( 0.0505, 0.6133) .. ( 0.0490, 0.5723)
4111 .. controls ( 0.0796, 0.5913) and ( 0.0822, 0.6066) .. ( 0.0915, 0.6403)
4112 --cycle
4113 ( 0.4310, 0.6403)
4114 .. controls ( 0.4211, 0.6043) and ( 0.4125, 0.5931) .. ( 0.4480, 0.5723)
4115 -- ( 0.4819, 0.6148)
4116 -- ( 0.4819, 0.6318)
4117 --cycle
4118 ( 0.5838, 0.6403)
4119 .. controls ( 0.5923, 0.5846) and ( 0.5925, 0.5918) .. ( 0.6362, 0.5668)
4120 -- ( 0.6521, 0.5663)
4121 -- ( 0.6615, 0.5890)
4122 .. controls ( 0.6340, 0.6304) and ( 0.6328, 0.6347) .. ( 0.5838, 0.6403)
4123 --cycle
4124 ( 0.2018, 0.6233)
4125 -- ( 0.2018, 0.5808)
4126 -- ( 0.2358, 0.5808)
4127 .. controls ( 0.2306, 0.6108) and ( 0.2301, 0.6119) .. ( 0.2018, 0.6233)
4128 --cycle
4129 ( 0.3200, 0.6175)
4130 .. controls ( 0.3147, 0.6171) and ( 0.3095, 0.6162) .. ( 0.3037, 0.6159)
4131 -- ( 0.3144, 0.5906)
4132 .. controls ( 0.3494, 0.5385) and ( 0.3913, 0.6066) .. ( 0.3367, 0.6159)
4133 .. controls ( 0.3306, 0.6176) and ( 0.3252, 0.6178) .. ( 0.3200, 0.6175)
4134 --cycle
4135 ( 0.1254, 0.6148)
4136 -- ( 0.1169, 0.5553)
4137 -- ( 0.1339, 0.5553)
4138 -- ( 0.1594, 0.5808)
4139 --cycle
4140 (-0.0188, 0.6063)
4141 .. controls (-0.0629, 0.5361) and (-0.0925, 0.5785) .. (-0.1038, 0.5044)
4142 -- (-0.0528, 0.4875)
4143 .. controls (-0.0307, 0.5232) and (-0.0275, 0.5285) .. ( 0.0151, 0.5299)
4144 .. controls ( 0.0257, 0.5724) and ( 0.0206, 0.5860) .. (-0.0188, 0.6063)
4145 --cycle
4146 (-0.2820, 0.5893)
4147 .. controls (-0.2753, 0.5073) and (-0.2107, 0.5185) .. (-0.1801, 0.5808)
4148 --cycle
4149 ( 0.5244, 0.5893)
4150 .. controls ( 0.5408, 0.5621) and ( 0.5447, 0.5620) .. ( 0.5753, 0.5553)
4151 .. controls ( 0.5625, 0.5873) and ( 0.5579, 0.5867) .. ( 0.5244, 0.5893)
4152 --cycle
4153 (-0.4023, 0.5839)
4154 .. controls (-0.4095, 0.5826) and (-0.4161, 0.5794) .. (-0.4210, 0.5751)
4155 .. controls (-0.4340, 0.5638) and (-0.4334, 0.5376) .. (-0.4348, 0.5214)
4156 .. controls (-0.3835, 0.5433) and (-0.4044, 0.5361) .. (-0.3499, 0.5299)
4157 .. controls (-0.3537, 0.5756) and (-0.3808, 0.5879) .. (-0.4023, 0.5839)
4158 --cycle
4159 (-0.6717, 0.5836)
4160 -- (-0.7007, 0.5338)
4161 .. controls (-0.6810, 0.5286) and (-0.6639, 0.5441) .. (-0.6717, 0.5836)

```



```

4162  --cycle
4163  (-0.5683, 0.5760)
4164  .. controls (-0.5775, 0.5769) and (-0.5875, 0.5722) .. (-0.6045, 0.5638)
4165  -- (-0.5876, 0.5214)
4166  -- (-0.5367, 0.5553)
4167  .. controls (-0.5506, 0.5688) and (-0.5590, 0.5752) .. (-0.5683, 0.5760)
4168  --cycle
4169  ( 0.2527, 0.5638)
4170  -- ( 0.2782, 0.5129)
4171  -- ( 0.2867, 0.5129)
4172  -- ( 0.3037, 0.5299)
4173  .. controls ( 0.2852, 0.5566) and ( 0.2848, 0.5585) .. ( 0.2527, 0.5638)
4174  --cycle
4175  ( 0.6946, 0.5616)
4176  .. controls ( 0.6944, 0.5600) and ( 0.6921, 0.5548) .. ( 0.6787, 0.5413)
4177  -- ( 0.6878, 0.5061)
4178  .. controls ( 0.6794, 0.4976) and ( 0.6747, 0.5161) .. ( 0.6694, 0.5045)
4179  -- ( 0.6262, 0.5469)
4180  .. controls ( 0.6001, 0.4510) and ( 0.6708, 0.4762) .. ( 0.6776, 0.4804)
4181  .. controls ( 0.6913, 0.4889) and ( 0.7003, 0.4848) .. ( 0.7078, 0.4982)
4182  -- ( 0.7283, 0.4862)
4183  -- ( 0.7151, 0.5087)
4184  -- ( 0.6995, 0.5381)
4185  .. controls ( 0.6915, 0.5505) and ( 0.6933, 0.5583) .. ( 0.6948, 0.5614)
4186  --cycle
4187  ( 0.1764, 0.5469)
4188  .. controls ( 0.1765, 0.5023) and ( 0.1718, 0.4964) .. ( 0.2018, 0.4620)
4189  -- ( 0.2443, 0.4790)
4190  .. controls ( 0.2287, 0.5015) and ( 0.2286, 0.4995) .. ( 0.2018, 0.4960)
4191  -- ( 0.1934, 0.5044)
4192  -- ( 0.1934, 0.5469)
4193  --cycle
4194  ( 0.3971, 0.5384)
4195  -- ( 0.4056, 0.5044)
4196  -- ( 0.4649, 0.4875)
4197  -- ( 0.4904, 0.5384)
4198  -- ( 0.4395, 0.5214)
4199  --cycle
4200  ( 0.5668, 0.5384)
4201  .. controls ( 0.5368, 0.5332) and ( 0.5357, 0.5327) .. ( 0.5244, 0.5044)
4202  -- ( 0.5329, 0.4960)
4203  -- ( 0.5668, 0.5044)
4204  -- ( 0.5499, 0.4620)
4205  .. controls ( 0.5250, 0.4718) and ( 0.5240, 0.4756) .. ( 0.5074, 0.4535)
4206  -- ( 0.5584, 0.4280)
4207  .. controls ( 0.6164, 0.4608) and ( 0.5800, 0.4918) .. ( 0.5668, 0.5384)
4208  --cycle
4209  ( 0.0770, 0.5310)
4210  .. controls ( 0.0682, 0.5304) and ( 0.0588, 0.5222) .. ( 0.0538, 0.5053)
4211  .. controls ( 0.0343, 0.4401) and ( 0.0794, 0.3794) .. ( 0.1169, 0.4450)
4212  -- ( 0.0830, 0.4535)
4213  .. controls ( 0.0904, 0.4711) and ( 0.1010, 0.4920) .. ( 0.0968, 0.5117)
4214  .. controls ( 0.0941, 0.5249) and ( 0.0858, 0.5317) .. ( 0.0770, 0.5310)

```

```

4215 --cycle
4216 (-0.3075, 0.5299)
4217 -- (-0.3414, 0.4790)
4218 -- (-0.3330, 0.4705)
4219 .. controls (-0.2926, 0.4813) and (-0.2724, 0.4931) .. (-0.3075, 0.5299)
4220 --cycle
4221 (-0.6105, 0.5210)
4222 .. controls (-0.6292, 0.5286) and (-0.6359, 0.5102) .. (-0.6385, 0.4790)
4223 -- (-0.5876, 0.5044)
4224 .. controls (-0.5967, 0.5132) and (-0.6043, 0.5185) .. (-0.6105, 0.5210)
4225 --cycle
4226 (-0.6810, 0.5129)
4227 .. controls (-0.6924, 0.5121) and (-0.7036, 0.5121) .. (-0.7147, 0.5086)
4228 .. controls (-0.7151, 0.5085) and (-0.7153, 0.5083) .. (-0.7157, 0.5081)
4229 -- (-0.7430, 0.4612)
4230 .. controls (-0.7297, 0.4478) and (-0.7007, 0.4457) .. (-0.6860, 0.4801)
4231 .. controls (-0.6815, 0.4906) and (-0.6819, 0.5019) .. (-0.6810, 0.5129)
4232 --cycle
4233 (-0.1462, 0.5129)
4234 .. controls (-0.1949, 0.5129) and (-0.2098, 0.5207) .. (-0.2480, 0.4875)
4235 -- (-0.2480, 0.4790)
4236 -- (-0.2311, 0.4620)
4237 -- (-0.1801, 0.4790)
4238 -- (-0.1801, 0.4535)
4239 -- (-0.1462, 0.4535)
4240 --cycle
4241 ( 0.0066, 0.5044)
4242 -- (-0.0019, 0.4620)
4243 .. controls (-0.0908, 0.4424) and (-0.0252, 0.3738) .. ( 0.0185, 0.4370)
4244 .. controls ( 0.0238, 0.4448) and ( 0.0272, 0.4527) .. ( 0.0290, 0.4620)
4245 .. controls ( 0.0322, 0.4784) and ( 0.0277, 0.4893) .. ( 0.0236, 0.5044)
4246 --cycle
4247 (-0.5118, 0.4944)
4248 .. controls (-0.5315, 0.4962) and (-0.5506, 0.4944) .. (-0.5676, 0.4798)
4249 .. controls (-0.5973, 0.4546) and (-0.5662, 0.4306) .. (-0.5676, 0.4033)
4250 .. controls (-0.5682, 0.3806) and (-0.5896, 0.3679) .. (-0.5934, 0.3509)
4251 .. controls (-0.6001, 0.3209) and (-0.5656, 0.2986) .. (-0.5452, 0.2838)
4252 -- (-0.5621, 0.2498)
4253 -- (-0.5282, 0.2498)
4254 .. controls (-0.5165, 0.2920) and (-0.5111, 0.3040) .. (-0.5536, 0.3262)
4255 .. controls (-0.5263, 0.3959) and (-0.5223, 0.3799) .. (-0.5452, 0.4535)
4256 -- (-0.4857, 0.4705)
4257 -- (-0.4518, 0.4535)
4258 -- (-0.4518, 0.4875)
4259 .. controls (-0.4715, 0.4873) and (-0.4920, 0.4926) .. (-0.5118, 0.4944)
4260 --cycle
4261 ( 0.3588, 0.4802)
4262 .. controls ( 0.3533, 0.4806) and ( 0.3465, 0.4801) .. ( 0.3377, 0.4790)
4263 -- ( 0.3801, 0.4365)
4264 -- ( 0.3886, 0.4450)
4265 .. controls ( 0.3795, 0.4694) and ( 0.3752, 0.4789) .. ( 0.3588, 0.4802)
4266 --cycle
4267 (-0.3923, 0.4620)

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4268 .. controls (-0.3995, 0.4156) and (-0.3752, 0.3562) .. (-0.3330, 0.3347)
4269 -- (-0.3245, 0.3431)
4270 -- (-0.3172, 0.4229)
4271 -- (-0.3754, 0.4620)
4272 --cycle
4273 ( 0.1254, 0.4620)
4274 .. controls ( 0.1311, 0.4303) and ( 0.1371, 0.3466) .. ( 0.1909, 0.3657)
4275 .. controls ( 0.2082, 0.3718) and ( 0.2132, 0.3929) .. ( 0.2274, 0.4041)
4276 .. controls ( 0.2376, 0.4123) and ( 0.2569, 0.4158) .. ( 0.2697, 0.4196)
4277 .. controls ( 0.2404, 0.4707) and ( 0.2211, 0.4375) .. ( 0.1594, 0.4196)
4278 --cycle
4279 ( 0.6347, 0.4620)
4280 .. controls ( 0.5865, 0.3970) and ( 0.5594, 0.4145) .. ( 0.5753, 0.3516)
4281 .. controls ( 0.6248, 0.3639) and ( 0.6190, 0.3659) .. ( 0.6687, 0.3516)
4282 .. controls ( 0.6624, 0.3942) and ( 0.6392, 0.4050) .. ( 0.6772, 0.4280)
4283 --cycle
4284 (-0.2735, 0.4535)
4285 .. controls (-0.2776, 0.4212) and (-0.2764, 0.4187) .. (-0.2480, 0.4026)
4286 -- (-0.2565, 0.4535)
4287 --cycle
4288 ( 0.4565, 0.4535)
4289 -- ( 0.4395, 0.4365)
4290 -- ( 0.4395, 0.4280)
4291 -- ( 0.4565, 0.4111)
4292 -- ( 0.4649, 0.4111)
4293 -- ( 0.4819, 0.4280)
4294 --cycle
4295 ( 0.7558, 0.4524)
4296 .. controls ( 0.7494, 0.4473) and ( 0.7430, 0.4394) .. ( 0.7366, 0.4280)
4297 .. controls ( 0.7552, 0.4225) and ( 0.7653, 0.4183) .. ( 0.7753, 0.4176)
4298 --cycle
4299 (-0.4518, 0.4450)
4300 -- (-0.4772, 0.4365)
4301 -- (-0.4518, 0.4196)
4302 --cycle
4303 (-0.6423, 0.4300)
4304 .. controls (-0.6532, 0.4307) and (-0.6637, 0.4304) .. (-0.6690, 0.4274)
4305 .. controls (-0.6866, 0.4158) and (-0.6850, 0.3910) .. (-0.6630, 0.3848)
4306 -- (-0.6130, 0.3848)
4307 -- (-0.6130, 0.4274)
4308 .. controls (-0.6201, 0.4279) and (-0.6314, 0.4294) .. (-0.6423, 0.4300)
4309 --cycle
4310 ( 0.7111, 0.4196)
4311 -- ( 0.7451, 0.3771)
4312 .. controls ( 0.7399, 0.4071) and ( 0.7394, 0.4082) .. ( 0.7111, 0.4196)
4313 --cycle
4314 (-0.7404, 0.4111)
4315 -- (-0.7574, 0.3347)
4316 -- (-0.7065, 0.3262)
4317 -- (-0.7234, 0.4111)
4318 --cycle
4319 (-0.1547, 0.4111)
4320 -- (-0.1462, 0.3601)

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4321 -- (-0.1038, 0.3856)
4322 .. controls (-0.0885, 0.3562) and (-0.0864, 0.3520) .. (-0.0528, 0.3516)
4323 -- (-0.0783, 0.4026)
4324 --cycle
4325 ( 0.3886, 0.4111)
4326 .. controls ( 0.3213, 0.4055) and ( 0.3289, 0.3610) .. ( 0.3801, 0.3347)
4327 --cycle
4328 ( 0.3801, 0.3347)
4329 -- ( 0.3801, 0.3262)
4330 -- ( 0.3631, 0.3092)
4331 -- ( 0.3801, 0.2753)
4332 -- ( 0.3971, 0.2753)
4333 .. controls ( 0.4050, 0.3067) and ( 0.4083, 0.3157) .. ( 0.3801, 0.3347)
4334 --cycle
4335 ( 0.5074, 0.4026)
4336 -- ( 0.4565, 0.3516)
4337 .. controls ( 0.4935, 0.3518) and ( 0.5571, 0.3505) .. ( 0.5074, 0.4026)
4338 --cycle
4339 (-0.4348, 0.3941)
4340 -- (-0.4433, 0.3856)
4341 -- (-0.4348, 0.3516)
4342 -- (-0.4008, 0.3856)
4343 --cycle
4344 (-0.5112, 0.3856)
4345 -- (-0.5027, 0.3347)
4346 -- (-0.4518, 0.3856)
4347 --cycle
4348 ( 0.0405, 0.3856)
4349 .. controls ( 0.0481, 0.3444) and ( 0.0444, 0.3224) .. ( 0.0830, 0.3007)
4350 -- ( 0.1169, 0.3686)
4351 --cycle
4352 ( 0.2586, 0.3821)
4353 .. controls ( 0.2327, 0.3759) and ( 0.2165, 0.3319) .. ( 0.2699, 0.3440)
4354 -- ( 0.2952, 0.3516)
4355 .. controls ( 0.2928, 0.3578) and ( 0.2924, 0.3646) .. ( 0.2856, 0.3722)
4356 .. controls ( 0.2770, 0.3820) and ( 0.2672, 0.3842) .. ( 0.2586, 0.3821)
4357 --cycle
4358 (-0.2650, 0.3686)
4359 .. controls (-0.2695, 0.3349) and (-0.2648, 0.3302) .. (-0.2311, 0.3347)
4360 --cycle
4361 ( 0.8037, 0.3670)
4362 .. controls ( 0.7958, 0.3549) and ( 0.8002, 0.3405) .. ( 0.8215, 0.3262)
4363 -- ( 0.8225, 0.3334)
4364 --cycle
4365 (-0.0104, 0.3601)
4366 -- (-0.0273, 0.3007)
4367 -- (-0.0698, 0.3007)
4368 .. controls (-0.0385, 0.2465) and ( 0.0057, 0.2824) .. ( 0.0066, 0.3601)
4369 --cycle
4370 (-0.4348, 0.3431)
4371 -- (-0.4348, 0.3007)
4372 .. controls (-0.4123, 0.3163) and (-0.4143, 0.3163) .. (-0.4178, 0.3431)
4373 --cycle

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4374 (-0.8185, 0.3317)
4375 -- (-0.8365, 0.3007)
4376 -- (-0.7998, 0.3007)
4377 -- (-0.7998, 0.3177)
4378 --cycle
4379 ( 0.4649, 0.3315)
4380 .. controls ( 0.4219, 0.3238) and ( 0.4094, 0.2904) .. ( 0.4395, 0.2583)
4381 -- ( 0.4565, 0.2922)
4382 -- ( 0.5414, 0.2922)
4383 -- ( 0.5414, 0.3092)
4384 .. controls ( 0.5190, 0.3194) and ( 0.4902, 0.3361) .. ( 0.4649, 0.3315)
4385 --cycle
4386 (-0.6388, 0.3309)
4387 .. controls (-0.6527, 0.3328) and (-0.6597, 0.3256) .. (-0.6674, 0.3156)
4388 -- (-0.6895, 0.2838)
4389 .. controls (-0.6839, 0.2742) and (-0.6820, 0.2649) .. (-0.6700, 0.2597)
4390 .. controls (-0.6290, 0.2418) and (-0.5917, 0.3244) .. (-0.6388, 0.3309)
4391 --cycle
4392 (-0.1462, 0.3262)
4393 .. controls (-0.1623, 0.2693) and (-0.1610, 0.2418) .. (-0.0953, 0.2498)
4394 -- (-0.1292, 0.3262)
4395 --cycle
4396 ( 0.2103, 0.3262)
4397 -- ( 0.1849, 0.2753)
4398 .. controls ( 0.2243, 0.2757) and ( 0.2321, 0.2881) .. ( 0.2273, 0.3262)
4399 --cycle
4400 ( 0.3292, 0.3262)
4401 -- ( 0.2782, 0.2668)
4402 -- ( 0.2782, 0.2498)
4403 -- ( 0.3390, 0.2109)
4404 .. controls ( 0.3506, 0.1937) and ( 0.3360, 0.1683) .. ( 0.3513, 0.1579)
4405 .. controls ( 0.3686, 0.1461) and ( 0.4096, 0.1877) .. ( 0.3631, 0.2073)
4406 -- ( 0.3801, 0.2243)
4407 -- ( 0.3377, 0.2583)
4408 -- ( 0.3546, 0.3007)
4409 --cycle
4410 ( 0.6941, 0.3262)
4411 -- ( 0.6941, 0.2838)
4412 -- ( 0.7111, 0.2838)
4413 -- ( 0.7111, 0.3262)
4414 --cycle
4415 ( 0.7706, 0.3177)
4416 -- ( 0.7366, 0.3092)
4417 -- ( 0.7366, 0.2922)
4418 -- ( 0.7451, 0.2838)
4419 -- ( 0.7621, 0.2838)
4420 --cycle
4421 (-0.7913, 0.3092)
4422 -- (-0.7828, 0.2583)
4423 -- (-0.7658, 0.2583)
4424 -- (-0.7574, 0.2668)
4425 -- (-0.7743, 0.3092)
4426 --cycle

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4427 ( 0.6093, 0.3092)
4428 -- ( 0.5838, 0.2413)
4429 -- ( 0.6093, 0.2668)
4430 -- ( 0.6347, 0.2583)
4431 -- ( 0.6432, 0.3092)
4432 --cycle
4433 (-0.3494, 0.3079)
4434 .. controls (-0.4142, 0.2885) and (-0.3452, 0.2195) .. (-0.3258, 0.2842)
4435 -- (-0.3258, 0.3079)
4436 --cycle
4437 ( 0.1084, 0.3007)
4438 .. controls ( 0.1005, 0.2885) and ( 0.0956, 0.2764) .. ( 0.0807, 0.2708)
4439 .. controls ( 0.0663, 0.2653) and ( 0.0431, 0.2752) .. ( 0.0335, 0.2617)
4440 .. controls ( 0.0200, 0.2427) and ( 0.0540, 0.2322) .. ( 0.0660, 0.2298)
4441 .. controls ( 0.1034, 0.2226) and ( 0.1204, 0.2407) .. ( 0.1509, 0.2583)
4442 --cycle
4443 (-0.2201, 0.2946)
4444 .. controls (-0.2487, 0.2922) and (-0.2701, 0.2767) .. (-0.2990, 0.2583)
4445 -- (-0.2565, 0.2073)
4446 -- (-0.1886, 0.2922)
4447 .. controls (-0.2003, 0.2947) and (-0.2106, 0.2954) .. (-0.2201, 0.2946)
4448 --cycle
4449 (-0.4772, 0.2583)
4450 .. controls (-0.5022, 0.2481) and (-0.5267, 0.2367) .. (-0.5427, 0.2138)
4451 .. controls (-0.5681, 0.1773) and (-0.5547, 0.1549) .. (-0.5112, 0.1575)
4452 .. controls (-0.4976, 0.1584) and (-0.4899, 0.1613) .. (-0.4772, 0.1649)
4453 -- (-0.4688, 0.1564)
4454 -- (-0.4688, 0.1225)
4455 -- (-0.4518, 0.1225)
4456 .. controls (-0.4302, 0.1774) and (-0.4489, 0.1866) .. (-0.5027, 0.1988)
4457 --cycle
4458 (-0.4433, 0.2583)
4459 -- (-0.4348, 0.2073)
4460 -- (-0.4263, 0.2073)
4461 -- (-0.4093, 0.2243)
4462 -- (-0.4263, 0.2583)
4463 --cycle
4464 (-0.8446, 0.2512)
4465 .. controls (-0.8626, 0.2459) and (-0.8672, 0.2066) .. (-0.8677, 0.1903)
4466 .. controls (-0.8362, 0.1909) and (-0.8333, 0.1924) .. (-0.8168, 0.1649)
4467 -- (-0.7913, 0.1734)
4468 .. controls (-0.7979, 0.1888) and (-0.8118, 0.2347) .. (-0.8218, 0.2431)
4469 .. controls (-0.8311, 0.2510) and (-0.8386, 0.2530) .. (-0.8446, 0.2512)
4470 --cycle
4471 (-0.6130, 0.2498)
4472 -- (-0.6385, 0.1988)
4473 .. controls (-0.5969, 0.2023) and (-0.5781, 0.2132) .. (-0.6130, 0.2498)
4474 --cycle
4475 ( 0.7209, 0.2469)
4476 .. controls ( 0.7057, 0.2498) and ( 0.6918, 0.2452) .. ( 0.6875, 0.2241)
4477 .. controls ( 0.6832, 0.1844) and ( 0.7333, 0.1800) .. ( 0.6875, 0.1309)
4478 .. controls ( 0.6935, 0.1147) and ( 0.6966, 0.1050) .. ( 0.7123, 0.0936)
4479 .. controls ( 0.7287, 0.0815) and ( 0.7996, 0.0650) .. ( 0.8166, 0.0782)

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4480 .. controls ( 0.8441, 0.0997) and ( 0.8443, 0.1468) .. ( 0.7875, 0.1564)
4481 -- ( 0.8130, 0.1055)
4482 -- ( 0.7706, 0.0970)
4483 .. controls ( 0.7537, 0.1222) and ( 0.7493, 0.1200) .. ( 0.7196, 0.1225)
4484 -- ( 0.7621, 0.2241)
4485 .. controls ( 0.7526, 0.2335) and ( 0.7361, 0.2440) .. ( 0.7209, 0.2469)
4486 --cycle
4487 ( 0.5029, 0.2452)
4488 .. controls ( 0.4837, 0.2409) and ( 0.4663, 0.2223) .. ( 0.4749, 0.2012)
4489 .. controls ( 0.4861, 0.1737) and ( 0.5371, 0.1377) .. ( 0.5668, 0.1819)
4490 .. controls ( 0.5276, 0.2081) and ( 0.5495, 0.2337) .. ( 0.5218, 0.2442)
4491 .. controls ( 0.5159, 0.2464) and ( 0.5093, 0.2466) .. ( 0.5029, 0.2452)
4492 --cycle
4493 (-0.7065, 0.2328)
4494 .. controls (-0.7174, 0.2318) and (-0.7287, 0.2323) .. (-0.7391, 0.2277)
4495 .. controls (-0.7803, 0.2096) and (-0.7474, 0.1632) .. (-0.7171, 0.2086)
4496 --cycle
4497 (-0.0188, 0.2328)
4498 .. controls (-0.0280, 0.2283) and (-0.0341, 0.2273) .. (-0.0430, 0.2197)
4499 .. controls (-0.1097, 0.1629) and ( 0.0304, 0.1216) .. (-0.0010, 0.2037)
4500 --cycle
4501 ( 0.2612, 0.2328)
4502 -- ( 0.1849, 0.2073)
4503 .. controls ( 0.2210, 0.1548) and ( 0.2532, 0.1800) .. ( 0.2612, 0.2328)
4504 --cycle
4505 (-0.3330, 0.2243)
4506 -- (-0.3958, 0.1938)
4507 .. controls (-0.4203, 0.1689) and (-0.3928, 0.1505) .. (-0.4518, 0.0970)
4508 -- (-0.4518, 0.0800)
4509 .. controls (-0.4010, 0.0738) and (-0.3851, 0.1024) .. (-0.3754, 0.1479)
4510 .. controls (-0.3297, 0.1544) and (-0.3165, 0.1646) .. (-0.2990, 0.2073)
4511 --cycle
4512 (-0.1971, 0.2243)
4513 -- (-0.2056, 0.1479)
4514 -- (-0.1462, 0.1394)
4515 -- (-0.1462, 0.1564)
4516 -- (-0.1801, 0.2243)
4517 --cycle
4518 ( 0.8384, 0.2243)
4519 .. controls ( 0.8324, 0.1770) and ( 0.8519, 0.1318) .. ( 0.8979, 0.1140)
4520 -- ( 0.9064, 0.1225)
4521 .. controls ( 0.8952, 0.1805) and ( 0.8898, 0.1922) .. ( 0.8384, 0.2243)
4522 --cycle
4523 ( 0.0151, 0.2073)
4524 -- ( 0.0151, 0.1903)
4525 -- ( 0.0405, 0.1819)
4526 -- ( 0.0405, 0.1479)
4527 -- ( 0.0575, 0.1479)
4528 -- ( 0.0575, 0.1564)
4529 -- ( 0.0745, 0.1734)
4530 .. controls ( 0.0548, 0.2031) and ( 0.0517, 0.2101) .. ( 0.0151, 0.2073)
4531 --cycle
4532 ( 0.6262, 0.2073)

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4533 -- ( 0.6347, 0.1734)
4534 -- ( 0.6517, 0.1734)
4535 -- ( 0.6602, 0.1819)
4536 -- ( 0.6602, 0.1988)
4537 --cycle
4538 ( 0.7621, 0.2073)
4539 -- ( 0.7621, 0.1649)
4540 .. controls ( 0.7903, 0.1763) and ( 0.7908, 0.1774) .. ( 0.7960, 0.2073)
4541 --cycle
4542 (-0.8988, 0.1938)
4543 -- (-0.9014, 0.1893)
4544 .. controls (-0.9006, 0.1906) and (-0.8994, 0.1914) .. (-0.8988, 0.1930)
4545 .. controls (-0.8987, 0.1933) and (-0.8989, 0.1936) .. (-0.8988, 0.1938)
4546 --cycle
4547 (-0.1292, 0.1903)
4548 -- (-0.1292, 0.1479)
4549 -- (-0.0953, 0.1819)
4550 --cycle
4551 ( 0.2952, 0.1903)
4552 .. controls ( 0.2890, 0.1611) and ( 0.2867, 0.1567) .. ( 0.3122, 0.1394)
4553 -- ( 0.3122, 0.1903)
4554 --cycle
4555 (-0.6895, 0.1819)
4556 -- (-0.6895, 0.1479)
4557 -- (-0.6640, 0.1564)
4558 -- (-0.6640, 0.1734)
4559 -- (-0.6725, 0.1819)
4560 --cycle
4561 ( 0.1480, 0.1735)
4562 .. controls ( 0.1310, 0.1697) and ( 0.1252, 0.1423) .. ( 0.1594, 0.1225)
4563 -- ( 0.1849, 0.1479)
4564 .. controls ( 0.1726, 0.1694) and ( 0.1583, 0.1757) .. ( 0.1480, 0.1735)
4565 --cycle
4566 (-0.6300, 0.1734)
4567 .. controls (-0.6429, 0.1238) and (-0.6284, 0.1142) .. (-0.5876, 0.0885)
4568 -- (-0.6215, 0.0461)
4569 -- (-0.6640, 0.0800)
4570 .. controls (-0.6670, 0.0697) and (-0.6746, 0.0478) .. (-0.6743, 0.0381)
4571 .. controls (-0.6736, 0.0066) and (-0.6456, 0.0044) .. (-0.6219, 0.0135)
4572 .. controls (-0.5925, 0.0247) and (-0.5281, 0.0777) .. (-0.5319, 0.1120)
4573 .. controls (-0.5350, 0.1399) and (-0.5677, 0.1315) .. (-0.5853, 0.1410)
4574 .. controls (-0.5998, 0.1487) and (-0.6048, 0.1603) .. (-0.6130, 0.1734)
4575 --cycle
4576 (-0.6640, 0.0800)
4577 .. controls (-0.6595, 0.1137) and (-0.6643, 0.1185) .. (-0.6980, 0.1140)
4578 --cycle
4579 (-0.2565, 0.1734)
4580 -- (-0.3584, 0.1309)
4581 -- (-0.3330, 0.0800)
4582 -- (-0.2990, 0.1140)
4583 .. controls (-0.2519, 0.1142) and (-0.2453, 0.1302) .. (-0.2565, 0.1734)
4584 --cycle
4585 ( 0.2271, 0.1407)

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4586 .. controls ( 0.1925, 0.1328) and ( 0.1533, 0.0767) .. ( 0.2190, 0.0890)
4587 -- ( 0.2612, 0.0970)
4588 .. controls ( 0.2604, 0.1073) and ( 0.2611, 0.1186) .. ( 0.2562, 0.1281)
4589 .. controls ( 0.2497, 0.1405) and ( 0.2386, 0.1433) .. ( 0.2271, 0.1407)
4590 --cycle
4591 (-0.0698, 0.1394)
4592 .. controls (-0.0981, 0.1280) and (-0.0986, 0.1270) .. (-0.1038, 0.0970)
4593 -- (-0.0698, 0.0970)
4594 --cycle
4595 ( 0.3971, 0.1394)
4596 -- ( 0.3971, 0.1225)
4597 -- ( 0.4056, 0.1140)
4598 -- ( 0.4395, 0.1225)
4599 -- ( 0.4395, 0.1394)
4600 --cycle
4601 ( 0.6090, 0.1316)
4602 .. controls ( 0.5968, 0.1320) and ( 0.5847, 0.1313) .. ( 0.5753, 0.1309)
4603 .. controls ( 0.5937, 0.1034) and ( 0.6031, 0.1066) .. ( 0.6347, 0.1055)
4604 .. controls ( 0.5863, 0.0654) and ( 0.5849, 0.0269) .. ( 0.6432,-0.0049)
4605 -- ( 0.6262, 0.0461)
4606 -- ( 0.6488, 0.0715)
4607 .. controls ( 0.6828, 0.1212) and ( 0.6456, 0.1307) .. ( 0.6090, 0.1316)
4608 --cycle
4609 (-0.9354, 0.1309)
4610 -- (-0.9422, 0.1193)
4611 -- (-0.9356, 0.0800)
4612 -- (-0.8847, 0.0970)
4613 -- (-0.8847, 0.1309)
4614 --cycle
4615 (-0.8507, 0.1309)
4616 .. controls (-0.8417, 0.0965) and (-0.8401, 0.0890) .. (-0.8083, 0.0715)
4617 .. controls (-0.8126, 0.1087) and (-0.8139, 0.1187) .. (-0.8507, 0.1309)
4618 --cycle
4619 ( 0.1084, 0.1309)
4620 -- ( 0.0575, 0.1225)
4621 .. controls ( 0.0537, 0.0923) and ( 0.0510, 0.0922) .. ( 0.0236, 0.0800)
4622 .. controls ( 0.0578, 0.0292) and ( 0.1015, 0.0713) .. ( 0.1084, 0.1309)
4623 --cycle
4624 ( 0.4819, 0.1309)
4625 -- ( 0.5028, 0.0739)
4626 -- ( 0.4819,-0.0049)
4627 .. controls ( 0.4993,-0.0102) and ( 0.5299,-0.0233) .. ( 0.5472,-0.0163)
4628 .. controls ( 0.5677,-0.0081) and ( 0.5663, 0.0195) .. ( 0.5644, 0.0376)
4629 .. controls ( 0.5592, 0.0860) and ( 0.5308, 0.1235) .. ( 0.4819, 0.1309)
4630 --cycle
4631 ( 0.3461, 0.1140)
4632 .. controls ( 0.3108, 0.0951) and ( 0.3082, 0.0849) .. ( 0.3037, 0.0461)
4633 .. controls ( 0.3481, 0.0535) and ( 0.3552, 0.0713) .. ( 0.3461, 0.1140)
4634 --cycle
4635 (-0.4857, 0.0970)
4636 .. controls (-0.5241, 0.0326) and (-0.4983, 0.0214) .. (-0.4348, 0.0206)
4637 .. controls (-0.4420,-0.0343) and (-0.4036,-0.0413) .. (-0.3728,-0.0186)
4638 .. controls (-0.3557,-0.0061) and (-0.3442, 0.0265) .. (-0.3330, 0.0461)

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4639 .. controls (-0.3807, 0.0916) and (-0.3834, 0.0423) .. (-0.3839, 0.0036)
4640 --cycle
4641 (-0.2480, 0.0970)
4642 -- (-0.2480, 0.0800)
4643 -- (-0.2056, 0.0800)
4644 -- (-0.2056, 0.0970)
4645 --cycle
4646 (-0.1292, 0.0970)
4647 -- (-0.1462, 0.0800)
4648 -- (-0.1462, 0.0715)
4649 -- (-0.1292, 0.0546)
4650 -- (-0.1208, 0.0546)
4651 -- (-0.1038, 0.0715)
4652 --cycle
4653 ( 0.3801, 0.0800)
4654 -- ( 0.3801, 0.0206)
4655 -- ( 0.3971, 0.0206)
4656 -- ( 0.4056, 0.0291)
4657 -- ( 0.4140, 0.0800)
4658 --cycle
4659 ( 0.4225, 0.0800)
4660 .. controls ( 0.4316, 0.0456) and ( 0.4332, 0.0381) .. ( 0.4649, 0.0206)
4661 .. controls ( 0.4618, 0.0591) and ( 0.4606, 0.0679) .. ( 0.4225, 0.0800)
4662 --cycle
4663 ( 0.8809, 0.0759)
4664 .. controls ( 0.8722, 0.0759) and ( 0.8634, 0.0659) .. ( 0.8554, 0.0461)
4665 -- ( 0.9064, 0.0461)
4666 .. controls ( 0.8984, 0.0659) and ( 0.8897, 0.0759) .. ( 0.8809, 0.0759)
4667 --cycle
4668 ( 0.1413, 0.0752)
4669 .. controls ( 0.1324, 0.0761) and ( 0.1215, 0.0749) .. ( 0.1084, 0.0715)
4670 .. controls ( 0.1253, 0.0362) and ( 0.1326, 0.0290) .. ( 0.1679, 0.0121)
4671 .. controls ( 0.1762, 0.0511) and ( 0.1679, 0.0726) .. ( 0.1413, 0.0752)
4672 --cycle
4673 (-0.7409, 0.0649)
4674 .. controls (-0.7448, 0.0648) and (-0.7485, 0.0639) .. (-0.7518, 0.0618)
4675 .. controls (-0.7690, 0.0508) and (-0.7544,-0.0147) .. (-0.7438,-0.0279)
4676 .. controls (-0.7341,-0.0398) and (-0.7273,-0.0409) .. (-0.7149,-0.0473)
4677 -- (-0.7065, 0.0546)
4678 .. controls (-0.7159, 0.0583) and (-0.7292, 0.0653) .. (-0.7409, 0.0649)
4679 --cycle
4680 ( 0.9762, 0.0591)
4681 -- ( 0.9564, 0.0203)
4682 .. controls ( 0.9517,-0.0013) and ( 0.9637,-0.0270) .. ( 0.9761,-0.0510)
4683 -- ( 0.9997,-0.0105)
4684 .. controls ( 1.0000,-0.0010) and ( 1.0000, 0.0075) .. ( 0.9998, 0.0171)
4685 --cycle
4686 (-0.1717, 0.0546)
4687 .. controls (-0.2038, 0.0492) and (-0.2042, 0.0472) .. (-0.2226, 0.0206)
4688 -- (-0.1717, 0.0206)
4689 --cycle
4690 ( 0.7281, 0.0546)
4691 -- ( 0.6687, 0.0461)

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4692 -- ( 0.6687, 0.0291)
4693 .. controls ( 0.7027, 0.0233) and ( 0.7100, 0.0245) .. ( 0.7281, 0.0546)
4694 --cycle
4695 (-0.9726, 0.0477)
4696 .. controls (-0.9758, 0.0477) and (-0.9806, 0.0473) .. (-0.9843, 0.0471)
4697 -- (-1.0000, 0.0201)
4698 -- (-0.9912, 0.0044)
4699 -- (-0.9696, 0.0206)
4700 -- (-0.9448,-0.0784)
4701 -- (-0.9432,-0.0812)
4702 -- (-0.8422,-0.0728)
4703 -- (-0.8677,-0.0982)
4704 -- (-0.8677,-0.1322)
4705 .. controls (-0.8159,-0.1280) and (-0.7904,-0.1016) .. (-0.8308,-0.0569)
4706 .. controls (-0.8618,-0.0226) and (-0.8917,-0.0142) .. (-0.9356,-0.0049)
4707 .. controls (-0.9393, 0.0402) and (-0.9477, 0.0479) .. (-0.9726, 0.0477)
4708 --cycle
4709 (-0.0273, 0.0430)
4710 .. controls (-0.1037, 0.0283) and (-0.0659,-0.0617) .. (-0.0043, 0.0049)
4711 .. controls ( 0.0066, 0.0167) and ( 0.0086, 0.0240) .. ( 0.0151, 0.0376)
4712 .. controls ( 0.0001, 0.0416) and (-0.0110, 0.0461) .. (-0.0273, 0.0430)
4713 --cycle
4714 ( 0.2361, 0.0409)
4715 .. controls ( 0.2189, 0.0454) and ( 0.2022, 0.0366) .. ( 0.2018, 0.0036)
4716 .. controls ( 0.2379, 0.0017) and ( 0.2409,-0.0057) .. ( 0.2527,-0.0388)
4717 .. controls ( 0.2946,-0.0103) and ( 0.2647, 0.0336) .. ( 0.2361, 0.0409)
4718 --cycle
4719 (-0.2852, 0.0389)
4720 .. controls (-0.3005, 0.0379) and (-0.3023, 0.0289) .. (-0.2990, 0.0036)
4721 -- (-0.2650, 0.0376)
4722 .. controls (-0.2735, 0.0387) and (-0.2801, 0.0393) .. (-0.2852, 0.0389)
4723 --cycle
4724 ( 0.3037, 0.0291)
4725 .. controls ( 0.3231,-0.0055) and ( 0.3338,-0.0035) .. ( 0.3716,-0.0049)
4726 .. controls ( 0.3519, 0.0279) and ( 0.3402, 0.0269) .. ( 0.3037, 0.0291)
4727 --cycle
4728 (-0.8206, 0.0192)
4729 .. controls (-0.8430,-0.0126) and (-0.8179,-0.0291) .. (-0.8045,-0.0204)
4730 .. controls (-0.7923,-0.0127) and (-0.7854, 0.0239) .. (-0.8206, 0.0192)
4731 --cycle
4732 (-0.1371, 0.0134)
4733 .. controls (-0.1438, 0.0114) and (-0.1493, 0.0019) .. (-0.1547,-0.0134)
4734 -- (-0.1123,-0.0049)
4735 .. controls (-0.1224, 0.0099) and (-0.1303, 0.0154) .. (-0.1371, 0.0134)
4736 --cycle
4737 ( 0.7536, 0.0121)
4738 -- ( 0.7111, 0.0036)
4739 -- ( 0.7111,-0.0304)
4740 .. controls ( 0.7469,-0.0274) and ( 0.7588,-0.0268) .. ( 0.7536, 0.0121)
4741 --cycle
4742 ( 0.0750, 0.0106)
4743 .. controls ( 0.0661, 0.0093) and ( 0.0570, 0.0067) .. ( 0.0490, 0.0036)
4744 .. controls ( 0.0651,-0.0248) and ( 0.0680,-0.0250) .. ( 0.1000,-0.0304)

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4745 .. controls ( 0.0590,-0.0732) and ( 0.0241,-0.0913) .. ( 0.0745,-0.1492)
4746 .. controls ( 0.1110,-0.1331) and ( 0.1272,-0.1362) .. ( 0.1424,-0.0982)
4747 -- ( 0.1339,-0.0897)
4748 -- ( 0.1000,-0.0982)
4749 .. controls ( 0.1057,-0.0835) and ( 0.1261,-0.0416) .. ( 0.1266,-0.0304)
4750 .. controls ( 0.1284, 0.0069) and ( 0.1019, 0.0144) .. ( 0.0750, 0.0106)
4751 --cycle
4752 (-0.2311, 0.0036)
4753 -- (-0.2311,-0.0049)
4754 -- (-0.2480,-0.0219)
4755 .. controls (-0.2373,-0.0386) and (-0.2259,-0.0581) .. (-0.2054,-0.0643)
4756 .. controls (-0.1781,-0.0725) and (-0.1665,-0.0457) .. (-0.1984,-0.0158)
4757 .. controls (-0.2100,-0.0050) and (-0.2177,-0.0027) .. (-0.2311, 0.0036)
4758 --cycle
4759 ( 0.8469, 0.0036)
4760 .. controls ( 0.8030,-0.0174) and ( 0.7970,-0.0343) .. ( 0.7706,-0.0728)
4761 .. controls ( 0.7934,-0.1060) and ( 0.7994,-0.1083) .. ( 0.8384,-0.0982)
4762 -- ( 0.8384,-0.0813)
4763 -- ( 0.8130,-0.0728)
4764 -- ( 0.8130,-0.0558)
4765 .. controls ( 0.8448,-0.0370) and ( 0.8501,-0.0340) .. ( 0.8469, 0.0036)
4766 --cycle
4767 (-0.4603,-0.0049)
4768 .. controls (-0.4831,-0.0157) and (-0.5088,-0.0301) .. (-0.5182,-0.0557)
4769 .. controls (-0.5278,-0.0816) and (-0.5057,-0.0969) .. (-0.4907,-0.0883)
4770 .. controls (-0.4763,-0.0802) and (-0.4829,-0.0617) .. (-0.4518,-0.0304)
4771 -- (-0.4518,-0.0134)
4772 --cycle
4773 ( 0.4264,-0.0112)
4774 .. controls ( 0.3999,-0.0108) and ( 0.3834,-0.0280) .. ( 0.4056,-0.0728)
4775 -- ( 0.4565,-0.0558)
4776 -- ( 0.4649,-0.1237)
4777 -- ( 0.4819,-0.1237)
4778 -- ( 0.5074,-0.0558)
4779 .. controls ( 0.4895,-0.0297) and ( 0.4529,-0.0116) .. ( 0.4264,-0.0112)
4780 --cycle
4781 (-0.5706,-0.0134)
4782 -- (-0.6045,-0.0388)
4783 .. controls (-0.6509,-0.0147) and (-0.6809,-0.0236) .. (-0.6725,-0.0813)
4784 -- (-0.6980,-0.0897)
4785 .. controls (-0.6821,-0.1195) and (-0.6788,-0.1210) .. (-0.6470,-0.1322)
4786 .. controls (-0.6222,-0.0713) and (-0.6544,-0.0848) .. (-0.6130,-0.0473)
4787 .. controls (-0.5953,-0.0788) and (-0.5888,-0.0784) .. (-0.5536,-0.0813)
4788 --cycle
4789 ( 0.1679,-0.0219)
4790 .. controls ( 0.1573,-0.0941) and ( 0.2349,-0.1063) .. ( 0.2526,-0.0847)
4791 .. controls ( 0.2609,-0.0744) and ( 0.2602,-0.0596) .. ( 0.2612,-0.0473)
4792 --cycle
4793 (-0.3112,-0.0274)
4794 .. controls (-0.3586,-0.0281) and (-0.4163,-0.0558) .. (-0.4212,-0.0609)
4795 .. controls (-0.4295,-0.0692) and (-0.4319,-0.0787) .. (-0.4327,-0.0899)
4796 -- (-0.4327,-0.1492)
4797 -- (-0.4327,-0.2086)

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4798 .. controls (-0.3777,-0.1999) and (-0.3244,-0.1312) .. (-0.4008,-0.1067)
4799 -- (-0.3823,-0.0879)
4800 .. controls (-0.3347,-0.0526) and (-0.3277,-0.1099) .. (-0.2903,-0.1163)
4801 .. controls (-0.2612,-0.1213) and (-0.2444,-0.0914) .. (-0.2507,-0.0659)
4802 .. controls (-0.2581,-0.0362) and (-0.2828,-0.0269) .. (-0.3112,-0.0274)
4803 --cycle
4804 ( 0.9234,-0.0304)
4805 -- ( 0.9149,-0.0643)
4806 -- ( 0.9488,-0.0558)
4807 -- ( 0.9488,-0.0388)
4808 -- ( 0.9403,-0.0304)
4809 --cycle
4810 ( 0.6406,-0.0369)
4811 .. controls ( 0.6333,-0.0375) and ( 0.6251,-0.0419) .. ( 0.6177,-0.0522)
4812 .. controls ( 0.6105,-0.0620) and ( 0.6112,-0.0704) .. ( 0.6093,-0.0799)
4813 -- ( 0.6342,-0.0799)
4814 .. controls ( 0.6760,-0.0673) and ( 0.6625,-0.0350) .. ( 0.6406,-0.0369)
4815 --cycle
4816 (-0.0016,-0.0449)
4817 .. controls (-0.0461,-0.0548) and (-0.0410,-0.0663) .. (-0.0297,-0.1043)
4818 .. controls (-0.0250,-0.1199) and (-0.0232,-0.1440) .. (-0.0016,-0.1422)
4819 .. controls ( 0.0349,-0.1392) and ( 0.0554,-0.0537) .. (-0.0016,-0.0449)
4820 --cycle
4821 (-0.1123,-0.0473)
4822 -- (-0.1208,-0.1067)
4823 .. controls (-0.0719,-0.1062) and (-0.0661,-0.0635) .. (-0.1123,-0.0473)
4824 --cycle
4825 ( 0.3037,-0.0473)
4826 .. controls ( 0.3198,-0.0756) and ( 0.3223,-0.0769) .. ( 0.3546,-0.0728)
4827 .. controls ( 0.3383,-0.0447) and ( 0.3358,-0.0446) .. ( 0.3037,-0.0473)
4828 --cycle
4829 ( 0.5329,-0.0473)
4830 .. controls ( 0.5004,-0.0966) and ( 0.4981,-0.1266) .. ( 0.5668,-0.1322)
4831 -- ( 0.5499,-0.0473)
4832 --cycle
4833 (-0.1632,-0.0728)
4834 -- (-0.1462,-0.1067)
4835 -- (-0.1462,-0.0728)
4836 --cycle
4837 ( 0.7090,-0.0817)
4838 .. controls ( 0.6987,-0.0843) and ( 0.6911,-0.0952) .. ( 0.6894,-0.1068)
4839 .. controls ( 0.6863,-0.1276) and ( 0.7043,-0.1387) .. ( 0.7111,-0.1831)
4840 .. controls ( 0.7499,-0.1786) and ( 0.7602,-0.1760) .. ( 0.7791,-0.1407)
4841 -- ( 0.7196,-0.1322)
4842 -- ( 0.7451,-0.1068)
4843 .. controls ( 0.7324,-0.0850) and ( 0.7193,-0.0791) .. ( 0.7090,-0.0817)
4844 --cycle
4845 ( 0.9485,-0.0984)
4846 .. controls ( 0.9284,-0.1094) and ( 0.8781,-0.1542) .. ( 0.8706,-0.1754)
4847 .. controls ( 0.8655,-0.1897) and ( 0.8704,-0.2051) .. ( 0.8817,-0.2131)
4848 --cycle
4849 (-0.9323,-0.1007)
4850 -- (-0.9101,-0.1405)

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4851 .. controls (-0.9101,-0.1287) and (-0.9146,-0.1173) .. (-0.9187,-0.1067)
4852 --cycle
4853 (-0.0528,-0.1067)
4854 .. controls (-0.0616,-0.1167) and (-0.0681,-0.1217) .. (-0.0735,-0.1348)
4855 .. controls (-0.0802,-0.1513) and (-0.0835,-0.2032) .. (-0.0603,-0.2082)
4856 .. controls (-0.0462,-0.2108) and (-0.0167,-0.1971) .. (-0.0603,-0.1577)
4857 .. controls (-0.0459,-0.1339) and (-0.0396,-0.1326) .. (-0.0528,-0.1067)
4858 --cycle
4859 (-0.4876,-0.1114)
4860 .. controls (-0.4992,-0.1127) and (-0.5150,-0.1170) .. (-0.5367,-0.1237)
4861 -- (-0.5367,-0.1577)
4862 -- (-0.4433,-0.1916)
4863 .. controls (-0.4544,-0.1299) and (-0.4526,-0.1074) .. (-0.4876,-0.1114)
4864 --cycle
4865 (-0.7635,-0.1120)
4866 .. controls (-0.7788,-0.1114) and (-0.7890,-0.1295) .. (-0.7913,-0.1577)
4867 -- (-0.7574,-0.1577)
4868 .. controls (-0.7442,-0.2093) and (-0.7301,-0.2080) .. (-0.6810,-0.2086)
4869 -- (-0.6810,-0.1746)
4870 -- (-0.7149,-0.1916)
4871 .. controls (-0.7175,-0.1714) and (-0.7177,-0.1520) .. (-0.7311,-0.1350)
4872 .. controls (-0.7433,-0.1194) and (-0.7544,-0.1124) .. (-0.7635,-0.1120)
4873 --cycle
4874 (-0.2082,-0.1145)
4875 .. controls (-0.2215,-0.1126) and (-0.2378,-0.1199) .. (-0.2495,-0.1410)
4876 .. controls (-0.2530,-0.1510) and (-0.2546,-0.1612) .. (-0.2495,-0.1721)
4877 .. controls (-0.2475,-0.1840) and (-0.2388,-0.1913) .. (-0.2311,-0.2001)
4878 .. controls (-0.2202,-0.1931) and (-0.2111,-0.1884) .. (-0.2020,-0.1785)
4879 .. controls (-0.1722,-0.1464) and (-0.1860,-0.1177) .. (-0.2082,-0.1145)
4880 --cycle
4881 ( 0.4225,-0.1152)
4882 -- ( 0.3631,-0.1492)
4883 -- ( 0.3801,-0.1831)
4884 .. controls ( 0.4160,-0.1656) and ( 0.4276,-0.1565) .. ( 0.4225,-0.1152)
4885 --cycle
4886 (-0.5925,-0.1174)
4887 .. controls (-0.6021,-0.1151) and (-0.6144,-0.1208) .. (-0.6203,-0.1336)
4888 .. controls (-0.6283,-0.1508) and (-0.6192,-0.1674) .. (-0.6130,-0.1831)
4889 -- (-0.5961,-0.1831)
4890 .. controls (-0.5903,-0.1723) and (-0.5831,-0.1615) .. (-0.5803,-0.1494)
4891 .. controls (-0.5758,-0.1301) and (-0.5828,-0.1197) .. (-0.5925,-0.1174)
4892 --cycle
4893 ( 0.2952,-0.1237)
4894 -- ( 0.3292,-0.1746)
4895 -- ( 0.3377,-0.1746)
4896 -- ( 0.3546,-0.1577)
4897 .. controls ( 0.3339,-0.1275) and ( 0.3315,-0.1266) .. ( 0.2952,-0.1237)
4898 --cycle
4899 ( 0.1832,-0.1240)
4900 .. controls ( 0.1608,-0.1263) and ( 0.1298,-0.1544) .. ( 0.1254,-0.2086)
4901 .. controls ( 0.1747,-0.2011) and ( 0.2191,-0.1503) .. ( 0.2015,-0.1301)
4902 .. controls ( 0.1972,-0.1252) and ( 0.1907,-0.1232) .. ( 0.1832,-0.1240)
4903 --cycle

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4904 (-0.3330,-0.1407)
4905 .. controls (-0.3325,-0.1552) and (-0.3330,-0.1683) .. (-0.3280,-0.1824)
4906 .. controls (-0.3221,-0.1993) and (-0.2907,-0.2626) .. (-0.2674,-0.2496)
4907 .. controls (-0.2290,-0.2283) and (-0.2939,-0.1556) .. (-0.3330,-0.1407)
4908 --cycle
4909 (-0.8677,-0.1492)
4910 .. controls (-0.8906,-0.2074) and (-0.8704,-0.2079) .. (-0.8168,-0.2086)
4911 -- (-0.8168,-0.2341)
4912 -- (-0.7828,-0.2341)
4913 .. controls (-0.7876,-0.1754) and (-0.8159,-0.1679) .. (-0.8677,-0.1492)
4914 --cycle
4915 ( 0.6507,-0.1523)
4916 .. controls ( 0.6150,-0.1514) and ( 0.5790,-0.1648) .. ( 0.5634,-0.2019)
4917 .. controls ( 0.5467,-0.2418) and ( 0.5701,-0.2915) .. ( 0.6347,-0.2595)
4918 -- ( 0.5923,-0.2426)
4919 .. controls ( 0.6167,-0.1901) and ( 0.6349,-0.1909) .. ( 0.6857,-0.1746)
4920 -- ( 0.6857,-0.1577)
4921 .. controls ( 0.6745,-0.1545) and ( 0.6627,-0.1526) .. ( 0.6507,-0.1523)
4922 --cycle
4923 ( 0.4992,-0.1530)
4924 .. controls ( 0.4893,-0.1544) and ( 0.4788,-0.1613) .. ( 0.4723,-0.1757)
4925 .. controls ( 0.4601,-0.2024) and ( 0.4716,-0.2265) .. ( 0.4819,-0.2510)
4926 -- ( 0.4310,-0.2510)
4927 .. controls ( 0.4659,-0.3129) and ( 0.5002,-0.2692) .. ( 0.5329,-0.2341)
4928 .. controls ( 0.5195,-0.1890) and ( 0.5320,-0.1766) .. ( 0.5232,-0.1628)
4929 .. controls ( 0.5186,-0.1555) and ( 0.5091,-0.1515) .. ( 0.4992,-0.1530)
4930 --cycle
4931 (-0.1462,-0.1577)
4932 -- (-0.1462,-0.2001)
4933 -- (-0.1292,-0.2001)
4934 -- (-0.1292,-0.1577)
4935 --cycle
4936 ( 0.0490,-0.1577)
4937 -- ( 0.0066,-0.1831)
4938 -- ( 0.0066,-0.2001)
4939 .. controls ( 0.0224,-0.2077) and ( 0.0639,-0.2307) .. ( 0.0802,-0.2267)
4940 .. controls ( 0.1236,-0.2159) and ( 0.0615,-0.1657) .. ( 0.0490,-0.1577)
4941 --cycle
4942 ( 0.2527,-0.1577)
4943 -- ( 0.2358,-0.1746)
4944 -- ( 0.2273,-0.1746)
4945 -- ( 0.2273,-0.1916)
4946 .. controls ( 0.2817,-0.2389) and ( 0.2612,-0.2548) .. ( 0.3207,-0.2595)
4947 -- ( 0.2952,-0.2341)
4948 .. controls ( 0.2952,-0.1946) and ( 0.2813,-0.1829) .. ( 0.2527,-0.1577)
4949 --cycle
4950 ( 0.4124,-0.1906)
4951 .. controls ( 0.3901,-0.1934) and ( 0.3801,-0.2077) .. ( 0.3631,-0.2341)
4952 .. controls ( 0.4031,-0.2391) and ( 0.4075,-0.2303) .. ( 0.4395,-0.2086)
4953 -- ( 0.4395,-0.1916)
4954 .. controls ( 0.4286,-0.1900) and ( 0.4198,-0.1897) .. ( 0.4124,-0.1906)
4955 --cycle
4956 (-0.5282,-0.1916)

```

```

4957 -- (-0.5536,-0.2001)
4958 -- (-0.5282,-0.2171)
4959 --cycle
4960 (-0.6045,-0.2001)
4961 .. controls (-0.6700,-0.2056) and (-0.6485,-0.2287) .. (-0.6330,-0.2741)
4962 .. controls (-0.6243,-0.2991) and (-0.6268,-0.3013) .. (-0.6130,-0.3274)
4963 .. controls (-0.5769,-0.3048) and (-0.5602,-0.2946) .. (-0.5536,-0.2510)
4964 -- (-0.6045,-0.2510)
4965 --cycle
4966 (-0.3584,-0.2086)
4967 .. controls (-0.3921,-0.2259) and (-0.3939,-0.2318) .. (-0.4008,-0.2680)
4968 .. controls (-0.4235,-0.2397) and (-0.4237,-0.2318) .. (-0.4603,-0.2256)
4969 -- (-0.4603,-0.2850)
4970 .. controls (-0.4267,-0.2892) and (-0.3194,-0.3199) .. (-0.3429,-0.2424)
4971 --cycle
4972 ( 0.7960,-0.2086)
4973 -- ( 0.8384,-0.2510)
4974 .. controls ( 0.8428,-0.2169) and ( 0.8301,-0.2042) .. ( 0.7960,-0.2086)
4975 --cycle
4976 ( 0.1928,-0.2162)
4977 .. controls ( 0.1816,-0.2174) and ( 0.1689,-0.2258) .. ( 0.1598,-0.2322)
4978 .. controls ( 0.1191,-0.2606) and ( 0.1214,-0.2831) .. ( 0.1339,-0.3274)
4979 -- ( 0.1509,-0.3274)
4980 .. controls ( 0.1561,-0.3114) and ( 0.1614,-0.2848) .. ( 0.1729,-0.2730)
4981 .. controls ( 0.1867,-0.2591) and ( 0.2098,-0.2594) .. ( 0.2174,-0.2461)
4982 .. controls ( 0.2253,-0.2321) and ( 0.2130,-0.2142) .. ( 0.1928,-0.2162)
4983 --cycle
4984 (-0.1905,-0.2188)
4985 .. controls (-0.1970,-0.2195) and (-0.2037,-0.2233) .. (-0.2087,-0.2284)
4986 .. controls (-0.2248,-0.2451) and (-0.2297,-0.2881) .. (-0.2311,-0.3104)
4987 -- (-0.1801,-0.3104)
4988 .. controls (-0.1960,-0.2531) and (-0.1611,-0.2530) .. (-0.1738,-0.2284)
4989 .. controls (-0.1778,-0.2206) and (-0.1840,-0.2181) .. (-0.1905,-0.2188)
4990 --cycle
4991 (-0.5112,-0.2256)
4992 -- (-0.5112,-0.2595)
4993 -- (-0.4772,-0.2595)
4994 -- (-0.4772,-0.2256)
4995 --cycle
4996 ( 0.7451,-0.2256)
4997 -- ( 0.6687,-0.2341)
4998 -- ( 0.6602,-0.2426)
4999 .. controls ( 0.6862,-0.3159) and ( 0.7361,-0.2848) .. ( 0.7451,-0.2256)
5000 --cycle
5001 (-0.8578,-0.2336)
5002 -- (-0.8203,-0.3006)
5003 .. controls (-0.7747,-0.3108) and (-0.8112,-0.2349) .. (-0.8578,-0.2336)
5004 --cycle
5005 (-0.0280,-0.2369)
5006 .. controls (-0.0529,-0.2386) and (-0.0646,-0.2625) .. (-0.0273,-0.3019)
5007 -- ( 0.0236,-0.2595)
5008 .. controls ( 0.0068,-0.2430) and (-0.0130,-0.2359) .. (-0.0280,-0.2369)
5009 --cycle

```



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5010 (-0.7234,-0.2510)
5011 .. controls (-0.7141,-0.2750) and (-0.7050,-0.2842) .. (-0.6810,-0.2935)
5012 -- (-0.6725,-0.2850)
5013 .. controls (-0.6853,-0.2530) and (-0.6899,-0.2536) .. (-0.7234,-0.2510)
5014 --cycle
5015 ( 0.0504,-0.2510)
5016 -- ( 0.0504,-0.2760)
5017 .. controls ( 0.0689,-0.3381) and ( 0.1243,-0.2780) .. ( 0.0804,-0.2561)
5018 .. controls ( 0.0707,-0.2513) and ( 0.0594,-0.2519) .. ( 0.0504,-0.2510)
5019 --cycle
5020 (-0.1292,-0.2595)
5021 -- (-0.1462,-0.2765)
5022 -- (-0.1038,-0.3274)
5023 -- (-0.0953,-0.3274)
5024 -- (-0.0783,-0.3104)
5025 --cycle
5026 ( 0.7877,-0.2632)
5027 .. controls ( 0.7523,-0.2682) and ( 0.7335,-0.3052) .. ( 0.7960,-0.3359)
5028 .. controls ( 0.8015,-0.3335) and ( 0.8068,-0.3333) .. ( 0.8122,-0.3324)
5029 -- ( 0.8442,-0.2774)
5030 .. controls ( 0.8248,-0.2696) and ( 0.8026,-0.2612) .. ( 0.7877,-0.2632)
5031 --cycle
5032 ( 0.5329,-0.2765)
5033 .. controls ( 0.5358,-0.3116) and ( 0.5353,-0.3182) .. ( 0.5668,-0.3359)
5034 .. controls ( 0.5639,-0.3008) and ( 0.5644,-0.2942) .. ( 0.5329,-0.2765)
5035 --cycle
5036 ( 0.3385,-0.2820)
5037 .. controls ( 0.3148,-0.2878) and ( 0.2673,-0.3492) .. ( 0.3385,-0.3614)
5038 -- ( 0.3122,-0.4038)
5039 .. controls ( 0.3574,-0.4463) and ( 0.3787,-0.4004) .. ( 0.3701,-0.3806)
5040 .. controls ( 0.3644,-0.3672) and ( 0.3492,-0.3602) .. ( 0.3377,-0.3529)
5041 -- ( 0.3886,-0.3019)
5042 .. controls ( 0.3746,-0.2928) and ( 0.3572,-0.2777) .. ( 0.3385,-0.2820)
5043 --cycle
5044 (-0.3075,-0.2850)
5045 -- (-0.3669,-0.3359)
5046 .. controls (-0.3237,-0.3346) and (-0.3194,-0.3327) .. (-0.2820,-0.3104)
5047 --cycle
5048 ( 0.6347,-0.2850)
5049 -- ( 0.6093,-0.3359)
5050 -- ( 0.6687,-0.3359)
5051 .. controls ( 0.6634,-0.3038) and ( 0.6614,-0.3034) .. ( 0.6347,-0.2850)
5052 --cycle
5053 ( 0.2482,-0.2927)
5054 .. controls ( 0.2430,-0.2922) and ( 0.2370,-0.2926) .. ( 0.2301,-0.2942)
5055 .. controls ( 0.1967,-0.3336) and ( 0.2478,-0.3609) .. ( 0.2647,-0.3515)
5056 .. controls ( 0.2796,-0.3431) and ( 0.2843,-0.2960) .. ( 0.2482,-0.2927)
5057 --cycle
5058 (-0.5371,-0.2933)
5059 .. controls (-0.5481,-0.2970) and (-0.5577,-0.3098) .. (-0.5621,-0.3359)
5060 -- (-0.5112,-0.3869)
5061 .. controls (-0.4600,-0.3526) and (-0.5043,-0.2822) .. (-0.5371,-0.2933)
5062 --cycle

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5063 (-0.4433,-0.3019)
5064 .. controls (-0.4430,-0.3328) and (-0.4401,-0.3356) .. (-0.4093,-0.3359)
5065 -- (-0.4263,-0.3019)
5066 --cycle
5067 ( 0.0236,-0.3104)
5068 -- ( 0.0066,-0.3274)
5069 -- ( 0.0066,-0.3359)
5070 -- ( 0.0236,-0.3529)
5071 -- ( 0.0321,-0.3529)
5072 -- ( 0.0490,-0.3359)
5073 --cycle
5074 ( 0.4140,-0.3104)
5075 -- ( 0.4140,-0.3274)
5076 -- ( 0.4565,-0.3274)
5077 -- ( 0.4565,-0.3104)
5078 --cycle
5079 (-0.6555,-0.3189)
5080 .. controls (-0.7282,-0.3463) and (-0.7047,-0.4238) .. (-0.6385,-0.3614)
5081 --cycle
5082 (-0.7635,-0.3203)
5083 .. controls (-0.7897,-0.3491) and (-0.7645,-0.3586) .. (-0.7512,-0.3515)
5084 .. controls (-0.7383,-0.3446) and (-0.7269,-0.3159) .. (-0.7635,-0.3203)
5085 --cycle
5086 (-0.1547,-0.3359)
5087 .. controls (-0.2375,-0.3951) and (-0.1886,-0.3975) .. (-0.2106,-0.4536)
5088 .. controls (-0.2221,-0.4826) and (-0.2548,-0.4886) .. (-0.2435,-0.5309)
5089 .. controls (-0.2373,-0.5540) and (-0.1692,-0.6520) .. (-0.1548,-0.5893)
5090 .. controls (-0.1503,-0.5696) and (-0.1713,-0.5323) .. (-0.1801,-0.5141)
5091 -- (-0.2141,-0.5141)
5092 -- (-0.1801,-0.4836)
5093 -- (-0.1632,-0.3784)
5094 -- (-0.1292,-0.3614)
5095 --cycle
5096 ( 0.5838,-0.3444)
5097 -- ( 0.6178,-0.3869)
5098 .. controls ( 0.6126,-0.3569) and ( 0.6121,-0.3558) .. ( 0.5838,-0.3444)
5099 --cycle
5100 (-0.5876,-0.3529)
5101 -- (-0.5876,-0.3869)
5102 -- (-0.5536,-0.3869)
5103 --cycle
5104 (-0.3075,-0.3529)
5105 .. controls (-0.3075,-0.4259) and (-0.3150,-0.4459) .. (-0.2480,-0.4378)
5106 .. controls (-0.2520,-0.3893) and (-0.2634,-0.3741) .. (-0.3075,-0.3529)
5107 --cycle
5108 ( 0.0745,-0.3529)
5109 .. controls ( 0.0603,-0.3977) and ( 0.0512,-0.3786) .. ( 0.0066,-0.3869)
5110 .. controls ( 0.0321,-0.4377) and ( 0.0562,-0.4373) .. ( 0.1084,-0.4378)
5111 -- ( 0.1254,-0.3614)
5112 --cycle
5113 ( 0.1868,-0.3534)
5114 .. controls ( 0.1605,-0.3550) and ( 0.1563,-0.3921) .. ( 0.1681,-0.4095)
5115 .. controls ( 0.1887,-0.4397) and ( 0.2596,-0.3970) .. ( 0.2782,-0.3784)

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5116 .. controls ( 0.2016,-0.3640) and ( 0.2352,-0.3656) .. ( 0.1995,-0.3551)
5117 .. controls ( 0.1948,-0.3537) and ( 0.1906,-0.3532) .. ( 0.1868,-0.3534)
5118 --cycle
5119 (-0.0650,-0.3585)
5120 .. controls (-0.0712,-0.3584) and (-0.0783,-0.3594) .. (-0.0865,-0.3617)
5121 .. controls (-0.1407,-0.4045) and (-0.1029,-0.4414) .. (-0.0731,-0.4301)
5122 .. controls (-0.0250,-0.4118) and (-0.0217,-0.3591) .. (-0.0650,-0.3585)
5123 --cycle
5124 (-0.4008,-0.3614)
5125 -- (-0.3584,-0.4293)
5126 .. controls (-0.3814,-0.4389) and (-0.3792,-0.4389) .. (-0.3839,-0.4632)
5127 .. controls (-0.3078,-0.4504) and (-0.3334,-0.3529) .. (-0.4008,-0.3614)
5128 --cycle
5129 ( 0.7706,-0.3784)
5130 -- ( 0.6689,-0.4004)
5131 -- ( 0.6602,-0.4378)
5132 .. controls ( 0.6990,-0.4346) and ( 0.7019,-0.4328) .. ( 0.7281,-0.4038)
5133 .. controls ( 0.7344,-0.4232) and ( 0.7382,-0.4373) .. ( 0.7461,-0.4460)
5134 -- ( 0.7747,-0.3969)
5135 --cycle
5136 (-0.7404,-0.3869)
5137 -- (-0.7574,-0.4038)
5138 .. controls (-0.7352,-0.4249) and (-0.7368,-0.4246) .. (-0.7065,-0.4208)
5139 -- (-0.7065,-0.4038)
5140 --cycle
5141 ( 0.3971,-0.3953)
5142 -- ( 0.3801,-0.4378)
5143 -- ( 0.4140,-0.4378)
5144 -- ( 0.4140,-0.3953)
5145 --cycle
5146 (-0.6640,-0.4038)
5147 .. controls (-0.6429,-0.4478) and (-0.6261,-0.4537) .. (-0.5876,-0.4802)
5148 -- (-0.5367,-0.4378)
5149 .. controls (-0.5592,-0.4163) and (-0.5680,-0.4098) .. (-0.5876,-0.4378)
5150 .. controls (-0.6195,-0.4110) and (-0.6224,-0.4072) .. (-0.6640,-0.4038)
5151 --cycle
5152 (-0.4603,-0.4038)
5153 -- (-0.4603,-0.4378)
5154 -- (-0.4263,-0.4378)
5155 -- (-0.4263,-0.4038)
5156 --cycle
5157 ( 0.5584,-0.4038)
5158 .. controls ( 0.5189,-0.4043) and ( 0.5111,-0.4167) .. ( 0.5159,-0.4548)
5159 -- ( 0.5329,-0.4548)
5160 --cycle
5161 ( 0.6093,-0.4123)
5162 -- ( 0.6008,-0.4378)
5163 -- ( 0.6262,-0.4378)
5164 --cycle
5165 ( 0.2273,-0.4293)
5166 -- ( 0.2273,-0.4632)
5167 -- ( 0.2612,-0.4632)
5168 -- ( 0.2612,-0.4293)

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5169 --cycle
5170 ( 0.1339,-0.4378)
5171 .. controls ( 0.1294,-0.4715) and ( 0.1342,-0.4762) .. ( 0.1679,-0.4717)
5172 --cycle
5173 (-0.1337,-0.4435)
5174 .. controls (-0.1394,-0.4438) and (-0.1452,-0.4454) .. (-0.1547,-0.4474)
5175 -- (-0.1547,-0.4632)
5176 -- (-0.1038,-0.4972)
5177 -- (-0.1547,-0.5057)
5178 .. controls (-0.1508,-0.5315) and (-0.1180,-0.5928) .. (-0.0833,-0.5723)
5179 .. controls (-0.0768,-0.5684) and (-0.0244,-0.4827) .. (-0.1123,-0.4474)
5180 .. controls (-0.1220,-0.4442) and (-0.1279,-0.4432) .. (-0.1337,-0.4435)
5181 --cycle
5182 (-0.0033,-0.4457)
5183 .. controls (-0.0284,-0.4445) and (-0.0459,-0.4662) .. (-0.0273,-0.5141)
5184 -- ( 0.0660,-0.5141)
5185 .. controls ( 0.0545,-0.4708) and ( 0.0219,-0.4468) .. (-0.0033,-0.4457)
5186 --cycle
5187 (-0.7383,-0.4470)
5188 -- (-0.7101,-0.4972)
5189 .. controls (-0.7099,-0.4756) and (-0.7233,-0.4577) .. (-0.7383,-0.4470)
5190 --cycle
5191 (-0.4942,-0.4548)
5192 -- (-0.4857,-0.5065)
5193 .. controls (-0.4998,-0.5043) and (-0.5212,-0.5004) .. (-0.5329,-0.5065)
5194 .. controls (-0.5629,-0.5229) and (-0.5515,-0.5662) .. (-0.5329,-0.5843)
5195 .. controls (-0.5068,-0.6075) and (-0.4879,-0.6033) .. (-0.4603,-0.5906)
5196 .. controls (-0.4787,-0.5639) and (-0.4791,-0.5620) .. (-0.5112,-0.5566)
5197 -- (-0.5112,-0.5396)
5198 .. controls (-0.4518,-0.5306) and (-0.4206,-0.4773) .. (-0.4942,-0.4548)
5199 --cycle
5200 ( 0.3377,-0.4548)
5201 .. controls ( 0.3023,-0.4717) and ( 0.2951,-0.4788) .. ( 0.2782,-0.5141)
5202 .. controls ( 0.3342,-0.5180) and ( 0.3822,-0.5526) .. ( 0.3886,-0.4717)
5203 -- ( 0.3631,-0.4972)
5204 --cycle
5205 ( 0.5663,-0.4671)
5206 .. controls ( 0.5583,-0.4668) and ( 0.5478,-0.4680) .. ( 0.5329,-0.4717)
5207 -- ( 0.5329,-0.4887)
5208 .. controls ( 0.5814,-0.5209) and ( 0.6607,-0.5778) .. ( 0.6687,-0.4802)
5209 -- ( 0.6201,-0.4852)
5210 .. controls ( 0.5908,-0.4828) and ( 0.5901,-0.4680) .. ( 0.5663,-0.4671)
5211 --cycle
5212 (-0.6640,-0.4802)
5213 .. controls (-0.6763,-0.5067) and (-0.6845,-0.5204) .. (-0.6886,-0.5355)
5214 -- (-0.6647,-0.5782)
5215 -- (-0.5876,-0.5396)
5216 .. controls (-0.6003,-0.5515) and (-0.6232,-0.5710) .. (-0.6310,-0.5860)
5217 .. controls (-0.6373,-0.5982) and (-0.6388,-0.6155) .. (-0.6360,-0.6294)
5218 -- (-0.6224,-0.6537)
5219 .. controls (-0.5951,-0.6768) and (-0.5385,-0.6561) .. (-0.5112,-0.6415)
5220 .. controls (-0.5400,-0.5996) and (-0.5579,-0.6048) .. (-0.6045,-0.6161)
5221 -- (-0.5621,-0.5651)

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5222 -- (-0.5621,-0.5566)
5223 -- (-0.5791,-0.5481)
5224 -- (-0.5621,-0.5141)
5225 --cycle
5226 ( 0.1000,-0.4802)
5227 -- ( 0.0745,-0.5396)
5228 .. controls ( 0.1186,-0.5345) and ( 0.1548,-0.5114) .. ( 0.1000,-0.4802)
5229 --cycle
5230 ( 0.2188,-0.4802)
5231 -- ( 0.2358,-0.5141)
5232 -- ( 0.2358,-0.4802)
5233 --cycle
5234 ( 0.4310,-0.4802)
5235 -- ( 0.4140,-0.5311)
5236 -- ( 0.4140,-0.5396)
5237 -- ( 0.4310,-0.5566)
5238 .. controls ( 0.4679,-0.5313) and ( 0.4644,-0.5230) .. ( 0.4649,-0.4802)
5239 --cycle
5240 ( 0.7111,-0.4802)
5241 -- ( 0.7111,-0.5059)
5242 -- ( 0.7261,-0.4802)
5243 --cycle
5244 (-0.3414,-0.4972)
5245 .. controls (-0.3911,-0.5256) and (-0.3704,-0.5729) .. (-0.3075,-0.5566)
5246 -- (-0.3075,-0.5396)
5247 --cycle
5248 (-0.4348,-0.5057)
5249 -- (-0.4348,-0.5736)
5250 .. controls (-0.4068,-0.5549) and (-0.4098,-0.5369) .. (-0.4008,-0.5057)
5251 --cycle
5252 ( 0.1509,-0.5311)
5253 -- ( 0.1254,-0.5736)
5254 -- ( 0.1849,-0.5651)
5255 --cycle
5256 ( 0.2273,-0.5311)
5257 -- ( 0.2103,-0.5975)
5258 .. controls ( 0.1971,-0.5957) and ( 0.1843,-0.5904) .. ( 0.1705,-0.5975)
5259 .. controls ( 0.1304,-0.6124) and ( 0.1679,-0.7346) .. ( 0.2142,-0.6893)
5260 .. controls ( 0.2226,-0.6812) and ( 0.2236,-0.6741) .. ( 0.2273,-0.6670)
5261 -- ( 0.1849,-0.6330)
5262 .. controls ( 0.2427,-0.6183) and ( 0.2598,-0.5884) .. ( 0.2443,-0.5311)
5263 --cycle
5264 ( 0.5074,-0.5311)
5265 .. controls ( 0.5252,-0.5626) and ( 0.5317,-0.5622) .. ( 0.5668,-0.5651)
5266 .. controls ( 0.5491,-0.5336) and ( 0.5426,-0.5340) .. ( 0.5074,-0.5311)
5267 --cycle
5268 ( 0.0269,-0.5388)
5269 .. controls ( 0.0166,-0.5396) and ( 0.0072,-0.5496) .. ( 0.0090,-0.5738)
5270 -- ( 0.0151,-0.5991)
5271 .. controls ( 0.0222,-0.5954) and ( 0.0287,-0.5947) .. ( 0.0377,-0.5860)
5272 .. controls ( 0.0637,-0.5611) and ( 0.0441,-0.5373) .. ( 0.0269,-0.5388)
5273 --cycle
5274 ( 0.2782,-0.5481)

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5275 -- ( 0.2612,-0.5821)
5276 -- ( 0.3122,-0.6245)
5277 .. controls ( 0.3120,-0.5837) and ( 0.3197,-0.5648) .. ( 0.2782,-0.5481)
5278 --cycle
5279 (-0.2820,-0.5566)
5280 .. controls (-0.2791,-0.5918) and (-0.2795,-0.5983) .. (-0.2480,-0.6161)
5281 .. controls (-0.2450,-0.5789) and (-0.2492,-0.5737) .. (-0.2820,-0.5566)
5282 --cycle
5283 ( 0.3631,-0.5651)
5284 .. controls ( 0.3595,-0.5776) and ( 0.3566,-0.5855) .. ( 0.3557,-0.5990)
5285 .. controls ( 0.3500,-0.6875) and ( 0.4541,-0.6501) .. ( 0.3934,-0.5846)
5286 .. controls ( 0.3826,-0.5729) and ( 0.3761,-0.5717) .. ( 0.3631,-0.5651)
5287 --cycle
5288 ( 0.4330,-0.5736)
5289 -- ( 0.4330,-0.6379)
5290 .. controls ( 0.4274,-0.6731) and ( 0.3959,-0.6885) .. ( 0.4395,-0.7179)
5291 .. controls ( 0.4751,-0.6405) and ( 0.4954,-0.6629) .. ( 0.4480,-0.5736)
5292 --cycle
5293 ( 0.5329,-0.5821)
5294 .. controls ( 0.5362,-0.6232) and ( 0.5740,-0.6869) .. ( 0.6222,-0.6585)
5295 -- ( 0.6513,-0.6086)
5296 .. controls ( 0.6095,-0.6116) and ( 0.5939,-0.6354) .. ( 0.5668,-0.5821)
5297 --cycle
5298 ( 0.1000,-0.5906)
5299 -- ( 0.0830,-0.6245)
5300 -- ( 0.0575,-0.6161)
5301 .. controls ( 0.0477,-0.6898) and ( 0.1617,-0.6541) .. ( 0.1000,-0.5906)
5302 --cycle
5303 (-0.3245,-0.5991)
5304 .. controls (-0.3790,-0.5920) and (-0.3824,-0.6312) .. (-0.3839,-0.6754)
5305 -- (-0.3245,-0.6161)
5306 --cycle
5307 (-0.4348,-0.6076)
5308 -- (-0.4603,-0.6670)
5309 -- (-0.4942,-0.6585)
5310 -- (-0.5027,-0.6670)
5311 .. controls (-0.4589,-0.7510) and (-0.3531,-0.6544) .. (-0.4348,-0.6076)
5312 --cycle
5313 (-0.1377,-0.6076)
5314 .. controls (-0.1554,-0.6464) and (-0.1574,-0.6512) .. (-0.1292,-0.6839)
5315 -- (-0.1208,-0.6839)
5316 -- (-0.1038,-0.6670)
5317 -- (-0.1208,-0.6076)
5318 --cycle
5319 (-0.0698,-0.6161)
5320 -- (-0.0698,-0.6330)
5321 -- (-0.0019,-0.6330)
5322 -- (-0.0019,-0.6161)
5323 --cycle
5324 (-0.2735,-0.6330)
5325 .. controls (-0.3246,-0.6408) and (-0.3550,-0.6906) .. (-0.3754,-0.7356)
5326 -- (-0.3510,-0.7356)
5327 -- (-0.2786,-0.6658)

```

```

5328 --cycle
5329 (-0.1971,-0.6330)
5330 .. controls (-0.2393,-0.6535) and (-0.2774,-0.6931) .. (-0.2226,-0.7264)
5331 --cycle
5332 ( 0.2782,-0.6415)
5333 -- ( 0.2612,-0.6585)
5334 .. controls ( 0.2834,-0.6795) and ( 0.2819,-0.6792) .. ( 0.3122,-0.6754)
5335 -- ( 0.3122,-0.6585)
5336 --cycle
5337 ( 0.5244,-0.6630)
5338 .. controls ( 0.5103,-0.6630) and ( 0.4934,-0.6765) .. ( 0.4819,-0.6839)
5339 .. controls ( 0.4916,-0.7019) and ( 0.4915,-0.7036) .. ( 0.5078,-0.7175)
5340 -- ( 0.5293,-0.7332)
5341 .. controls ( 0.6028,-0.7786) and ( 0.5789,-0.6636) .. ( 0.5244,-0.6630)
5342 --cycle
5343 (-0.0698,-0.6839)
5344 -- (-0.0613,-0.7433)
5345 -- (-0.0528,-0.7518)
5346 .. controls (-0.0005,-0.7307) and (-0.0190,-0.6844) .. (-0.0698,-0.6839)
5347 --cycle
5348 ( 0.1339,-0.6839)
5349 .. controls ( 0.0648,-0.6945) and ( 0.0512,-0.7734) .. ( 0.1169,-0.7943)
5350 .. controls ( 0.1059,-0.7314) and ( 0.1116,-0.7410) .. ( 0.1339,-0.6839)
5351 --cycle
5352 ( 0.3546,-0.6839)
5353 .. controls ( 0.3575,-0.7191) and ( 0.3571,-0.7256) .. ( 0.3886,-0.7433)
5354 -- ( 0.3716,-0.6839)
5355 --cycle
5356 ( 0.3886,-0.7433)
5357 -- ( 0.3886,-0.7603)
5358 -- ( 0.3546,-0.7943)
5359 -- ( 0.3631,-0.7943)
5360 -- ( 0.3801,-0.8113)
5361 .. controls ( 0.4252,-0.7878) and ( 0.4333,-0.7840) .. ( 0.4140,-0.7349)
5362 --cycle
5363 (-0.5653,-0.6922)
5364 .. controls (-0.5767,-0.6913) and (-0.5873,-0.6939) .. (-0.5981,-0.6969)
5365 -- (-0.5741,-0.7399)
5366 .. controls (-0.5528,-0.7446) and (-0.5350,-0.7433) .. (-0.5027,-0.7433)
5367 .. controls (-0.5172,-0.7077) and (-0.5409,-0.6942) .. (-0.5653,-0.6922)
5368 --cycle
5369 (-0.1547,-0.7099)
5370 .. controls (-0.1719,-0.7103) and (-0.1811,-0.7133) .. (-0.1971,-0.7179)
5371 .. controls (-0.1923,-0.7317) and (-0.1881,-0.7454) .. (-0.1792,-0.7574)
5372 .. controls (-0.1162,-0.8422) and (-0.0444,-0.7079) .. (-0.1547,-0.7099)
5373 --cycle
5374 (-0.4348,-0.7179)
5375 .. controls (-0.4394,-0.7549) and (-0.4359,-0.7636) .. (-0.4008,-0.7773)
5376 --cycle
5377 ( 0.2358,-0.7179)
5378 -- ( 0.2358,-0.7349)
5379 -- ( 0.3037,-0.7349)
5380 -- ( 0.3037,-0.7179)

```

```

5381  --cycle
5382  ( 0.4649,-0.7179)
5383  -- ( 0.4734,-0.7858)
5384  .. controls ( 0.4612,-0.7900) and ( 0.4516,-0.7918) .. ( 0.4409,-0.8004)
5385  .. controls ( 0.3964,-0.8360) and ( 0.4585,-0.8927) .. ( 0.4819,-0.8198)
5386  -- ( 0.5159,-0.8283)
5387  .. controls ( 0.5142,-0.8359) and ( 0.5131,-0.8417) .. ( 0.5125,-0.8468)
5388  -- ( 0.5398,-0.8000)
5389  .. controls ( 0.5329,-0.7638) and ( 0.5138,-0.7350) .. ( 0.4649,-0.7179)
5390  --cycle
5391  ( 0.2103,-0.7264)
5392  -- ( 0.1509,-0.7349)
5393  -- ( 0.1509,-0.7688)
5394  .. controls ( 0.1894,-0.7657) and ( 0.1982,-0.7645) .. ( 0.2103,-0.7264)
5395  --cycle
5396  (-0.2905,-0.7349)
5397  .. controls (-0.3009,-0.7717) and (-0.3009,-0.7829) .. (-0.2905,-0.8198)
5398  -- (-0.2480,-0.8028)
5399  -- (-0.2311,-0.8367)
5400  .. controls (-0.1820,-0.7845) and (-0.2454,-0.7805) .. (-0.2735,-0.7349)
5401  --cycle
5402  (-0.0019,-0.7349)
5403  .. controls (-0.0202,-0.7845) and (-0.0471,-0.8007) .. (-0.0358,-0.8537)
5404  -- ( 0.0066,-0.8113)
5405  -- ( 0.0236,-0.8113)
5406  .. controls ( 0.0412,-0.8384) and ( 0.0421,-0.8410) .. ( 0.0745,-0.8367)
5407  .. controls ( 0.0599,-0.7914) and ( 0.0500,-0.7437) .. (-0.0019,-0.7349)
5408  --cycle
5409  (-0.5282,-0.7688)
5410  .. controls (-0.5349,-0.8205) and (-0.5012,-0.8219) .. (-0.4603,-0.8113)
5411  -- (-0.4603,-0.7943)
5412  --cycle
5413  ( 0.3122,-0.7688)
5414  -- ( 0.3037,-0.7773)
5415  .. controls ( 0.3122,-0.8236) and ( 0.3093,-0.8598) .. ( 0.3608,-0.8698)
5416  -- ( 0.3628,-0.8698)
5417  -- ( 0.3292,-0.7688)
5418  --cycle
5419  (-0.3584,-0.7858)
5420  -- (-0.3770,-0.8622)
5421  .. controls (-0.3770,-0.8627) and (-0.3768,-0.8631) .. (-0.3768,-0.8636)
5422  -- (-0.3401,-0.8639)
5423  -- (-0.3245,-0.7858)
5424  --cycle
5425  ( 0.2612,-0.7858)
5426  .. controls ( 0.2125,-0.7858) and ( 0.1976,-0.7780) .. ( 0.1594,-0.8113)
5427  .. controls ( 0.2029,-0.8570) and ( 0.2552,-0.8596) .. ( 0.2612,-0.7858)
5428  --cycle
5429  (-0.1292,-0.7943)
5430  -- (-0.1886,-0.8537)
5431  .. controls (-0.1453,-0.8604) and (-0.1341,-0.8487) .. (-0.1038,-0.8198)
5432  --cycle
5433  (-0.4348,-0.8367)

```



```

5434 -- (-0.4479,-0.8630)
5435 -- (-0.4228,-0.8632)
5436 .. controls (-0.4191,-0.8583) and (-0.4180,-0.8505) .. (-0.4178,-0.8367)
5437 --cycle
5438 (-0.0783,-0.8452)
5439 .. controls (-0.0928,-0.8536) and (-0.0996,-0.8588) .. (-0.1026,-0.8659)
5440 -- (-0.0748,-0.8661)
5441 -- (-0.0698,-0.8537)
5442 --cycle
5443 ( 0.1503,-0.8501)
5444 .. controls ( 0.1440,-0.8514) and ( 0.1387,-0.8545) .. ( 0.1353,-0.8602)
5445 .. controls ( 0.1334,-0.8621) and ( 0.1330,-0.8649) .. ( 0.1333,-0.8679)
5446 -- ( 0.2103,-0.8685)
5447 -- ( 0.2103,-0.8602)
5448 .. controls ( 0.1968,-0.8575) and ( 0.1690,-0.8460) .. ( 0.1503,-0.8501)
5449 --cycle
5450 (-0.2396,-0.8622)
5451 -- (-0.2421,-0.8647)
5452 -- (-0.2217,-0.8649)
5453 .. controls (-0.2221,-0.8638) and (-0.2222,-0.8633) .. (-0.2226,-0.8622)
5454 --cycle
5455 ( 0.2867,-0.8622)
5456 .. controls ( 0.2782,-0.8636) and ( 0.2734,-0.8665) .. ( 0.2676,-0.8690)
5457 -- ( 0.2859,-0.8691)
5458 --cycle
5459 ( 0.3942,-0.8639)
5460 .. controls ( 0.3909,-0.8650) and ( 0.3884,-0.8678) .. ( 0.3855,-0.8700)
5461 -- ( 0.4192,-0.8703)
5462 .. controls ( 0.4168,-0.8684) and ( 0.4154,-0.8656) .. ( 0.4124,-0.8643)
5463 .. controls ( 0.4062,-0.8618) and ( 0.4000,-0.8619) .. ( 0.3942,-0.8639)
5464 --cycle
5465 ;
5466 }
5467 }
5468 \fi

```

hex/terrain/mountains

The style for mountains. The pattern is filled with a darker brown, and outlines are not drawn. Note that the mountain pattern is the same as the beach pattern, just with a different colour.

```

5469 \tikzset{
5470   hex/terrain/mountains/.style={
5471     draw=none,
5472     fill={rgb,100:red,49;green,35;blue,1}
5473   }
5474 }

```

hex/terrain/mountains

And the mountains pattern. This is the same as the beach pattern, only filled with a darker brown colour.

```

5475 \ifhex@terrain@pic
5476 \tikzset{
5477   hex/terrain/mountains/.pic={
5478     \path[hex/terrain/mountains,pic actions,draw=none]
5479       (-0.4931, 0.8848)
5480       -- (-0.4998, 0.8734)
5481       .. controls (-0.4908, 0.8731) and (-0.4813, 0.8762) .. (-0.4762, 0.8847)
5482       --cycle
5483       (-0.4032, 0.8841)
5484       .. controls (-0.4004, 0.8804) and (-0.3988, 0.8794) .. (-0.3956, 0.8745)
5485       .. controls (-0.3760, 0.8443) and (-0.3811, 0.8330) .. (-0.3456, 0.8112)
5486       .. controls (-0.3250, 0.7986) and (-0.2712, 0.7770) .. (-0.2531, 0.8032)
5487       .. controls (-0.2294, 0.8375) and (-0.2984, 0.8503) .. (-0.3193, 0.8690)
5488       .. controls (-0.3243, 0.8735) and (-0.3281, 0.8785) .. (-0.3321, 0.8835)
5489       --cycle
5490       (-0.2462, 0.8828)
5491       .. controls (-0.2425, 0.8681) and (-0.2383, 0.8546) .. (-0.2293, 0.8461)
5492       .. controls (-0.2102, 0.8280) and (-0.1892, 0.8390) .. (-0.1859, 0.8669)
5493       .. controls (-0.1854, 0.8711) and (-0.1871, 0.8772) .. (-0.1875, 0.8822)
5494       --cycle
5495       (-0.0997, 0.8815)
5496       .. controls (-0.0971, 0.8706) and (-0.0941, 0.8597) .. (-0.0907, 0.8493)
5497       -- (-0.0570, 0.8578)
5498       .. controls (-0.0570, 0.8629) and (-0.0560, 0.8730) .. (-0.0553, 0.8812)
5499       --cycle
5500       ( 0.0213, 0.8805)
5501       .. controls ( 0.0222, 0.8725) and ( 0.0235, 0.8650) .. ( 0.0262, 0.8587)
5502       .. controls ( 0.0391, 0.8281) and ( 0.0706, 0.8199) .. ( 0.0917, 0.7894)
5503       .. controls ( 0.1112, 0.7609) and ( 0.1058, 0.7286) .. ( 0.1050, 0.6961)
5504       -- ( 0.1731, 0.7216)
5505       -- ( 0.1203, 0.8649)
5506       -- ( 0.1097, 0.8797)
5507       --cycle
5508       ( 0.2978, 0.8781)
5509       .. controls ( 0.2985, 0.8773) and ( 0.3002, 0.8756) .. ( 0.3008, 0.8749)
5510       .. controls ( 0.2854, 0.8687) and ( 0.2549, 0.8572) .. ( 0.2421, 0.8487)
5511       .. controls ( 0.2026, 0.8224) and ( 0.1905, 0.7567) .. ( 0.2046, 0.7132)
5512       .. controls ( 0.2146, 0.6819) and ( 0.2330, 0.6680) .. ( 0.2394, 0.6280)
5513       .. controls ( 0.2413, 0.6160) and ( 0.2468, 0.5527) .. ( 0.2446, 0.5437)
5514       .. controls ( 0.2396, 0.5232) and ( 0.2211, 0.5122) .. ( 0.2231, 0.4913)
5515       .. controls ( 0.2261, 0.4603) and ( 0.2686, 0.4388) .. ( 0.2891, 0.4194)
5516       .. controls ( 0.3020, 0.4071) and ( 0.3136, 0.3895) .. ( 0.3281, 0.3799)
5517       .. controls ( 0.3688, 0.3533) and ( 0.3905, 0.3863) .. ( 0.4199, 0.3902)
5518       .. controls ( 0.4350, 0.3921) and ( 0.4560, 0.3849) .. ( 0.4710, 0.3812)
5519       -- ( 0.4795, 0.4067)
5520       -- ( 0.4965, 0.4067)
5521       .. controls ( 0.5008, 0.3961) and ( 0.5009, 0.3893) .. ( 0.5112, 0.3811)
5522       .. controls ( 0.5112, 0.3811) and ( 0.6172, 0.3385) .. ( 0.6481, 0.3037)
5523       .. controls ( 0.6729, 0.2758) and ( 0.6641, 0.2532) .. ( 0.6667, 0.2206)
5524       -- ( 0.7004, 0.2206)
5525       .. controls ( 0.7839, 0.2118) and ( 0.7047, 0.0740) .. ( 0.7057, 0.0568)
5526       .. controls ( 0.7067, 0.0396) and ( 0.7865,-0.0424) .. ( 0.8032,-0.0520)
5527       .. controls ( 0.8251,-0.0644) and ( 0.8703,-0.0686) .. ( 0.8572,-0.0293)

```

```

5528 .. controls ( 0.8518,-0.0131) and ( 0.7996, 0.0474) .. ( 0.7843, 0.0564)
5529 .. controls ( 0.7724, 0.0633) and ( 0.7645, 0.0636) .. ( 0.7518, 0.0664)
5530 .. controls ( 0.7688, 0.1093) and ( 0.7993, 0.1905) .. ( 0.7930, 0.2362)
5531 .. controls ( 0.7869, 0.2804) and ( 0.7252, 0.2982) .. ( 0.6946, 0.3268)
5532 .. controls ( 0.6664, 0.3531) and ( 0.6746, 0.3662) .. ( 0.6323, 0.3966)
5533 .. controls ( 0.5760, 0.4371) and ( 0.5386, 0.4324) .. ( 0.5250, 0.4601)
5534 .. controls ( 0.5090, 0.4927) and ( 0.5578, 0.6035) .. ( 0.5969, 0.5911)
5535 .. controls ( 0.6199, 0.5839) and ( 0.6224, 0.5471) .. ( 0.6341, 0.5291)
5536 .. controls ( 0.6488, 0.5064) and ( 0.7020, 0.4614) .. ( 0.7263, 0.4493)
5537 -- ( 0.7373, 0.4768)
5538 -- ( 0.6866, 0.5671)
5539 -- ( 0.6756, 0.5720)
5540 -- ( 0.6766, 0.5850)
5541 -- ( 0.6331, 0.6627)
5542 .. controls ( 0.6280, 0.6613) and ( 0.6239, 0.6599) .. ( 0.6157, 0.6589)
5543 -- ( 0.5646, 0.6589)
5544 .. controls ( 0.5375, 0.6557) and ( 0.5277, 0.6432) .. ( 0.4965, 0.6489)
5545 .. controls ( 0.4716, 0.6520) and ( 0.4306, 0.6774) .. ( 0.4104, 0.6489)
5546 .. controls ( 0.3809, 0.6093) and ( 0.4627, 0.6240) .. ( 0.4837, 0.5772)
5547 .. controls ( 0.4958, 0.5502) and ( 0.4652, 0.4811) .. ( 0.4429, 0.4648)
5548 -- ( 0.3523, 0.4350)
5549 .. controls ( 0.3178, 0.4372) and ( 0.3207, 0.4766) .. ( 0.3153, 0.5004)
5550 .. controls ( 0.3090, 0.5282) and ( 0.2968, 0.5398) .. ( 0.2922, 0.5684)
5551 .. controls ( 0.2896, 0.6035) and ( 0.3061, 0.6276) .. ( 0.2922, 0.6621)
5552 .. controls ( 0.2756, 0.6961) and ( 0.2422, 0.7190) .. ( 0.2525, 0.7640)
5553 .. controls ( 0.2650, 0.8188) and ( 0.3165, 0.7932) .. ( 0.3324, 0.8417)
5554 .. controls ( 0.3359, 0.8522) and ( 0.3385, 0.8648) .. ( 0.3399, 0.8778)
5555 --cycle
5556 ( 0.4261, 0.8770)
5557 -- ( 0.4333, 0.8493)
5558 -- ( 0.4845, 0.7440)
5559 .. controls ( 0.4963, 0.7304) and ( 0.5450, 0.6930) .. ( 0.5630, 0.6989)
5560 .. controls ( 0.5735, 0.7024) and ( 0.5838, 0.7169) .. ( 0.5932, 0.7337)
5561 -- ( 0.5612, 0.7909)
5562 .. controls ( 0.5537, 0.7875) and ( 0.5468, 0.7852) .. ( 0.5403, 0.7864)
5563 .. controls ( 0.5078, 0.7926) and ( 0.5191, 0.8406) .. ( 0.5145, 0.8567)
5564 .. controls ( 0.5121, 0.8651) and ( 0.5076, 0.8710) .. ( 0.5025, 0.8764)
5565 --cycle
5566 ( 0.3773, 0.8153)
5567 .. controls ( 0.3625, 0.7892) and ( 0.2993, 0.7161) .. ( 0.3316, 0.6877)
5568 .. controls ( 0.3432, 0.6774) and ( 0.3866, 0.6728) .. ( 0.4029, 0.6706)
5569 -- ( 0.3973, 0.7472)
5570 -- ( 0.4029, 0.8153)
5571 --cycle
5572 (-0.4224, 0.8088)
5573 .. controls (-0.4416, 0.8077) and (-0.4585, 0.7826) .. (-0.4275, 0.7562)
5574 -- (-0.3971, 0.7387)
5575 .. controls (-0.4780, 0.6942) and (-0.4752, 0.6640) .. (-0.4591, 0.5855)
5576 .. controls (-0.4391, 0.4887) and (-0.4527, 0.5347) .. (-0.4103, 0.4493)
5577 .. controls (-0.3870, 0.4026) and (-0.4070, 0.3747) .. (-0.3460, 0.3642)
5578 -- (-0.3352, 0.4823)
5579 .. controls (-0.3409, 0.5024) and (-0.3617, 0.5113) .. (-0.3739, 0.5281)
5580 -- (-0.4164, 0.6287)

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```

5581 .. controls (-0.4188, 0.6375) and (-0.4186, 0.6444) .. (-0.4164, 0.6528)
5582 .. controls (-0.4067, 0.6807) and (-0.3521, 0.7255) .. (-0.3274, 0.6931)
5583 .. controls (-0.3070, 0.6694) and (-0.3336, 0.6432) .. (-0.3274, 0.6221)
5584 .. controls (-0.3249, 0.6055) and (-0.3059, 0.6028) .. (-0.2950, 0.6162)
5585 .. controls (-0.2867, 0.6265) and (-0.2838, 0.6558) .. (-0.2829, 0.6692)
5586 .. controls (-0.2775, 0.7444) and (-0.3333, 0.7652) .. (-0.3955, 0.7472)
5587 .. controls (-0.3950, 0.7586) and (-0.3916, 0.7684) .. (-0.3955, 0.7803)
5588 .. controls (-0.3986, 0.8016) and (-0.4109, 0.8096) .. (-0.4224, 0.8088)
5589 --cycle
5590 (-0.1391, 0.8077)
5591 .. controls (-0.1634, 0.8024) and (-0.1582, 0.7647) .. (-0.1487, 0.7492)
5592 .. controls (-0.1306, 0.7190) and (-0.1004, 0.7270) .. (-0.0652, 0.7073)
5593 -- (-0.0226, 0.6801)
5594 -- ( 0.0282, 0.6560)
5595 .. controls ( 0.0622, 0.6331) and ( 0.0955, 0.5639) .. ( 0.1219, 0.5259)
5596 .. controls ( 0.2125, 0.5714) and ( 0.1427, 0.6114) .. ( 0.1219, 0.6453)
5597 -- ( 0.1054, 0.6768)
5598 .. controls ( 0.0862, 0.7028) and ( 0.0448, 0.7080) .. ( 0.0115, 0.7299)
5599 .. controls (-0.0377, 0.7622) and (-0.0173, 0.7726) .. (-0.0822, 0.7918)
5600 .. controls (-0.0961, 0.7958) and (-0.1270, 0.8103) .. (-0.1391, 0.8077)
5601 --cycle
5602 (-0.5460, 0.7940)
5603 -- (-0.5911, 0.7166)
5604 .. controls (-0.5649, 0.7015) and (-0.5397, 0.7188) .. (-0.5308, 0.7556)
5605 .. controls (-0.5251, 0.7788) and (-0.5335, 0.7873) .. (-0.5460, 0.7940)
5606 --cycle
5607 (-0.2382, 0.7423)
5608 .. controls (-0.2453, 0.7424) and (-0.2512, 0.7383) .. (-0.2550, 0.7274)
5609 .. controls (-0.2635, 0.7026) and (-0.2353, 0.6726) .. (-0.2229, 0.6536)
5610 .. controls (-0.2031, 0.6234) and (-0.2020, 0.6105) .. (-0.1928, 0.5770)
5611 .. controls (-0.1763, 0.5803) and (-0.1499, 0.5890) .. (-0.1342, 0.5831)
5612 .. controls (-0.1112, 0.5745) and (-0.1047, 0.5481) .. (-0.0866, 0.5338)
5613 -- (-0.0397, 0.5102)
5614 -- ( 0.0664, 0.4219)
5615 .. controls ( 0.0874, 0.3954) and ( 0.0785, 0.3655) .. ( 0.1070, 0.3502)
5616 .. controls ( 0.1367, 0.3343) and ( 0.1690, 0.3592) .. ( 0.1732, 0.3899)
5617 .. controls ( 0.1755, 0.4075) and ( 0.1545, 0.4554) .. ( 0.1475, 0.4748)
5618 .. controls ( 0.0838, 0.4666) and ( 0.0509, 0.4836) .. ( 0.0454, 0.5515)
5619 .. controls (-0.0576, 0.5778) and (-0.0955, 0.6323) .. (-0.1754, 0.6949)
5620 .. controls (-0.1861, 0.7034) and (-0.2171, 0.7418) .. (-0.2382, 0.7423)
5621 --cycle
5622 (-0.5068, 0.6706)
5623 .. controls (-0.5119, 0.6724) and (-0.5194, 0.6726) .. (-0.5299, 0.6701)
5624 .. controls (-0.5512, 0.6413) and (-0.5242, 0.6333) .. (-0.5102, 0.6400)
5625 .. controls (-0.4981, 0.6457) and (-0.4916, 0.6653) .. (-0.5068, 0.6706)
5626 --cycle
5627 (-0.6356, 0.6402)
5628 -- (-0.6681, 0.5845)
5629 -- (-0.6588, 0.5684)
5630 .. controls (-0.6473, 0.5521) and (-0.6323, 0.5371) .. (-0.6265, 0.5174)
5631 .. controls (-0.6174, 0.4865) and (-0.6614, 0.4161) .. (-0.6950, 0.4206)
5632 .. controls (-0.7111, 0.4226) and (-0.7174, 0.4376) .. (-0.7460, 0.4507)
5633 -- (-0.7632, 0.4212)

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5634 .. controls (-0.7629, 0.4042) and (-0.7611, 0.3875) .. (-0.7546, 0.3789)
5635 .. controls (-0.7424, 0.3626) and (-0.7129, 0.3612) .. (-0.6966, 0.3297)
5636 .. controls (-0.6823, 0.3022) and (-0.6963, 0.2741) .. (-0.6808, 0.2598)
5637 .. controls (-0.6602, 0.2410) and (-0.6495, 0.2720) .. (-0.6484, 0.2878)
5638 .. controls (-0.6461, 0.3229) and (-0.6488, 0.4046) .. (-0.6080, 0.4204)
5639 .. controls (-0.5750, 0.4330) and (-0.4980, 0.3514) .. (-0.4929, 0.3217)
5640 .. controls (-0.4895, 0.3019) and (-0.5044, 0.2671) .. (-0.4860, 0.2550)
5641 .. controls (-0.4691, 0.2439) and (-0.4582, 0.2679) .. (-0.4535, 0.2796)
5642 .. controls (-0.4450, 0.3015) and (-0.4273, 0.3562) .. (-0.4401, 0.3771)
5643 .. controls (-0.4495, 0.3922) and (-0.5019, 0.4172) .. (-0.5296, 0.4507)
5644 .. controls (-0.5656, 0.4941) and (-0.5734, 0.5631) .. (-0.5973, 0.6021)
5645 .. controls (-0.6099, 0.6226) and (-0.6226, 0.6316) .. (-0.6356, 0.6402)
5646 --cycle
5647 ( 0.2242, 0.6110)
5648 -- ( 0.1816, 0.6025)
5649 -- ( 0.1816, 0.5855)
5650 .. controls ( 0.2117, 0.5815) and ( 0.2140, 0.5821) .. ( 0.2242, 0.6110)
5651 --cycle
5652 ( 0.3924, 0.6049)
5653 .. controls ( 0.3895, 0.6048) and ( 0.3860, 0.6036) .. ( 0.3820, 0.6011)
5654 .. controls ( 0.3535, 0.5835) and ( 0.3670, 0.5238) .. ( 0.3773, 0.5004)
5655 -- ( 0.3944, 0.5004)
5656 -- ( 0.4061, 0.5429)
5657 .. controls ( 0.4082, 0.5540) and ( 0.4130, 0.6056) .. ( 0.3924, 0.6049)
5658 --cycle
5659 (-0.2864, 0.5940)
5660 .. controls (-0.2904, 0.5793) and (-0.2950, 0.5676) .. (-0.2919, 0.5518)
5661 .. controls (-0.2769, 0.4768) and (-0.1616, 0.5041) .. (-0.2162, 0.5623)
5662 .. controls (-0.2236, 0.5702) and (-0.2346, 0.5747) .. (-0.2443, 0.5790)
5663 --cycle
5664 (-0.7010, 0.5280)
5665 -- (-0.7269, 0.4835)
5666 .. controls (-0.7207, 0.4876) and (-0.7144, 0.4952) .. (-0.7081, 0.5094)
5667 --cycle
5668 (-0.0992, 0.4748)
5669 -- (-0.2099, 0.4556)
5670 -- (-0.2888, 0.3790)
5671 -- (-0.3460, 0.3557)
5672 -- (-0.3389, 0.3218)
5673 .. controls (-0.3310, 0.2959) and (-0.3026, 0.2636) .. (-0.2781, 0.2927)
5674 .. controls (-0.2745, 0.2971) and (-0.2504, 0.3947) .. (-0.1948, 0.3764)
5675 .. controls (-0.1607, 0.3651) and (-0.1697, 0.2984) .. (-0.1588, 0.2536)
5676 -- (-0.1503, 0.2536)
5677 -- (-0.1503, 0.2450)
5678 -- (-0.1163, 0.2366)
5679 .. controls (-0.0968, 0.3059) and (-0.1262, 0.3371) .. (-0.1239, 0.3982)
5680 .. controls (-0.1229, 0.4261) and (-0.1067, 0.4484) .. (-0.0992, 0.4748)
5681 --cycle
5682 (-0.1503, 0.2450)
5683 -- (-0.1588, 0.2536)
5684 .. controls (-0.2292, 0.2544) and (-0.2730, 0.2893) .. (-0.2677, 0.2195)
5685 -- (-0.2609, 0.1855)
5686 .. controls (-0.2393, 0.1890) and (-0.2005, 0.2039) .. (-0.1909, 0.1753)

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5687 .. controls (-0.1709, 0.1163) and (-0.2582, 0.0953) .. (-0.2387, 0.0533)
5688 .. controls (-0.2275, 0.0292) and (-0.1430, 0.0537) .. (-0.1361, 0.0692)
5689 .. controls (-0.1250, 0.0859) and (-0.1359, 0.1083) .. (-0.1361, 0.1259)
5690 .. controls (-0.1437, 0.1788) and (-0.1186, 0.1766) .. (-0.1503, 0.2450)
5691 --cycle
5692 ( 0.7348, 0.4408)
5693 .. controls ( 0.7113, 0.3774) and ( 0.7569, 0.3513) .. ( 0.7901, 0.3824)
5694 -- ( 0.7585, 0.4390)
5695 --cycle
5696 ( 0.2071, 0.4153)
5697 .. controls ( 0.1984, 0.3706) and ( 0.2118, 0.3204) .. ( 0.2582, 0.3046)
5698 .. controls ( 0.2685, 0.3631) and ( 0.2706, 0.3931) .. ( 0.2071, 0.4153)
5699 --cycle
5700 (-0.0567, 0.3982)
5701 .. controls (-0.0558, 0.3230) and (-0.0460, 0.3456) .. (-0.0210, 0.2876)
5702 -- ( 0.0067, 0.1940)
5703 .. controls ( 0.0180, 0.1513) and ( 0.0026, 0.1332) .. ( 0.0454, 0.1089)
5704 -- ( 0.0767, 0.1940)
5705 -- ( 0.0546, 0.2621)
5706 -- ( 0.0406, 0.3185)
5707 -- (-0.0258, 0.3896)
5708 --cycle
5709 (-0.7969, 0.3634)
5710 -- (-0.8570, 0.2602)
5711 .. controls (-0.8515, 0.2550) and (-0.8469, 0.2514) .. (-0.8414, 0.2450)
5712 .. controls (-0.8020, 0.1990) and (-0.8201, 0.1971) .. (-0.7629, 0.1540)
5713 .. controls (-0.7462, 0.1414) and (-0.7054, 0.1023) .. (-0.6834, 0.1181)
5714 .. controls (-0.6662, 0.1304) and (-0.6813, 0.1625) .. (-0.6882, 0.1768)
5715 .. controls (-0.7213, 0.2456) and (-0.7865, 0.2417) .. (-0.8004, 0.2965)
5716 .. controls (-0.8052, 0.3154) and (-0.7990, 0.3413) .. (-0.7969, 0.3634)
5717 --cycle
5718 ( 0.8244, 0.3214)
5719 .. controls ( 0.8136, 0.3128) and ( 0.8080, 0.2984) .. ( 0.8114, 0.2706)
5720 .. controls ( 0.8314, 0.2739) and ( 0.8424, 0.2735) .. ( 0.8526, 0.2710)
5721 --cycle
5722 ( 0.5015, 0.3207)
5723 .. controls ( 0.4943, 0.3196) and ( 0.4861, 0.3171) .. ( 0.4766, 0.3130)
5724 .. controls ( 0.4611, 0.2827) and ( 0.4839, 0.2747) .. ( 0.5028, 0.2521)
5725 -- ( 0.5376, 0.1972)
5726 .. controls ( 0.5529, 0.1772) and ( 0.5728, 0.1698) .. ( 0.5845, 0.1426)
5727 .. controls ( 0.5979, 0.1115) and ( 0.5837, 0.0732) .. ( 0.5987, 0.0532)
5728 .. controls ( 0.6095, 0.0384) and ( 0.6236, 0.0428) .. ( 0.6350, 0.0532)
5729 .. controls ( 0.6681, 0.0842) and ( 0.6456, 0.1087) .. ( 0.6482, 0.1429)
5730 .. controls ( 0.6481, 0.1614) and ( 0.6596, 0.1802) .. ( 0.6482, 0.1967)
5731 .. controls ( 0.6390, 0.2131) and ( 0.5992, 0.2239) .. ( 0.5768, 0.2483)
5732 .. controls ( 0.5547, 0.2722) and ( 0.5524, 0.3288) .. ( 0.5015, 0.3207)
5733 --cycle
5734 (-0.5678, 0.3115)
5735 .. controls (-0.5832, 0.3118) and (-0.6140, 0.2810) .. (-0.6269, 0.2706)
5736 .. controls (-0.6185, 0.2412) and (-0.5926, 0.1953) .. (-0.5973, 0.1685)
5737 .. controls (-0.6029, 0.1373) and (-0.6320, 0.1239) .. (-0.6369, 0.0996)
5738 .. controls (-0.6406, 0.0816) and (-0.6303, 0.0652) .. (-0.6237, 0.0493)
5739 .. controls (-0.6147, 0.0275) and (-0.6000,-0.0443) .. (-0.5641,-0.0258)

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5740 .. controls (-0.5134,-0.0018) and (-0.5902, 0.0606) .. (-0.5641, 0.1074)
5741 .. controls (-0.5332, 0.1697) and (-0.4913, 0.1444) .. (-0.4481, 0.1593)
5742 .. controls (-0.3913, 0.1792) and (-0.3439, 0.2446) .. (-0.3545, 0.3046)
5743 -- (-0.4568, 0.2201)
5744 -- (-0.5588, 0.2201)
5745 .. controls (-0.5549, 0.2390) and (-0.5305, 0.3109) .. (-0.5678, 0.3115)
5746 --cycle
5747 ( 0.2243, 0.2813)
5748 -- ( 0.1631, 0.2450)
5749 -- ( 0.0965, 0.2281)
5750 -- ( 0.1689, 0.1131)
5751 -- ( 0.2065, 0.0861)
5752 .. controls ( 0.2453, 0.0564) and ( 0.2384, 0.0410) .. ( 0.2923, 0.0323)
5753 -- ( 0.2988,-0.0188)
5754 .. controls ( 0.2994,-0.0695) and ( 0.2657,-0.0796) .. ( 0.2249,-0.0579)
5755 .. controls ( 0.1337,-0.0093) and ( 0.1545, 0.0219) .. ( 0.1102, 0.0744)
5756 .. controls ( 0.0914, 0.0967) and ( 0.0807, 0.1010) .. ( 0.0539, 0.1089)
5757 .. controls ( 0.0562, 0.0613) and ( 0.0756,-0.0434) .. ( 0.0403,-0.0825)
5758 .. controls ( 0.0293,-0.0948) and (-0.0336,-0.1168) .. (-0.0567,-0.1294)
5759 .. controls (-0.0615,-0.1087) and (-0.0777,-0.0729) .. (-0.0703,-0.0546)
5760 .. controls (-0.0586,-0.0251) and ( 0.0562, 0.0040) .. (-0.0152, 0.0389)
5761 -- (-0.0397, 0.0480)
5762 -- (-0.0737, 0.0578)
5763 .. controls (-0.0806, 0.0391) and (-0.0849, 0.0192) .. (-0.1018, 0.0068)
5764 .. controls (-0.1154,-0.0032) and (-0.1352,-0.0018) .. (-0.1438,-0.0212)
5765 .. controls (-0.1562,-0.0491) and (-0.1117,-0.1243) .. (-0.0874,-0.1373)
5766 .. controls (-0.0745,-0.1434) and (-0.0687,-0.1394) .. (-0.0567,-0.1373)
5767 .. controls (-0.0358,-0.2033) and (-0.0062,-0.1612) .. ( 0.0370,-0.1500)
5768 -- ( 0.1050,-0.1379)
5769 .. controls ( 0.0882,-0.0871) and ( 0.0808,-0.0999) .. ( 0.0965,-0.0443)
5770 .. controls ( 0.1454,-0.0619) and ( 0.1336,-0.0743) .. ( 0.1664,-0.0940)
5771 .. controls ( 0.1897,-0.1081) and ( 0.2226,-0.1052) .. ( 0.2361,-0.1388)
5772 .. controls ( 0.2495,-0.1724) and ( 0.2245,-0.1963) .. ( 0.2412,-0.2584)
5773 .. controls ( 0.2526,-0.2569) and ( 0.2622,-0.2548) .. ( 0.2735,-0.2584)
5774 .. controls ( 0.2987,-0.2708) and ( 0.3225,-0.3241) .. ( 0.3212,-0.3506)
5775 .. controls ( 0.3203,-0.3711) and ( 0.3053,-0.3950) .. ( 0.3008,-0.4443)
5776 -- ( 0.2497,-0.4187)
5777 .. controls ( 0.2599,-0.4479) and ( 0.2621,-0.4475) .. ( 0.2905,-0.4528)
5778 .. controls ( 0.2877,-0.4715) and ( 0.2799,-0.4998) .. ( 0.2905,-0.5182)
5779 .. controls ( 0.2991,-0.5392) and ( 0.3228,-0.5357) .. ( 0.3346,-0.5182)
5780 .. controls ( 0.3506,-0.4943) and ( 0.3355,-0.4515) .. ( 0.3532,-0.4203)
5781 .. controls ( 0.3716,-0.3881) and ( 0.4096,-0.3844) .. ( 0.4084,-0.3499)
5782 .. controls ( 0.4074,-0.3241) and ( 0.3866,-0.3087) .. ( 0.3728,-0.2897)
5783 -- ( 0.3426,-0.2337)
5784 -- ( 0.2989,-0.1879)
5785 .. controls ( 0.2810,-0.1587) and ( 0.2976,-0.1327) .. ( 0.3187,-0.1323)
5786 .. controls ( 0.3342,-0.1319) and ( 0.3489,-0.1451) .. ( 0.3603,-0.1541)
5787 .. controls ( 0.3817,-0.1712) and ( 0.4026,-0.1894) .. ( 0.4144,-0.2146)
5788 .. controls ( 0.4299,-0.2477) and ( 0.4289,-0.2977) .. ( 0.4712,-0.3110)
5789 .. controls ( 0.4957,-0.3188) and ( 0.5167,-0.3024) .. ( 0.5044,-0.2753)
5790 .. controls ( 0.4967,-0.2585) and ( 0.4769,-0.2471) .. ( 0.4676,-0.2227)
5791 .. controls ( 0.4582,-0.1981) and ( 0.4681,-0.1743) .. ( 0.4488,-0.1492)
5792 .. controls ( 0.4286,-0.1227) and ( 0.3809,-0.1095) .. ( 0.3621,-0.0696)

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5793 .. controls ( 0.3402,-0.0230) and ( 0.3896, 0.0270) .. ( 0.3092, 0.0408)
5794 -- ( 0.3532, 0.1933)
5795 -- ( 0.3944, 0.2536)
5796 -- ( 0.3433, 0.2765)
5797 --cycle
5798 ( 0.2497, 0.2450)
5799 -- ( 0.2782, 0.2025)
5800 .. controls ( 0.2843, 0.1911) and ( 0.2884, 0.1815) .. ( 0.2900, 0.1685)
5801 .. controls ( 0.3021, 0.0654) and ( 0.1495, 0.1479) .. ( 0.2135, 0.2245)
5802 .. controls ( 0.2246, 0.2378) and ( 0.2346, 0.2396) .. ( 0.2497, 0.2450)
5803 --cycle
5804 ( 0.8836, 0.2157)
5805 .. controls ( 0.8688, 0.2061) and ( 0.8571, 0.1889) .. ( 0.8687, 0.1736)
5806 .. controls ( 0.8785, 0.1608) and ( 0.8967, 0.1613) .. ( 0.9161, 0.1578)
5807 --cycle
5808 (-0.3035, 0.1940)
5809 .. controls (-0.3340, 0.1390) and (-0.3508, 0.1491) .. (-0.3624, 0.1300)
5810 .. controls (-0.3738, 0.1112) and (-0.3588, 0.0896) .. (-0.3288, 0.0972)
5811 .. controls (-0.2842, 0.1084) and (-0.2392, 0.1714) .. (-0.3035, 0.1940)
5812 --cycle
5813 ( 0.4710, 0.1940)
5814 .. controls ( 0.4330, 0.1525) and ( 0.3961, 0.1447) .. ( 0.4114, 0.0833)
5815 .. controls ( 0.4294, 0.0897) and ( 0.4596, 0.1056) .. ( 0.4776, 0.0984)
5816 .. controls ( 0.5010, 0.0888) and ( 0.5182, 0.0420) .. ( 0.4925, 0.0231)
5817 .. controls ( 0.4698, 0.0064) and ( 0.4500, 0.0299) .. ( 0.3944, 0.0153)
5818 .. controls ( 0.4243,-0.0189) and ( 0.4618,-0.0333) .. ( 0.4765,-0.0621)
5819 .. controls ( 0.4928,-0.0939) and ( 0.4729,-0.1183) .. ( 0.4881,-0.1406)
5820 .. controls ( 0.4977,-0.1549) and ( 0.5241,-0.1630) .. ( 0.5425,-0.1894)
5821 .. controls ( 0.5557,-0.2085) and ( 0.5562,-0.2282) .. ( 0.5657,-0.2485)
5822 -- ( 0.6122,-0.3251)
5823 .. controls ( 0.6335,-0.3720) and ( 0.6160,-0.3973) .. ( 0.6323,-0.4443)
5824 .. controls ( 0.6532,-0.5042) and ( 0.6754,-0.5231) .. ( 0.6973,-0.5440)
5825 -- ( 0.7289,-0.4899)
5826 .. controls ( 0.7138,-0.4739) and ( 0.6992,-0.4579) .. ( 0.6886,-0.4358)
5827 -- ( 0.6489,-0.2690)
5828 .. controls ( 0.6485,-0.2445) and ( 0.6654,-0.2180) .. ( 0.6598,-0.2002)
5829 .. controls ( 0.6522,-0.1752) and ( 0.6202,-0.1899) .. ( 0.5938,-0.1612)
5830 .. controls ( 0.5619,-0.1263) and ( 0.5907,-0.0980) .. ( 0.5797,-0.0720)
5831 .. controls ( 0.5714,-0.0525) and ( 0.5434,-0.0441) .. ( 0.5374,-0.0184)
5832 .. controls ( 0.5319, 0.0056) and ( 0.5522, 0.0300) .. ( 0.5533, 0.0578)
5833 .. controls ( 0.5548, 0.0943) and ( 0.4981, 0.1701) .. ( 0.4710, 0.1940)
5834 --cycle
5835 (-0.9001, 0.1862)
5836 -- (-0.9386, 0.1201)
5837 .. controls (-0.9374, 0.1181) and (-0.9371, 0.1158) .. (-0.9356, 0.1139)
5838 .. controls (-0.9242, 0.0996) and (-0.9046, 0.0893) .. (-0.8911, 0.0660)
5839 .. controls (-0.8684, 0.0268) and (-0.8960, 0.0297) .. (-0.8592,-0.0296)
5840 .. controls (-0.8262,-0.0830) and (-0.8655,-0.1092) .. (-0.7971,-0.1209)
5841 -- (-0.7875, 0.0068)
5842 -- (-0.8579, 0.1174)
5843 --cycle
5844 (-0.4453, 0.0979)
5845 .. controls (-0.4922, 0.0916) and (-0.4988, 0.0347) .. (-0.4759, 0.0116)

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5846 .. controls (-0.4491,-0.0149) and (-0.4165, 0.0208) .. (-0.3900, 0.0116)
5847 .. controls (-0.3555,-0.0011) and (-0.3800,-0.0410) .. (-0.3751,-0.0698)
5848 -- (-0.3537,-0.1294)
5849 .. controls (-0.3428,-0.1879) and (-0.4042,-0.1777) .. (-0.3801,-0.2656)
5850 .. controls (-0.3617,-0.2531) and (-0.3352,-0.2292) .. (-0.3122,-0.2330)
5851 .. controls (-0.2845,-0.2375) and (-0.2669,-0.2694) .. (-0.2543,-0.2911)
5852 .. controls (-0.2183,-0.3533) and (-0.2004,-0.3613) .. (-0.2184,-0.4358)
5853 .. controls (-0.3300,-0.4097) and (-0.2723,-0.5065) .. (-0.2483,-0.5549)
5854 -- (-0.2129,-0.6314)
5855 .. controls (-0.2017,-0.6508) and (-0.1900,-0.6661) .. (-0.1670,-0.6712)
5856 .. controls (-0.1211,-0.6813) and (-0.1100,-0.6527) .. (-0.1163,-0.6145)
5857 .. controls (-0.1327,-0.6119) and (-0.1427,-0.6118) .. (-0.1568,-0.6009)
5858 .. controls (-0.1780,-0.5845) and (-0.2123,-0.5041) .. (-0.2042,-0.4783)
5859 .. controls (-0.1947,-0.4484) and (-0.1575,-0.4121) .. (-0.1333,-0.3932)
5860 -- (-0.1527,-0.3251)
5861 -- (-0.1588,-0.2656)
5862 .. controls (-0.2187,-0.2715) and (-0.2083,-0.2536) .. (-0.2457,-0.2163)
5863 .. controls (-0.2684,-0.1935) and (-0.2911,-0.1886) .. (-0.2996,-0.1546)
5864 -- (-0.2996,-0.1209)
5865 -- (-0.3232,-0.0698)
5866 .. controls (-0.3283,-0.0435) and (-0.3124,-0.0260) .. (-0.3175,-0.0041)
5867 .. controls (-0.3251, 0.0283) and (-0.3891, 0.0917) .. (-0.4227, 0.0973)
5868 .. controls (-0.4311, 0.0987) and (-0.4386, 0.0989) .. (-0.4453, 0.0979)
5869 --cycle
5870 (-0.1163,-0.6145)
5871 -- (-0.0812,-0.6009)
5872 -- (-0.0509,-0.4868)
5873 -- (-0.0567,-0.4528)
5874 .. controls (-0.1227,-0.4845) and (-0.1350,-0.5483) .. (-0.1163,-0.6145)
5875 --cycle
5876 ( 0.9165, 0.0573)
5877 .. controls ( 0.8982, 0.0512) and ( 0.8800, 0.0260) .. ( 0.8880,-0.0013)
5878 .. controls ( 0.8973,-0.0334) and ( 0.9330,-0.0408) .. ( 0.9466,-0.0703)
5879 .. controls ( 0.9528,-0.0838) and ( 0.9514,-0.0964) .. ( 0.9506,-0.1091)
5880 -- ( 1.0000,-0.0243)
5881 .. controls ( 0.9816,-0.0179) and ( 0.9678,-0.0119) .. ( 0.9563, 0.0077)
5882 .. controls ( 0.9465, 0.0244) and ( 0.9476, 0.0488) .. ( 0.9340, 0.0564)
5883 .. controls ( 0.9288, 0.0593) and ( 0.9227, 0.0593) .. ( 0.9165, 0.0573)
5884 --cycle
5885 (-0.7064, 0.0069)
5886 .. controls (-0.7128, 0.0077) and (-0.7187, 0.0075) .. (-0.7237, 0.0061)
5887 .. controls (-0.7255, 0.0030) and (-0.7310, 0.0025) .. (-0.7316,-0.0115)
5888 .. controls (-0.7321,-0.0230) and (-0.7071,-0.1058) .. (-0.6984,-0.1096)
5889 .. controls (-0.6872,-0.1176) and (-0.6721,-0.1116) .. (-0.6609,-0.1096)
5890 .. controls (-0.6502,-0.1046) and (-0.6316,-0.0986) .. (-0.6242,-0.0900)
5891 .. controls (-0.5901,-0.0507) and (-0.6615, 0.0017) .. (-0.7064, 0.0069)
5892 --cycle
5893 (-1.0000, 0.0068)
5894 -- (-1.0000, 0.0020)
5895 -- (-0.9548,-0.0788)
5896 .. controls (-0.9170,-0.0310) and (-0.9342,-0.0158) .. (-1.0000, 0.0068)
5897 --cycle
5898 (-0.2643, 0.0054)

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5899 .. controls (-0.2853,-0.0295) and (-0.2523,-0.0713) .. (-0.2182,-0.0843)
5900 .. controls (-0.2024,-0.0902) and (-0.1781,-0.0944) .. (-0.1687,-0.0757)
5901 .. controls (-0.1530,-0.0441) and (-0.2378, 0.0095) .. (-0.2643, 0.0054)
5902 --cycle
5903 ( 0.6299,-0.0102)
5904 .. controls ( 0.6155,-0.0145) and ( 0.6071,-0.0342) .. ( 0.6128,-0.0510)
5905 .. controls ( 0.6198,-0.0721) and ( 0.6440,-0.0790) .. ( 0.6606,-0.0986)
5906 .. controls ( 0.6738,-0.1143) and ( 0.6761,-0.1328) .. ( 0.6948,-0.1437)
5907 .. controls ( 0.7092,-0.1520) and ( 0.7311,-0.1484) .. ( 0.7401,-0.1664)
5908 .. controls ( 0.7461,-0.1784) and ( 0.7351,-0.2363) .. ( 0.7348,-0.2570)
5909 .. controls ( 0.7336,-0.3524) and ( 0.7289,-0.3324) .. ( 0.7620,-0.4187)
5910 .. controls ( 0.7631,-0.4216) and ( 0.7642,-0.4246) .. ( 0.7652,-0.4275)
5911 -- ( 0.8003,-0.3672)
5912 .. controls ( 0.7976,-0.3636) and ( 0.7942,-0.3606) .. ( 0.7918,-0.3568)
5913 .. controls ( 0.7778,-0.3349) and ( 0.7645,-0.2537) .. ( 0.7970,-0.2417)
5914 .. controls ( 0.8206,-0.2330) and ( 0.8347,-0.2671) .. ( 0.8432,-0.2822)
5915 -- ( 0.8469,-0.2872)
5916 -- ( 0.8787,-0.2326)
5917 -- ( 0.8594,-0.1993)
5918 .. controls ( 0.8496,-0.1847) and ( 0.7996,-0.1314) .. ( 0.7847,-0.1281)
5919 .. controls ( 0.7712,-0.1229) and ( 0.7642,-0.1268) .. ( 0.7518,-0.1281)
5920 .. controls ( 0.7451,-0.1148) and ( 0.7397,-0.1014) .. ( 0.7293,-0.0886)
5921 -- ( 0.6461,-0.0117)
5922 .. controls ( 0.6402,-0.0090) and ( 0.6347,-0.0087) .. ( 0.6299,-0.0102)
5923 --cycle
5924 (-0.5178,-0.0844)
5925 .. controls (-0.5451,-0.0820) and (-0.5852,-0.0947) .. (-0.5902,-0.1144)
5926 .. controls (-0.6007,-0.1557) and (-0.5621,-0.1731) .. (-0.5414,-0.1997)
5927 .. controls (-0.5274,-0.2177) and (-0.5229,-0.2355) .. (-0.5044,-0.2525)
5928 .. controls (-0.4888,-0.2669) and (-0.4706,-0.2705) .. (-0.4543,-0.2923)
5929 .. controls (-0.4420,-0.3087) and (-0.4220,-0.3707) .. (-0.4141,-0.3932)
5930 .. controls (-0.3620,-0.3875) and (-0.3060,-0.4031) .. (-0.3060,-0.3592)
5931 .. controls (-0.3060,-0.3272) and (-0.3358,-0.3272) .. (-0.3716,-0.3008)
5932 .. controls (-0.4367,-0.2529) and (-0.4253,-0.2451) .. (-0.4621,-0.1914)
5933 .. controls (-0.4700,-0.1800) and (-0.4814,-0.1685) .. (-0.4867,-0.1556)
5934 .. controls (-0.4970,-0.1308) and (-0.4804,-0.1088) .. (-0.4966,-0.0923)
5935 .. controls (-0.5011,-0.0877) and (-0.5087,-0.0853) .. (-0.5178,-0.0844)
5936 --cycle
5937 (-0.4165,-0.0846)
5938 .. controls (-0.4357,-0.0807) and (-0.4622,-0.1075) .. (-0.4395,-0.1440)
5939 .. controls (-0.4316,-0.1566) and (-0.4254,-0.1571) .. (-0.4141,-0.1634)
5940 .. controls (-0.4094,-0.1522) and (-0.4042,-0.1415) .. (-0.4019,-0.1294)
5941 .. controls (-0.3960,-0.1004) and (-0.4049,-0.0870) .. (-0.4165,-0.0846)
5942 --cycle
5943 (-0.9358,-0.1125)
5944 -- (-0.8813,-0.2098)
5945 .. controls (-0.8768,-0.1903) and (-0.8656,-0.1673) .. (-0.8723,-0.1485)
5946 .. controls (-0.8801,-0.1269) and (-0.9022,-0.1274) .. (-0.9358,-0.1125)
5947 --cycle
5948 ( 0.1455,-0.1458)
5949 .. controls ( 0.1402,-0.1449) and ( 0.1336,-0.1452) .. ( 0.1255,-0.1471)
5950 .. controls ( 0.0901,-0.1850) and ( 0.1064,-0.2454) .. ( 0.1360,-0.2301)
5951 .. controls ( 0.1569,-0.2194) and ( 0.1827,-0.1522) .. ( 0.1455,-0.1458)

```

```

5952 --cycle
5953 (-0.1477,-0.1474)
5954 .. controls (-0.1646,-0.1458) and (-0.1813,-0.1543) .. (-0.1847,-0.1659)
5955 .. controls (-0.1889,-0.1806) and (-0.1612,-0.2953) .. (-0.1163,-0.2315)
5956 -- (-0.0420,-0.4418)
5957 .. controls (-0.0291,-0.4661) and (-0.0068,-0.4600) .. ( 0.0136,-0.4880)
5958 .. controls ( 0.0294,-0.5097) and ( 0.0259,-0.5331) .. ( 0.0419,-0.5487)
5959 .. controls ( 0.0694,-0.5755) and ( 0.1462,-0.5710) .. ( 0.1798,-0.6001)
5960 -- ( 0.2188,-0.6436)
5961 .. controls ( 0.2392,-0.6605) and ( 0.2566,-0.6577) .. ( 0.2804,-0.6838)
5962 .. controls ( 0.3122,-0.7186) and ( 0.3037,-0.7586) .. ( 0.3603,-0.7592)
5963 .. controls ( 0.3537,-0.7217) and ( 0.3358,-0.6781) .. ( 0.3603,-0.6427)
5964 .. controls ( 0.3743,-0.6222) and ( 0.3978,-0.6232) .. ( 0.4032,-0.6039)
5965 .. controls ( 0.4084,-0.5852) and ( 0.3901,-0.5654) .. ( 0.3712,-0.5741)
5966 .. controls ( 0.3573,-0.5804) and ( 0.3558,-0.5936) .. ( 0.3518,-0.6044)
5967 .. controls ( 0.3319,-0.6046) and ( 0.2996,-0.6092) .. ( 0.2842,-0.6044)
5968 .. controls ( 0.2568,-0.5917) and ( 0.2515,-0.5648) .. ( 0.2231,-0.5501)
5969 .. controls ( 0.1960,-0.5359) and ( 0.1632,-0.5421) .. ( 0.1413,-0.5292)
5970 -- ( 0.0626,-0.4601)
5971 .. controls ( 0.0525,-0.4430) and ( 0.0547,-0.4207) .. ( 0.0440,-0.4065)
5972 .. controls ( 0.0320,-0.3906) and ( 0.0076,-0.3898) .. (-0.0104,-0.3714)
5973 .. controls (-0.0515,-0.3289) and ( 0.0146,-0.2721) .. (-0.0737,-0.2358)
5974 .. controls (-0.0903,-0.2290) and (-0.0917,-0.2313) .. (-0.1098,-0.2315)
5975 -- (-0.1098,-0.1892)
5976 .. controls (-0.1137,-0.1607) and (-0.1308,-0.1491) .. (-0.1477,-0.1474)
5977 --cycle
5978 (-0.7679,-0.1481)
5979 .. controls (-0.8119,-0.1523) and (-0.8157,-0.2051) .. (-0.8303,-0.2401)
5980 -- (-0.8453,-0.2740)
5981 -- (-0.8299,-0.3015)
5982 .. controls (-0.7861,-0.2968) and (-0.8116,-0.2403) .. (-0.7732,-0.2278)
5983 .. controls (-0.7561,-0.2223) and (-0.7349,-0.2415) .. (-0.7204,-0.2497)
5984 .. controls (-0.6711,-0.2774) and (-0.6473,-0.2864) .. (-0.6524,-0.3506)
5985 -- (-0.6787,-0.3422)
5986 .. controls (-0.6786,-0.3475) and (-0.6826,-0.3544) .. (-0.6787,-0.3655)
5987 .. controls (-0.6635,-0.4244) and (-0.5943,-0.3658) .. (-0.5763,-0.3760)
5988 .. controls (-0.5586,-0.3861) and (-0.5497,-0.4251) .. (-0.5357,-0.4418)
5989 .. controls (-0.5118,-0.4701) and (-0.4694,-0.4662) .. (-0.4504,-0.5047)
5990 .. controls (-0.4231,-0.5599) and (-0.4535,-0.6772) .. (-0.4451,-0.7421)
5991 .. controls (-0.4389,-0.7901) and (-0.4023,-0.8005) .. (-0.3912,-0.8443)
5992 .. controls (-0.3883,-0.8558) and (-0.3874,-0.8667) .. (-0.3869,-0.8774)
5993 -- (-0.3386,-0.8778)
5994 .. controls (-0.3371,-0.8645) and (-0.3342,-0.8523) .. (-0.3394,-0.8358)
5995 .. controls (-0.3448,-0.8167) and (-0.3914,-0.7567) .. (-0.3962,-0.6996)
5996 .. controls (-0.4039,-0.6074) and (-0.3294,-0.5871) .. (-0.3545,-0.4954)
5997 -- (-0.3886,-0.5039)
5998 -- (-0.4196,-0.4442)
5999 -- (-0.4864,-0.4090)
6000 -- (-0.5345,-0.3241)
6001 -- (-0.6106,-0.2802)
6002 -- (-0.6106,-0.1975)
6003 .. controls (-0.6301,-0.2027) and (-0.6486,-0.2101) .. (-0.6694,-0.2022)
6004 .. controls (-0.7004,-0.1904) and (-0.7133,-0.1559) .. (-0.7464,-0.1495)

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```

6005 .. controls (-0.7544,-0.1479) and (-0.7616,-0.1475) .. (-0.7679,-0.1481)
6006 --cycle
6007 ( 0.0029,-0.2060)
6008 .. controls (-0.0139,-0.2731) and ( 0.0196,-0.2608) .. ( 0.0476,-0.3014)
6009 .. controls ( 0.0682,-0.3314) and ( 0.0511,-0.3569) .. ( 0.0750,-0.3784)
6010 .. controls ( 0.0974,-0.3988) and ( 0.1304,-0.3876) .. ( 0.1549,-0.4019)
6011 .. controls ( 0.1795,-0.4164) and ( 0.1878,-0.4529) .. ( 0.1987,-0.4783)
6012 .. controls ( 0.2461,-0.4539) and ( 0.2519,-0.4021) .. ( 0.2180,-0.3618)
6013 .. controls ( 0.1964,-0.3362) and ( 0.1652,-0.3426) .. ( 0.1414,-0.3257)
6014 .. controls ( 0.1198,-0.3103) and ( 0.1183,-0.2881) .. ( 0.1007,-0.2689)
6015 .. controls ( 0.0838,-0.2504) and ( 0.0265,-0.2166) .. ( 0.0029,-0.2060)
6016 --cycle
6017 ( 0.2327,-0.2826)
6018 .. controls ( 0.1961,-0.2955) and ( 0.1961,-0.3123) .. ( 0.2327,-0.3251)
6019 --cycle
6020 (-0.7548,-0.3137)
6021 .. controls (-0.7774,-0.3164) and (-0.7890,-0.3323) .. (-0.7986,-0.3573)
6022 -- (-0.7759,-0.3979)
6023 .. controls (-0.7735,-0.3968) and (-0.7711,-0.3964) .. (-0.7688,-0.3946)
6024 -- (-0.7205,-0.3166)
6025 .. controls (-0.7341,-0.3135) and (-0.7454,-0.3126) .. (-0.7548,-0.3137)
6026 --cycle
6027 ( 0.4114,-0.3847)
6028 .. controls ( 0.4216,-0.4136) and ( 0.4238,-0.4142) .. ( 0.4540,-0.4102)
6029 -- ( 0.4540,-0.3932)
6030 --cycle
6031 ( 0.5395,-0.3997)
6032 .. controls ( 0.5263,-0.3990) and ( 0.5044,-0.4032) .. ( 0.4625,-0.4018)
6033 -- ( 0.4780,-0.4954)
6034 .. controls ( 0.4757,-0.5287) and ( 0.4518,-0.5542) .. ( 0.4648,-0.5776)
6035 .. controls ( 0.4852,-0.6142) and ( 0.5202,-0.5603) .. ( 0.5614,-0.5929)
6036 .. controls ( 0.5752,-0.6038) and ( 0.6063,-0.6359) .. ( 0.6275,-0.6638)
6037 -- ( 0.6570,-0.6132)
6038 .. controls ( 0.6460,-0.6042) and ( 0.6347,-0.5954) .. ( 0.6268,-0.5865)
6039 -- ( 0.5937,-0.5346)
6040 .. controls ( 0.5648,-0.5023) and ( 0.5031,-0.4880) .. ( 0.5646,-0.4273)
6041 .. controls ( 0.5574,-0.4062) and ( 0.5528,-0.4005) .. ( 0.5395,-0.3997)
6042 --cycle
6043 (-0.6609,-0.4273)
6044 .. controls (-0.7027,-0.4247) and (-0.7300,-0.4414) .. (-0.7397,-0.4624)
6045 -- (-0.7047,-0.5249)
6046 .. controls (-0.7013,-0.5263) and (-0.6989,-0.5282) .. (-0.6950,-0.5294)
6047 .. controls (-0.6935,-0.4878) and (-0.6933,-0.4806) .. (-0.6609,-0.4528)
6048 --cycle
6049 (-0.5689,-0.4528)
6050 .. controls (-0.6368,-0.4677) and (-0.6352,-0.5020) .. (-0.6354,-0.5634)
6051 -- (-0.5757,-0.6071)
6052 -- (-0.5162,-0.6826)
6053 .. controls (-0.5073,-0.6508) and (-0.5037,-0.6125) .. (-0.5241,-0.5838)
6054 .. controls (-0.5384,-0.5639) and (-0.5622,-0.5584) .. (-0.5689,-0.5361)
6055 .. controls (-0.5775,-0.5167) and (-0.5648,-0.4918) .. (-0.5689,-0.4528)
6056 --cycle
6057 (-0.6354,-0.5634)

```

```

6058 .. controls (-0.6583,-0.5576) and (-0.6713,-0.5579) .. (-0.6839,-0.5619)
6059 -- (-0.6487,-0.6248)
6060 .. controls (-0.6395,-0.6053) and (-0.6326,-0.5852) .. (-0.6354,-0.5634)
6061 --cycle
6062 (-0.0056,-0.5890)
6063 .. controls (-0.0554,-0.6155) and (-0.0426,-0.6370) .. (-0.0606,-0.6818)
6064 -- (-0.1199,-0.7847)
6065 .. controls (-0.1298,-0.8015) and (-0.1531,-0.8317) .. (-0.1499,-0.8510)
6066 .. controls (-0.1482,-0.8615) and (-0.1397,-0.8702) .. (-0.1295,-0.8795)
6067 -- (-0.0507,-0.8802)
6068 .. controls (-0.0629,-0.8583) and (-0.0745,-0.8380) .. (-0.0742,-0.8358)
6069 .. controls (-0.0792,-0.8239) and (-0.0776,-0.8135) .. (-0.0742,-0.8027)
6070 .. controls (-0.0460,-0.7520) and ( 0.0016,-0.7834) .. ( 0.0277,-0.7780)
6071 .. controls ( 0.0760,-0.7679) and ( 0.1284,-0.6914) .. ( 0.1207,-0.6405)
6072 .. controls ( 0.1150,-0.6017) and ( 0.0841,-0.6082) .. ( 0.0711,-0.6267)
6073 .. controls ( 0.0620,-0.6397) and ( 0.0556,-0.7141) .. ( 0.0539,-0.7336)
6074 .. controls (-0.0413,-0.7085) and ( 0.0139,-0.6637) .. (-0.0056,-0.5890)
6075 --cycle
6076 ( 0.4284,-0.6571)
6077 .. controls ( 0.4285,-0.7307) and ( 0.4284,-0.7652) .. ( 0.5135,-0.7336)
6078 .. controls ( 0.5170,-0.7469) and ( 0.5220,-0.7585) .. ( 0.5179,-0.7726)
6079 .. controls ( 0.5091,-0.8019) and ( 0.4473,-0.8546) .. ( 0.4851,-0.8847)
6080 -- ( 0.4987,-0.8848)
6081 -- ( 0.5768,-0.7509)
6082 .. controls ( 0.5767,-0.7509) and ( 0.5767,-0.7507) .. ( 0.5767,-0.7507)
6083 .. controls ( 0.5412,-0.6652) and ( 0.5083,-0.6726) .. ( 0.4284,-0.6571)
6084 --cycle
6085 (-0.2914,-0.6672)
6086 .. controls (-0.2998,-0.6666) and (-0.3106,-0.6686) .. (-0.3250,-0.6743)
6087 .. controls (-0.3545,-0.7128) and (-0.3081,-0.7358) .. (-0.2850,-0.7678)
6088 .. controls (-0.2710,-0.7873) and (-0.2601,-0.8137) .. (-0.2351,-0.8216)
6089 .. controls (-0.2083,-0.8301) and (-0.1916,-0.8105) .. (-0.1960,-0.7845)
6090 .. controls (-0.2008,-0.7566) and (-0.2232,-0.7418) .. (-0.2396,-0.7216)
6091 .. controls (-0.2612,-0.6950) and (-0.2660,-0.6690) .. (-0.2914,-0.6672)
6092 --cycle
6093 (-0.5641,-0.6998)
6094 .. controls (-0.5850,-0.6984) and (-0.5808,-0.7367) .. (-0.5766,-0.7507)
6095 .. controls (-0.5748,-0.7566) and (-0.5723,-0.7598) .. (-0.5702,-0.7648)
6096 -- (-0.5492,-0.8022)
6097 .. controls (-0.5310,-0.8247) and (-0.5120,-0.8367) .. (-0.5052,-0.8613)
6098 .. controls (-0.5044,-0.8642) and (-0.5062,-0.8717) .. (-0.5063,-0.8763)
6099 -- (-0.4585,-0.8767)
6100 .. controls (-0.4596,-0.7984) and (-0.5013,-0.7963) .. (-0.5234,-0.7583)
6101 .. controls (-0.5344,-0.7394) and (-0.5352,-0.7120) .. (-0.5535,-0.7030)
6102 .. controls (-0.5576,-0.7010) and (-0.5611,-0.7000) .. (-0.5641,-0.6998)
6103 --cycle
6104 ( 0.1990,-0.7341)
6105 .. controls ( 0.1094,-0.7768) and ( 0.2330,-0.8330) .. ( 0.2586,-0.8828)
6106 -- ( 0.3183,-0.8833)
6107 .. controls ( 0.3165,-0.8684) and ( 0.3066,-0.8565) .. ( 0.2991,-0.8428)
6108 .. controls ( 0.2762,-0.8010) and ( 0.2508,-0.7418) .. ( 0.1990,-0.7341)
6109 --cycle
6110 ( 0.3603,-0.7592)

```

```

6111 -- ( 0.3859,-0.8188)
6112 .. controls ( 0.4178,-0.7853) and ( 0.4108,-0.7527) .. ( 0.3603,-0.7592)
6113 --cycle
6114 ( 0.4369,-0.8443)
6115 .. controls ( 0.4147,-0.8480) and ( 0.3837,-0.8661) .. ( 0.3628,-0.8837)
6116 -- ( 0.4240,-0.8842)
6117 .. controls ( 0.4307,-0.8690) and ( 0.4358,-0.8541) .. ( 0.4369,-0.8443)
6118 --cycle
6119 (-0.3205,-0.8528)
6120 -- (-0.3266,-0.8779)
6121 -- (-0.2773,-0.8783)
6122 .. controls (-0.2800,-0.8719) and (-0.2850,-0.8655) .. (-0.2963,-0.8600)
6123 --cycle
6124 ( 0.1093,-0.8568)
6125 .. controls ( 0.0964,-0.8568) and ( 0.0834,-0.8587) .. ( 0.0710,-0.8600)
6126 .. controls ( 0.0605,-0.8611) and ( 0.0403,-0.8617) .. ( 0.0312,-0.8664)
6127 .. controls ( 0.0240,-0.8701) and ( 0.0203,-0.8751) .. ( 0.0184,-0.8808)
6128 -- ( 0.1002,-0.8815)
6129 -- ( 0.1050,-0.8698)
6130 -- ( 0.1085,-0.8815)
6131 -- ( 0.1641,-0.8820)
6132 .. controls ( 0.1606,-0.8757) and ( 0.1553,-0.8698) .. ( 0.1463,-0.8649)
6133 .. controls ( 0.1347,-0.8586) and ( 0.1221,-0.8568) .. ( 0.1093,-0.8568)
6134 --cycle
6135 ;
6136 }
6137 }
6138 \fi

```

```

hex/terrain/town/road
hex/terrain/town/small road
hex/terrain/town/house

```

For villages, towns, and cities, we need three styles: one for houses, and separate styles for regular and small roads. Note that we draw using the stroke colour for roads and houses.

```

6139 \ifhex@terrain@pic
6140 \tikzset{
6141   hex/terrain/town/road/.style={
6142     fill=None,
6143     draw=gray!50!black,
6144     scale line widths,
6145     line width=.3mm
6146   },
6147   hex/terrain/town/small road/.style={
6148     fill=None,
6149     draw=gray!75!black,
6150     scale line widths,
6151     line width=.15mm
6152   },
6153   hex/terrain/town/post road/.style={
6154     fill=None
6155   },

```

```

6156 hex/terrain/town/house/.style={
6157     draw=none,
6158     fill=gray!75!black,
6159 }
6160 }

```

hex/terrain/village

Now for village, town, and city patterns.

```

6161 \tikzset{
6162   hex/terrain/village/.pic={
6163     \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6164       ( 0.0073, 0.8700)
6165       -- ( 0.3952, 0.3373)
6166       -- ( 0.3884, 0.2029)
6167       -- ( 0.3555, 0.1378)
6168       -- ( 0.3751, 0.0880)
6169       -- ( 0.2513,-0.1997)
6170       -- ( 0.1396,-0.4505)
6171       -- ( 0.0641,-0.6512)
6172       -- ( 0.0070,-0.8700)
6173       -- ( 0.0070,-0.8700)
6174     ;
6175     \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6176       ( 0.7575, 0.4367)
6177       -- ( 0.3945, 0.3375)
6178       -- ( 0.3945, 0.3375)
6179     ;
6180     \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6181       (-0.1900,-0.0806)
6182       -- (-0.1155, 0.1588)
6183     ;
6184     \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6185       (-0.1308, 0.1580)
6186       -- (-0.7603, 0.4394)
6187     ;
6188     \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6189       (-0.6615,-0.2309)
6190       -- (-0.6777,-0.3255)
6191       -- (-0.7607,-0.4327)
6192     ;
6193     \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6194       (-0.6676,-0.2405)
6195       -- (-0.4599,-0.1067)
6196       -- (-0.1877,-0.0679)
6197     ;
6198     \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6199       ( 0.2082,-0.3003)
6200       -- ( 0.4578,-0.4855)
6201       -- ( 0.5914,-0.3675)
6202       -- ( 0.7607,-0.4420)
6203     ;

```

```

6204 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6205 ( 0.3827, 0.1864)
6206 -- (-0.1290, 0.1576)
6207 ;
6208 \path[hex/terrain/town/house,pic actions]
6209 ( 0.2259, 0.4898)
6210 -- ( 0.2453, 0.4680)
6211 -- ( 0.2052, 0.4324)
6212 -- ( 0.1858, 0.4542)
6213 --cycle
6214 ;
6215 \path[hex/terrain/town/house,pic actions]
6216 ( 0.2259, 0.4898)
6217 -- ( 0.2453, 0.4680)
6218 -- ( 0.2052, 0.4324)
6219 -- ( 0.1858, 0.4542)
6220 --cycle
6221 ;
6222 \path[hex/terrain/town/house,pic actions]
6223 (-0.1978, 0.1663)
6224 -- (-0.1534, 0.1549)
6225 -- (-0.1685, 0.0960)
6226 -- (-0.2130, 0.1074)
6227 --cycle
6228 ;
6229 \path[hex/terrain/town/house,pic actions]
6230 (-0.1978, 0.1663)
6231 -- (-0.1534, 0.1549)
6232 -- (-0.1685, 0.0960)
6233 -- (-0.2130, 0.1074)
6234 --cycle
6235 ;
6236 \path[hex/terrain/town/house,pic actions]
6237 ( 0.5127,-0.3559)
6238 -- ( 0.5341,-0.3759)
6239 -- ( 0.4975,-0.4151)
6240 -- ( 0.4761,-0.3951)
6241 --cycle
6242 ;
6243 \path[hex/terrain/town/house,pic actions]
6244 ( 0.5127,-0.3559)
6245 -- ( 0.5341,-0.3759)
6246 -- ( 0.4975,-0.4151)
6247 -- ( 0.4761,-0.3951)
6248 --cycle
6249 ;
6250 \path[hex/terrain/town/house,pic actions]
6251 ( 0.2761, 0.3992)
6252 -- ( 0.2947, 0.3765)
6253 -- ( 0.2533, 0.3425)
6254 -- ( 0.2347, 0.3651)
6255 --cycle
6256 ;

```



```

6257 \path[hex/terrain/town/house,pic actions]
6258 ( 0.2761, 0.3992)
6259 -- ( 0.2947, 0.3765)
6260 -- ( 0.2533, 0.3425)
6261 -- ( 0.2347, 0.3651)
6262 --cycle
6263 ;
6264 \path[hex/terrain/town/house,pic actions]
6265 ( 0.3227, 0.3548)
6266 -- ( 0.3421, 0.3329)
6267 -- ( 0.3020, 0.2974)
6268 -- ( 0.2826, 0.3192)
6269 --cycle
6270 ;
6271 \path[hex/terrain/town/house,pic actions]
6272 ( 0.3227, 0.3548)
6273 -- ( 0.3421, 0.3329)
6274 -- ( 0.3020, 0.2974)
6275 -- ( 0.2826, 0.3192)
6276 --cycle
6277 ;
6278 \path[hex/terrain/town/house,pic actions]
6279 ( 0.2901, 0.6234)
6280 -- ( 0.3088, 0.6008)
6281 -- ( 0.2674, 0.5667)
6282 -- ( 0.2487, 0.5893)
6283 --cycle
6284 ;
6285 \path[hex/terrain/town/house,pic actions]
6286 ( 0.2901, 0.6234)
6287 -- ( 0.3088, 0.6008)
6288 -- ( 0.2674, 0.5667)
6289 -- ( 0.2487, 0.5893)
6290 --cycle
6291 ;
6292 \path[hex/terrain/town/house,pic actions]
6293 (-0.3456, 0.2854)
6294 -- (-0.3335, 0.3120)
6295 -- (-0.2847, 0.2898)
6296 -- (-0.2968, 0.2632)
6297 --cycle
6298 ;
6299 \path[hex/terrain/town/house,pic actions]
6300 (-0.3456, 0.2854)
6301 -- (-0.3335, 0.3120)
6302 -- (-0.2847, 0.2898)
6303 -- (-0.2968, 0.2632)
6304 --cycle
6305 ;
6306 \path[hex/terrain/town/house,pic actions]
6307 (-0.6678,-0.1369)
6308 -- (-0.6492,-0.1143)
6309 -- (-0.6078,-0.1484)

```

```

6310 -- (-0.6264,-0.1710)
6311 --cycle
6312 ;
6313 \path[hex/terrain/town/house,pic actions]
6314 (-0.6678,-0.1369)
6315 -- (-0.6492,-0.1143)
6316 -- (-0.6078,-0.1484)
6317 -- (-0.6264,-0.1710)
6318 --cycle
6319 ;
6320 \path[hex/terrain/town/house,pic actions]
6321 ( 0.4610, 0.0967)
6322 -- ( 0.4896, 0.0909)
6323 -- ( 0.4790, 0.0384)
6324 -- ( 0.4503, 0.0442)
6325 --cycle
6326 ;
6327 \path[hex/terrain/town/house,pic actions]
6328 ( 0.4610, 0.0967)
6329 -- ( 0.4896, 0.0909)
6330 -- ( 0.4790, 0.0384)
6331 -- ( 0.4503, 0.0442)
6332 --cycle
6333 ;
6334 \path[hex/terrain/town/house,pic actions]
6335 ( 0.2924,-0.1375)
6336 -- ( 0.3110,-0.0955)
6337 -- ( 0.3667,-0.1202)
6338 -- ( 0.3481,-0.1621)
6339 --cycle
6340 ;
6341 \path[hex/terrain/town/house,pic actions]
6342 ( 0.2924,-0.1375)
6343 -- ( 0.3110,-0.0955)
6344 -- ( 0.3667,-0.1202)
6345 -- ( 0.3481,-0.1621)
6346 --cycle
6347 ;
6348 \path[hex/terrain/town/house,pic actions]
6349 ( 0.5094, 0.3292)
6350 -- ( 0.5505, 0.3494)
6351 -- ( 0.5773, 0.2947)
6352 -- ( 0.5362, 0.2746)
6353 --cycle
6354 ;
6355 \path[hex/terrain/town/house,pic actions]
6356 ( 0.5094, 0.3292)
6357 -- ( 0.5505, 0.3494)
6358 -- ( 0.5773, 0.2947)
6359 -- ( 0.5362, 0.2746)
6360 --cycle
6361 ;
6362 \path[hex/terrain/town/house,pic actions]

```

```

6363      (-0.1323, 0.2640)
6364      -- (-0.0890, 0.2489)
6365      -- (-0.1092, 0.1914)
6366      -- (-0.1524, 0.2065)
6367      --cycle
6368      ;
6369      \path[hex/terrain/town/house,pic actions]
6370      (-0.1323, 0.2640)
6371      -- (-0.0890, 0.2489)
6372      -- (-0.1092, 0.1914)
6373      -- (-0.1524, 0.2065)
6374      --cycle
6375      ;
6376      \path[hex/terrain/town/house,pic actions]
6377      ( 0.4115,-0.5373)
6378      -- ( 0.4390,-0.5006)
6379      -- ( 0.4877,-0.5372)
6380      -- ( 0.4601,-0.5739)
6381      --cycle
6382      ;
6383      \path[hex/terrain/town/house,pic actions]
6384      ( 0.4115,-0.5373)
6385      -- ( 0.4390,-0.5006)
6386      -- ( 0.4877,-0.5372)
6387      -- ( 0.4601,-0.5739)
6388      --cycle
6389      ;
6390      \path[hex/terrain/town/house,pic actions]
6391      ( 0.3095, 0.1272)
6392      -- ( 0.3519, 0.1095)
6393      -- ( 0.3284, 0.0533)
6394      -- ( 0.2861, 0.0710)
6395      --cycle
6396      ;
6397      \path[hex/terrain/town/house,pic actions]
6398      ( 0.3095, 0.1272)
6399      -- ( 0.3519, 0.1095)
6400      -- ( 0.3284, 0.0533)
6401      -- ( 0.2861, 0.0710)
6402      --cycle
6403      ;
6404      \path[hex/terrain/town/house,pic actions]
6405      ( 0.2904, 0.2714)
6406      -- ( 0.3361, 0.2681)
6407      -- ( 0.3318, 0.2074)
6408      -- ( 0.2861, 0.2106)
6409      --cycle
6410      ;
6411      \path[hex/terrain/town/house,pic actions]
6412      ( 0.2904, 0.2714)
6413      -- ( 0.3361, 0.2681)
6414      -- ( 0.3318, 0.2074)
6415      -- ( 0.2861, 0.2106)

```

```

6416 --cycle
6417 ;
6418 \path[hex/terrain/town/house,pic actions]
6419 ( 0.4665, 0.4396)
6420 -- ( 0.4868, 0.3985)
6421 -- ( 0.4321, 0.3716)
6422 -- ( 0.4119, 0.4127)
6423 --cycle
6424 ;
6425 \path[hex/terrain/town/house,pic actions]
6426 ( 0.4665, 0.4396)
6427 -- ( 0.4868, 0.3985)
6428 -- ( 0.4321, 0.3716)
6429 -- ( 0.4119, 0.4127)
6430 --cycle
6431 ;
6432 \path[hex/terrain/town/house,pic actions]
6433 ( 0.4187, 0.2523)
6434 -- ( 0.4643, 0.2574)
6435 -- ( 0.4711, 0.1969)
6436 -- ( 0.4256, 0.1917)
6437 --cycle
6438 ;
6439 \path[hex/terrain/town/house,pic actions]
6440 ( 0.4187, 0.2523)
6441 -- ( 0.4643, 0.2574)
6442 -- ( 0.4711, 0.1969)
6443 -- ( 0.4256, 0.1917)
6444 --cycle
6445 ;
6446 \path[hex/terrain/town/house,pic actions]
6447 ( 0.3746, 0.1600)
6448 -- ( 0.4021, 0.1699)
6449 -- ( 0.4204, 0.1195)
6450 -- ( 0.3929, 0.1095)
6451 --cycle
6452 ;
6453 \path[hex/terrain/town/house,pic actions]
6454 ( 0.3746, 0.1600)
6455 -- ( 0.4021, 0.1699)
6456 -- ( 0.4204, 0.1195)
6457 -- ( 0.3929, 0.1095)
6458 --cycle
6459 ;
6460 }
6461 }
6462 \fi

```

```
hex/terrain/town
```

A town.

```
6463 \ifhex@terrain@pic
```

```

6464 \tikzset{
6465   hex/terrain/town/.pic={
6466     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
6467       ( 0.1432,-0.4518)
6468       -- (-0.0320,-0.2906)
6469       -- ( 0.0745,-0.0351)
6470       -- ( 0.1130,-0.0387)
6471       ;
6472     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
6473       ( 0.0729,-0.0352)
6474       -- (-0.1716, 0.0254)
6475       ;
6476     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
6477       (-0.2493, 0.5648)
6478       -- (-0.2192, 0.4501)
6479       ;
6480     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
6481       ( 0.0677,-0.6538)
6482       -- ( 0.1754,-0.7052)
6483       -- ( 0.4358,-0.4688)
6484       ;
6485     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
6486       ( 0.0439,-0.3617)
6487       -- (-0.0921,-0.5012)
6488       -- (-0.2865,-0.3243)
6489       -- (-0.4420,-0.4608)
6490       -- (-0.5795,-0.4446)
6491       -- (-0.6421,-0.3520)
6492       ;
6493     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
6494       ( 0.0622,-0.6515)
6495       -- (-0.0316,-0.6176)
6496       -- (-0.0221,-0.5364)
6497       ;
6498     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
6499       ( 0.0048,-0.2069)
6500       -- (-0.1945,-0.1818)
6501       -- (-0.2278,-0.2247)
6502       -- (-0.5051,-0.1356)
6503       ;
6504     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
6505       (-0.3383, 0.0449)
6506       -- (-0.2189, 0.4510)
6507       ;
6508     \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6509       ( 0.0073, 0.8700)
6510       -- ( 0.3952, 0.3373)
6511       -- ( 0.3884, 0.2029)
6512       -- ( 0.3555, 0.1378)
6513       -- ( 0.3751, 0.0880)
6514       -- ( 0.2513,-0.1997)
6515       -- ( 0.1396,-0.4505)
6516       -- ( 0.0641,-0.6512)

```

```

6517 -- ( 0.0070,-0.8700)
6518 -- ( 0.0070,-0.8700)
6519 ;
6520 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6521 ( 0.7575, 0.4367)
6522 -- ( 0.3945, 0.3375)
6523 -- ( 0.3945, 0.3375)
6524 ;
6525 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6526 (-0.1900,-0.0806)
6527 -- (-0.0751, 0.3938)
6528 -- (-0.0765, 0.3925)
6529 ;
6530 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6531 (-0.1308, 0.1580)
6532 -- (-0.7603, 0.4394)
6533 ;
6534 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6535 (-0.7139,-0.1526)
6536 -- (-0.6147,-0.3362)
6537 -- (-0.7607,-0.4327)
6538 ;
6539 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6540 (-0.6676,-0.2405)
6541 -- (-0.4599,-0.1067)
6542 -- (-0.1877,-0.0679)
6543 ;
6544 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6545 ( 0.2082,-0.3003)
6546 -- ( 0.4578,-0.4855)
6547 -- ( 0.5914,-0.3675)
6548 -- ( 0.7607,-0.4420)
6549 ;
6550 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
6551 ( 0.3827, 0.1864)
6552 -- (-0.1290, 0.1576)
6553 ;
6554 \path[hex/terrain/town/house,pic actions]
6555 (-0.4493,-0.3075)
6556 -- (-0.4043,-0.2868)
6557 -- (-0.3710,-0.3593)
6558 -- (-0.4160,-0.3799)
6559 --cycle
6560 ;
6561 \path[hex/terrain/town/house,pic actions]
6562 (-0.4493,-0.3075)
6563 -- (-0.4043,-0.2868)
6564 -- (-0.3710,-0.3593)
6565 -- (-0.4160,-0.3799)
6566 --cycle
6567 ;
6568 \path[hex/terrain/town/house,pic actions]
6569 (-0.5264,-0.1066)

```

```

6570 -- (-0.5514,-0.0681)
6571 -- (-0.5002,-0.0349)
6572 -- (-0.4753,-0.0733)
6573 --cycle
6574 ;
6575 \path[hex/terrain/town/house,pic actions]
6576 (-0.5264,-0.1066)
6577 -- (-0.5514,-0.0681)
6578 -- (-0.5002,-0.0349)
6579 -- (-0.4753,-0.0733)
6580 --cycle
6581 ;
6582 \path[hex/terrain/town/house,pic actions]
6583 (-0.1978, 0.1663)
6584 -- (-0.1534, 0.1549)
6585 -- (-0.1685, 0.0960)
6586 -- (-0.2130, 0.1074)
6587 --cycle
6588 ;
6589 \path[hex/terrain/town/house,pic actions]
6590 (-0.1978, 0.1663)
6591 -- (-0.1534, 0.1549)
6592 -- (-0.1685, 0.0960)
6593 -- (-0.2130, 0.1074)
6594 --cycle
6595 ;
6596 \path[hex/terrain/town/house,pic actions]
6597 ( 0.2259, 0.4898)
6598 -- ( 0.2453, 0.4680)
6599 -- ( 0.2052, 0.4324)
6600 -- ( 0.1858, 0.4542)
6601 --cycle
6602 ;
6603 \path[hex/terrain/town/house,pic actions]
6604 ( 0.2259, 0.4898)
6605 -- ( 0.2453, 0.4680)
6606 -- ( 0.2052, 0.4324)
6607 -- ( 0.1858, 0.4542)
6608 --cycle
6609 ;
6610 \path[hex/terrain/town/house,pic actions]
6611 (-0.0986, 0.2553)
6612 -- (-0.0882, 0.2827)
6613 -- (-0.0380, 0.2637)
6614 -- (-0.0484, 0.2363)
6615 --cycle
6616 ;
6617 \path[hex/terrain/town/house,pic actions]
6618 (-0.0986, 0.2553)
6619 -- (-0.0882, 0.2827)
6620 -- (-0.0380, 0.2637)
6621 -- (-0.0484, 0.2363)
6622 --cycle

```

```

6623 ;
6624 \path[hex/terrain/town/house,pic actions]
6625 ( 0.0834, 0.2379)
6626 -- ( 0.0888, 0.2667)
6627 -- ( 0.1415, 0.2566)
6628 -- ( 0.1361, 0.2279)
6629 --cycle
6630 ;
6631 \path[hex/terrain/town/house,pic actions]
6632 ( 0.0834, 0.2379)
6633 -- ( 0.0888, 0.2667)
6634 -- ( 0.1415, 0.2566)
6635 -- ( 0.1361, 0.2279)
6636 --cycle
6637 ;
6638 \path[hex/terrain/town/house,pic actions]
6639 (-0.0207,-0.0604)
6640 -- (-0.0103,-0.0331)
6641 -- ( 0.0398,-0.0521)
6642 -- ( 0.0294,-0.0794)
6643 --cycle
6644 ;
6645 \path[hex/terrain/town/house,pic actions]
6646 (-0.0207,-0.0604)
6647 -- (-0.0103,-0.0331)
6648 -- ( 0.0398,-0.0521)
6649 -- ( 0.0294,-0.0794)
6650 --cycle
6651 ;
6652 \path[hex/terrain/town/house,pic actions]
6653 ( 0.3580,-0.4608)
6654 -- ( 0.3837,-0.4748)
6655 -- ( 0.3581,-0.5219)
6656 -- ( 0.3324,-0.5080)
6657 --cycle
6658 ;
6659 \path[hex/terrain/town/house,pic actions]
6660 ( 0.3580,-0.4608)
6661 -- ( 0.3837,-0.4748)
6662 -- ( 0.3581,-0.5219)
6663 -- ( 0.3324,-0.5080)
6664 --cycle
6665 ;
6666 \path[hex/terrain/town/house,pic actions]
6667 ( 0.5127,-0.3559)
6668 -- ( 0.5341,-0.3759)
6669 -- ( 0.4975,-0.4151)
6670 -- ( 0.4761,-0.3951)
6671 --cycle
6672 ;
6673 \path[hex/terrain/town/house,pic actions]
6674 ( 0.5127,-0.3559)
6675 -- ( 0.5341,-0.3759)

```



```

6676 -- ( 0.4975,-0.4151)
6677 -- ( 0.4761,-0.3951)
6678 --cycle
6679 ;
6680 \path[hex/terrain/town/house,pic actions]
6681 ( 0.2118,-0.3884)
6682 -- ( 0.2245,-0.3620)
6683 -- ( 0.2728,-0.3854)
6684 -- ( 0.2600,-0.4118)
6685 --cycle
6686 ;
6687 \path[hex/terrain/town/house,pic actions]
6688 ( 0.2118,-0.3884)
6689 -- ( 0.2245,-0.3620)
6690 -- ( 0.2728,-0.3854)
6691 -- ( 0.2600,-0.4118)
6692 --cycle
6693 ;
6694 \path[hex/terrain/town/house,pic actions]
6695 ( 0.1651,-0.4740)
6696 -- ( 0.1775,-0.4475)
6697 -- ( 0.2260,-0.4702)
6698 -- ( 0.2137,-0.4968)
6699 --cycle
6700 ;
6701 \path[hex/terrain/town/house,pic actions]
6702 ( 0.1651,-0.4740)
6703 -- ( 0.1775,-0.4475)
6704 -- ( 0.2260,-0.4702)
6705 -- ( 0.2137,-0.4968)
6706 --cycle
6707 ;
6708 \path[hex/terrain/town/house,pic actions]
6709 ( 0.2834,-0.4196)
6710 -- ( 0.2957,-0.3932)
6711 -- ( 0.3443,-0.4159)
6712 -- ( 0.3319,-0.4423)
6713 --cycle
6714 ;
6715 \path[hex/terrain/town/house,pic actions]
6716 ( 0.2834,-0.4196)
6717 -- ( 0.2957,-0.3932)
6718 -- ( 0.3443,-0.4159)
6719 -- ( 0.3319,-0.4423)
6720 --cycle
6721 ;
6722 \path[hex/terrain/town/house,pic actions]
6723 ( 0.1447,-0.5170)
6724 -- ( 0.1555,-0.4899)
6725 -- ( 0.2053,-0.5096)
6726 -- ( 0.1945,-0.5368)
6727 --cycle
6728 ;

```

```

6729 \path[hex/terrain/town/house,pic actions]
6730 ( 0.1447,-0.5170)
6731 -- ( 0.1555,-0.4899)
6732 -- ( 0.2053,-0.5096)
6733 -- ( 0.1945,-0.5368)
6734 --cycle
6735 ;
6736 \path[hex/terrain/town/house,pic actions]
6737 ( 0.0154,-0.5671)
6738 -- ( 0.0244,-0.5392)
6739 -- ( 0.0754,-0.5558)
6740 -- ( 0.0664,-0.5836)
6741 --cycle
6742 ;
6743 \path[hex/terrain/town/house,pic actions]
6744 ( 0.0154,-0.5671)
6745 -- ( 0.0244,-0.5392)
6746 -- ( 0.0754,-0.5558)
6747 -- ( 0.0664,-0.5836)
6748 --cycle
6749 ;
6750 \path[hex/terrain/town/house,pic actions]
6751 (-0.2958,-0.3614)
6752 -- (-0.2707,-0.3764)
6753 -- (-0.2983,-0.4224)
6754 -- (-0.3234,-0.4073)
6755 --cycle
6756 ;
6757 \path[hex/terrain/town/house,pic actions]
6758 (-0.2958,-0.3614)
6759 -- (-0.2707,-0.3764)
6760 -- (-0.2983,-0.4224)
6761 -- (-0.3234,-0.4073)
6762 --cycle
6763 ;
6764 \path[hex/terrain/town/house,pic actions]
6765 (-0.3024,-0.2385)
6766 -- (-0.2753,-0.2491)
6767 -- (-0.2948,-0.2990)
6768 -- (-0.3220,-0.2883)
6769 --cycle
6770 ;
6771 \path[hex/terrain/town/house,pic actions]
6772 (-0.3024,-0.2385)
6773 -- (-0.2753,-0.2491)
6774 -- (-0.2948,-0.2990)
6775 -- (-0.3220,-0.2883)
6776 --cycle
6777 ;
6778 \path[hex/terrain/town/house,pic actions]
6779 (-0.5719,-0.2295)
6780 -- (-0.5577,-0.2550)
6781 -- (-0.6045,-0.2811)

```

```

6782 -- (-0.6187,-0.2556)
6783 --cycle
6784 ;
6785 \path[hex/terrain/town/house,pic actions]
6786 (-0.5719,-0.2295)
6787 -- (-0.5577,-0.2550)
6788 -- (-0.6045,-0.2811)
6789 -- (-0.6187,-0.2556)
6790 --cycle
6791 ;
6792 \path[hex/terrain/town/house,pic actions]
6793 (-0.5909,-0.3922)
6794 -- (-0.5677,-0.3744)
6795 -- (-0.5351,-0.4170)
6796 -- (-0.5584,-0.4348)
6797 --cycle
6798 ;
6799 \path[hex/terrain/town/house,pic actions]
6800 (-0.5909,-0.3922)
6801 -- (-0.5677,-0.3744)
6802 -- (-0.5351,-0.4170)
6803 -- (-0.5584,-0.4348)
6804 --cycle
6805 ;
6806 \path[hex/terrain/town/house,pic actions]
6807 (-0.4367,-0.3858)
6808 -- (-0.4233,-0.4119)
6809 -- (-0.4709,-0.4364)
6810 -- (-0.4843,-0.4105)
6811 --cycle
6812 ;
6813 \path[hex/terrain/town/house,pic actions]
6814 (-0.4367,-0.3858)
6815 -- (-0.4233,-0.4119)
6816 -- (-0.4709,-0.4364)
6817 -- (-0.4843,-0.4105)
6818 --cycle
6819 ;
6820 \path[hex/terrain/town/house,pic actions]
6821 (-0.6605,-0.4272)
6822 -- (-0.6489,-0.4540)
6823 -- (-0.6982,-0.4752)
6824 -- (-0.7097,-0.4483)
6825 --cycle
6826 ;
6827 \path[hex/terrain/town/house,pic actions]
6828 (-0.6605,-0.4272)
6829 -- (-0.6489,-0.4540)
6830 -- (-0.6982,-0.4752)
6831 -- (-0.7097,-0.4483)
6832 --cycle
6833 ;
6834 \path[hex/terrain/town/house,pic actions]

```

```

6835 ( 0.2694,-0.2379)
6836 -- ( 0.2777,-0.2098)
6837 -- ( 0.3291,-0.2250)
6838 -- ( 0.3209,-0.2530)
6839 --cycle
6840 ;
6841 \path[hex/terrain/town/house,pic actions]
6842 ( 0.2694,-0.2379)
6843 -- ( 0.2777,-0.2098)
6844 -- ( 0.3291,-0.2250)
6845 -- ( 0.3209,-0.2530)
6846 --cycle
6847 ;
6848 \path[hex/terrain/town/house,pic actions]
6849 ( 0.1131,-0.3134)
6850 -- ( 0.1237,-0.2861)
6851 -- ( 0.1737,-0.3055)
6852 -- ( 0.1630,-0.3328)
6853 --cycle
6854 ;
6855 \path[hex/terrain/town/house,pic actions]
6856 ( 0.1131,-0.3134)
6857 -- ( 0.1237,-0.2861)
6858 -- ( 0.1737,-0.3055)
6859 -- ( 0.1630,-0.3328)
6860 --cycle
6861 ;
6862 \path[hex/terrain/town/house,pic actions]
6863 ( 0.1931,-0.0936)
6864 -- ( 0.2058,-0.0673)
6865 -- ( 0.2541,-0.0904)
6866 -- ( 0.2415,-0.1168)
6867 --cycle
6868 ;
6869 \path[hex/terrain/town/house,pic actions]
6870 ( 0.1931,-0.0936)
6871 -- ( 0.2058,-0.0673)
6872 -- ( 0.2541,-0.0904)
6873 -- ( 0.2415,-0.1168)
6874 --cycle
6875 ;
6876 \path[hex/terrain/town/house,pic actions]
6877 ( 0.1779, 0.1198)
6878 -- ( 0.1984, 0.0990)
6879 -- ( 0.1603, 0.0613)
6880 -- ( 0.1398, 0.0821)
6881 --cycle
6882 ;
6883 \path[hex/terrain/town/house,pic actions]
6884 ( 0.1779, 0.1198)
6885 -- ( 0.1984, 0.0990)
6886 -- ( 0.1603, 0.0613)
6887 -- ( 0.1398, 0.0821)

```

```

6888 --cycle
6889 ;
6890 \path[hex/terrain/town/house,pic actions]
6891 ( 0.2761, 0.3992)
6892 -- ( 0.2947, 0.3765)
6893 -- ( 0.2533, 0.3425)
6894 -- ( 0.2347, 0.3651)
6895 --cycle
6896 ;
6897 \path[hex/terrain/town/house,pic actions]
6898 ( 0.2761, 0.3992)
6899 -- ( 0.2947, 0.3765)
6900 -- ( 0.2533, 0.3425)
6901 -- ( 0.2347, 0.3651)
6902 --cycle
6903 ;
6904 \path[hex/terrain/town/house,pic actions]
6905 ( 0.3227, 0.3548)
6906 -- ( 0.3421, 0.3329)
6907 -- ( 0.3020, 0.2974)
6908 -- ( 0.2826, 0.3192)
6909 --cycle
6910 ;
6911 \path[hex/terrain/town/house,pic actions]
6912 ( 0.3227, 0.3548)
6913 -- ( 0.3421, 0.3329)
6914 -- ( 0.3020, 0.2974)
6915 -- ( 0.2826, 0.3192)
6916 --cycle
6917 ;
6918 \path[hex/terrain/town/house,pic actions]
6919 (-0.2473, 0.2770)
6920 -- (-0.2380, 0.3048)
6921 -- (-0.1871, 0.2879)
6922 -- (-0.1964, 0.2601)
6923 --cycle
6924 ;
6925 \path[hex/terrain/town/house,pic actions]
6926 (-0.2473, 0.2770)
6927 -- (-0.2380, 0.3048)
6928 -- (-0.1871, 0.2879)
6929 -- (-0.1964, 0.2601)
6930 --cycle
6931 ;
6932 \path[hex/terrain/town/house,pic actions]
6933 (-0.1395, 0.3602)
6934 -- (-0.1127, 0.3488)
6935 -- (-0.1335, 0.2995)
6936 -- (-0.1604, 0.3109)
6937 --cycle
6938 ;
6939 \path[hex/terrain/town/house,pic actions]
6940 (-0.1395, 0.3602)

```

```

6941 -- (-0.1127, 0.3488)
6942 -- (-0.1335, 0.2995)
6943 -- (-0.1604, 0.3109)
6944 --cycle
6945 ;
6946 \path[hex/terrain/town/house,pic actions]
6947 ( 0.2901, 0.6234)
6948 -- ( 0.3088, 0.6008)
6949 -- ( 0.2674, 0.5667)
6950 -- ( 0.2487, 0.5893)
6951 --cycle
6952 ;
6953 \path[hex/terrain/town/house,pic actions]
6954 ( 0.2901, 0.6234)
6955 -- ( 0.3088, 0.6008)
6956 -- ( 0.2674, 0.5667)
6957 -- ( 0.2487, 0.5893)
6958 --cycle
6959 ;
6960 \path[hex/terrain/town/house,pic actions]
6961 (-0.3456, 0.2854)
6962 -- (-0.3335, 0.3120)
6963 -- (-0.2847, 0.2898)
6964 -- (-0.2968, 0.2632)
6965 --cycle
6966 ;
6967 \path[hex/terrain/town/house,pic actions]
6968 (-0.3456, 0.2854)
6969 -- (-0.3335, 0.3120)
6970 -- (-0.2847, 0.2898)
6971 -- (-0.2968, 0.2632)
6972 --cycle
6973 ;
6974 \path[hex/terrain/town/house,pic actions]
6975 (-0.3040, 0.3746)
6976 -- (-0.2919, 0.4012)
6977 -- (-0.2431, 0.3791)
6978 -- (-0.2552, 0.3524)
6979 --cycle
6980 ;
6981 \path[hex/terrain/town/house,pic actions]
6982 (-0.3040, 0.3746)
6983 -- (-0.2919, 0.4012)
6984 -- (-0.2431, 0.3791)
6985 -- (-0.2552, 0.3524)
6986 --cycle
6987 ;
6988 \path[hex/terrain/town/house,pic actions]
6989 (-0.7420,-0.2456)
6990 -- (-0.7302,-0.2189)
6991 -- (-0.6812,-0.2407)
6992 -- (-0.6930,-0.2674)
6993 --cycle

```

```

6994 ;
6995 \path[hex/terrain/town/house,pic actions]
6996 (-0.7420,-0.2456)
6997 -- (-0.7302,-0.2189)
6998 -- (-0.6812,-0.2407)
6999 -- (-0.6930,-0.2674)
7000 --cycle
7001 ;
7002 \path[hex/terrain/town/house,pic actions]
7003 (-0.6678,-0.1369)
7004 -- (-0.6492,-0.1143)
7005 -- (-0.6078,-0.1484)
7006 -- (-0.6264,-0.1710)
7007 --cycle
7008 ;
7009 \path[hex/terrain/town/house,pic actions]
7010 (-0.6678,-0.1369)
7011 -- (-0.6492,-0.1143)
7012 -- (-0.6078,-0.1484)
7013 -- (-0.6264,-0.1710)
7014 --cycle
7015 ;
7016 \path[hex/terrain/town/house,pic actions]
7017 (-0.2252,-0.0023)
7018 -- (-0.1960,-0.0023)
7019 -- (-0.1960,-0.0559)
7020 -- (-0.2252,-0.0559)
7021 --cycle
7022 ;
7023 \path[hex/terrain/town/house,pic actions]
7024 (-0.2252,-0.0023)
7025 -- (-0.1960,-0.0023)
7026 -- (-0.1960,-0.0559)
7027 -- (-0.2252,-0.0559)
7028 --cycle
7029 ;
7030 \path[hex/terrain/town/house,pic actions]
7031 (-0.0041,-0.2944)
7032 -- ( 0.0064,-0.2671)
7033 -- ( 0.0564,-0.2862)
7034 -- ( 0.0460,-0.3135)
7035 --cycle
7036 ;
7037 \path[hex/terrain/town/house,pic actions]
7038 (-0.0041,-0.2944)
7039 -- ( 0.0064,-0.2671)
7040 -- ( 0.0564,-0.2862)
7041 -- ( 0.0460,-0.3135)
7042 --cycle
7043 ;
7044 \path[hex/terrain/town/house,pic actions]
7045 (-0.1877,-0.2296)
7046 -- (-0.1764,-0.2026)

```

```

7047 -- (-0.1270,-0.2233)
7048 -- (-0.1383,-0.2503)
7049 --cycle
7050 ;
7051 \path[hex/terrain/town/house,pic actions]
7052 (-0.1877,-0.2296)
7053 -- (-0.1764,-0.2026)
7054 -- (-0.1270,-0.2233)
7055 -- (-0.1383,-0.2503)
7056 --cycle
7057 ;
7058 \path[hex/terrain/town/house,pic actions]
7059 (-0.1170,-0.3014)
7060 -- (-0.1067,-0.2740)
7061 -- (-0.0566,-0.2928)
7062 -- (-0.0668,-0.3202)
7063 --cycle
7064 ;
7065 \path[hex/terrain/town/house,pic actions]
7066 (-0.1170,-0.3014)
7067 -- (-0.1067,-0.2740)
7068 -- (-0.0566,-0.2928)
7069 -- (-0.0668,-0.3202)
7070 --cycle
7071 ;
7072 \path[hex/terrain/town/house,pic actions]
7073 (-0.0719,-0.3499)
7074 -- (-0.0428,-0.3468)
7075 -- (-0.0371,-0.4001)
7076 -- (-0.0661,-0.4032)
7077 --cycle
7078 ;
7079 \path[hex/terrain/town/house,pic actions]
7080 (-0.0719,-0.3499)
7081 -- (-0.0428,-0.3468)
7082 -- (-0.0371,-0.4001)
7083 -- (-0.0661,-0.4032)
7084 --cycle
7085 ;
7086 \path[hex/terrain/town/house,pic actions]
7087 ( 0.4610, 0.0967)
7088 -- ( 0.4896, 0.0909)
7089 -- ( 0.4790, 0.0384)
7090 -- ( 0.4503, 0.0442)
7091 --cycle
7092 ;
7093 \path[hex/terrain/town/house,pic actions]
7094 ( 0.4610, 0.0967)
7095 -- ( 0.4896, 0.0909)
7096 -- ( 0.4790, 0.0384)
7097 -- ( 0.4503, 0.0442)
7098 --cycle
7099 ;

```



```

7100 \path[hex/terrain/town/house,pic actions]
7101 (-0.1944,-0.4810)
7102 -- (-0.1500,-0.4925)
7103 -- (-0.1653,-0.5515)
7104 -- (-0.2097,-0.5399)
7105 --cycle
7106 ;
7107 \path[hex/terrain/town/house,pic actions]
7108 (-0.1944,-0.4810)
7109 -- (-0.1500,-0.4925)
7110 -- (-0.1653,-0.5515)
7111 -- (-0.2097,-0.5399)
7112 --cycle
7113 ;
7114 \path[hex/terrain/town/house,pic actions]
7115 ( 0.2924,-0.1375)
7116 -- ( 0.3110,-0.0955)
7117 -- ( 0.3667,-0.1202)
7118 -- ( 0.3481,-0.1621)
7119 --cycle
7120 ;
7121 \path[hex/terrain/town/house,pic actions]
7122 ( 0.2924,-0.1375)
7123 -- ( 0.3110,-0.0955)
7124 -- ( 0.3667,-0.1202)
7125 -- ( 0.3481,-0.1621)
7126 --cycle
7127 ;
7128 \path[hex/terrain/town/house,pic actions]
7129 (-0.3062, 0.5810)
7130 -- (-0.2635, 0.5641)
7131 -- (-0.2859, 0.5075)
7132 -- (-0.3285, 0.5243)
7133 --cycle
7134 ;
7135 \path[hex/terrain/town/house,pic actions]
7136 (-0.3062, 0.5810)
7137 -- (-0.2635, 0.5641)
7138 -- (-0.2859, 0.5075)
7139 -- (-0.3285, 0.5243)
7140 --cycle
7141 ;
7142 \path[hex/terrain/town/house,pic actions]
7143 ( 0.0310,-0.4661)
7144 -- ( 0.0449,-0.4224)
7145 -- ( 0.1029,-0.4409)
7146 -- ( 0.0889,-0.4846)
7147 --cycle
7148 ;
7149 \path[hex/terrain/town/house,pic actions]
7150 ( 0.0310,-0.4661)
7151 -- ( 0.0449,-0.4224)
7152 -- ( 0.1029,-0.4409)

```

```

7153  -- ( 0.0889,-0.4846)
7154  --cycle
7155  ;
7156  \path[hex/terrain/town/house,pic actions]
7157  ( 0.1523,-0.2013)
7158  -- ( 0.1718,-0.1598)
7159  -- ( 0.2270,-0.1857)
7160  -- ( 0.2075,-0.2272)
7161  --cycle
7162  ;
7163  \path[hex/terrain/town/house,pic actions]
7164  ( 0.1523,-0.2013)
7165  -- ( 0.1718,-0.1598)
7166  -- ( 0.2270,-0.1857)
7167  -- ( 0.2075,-0.2272)
7168  --cycle
7169  ;
7170  \path[hex/terrain/town/house,pic actions]
7171  ( 0.0857,-0.3676)
7172  -- ( 0.1052,-0.3261)
7173  -- ( 0.1603,-0.3520)
7174  -- ( 0.1409,-0.3935)
7175  --cycle
7176  ;
7177  \path[hex/terrain/town/house,pic actions]
7178  ( 0.0857,-0.3676)
7179  -- ( 0.1052,-0.3261)
7180  -- ( 0.1603,-0.3520)
7181  -- ( 0.1409,-0.3935)
7182  --cycle
7183  ;
7184  \path[hex/terrain/town/house,pic actions]
7185  ( 0.0204,-0.2046)
7186  -- ( 0.0398,-0.1631)
7187  -- ( 0.0950,-0.1890)
7188  -- ( 0.0755,-0.2305)
7189  --cycle
7190  ;
7191  \path[hex/terrain/town/house,pic actions]
7192  ( 0.0204,-0.2046)
7193  -- ( 0.0398,-0.1631)
7194  -- ( 0.0950,-0.1890)
7195  -- ( 0.0755,-0.2305)
7196  --cycle
7197  ;
7198  \path[hex/terrain/town/house,pic actions]
7199  ( 0.5094, 0.3292)
7200  -- ( 0.5505, 0.3494)
7201  -- ( 0.5773, 0.2947)
7202  -- ( 0.5362, 0.2746)
7203  --cycle
7204  ;
7205  \path[hex/terrain/town/house,pic actions]

```

```

7206 ( 0.5094, 0.3292)
7207 -- ( 0.5505, 0.3494)
7208 -- ( 0.5773, 0.2947)
7209 -- ( 0.5362, 0.2746)
7210 --cycle
7211 ;
7212 \path[hex/terrain/town/house,pic actions]
7213 (-0.0647, 0.4710)
7214 -- (-0.0215, 0.4559)
7215 -- (-0.0416, 0.3984)
7216 -- (-0.0848, 0.4135)
7217 --cycle
7218 ;
7219 \path[hex/terrain/town/house,pic actions]
7220 (-0.0647, 0.4710)
7221 -- (-0.0215, 0.4559)
7222 -- (-0.0416, 0.3984)
7223 -- (-0.0848, 0.4135)
7224 --cycle
7225 ;
7226 \path[hex/terrain/town/house,pic actions]
7227 (-0.1476,-0.3704)
7228 -- (-0.1403,-0.3251)
7229 -- (-0.0802,-0.3347)
7230 -- (-0.0873,-0.3799)
7231 --cycle
7232 ;
7233 \path[hex/terrain/town/house,pic actions]
7234 (-0.1476,-0.3704)
7235 -- (-0.1403,-0.3251)
7236 -- (-0.0802,-0.3347)
7237 -- (-0.0873,-0.3799)
7238 --cycle
7239 ;
7240 \path[hex/terrain/town/house,pic actions]
7241 (-0.0755, 0.3210)
7242 -- (-0.0531, 0.3610)
7243 -- ( 0.0001, 0.3312)
7244 -- (-0.0224, 0.2912)
7245 --cycle
7246 ;
7247 \path[hex/terrain/town/house,pic actions]
7248 (-0.0755, 0.3210)
7249 -- (-0.0531, 0.3610)
7250 -- ( 0.0001, 0.3312)
7251 -- (-0.0224, 0.2912)
7252 --cycle
7253 ;
7254 \path[hex/terrain/town/house,pic actions]
7255 (-0.1354, 0.0442)
7256 -- (-0.1129, 0.0842)
7257 -- (-0.0599, 0.0544)
7258 -- (-0.0823, 0.0144)

```

```

7259  --cycle
7260  ;
7261  \path[hex/terrain/town/house,pic actions]
7262  (-0.1354, 0.0442)
7263  -- (-0.1129, 0.0842)
7264  -- (-0.0599, 0.0544)
7265  -- (-0.0823, 0.0144)
7266  --cycle
7267  ;
7268  \path[hex/terrain/town/house,pic actions]
7269  (-0.1672,-0.0608)
7270  -- (-0.1524,-0.0175)
7271  -- (-0.0948,-0.0371)
7272  -- (-0.1096,-0.0805)
7273  --cycle
7274  ;
7275  \path[hex/terrain/town/house,pic actions]
7276  (-0.1672,-0.0608)
7277  -- (-0.1524,-0.0175)
7278  -- (-0.0948,-0.0371)
7279  -- (-0.1096,-0.0805)
7280  --cycle
7281  ;
7282  \path[hex/terrain/town/house,pic actions]
7283  ( 0.0920,-0.6296)
7284  -- ( 0.1069,-0.5863)
7285  -- ( 0.1645,-0.6060)
7286  -- ( 0.1497,-0.6493)
7287  --cycle
7288  ;
7289  \path[hex/terrain/town/house,pic actions]
7290  ( 0.0920,-0.6296)
7291  -- ( 0.1069,-0.5863)
7292  -- ( 0.1645,-0.6060)
7293  -- ( 0.1497,-0.6493)
7294  --cycle
7295  ;
7296  \path[hex/terrain/town/house,pic actions]
7297  ( 0.4115,-0.5373)
7298  -- ( 0.4390,-0.5006)
7299  -- ( 0.4877,-0.5372)
7300  -- ( 0.4601,-0.5739)
7301  --cycle
7302  ;
7303  \path[hex/terrain/town/house,pic actions]
7304  ( 0.4115,-0.5373)
7305  -- ( 0.4390,-0.5006)
7306  -- ( 0.4877,-0.5372)
7307  -- ( 0.4601,-0.5739)
7308  --cycle
7309  ;
7310  \path[hex/terrain/town/house,pic actions]
7311  ( 0.3095, 0.1272)

```

```

7312 -- ( 0.3519, 0.1095)
7313 -- ( 0.3284, 0.0533)
7314 -- ( 0.2861, 0.0710)
7315 --cycle
7316 ;
7317 \path[hex/terrain/town/house,pic actions]
7318 ( 0.3095, 0.1272)
7319 -- ( 0.3519, 0.1095)
7320 -- ( 0.3284, 0.0533)
7321 -- ( 0.2861, 0.0710)
7322 --cycle
7323 ;
7324 \path[hex/terrain/town/house,pic actions]
7325 (-0.3558, 0.0291)
7326 -- (-0.3124, 0.0144)
7327 -- (-0.3318,-0.0433)
7328 -- (-0.3753,-0.0287)
7329 --cycle
7330 ;
7331 \path[hex/terrain/town/house,pic actions]
7332 (-0.3558, 0.0291)
7333 -- (-0.3124, 0.0144)
7334 -- (-0.3318,-0.0433)
7335 -- (-0.3753,-0.0287)
7336 --cycle
7337 ;
7338 \path[hex/terrain/town/house,pic actions]
7339 ( 0.2904, 0.2714)
7340 -- ( 0.3361, 0.2681)
7341 -- ( 0.3318, 0.2074)
7342 -- ( 0.2861, 0.2106)
7343 --cycle
7344 ;
7345 \path[hex/terrain/town/house,pic actions]
7346 ( 0.2904, 0.2714)
7347 -- ( 0.3361, 0.2681)
7348 -- ( 0.3318, 0.2074)
7349 -- ( 0.2861, 0.2106)
7350 --cycle
7351 ;
7352 \path[hex/terrain/town/house,pic actions]
7353 (-0.0124, 0.1558)
7354 -- ( 0.0333, 0.1525)
7355 -- ( 0.0290, 0.0918)
7356 -- (-0.0167, 0.0950)
7357 --cycle
7358 ;
7359 \path[hex/terrain/town/house,pic actions]
7360 (-0.0124, 0.1558)
7361 -- ( 0.0333, 0.1525)
7362 -- ( 0.0290, 0.0918)
7363 -- (-0.0167, 0.0950)
7364 --cycle

```

```

7365 ;
7366 \path[hex/terrain/town/house,pic actions]
7367 ( 0.4665, 0.4396)
7368 -- ( 0.4868, 0.3985)
7369 -- ( 0.4321, 0.3716)
7370 -- ( 0.4119, 0.4127)
7371 --cycle
7372 ;
7373 \path[hex/terrain/town/house,pic actions]
7374 ( 0.4665, 0.4396)
7375 -- ( 0.4868, 0.3985)
7376 -- ( 0.4321, 0.3716)
7377 -- ( 0.4119, 0.4127)
7378 --cycle
7379 ;
7380 \path[hex/terrain/town/house,pic actions]
7381 (-0.2433,-0.1480)
7382 -- (-0.2141,-0.1472)
7383 -- (-0.2127,-0.2008)
7384 -- (-0.2419,-0.2015)
7385 --cycle
7386 ;
7387 \path[hex/terrain/town/house,pic actions]
7388 (-0.2433,-0.1480)
7389 -- (-0.2141,-0.1472)
7390 -- (-0.2127,-0.2008)
7391 -- (-0.2419,-0.2015)
7392 --cycle
7393 ;
7394 \path[hex/terrain/town/house,pic actions]
7395 ( 0.4187, 0.2523)
7396 -- ( 0.4643, 0.2574)
7397 -- ( 0.4711, 0.1969)
7398 -- ( 0.4256, 0.1917)
7399 --cycle
7400 ;
7401 \path[hex/terrain/town/house,pic actions]
7402 ( 0.4187, 0.2523)
7403 -- ( 0.4643, 0.2574)
7404 -- ( 0.4711, 0.1969)
7405 -- ( 0.4256, 0.1917)
7406 --cycle
7407 ;
7408 \path[hex/terrain/town/house,pic actions]
7409 (-0.2599,-0.2379)
7410 -- (-0.2164,-0.2525)
7411 -- (-0.2358,-0.3102)
7412 -- (-0.2793,-0.2955)
7413 --cycle
7414 ;
7415 \path[hex/terrain/town/house,pic actions]
7416 (-0.2599,-0.2379)
7417 -- (-0.2164,-0.2525)

```

```

7418 -- (-0.2358,-0.3102)
7419 -- (-0.2793,-0.2955)
7420 --cycle
7421 ;
7422 \path[hex/terrain/town/house,pic actions]
7423 ( 0.0167, 0.0438)
7424 -- ( 0.0385, 0.0365)
7425 -- ( 0.0301, 0.0113)
7426 -- ( 0.0082, 0.0187)
7427 --cycle
7428 ;
7429 \path[hex/terrain/town/house,pic actions]
7430 ( 0.0167, 0.0438)
7431 -- ( 0.0385, 0.0365)
7432 -- ( 0.0301, 0.0113)
7433 -- ( 0.0082, 0.0187)
7434 --cycle
7435 ;
7436 \path[hex/terrain/town/house,pic actions]
7437 (-0.2901,-0.1193)
7438 -- (-0.2450,-0.1273)
7439 -- (-0.2556,-0.1872)
7440 -- (-0.3008,-0.1792)
7441 --cycle
7442 ;
7443 \path[hex/terrain/town/house,pic actions]
7444 (-0.2901,-0.1193)
7445 -- (-0.2450,-0.1273)
7446 -- (-0.2556,-0.1872)
7447 -- (-0.3008,-0.1792)
7448 --cycle
7449 ;
7450 \path[hex/terrain/town/house,pic actions]
7451 ( 0.1275,-0.0001)
7452 -- ( 0.1734,-0.0022)
7453 -- ( 0.1707,-0.0630)
7454 -- ( 0.1248,-0.0610)
7455 --cycle
7456 ;
7457 \path[hex/terrain/town/house,pic actions]
7458 ( 0.1275,-0.0001)
7459 -- ( 0.1734,-0.0022)
7460 -- ( 0.1707,-0.0630)
7461 -- ( 0.1248,-0.0610)
7462 --cycle
7463 ;
7464 \path[hex/terrain/town/house,pic actions]
7465 (-0.0645,-0.5272)
7466 -- (-0.0415,-0.5245)
7467 -- (-0.0383,-0.5509)
7468 -- (-0.0612,-0.5536)
7469 --cycle
7470 ;

```

```

7471 \path[hex/terrain/town/house,pic actions]
7472 (-0.0645,-0.5272)
7473 -- (-0.0415,-0.5245)
7474 -- (-0.0383,-0.5509)
7475 -- (-0.0612,-0.5536)
7476 --cycle
7477 ;
7478 \path[hex/terrain/town/house,pic actions]
7479 (-0.3209, 0.2176)
7480 -- (-0.2989, 0.2105)
7481 -- (-0.3069, 0.1853)
7482 -- (-0.3289, 0.1923)
7483 --cycle
7484 ;
7485 \path[hex/terrain/town/house,pic actions]
7486 (-0.3209, 0.2176)
7487 -- (-0.2989, 0.2105)
7488 -- (-0.3069, 0.1853)
7489 -- (-0.3289, 0.1923)
7490 --cycle
7491 ;
7492 \path[hex/terrain/town/house,pic actions]
7493 ( 0.3746, 0.1600)
7494 -- ( 0.4021, 0.1699)
7495 -- ( 0.4204, 0.1195)
7496 -- ( 0.3929, 0.1095)
7497 --cycle
7498 ;
7499 \path[hex/terrain/town/house,pic actions]
7500 ( 0.3746, 0.1600)
7501 -- ( 0.4021, 0.1699)
7502 -- ( 0.4204, 0.1195)
7503 -- ( 0.3929, 0.1095)
7504 --cycle
7505 ;
7506 }
7507 }
7508 \fi

```

hex/terrain/city

And finally a city

```

7509 \ifhex@terrain@pic
7510 \tikzset{
7511   hex/terrain/city/.pic={
7512     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7513       ( 0.6475, 0.4068)
7514       -- ( 0.7314,-0.0575)
7515       -- ( 0.7314,-0.0575)
7516       ;
7517     \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7518       ( 0.3200,-0.0497)
7519       -- ( 0.7360,-0.0572)

```



```

7520 -- ( 0.9222,-0.0903)
7521 -- ( 0.7082,-0.4210)
7522 ;
7523 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7524 ( 0.3828, 0.1855)
7525 -- ( 0.0279, 0.1945)
7526 ;
7527 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7528 ( 0.0433, 0.3473)
7529 -- ( 0.0217, 0.1444)
7530 ;
7531 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7532 ( 0.1413, 0.1884)
7533 -- ( 0.3369,-0.0066)
7534 ;
7535 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7536 (-0.1278, 0.7257)
7537 -- (-0.2203, 0.4496)
7538 ;
7539 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7540 ( 0.1602, 0.6526)
7541 -- ( 0.0382, 0.6110)
7542 -- (-0.1527, 0.6534)
7543 ;
7544 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7545 (-0.1688, 0.6051)
7546 -- (-0.4768, 0.7222)
7547 ;
7548 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7549 ( 0.3602,-0.4159)
7550 .. controls ( 0.4139,-0.2355) and ( 0.4139,-0.2352) .. ( 0.4139,-0.2352)
7551 -- ( 0.4838,-0.2184)
7552 -- ( 0.5251,-0.0570)
7553 ;
7554 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7555 ( 0.5443,-0.6880)
7556 -- ( 0.5887,-0.5618)
7557 -- ( 0.4781,-0.4650)
7558 -- ( 0.4781,-0.4650)
7559 ;
7560 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7561 ( 0.0671,-0.6564)
7562 -- ( 0.2799,-0.7025)
7563 -- ( 0.4360,-0.4711)
7564 ;
7565 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7566 ( 0.2023,-0.8374)
7567 -- ( 0.2231,-0.6909)
7568 ;
7569 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7570 ( 0.0433,-0.3639)
7571 -- (-0.0931,-0.5036)
7572 -- (-0.3798,-0.4049)

```

```

7573 -- (-0.4436,-0.4630)
7574 -- (-0.5468,-0.5027)
7575 -- (-0.6442,-0.3540)
7576 ;
7577 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7578 (-0.3296,-0.7486)
7579 -- (-0.3153,-0.6107)
7580 -- (-0.4388,-0.4598)
7581 ;
7582 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7583 (-0.3247,-0.6883)
7584 -- (-0.0201,-0.7169)
7585 -- ( 0.0501,-0.7042)
7586 ;
7587 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7588 ( 0.0616,-0.6541)
7589 -- (-0.0427,-0.6505)
7590 -- (-0.0229,-0.5387)
7591 ;
7592 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7593 ( 0.0040,-0.2086)
7594 -- (-0.1956,-0.1835)
7595 -- (-0.2290,-0.2265)
7596 -- (-0.5068,-0.1372)
7597 ;
7598 \path[hex/terrain/town/small road,pic actions,hex/terrain/town/post road]
7599 (-0.3396, 0.0437)
7600 -- (-0.2201, 0.4506)
7601 ;
7602 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7603 ( 0.0066, 0.8705)
7604 -- ( 0.3952, 0.3367)
7605 -- ( 0.3885, 0.2021)
7606 -- ( 0.3555, 0.1368)
7607 -- ( 0.3751, 0.0869)
7608 -- ( 0.2511,-0.2014)
7609 -- ( 0.1393,-0.4528)
7610 -- ( 0.0636,-0.6538)
7611 -- ( 0.0063,-0.8731)
7612 -- ( 0.0063,-0.8731)
7613 ;
7614 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7615 ( 0.1775, 0.6355)
7616 -- ( 0.4288, 0.7459)
7617 -- ( 0.5543, 0.5148)
7618 -- ( 0.5543, 0.5148)
7619 ;
7620 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7621 ( 0.7584, 0.4363)
7622 -- ( 0.3946, 0.3369)
7623 -- ( 0.3946, 0.3369)
7624 ;
7625 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]

```

```

7626 ( 0.1428,-0.4540)
7627 -- (-0.0329,-0.2925)
7628 -- ( 0.0739,-0.0364)
7629 -- ( 0.1645,-0.0483)
7630 ;
7631 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7632 ( 0.0723,-0.0367)
7633 -- (-0.5150, 0.0791)
7634 ;
7635 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7636 (-0.1911,-0.0821)
7637 -- (-0.0760, 0.3934)
7638 -- (-0.0774, 0.3920)
7639 ;
7640 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7641 ( 0.0439, 0.3452)
7642 -- (-0.3449, 0.4978)
7643 -- (-0.4614, 0.2954)
7644 -- (-0.4614, 0.2954)
7645 ;
7646 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7647 (-0.4152, 0.2683)
7648 -- (-0.7626, 0.4390)
7649 -- (-0.7626, 0.4390)
7650 ;
7651 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7652 (-0.5846, 0.3486)
7653 -- (-0.8106,-0.1286)
7654 -- (-0.7727,-0.2079)
7655 -- (-0.7053,-0.1745)
7656 ;
7657 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7658 (-0.7161,-0.1542)
7659 -- (-0.6166,-0.3381)
7660 -- (-0.7630,-0.4349)
7661 ;
7662 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7663 (-0.6697,-0.2422)
7664 -- (-0.4615,-0.1081)
7665 -- (-0.4615,-0.1081)
7666 ;
7667 \path[hex/terrain/town/road,pic actions,hex/terrain/town/post road]
7668 ( 0.2080,-0.3022)
7669 -- ( 0.4581,-0.4878)
7670 -- ( 0.5919,-0.3695)
7671 -- ( 0.7615,-0.4441)
7672 ;
7673 \path[hex/terrain/town/house,pic actions]
7674 ( 0.1146, 0.0405)
7675 -- ( 0.1598, 0.0323)
7676 -- ( 0.1489,-0.0277)
7677 -- ( 0.1036,-0.0196)
7678 --cycle

```

```

7679 ;
7680 \path[hex/terrain/town/house,pic actions]
7681 ( 0.1146, 0.0405)
7682 -- ( 0.1598, 0.0323)
7683 -- ( 0.1489,-0.0277)
7684 -- ( 0.1036,-0.0196)
7685 --cycle
7686 ;
7687 \path[hex/terrain/town/house,pic actions]
7688 (-0.0844, 0.4998)
7689 -- (-0.0599, 0.4835)
7690 -- (-0.0898, 0.4389)
7691 -- (-0.1141, 0.4551)
7692 --cycle
7693 ;
7694 \path[hex/terrain/town/house,pic actions]
7695 (-0.0844, 0.4998)
7696 -- (-0.0599, 0.4835)
7697 -- (-0.0898, 0.4389)
7698 -- (-0.1141, 0.4551)
7699 --cycle
7700 ;
7701 \path[hex/terrain/town/house,pic actions]
7702 (-0.6143,-0.0454)
7703 -- (-0.6005,-0.0196)
7704 -- (-0.5531,-0.0447)
7705 -- (-0.5668,-0.0707)
7706 --cycle
7707 ;
7708 \path[hex/terrain/town/house,pic actions]
7709 (-0.6143,-0.0454)
7710 -- (-0.6005,-0.0196)
7711 -- (-0.5531,-0.0447)
7712 -- (-0.5668,-0.0707)
7713 --cycle
7714 ;
7715 \path[hex/terrain/town/house,pic actions]
7716 (-0.3809,-0.0792)
7717 -- (-0.3371,-0.0929)
7718 -- (-0.3553,-0.1511)
7719 -- (-0.3991,-0.1375)
7720 --cycle
7721 ;
7722 \path[hex/terrain/town/house,pic actions]
7723 (-0.3809,-0.0792)
7724 -- (-0.3371,-0.0929)
7725 -- (-0.3553,-0.1511)
7726 -- (-0.3991,-0.1375)
7727 --cycle
7728 ;
7729 \path[hex/terrain/town/house,pic actions]
7730 (-0.5133, 0.1838)
7731 -- (-0.4733, 0.1613)

```

```

7732 -- (-0.5032, 0.1081)
7733 -- (-0.5433, 0.1307)
7734 --cycle
7735 ;
7736 \path[hex/terrain/town/house,pic actions]
7737 (-0.5133, 0.1838)
7738 -- (-0.4733, 0.1613)
7739 -- (-0.5032, 0.1081)
7740 -- (-0.5433, 0.1307)
7741 --cycle
7742 ;
7743 \path[hex/terrain/town/house,pic actions]
7744 (-0.3878, 0.1398)
7745 -- (-0.3421, 0.1442)
7746 -- (-0.3362, 0.0834)
7747 -- (-0.3819, 0.0790)
7748 --cycle
7749 ;
7750 \path[hex/terrain/town/house,pic actions]
7751 (-0.3878, 0.1398)
7752 -- (-0.3421, 0.1442)
7753 -- (-0.3362, 0.0834)
7754 -- (-0.3819, 0.0790)
7755 --cycle
7756 ;
7757 \path[hex/terrain/town/house,pic actions]
7758 (-0.5622, 0.0806)
7759 -- (-0.5234, 0.0560)
7760 -- (-0.5559, 0.0044)
7761 -- (-0.5948, 0.0290)
7762 --cycle
7763 ;
7764 \path[hex/terrain/town/house,pic actions]
7765 (-0.5622, 0.0806)
7766 -- (-0.5234, 0.0560)
7767 -- (-0.5559, 0.0044)
7768 -- (-0.5948, 0.0290)
7769 --cycle
7770 ;
7771 \path[hex/terrain/town/house,pic actions]
7772 (-0.6218, 0.1903)
7773 -- (-0.6097, 0.2346)
7774 -- (-0.5508, 0.2185)
7775 -- (-0.5629, 0.1742)
7776 --cycle
7777 ;
7778 \path[hex/terrain/town/house,pic actions]
7779 (-0.6218, 0.1903)
7780 -- (-0.6097, 0.2346)
7781 -- (-0.5508, 0.2185)
7782 -- (-0.5629, 0.1742)
7783 --cycle
7784 ;

```

```

7785 \path[hex/terrain/town/house,pic actions]
7786 (-0.2884, 0.7423)
7787 -- (-0.2596, 0.7372)
7788 -- (-0.2691, 0.6843)
7789 -- (-0.2980, 0.6895)
7790 --cycle
7791 ;
7792 \path[hex/terrain/town/house,pic actions]
7793 (-0.2884, 0.7423)
7794 -- (-0.2596, 0.7372)
7795 -- (-0.2691, 0.6843)
7796 -- (-0.2980, 0.6895)
7797 --cycle
7798 ;
7799 \path[hex/terrain/town/house,pic actions]
7800 ( 0.1219, 0.8731)
7801 -- ( 0.1475, 0.8350)
7802 -- ( 0.0970, 0.8008)
7803 -- ( 0.0712, 0.8389)
7804 --cycle
7805 ;
7806 \path[hex/terrain/town/house,pic actions]
7807 ( 0.1219, 0.8731)
7808 -- ( 0.1475, 0.8350)
7809 -- ( 0.0970, 0.8008)
7810 -- ( 0.0712, 0.8389)
7811 --cycle
7812 ;
7813 \path[hex/terrain/town/house,pic actions]
7814 ( 0.3659, 0.5557)
7815 -- ( 0.3913, 0.5175)
7816 -- ( 0.3405, 0.4837)
7817 -- ( 0.3150, 0.5219)
7818 --cycle
7819 ;
7820 \path[hex/terrain/town/house,pic actions]
7821 ( 0.3659, 0.5557)
7822 -- ( 0.3913, 0.5175)
7823 -- ( 0.3405, 0.4837)
7824 -- ( 0.3150, 0.5219)
7825 --cycle
7826 ;
7827 \path[hex/terrain/town/house,pic actions]
7828 ( 0.0626, 0.4298)
7829 -- ( 0.0896, 0.4184)
7830 -- ( 0.0686, 0.3690)
7831 -- ( 0.0416, 0.3804)
7832 --cycle
7833 ;
7834 \path[hex/terrain/town/house,pic actions]
7835 ( 0.0626, 0.4298)
7836 -- ( 0.0896, 0.4184)
7837 -- ( 0.0686, 0.3690)

```

```

7838 -- ( 0.0416, 0.3804)
7839 --cycle
7840 ;
7841 \path[hex/terrain/town/house,pic actions]
7842 (-0.4510,-0.3094)
7843 -- (-0.4058,-0.2887)
7844 -- (-0.3725,-0.3614)
7845 -- (-0.4176,-0.3821)
7846 --cycle
7847 ;
7848 \path[hex/terrain/town/house,pic actions]
7849 (-0.4510,-0.3094)
7850 -- (-0.4058,-0.2887)
7851 -- (-0.3725,-0.3614)
7852 -- (-0.4176,-0.3821)
7853 --cycle
7854 ;
7855 \path[hex/terrain/town/house,pic actions]
7856 (-0.5282,-0.1080)
7857 -- (-0.5533,-0.0695)
7858 -- (-0.5021,-0.0363)
7859 -- (-0.4770,-0.0749)
7860 --cycle
7861 ;
7862 \path[hex/terrain/town/house,pic actions]
7863 (-0.5282,-0.1080)
7864 -- (-0.5533,-0.0695)
7865 -- (-0.5021,-0.0363)
7866 -- (-0.4770,-0.0749)
7867 --cycle
7868 ;
7869 \path[hex/terrain/town/house,pic actions]
7870 ( 0.0108,-0.2602)
7871 -- ( 0.0173,-0.2316)
7872 -- ( 0.0696,-0.2435)
7873 -- ( 0.0632,-0.2721)
7874 --cycle
7875 ;
7876 \path[hex/terrain/town/house,pic actions]
7877 ( 0.0108,-0.2602)
7878 -- ( 0.0173,-0.2316)
7879 -- ( 0.0696,-0.2435)
7880 -- ( 0.0632,-0.2721)
7881 --cycle
7882 ;
7883 \path[hex/terrain/town/house,pic actions]
7884 (-0.1989, 0.1654)
7885 -- (-0.1544, 0.1540)
7886 -- (-0.1696, 0.0948)
7887 -- (-0.2141, 0.1063)
7888 --cycle
7889 ;
7890 \path[hex/terrain/town/house,pic actions]

```

```

7891 (-0.1989, 0.1654)
7892 -- (-0.1544, 0.1540)
7893 -- (-0.1696, 0.0948)
7894 -- (-0.2141, 0.1063)
7895 --cycle
7896 ;
7897 \path[hex/terrain/town/house,pic actions]
7898 (-0.0216,-0.0407)
7899 -- ( 0.0230,-0.0521)
7900 -- ( 0.0078,-0.1112)
7901 -- (-0.0368,-0.0997)
7902 --cycle
7903 ;
7904 \path[hex/terrain/town/house,pic actions]
7905 (-0.0216,-0.0407)
7906 -- ( 0.0230,-0.0521)
7907 -- ( 0.0078,-0.1112)
7908 -- (-0.0368,-0.0997)
7909 --cycle
7910 ;
7911 \path[hex/terrain/town/house,pic actions]
7912 ( 0.1936, 0.5180)
7913 -- ( 0.2045, 0.4909)
7914 -- ( 0.1547, 0.4709)
7915 -- ( 0.1437, 0.4981)
7916 --cycle
7917 ;
7918 \path[hex/terrain/town/house,pic actions]
7919 ( 0.1936, 0.5180)
7920 -- ( 0.2045, 0.4909)
7921 -- ( 0.1547, 0.4709)
7922 -- ( 0.1437, 0.4981)
7923 --cycle
7924 ;
7925 \path[hex/terrain/town/house,pic actions]
7926 (-0.1903, 0.4858)
7927 -- (-0.1678, 0.5258)
7928 -- (-0.1146, 0.4960)
7929 -- (-0.1371, 0.4559)
7930 --cycle
7931 ;
7932 \path[hex/terrain/town/house,pic actions]
7933 (-0.1903, 0.4858)
7934 -- (-0.1678, 0.5258)
7935 -- (-0.1146, 0.4960)
7936 -- (-0.1371, 0.4559)
7937 --cycle
7938 ;
7939 \path[hex/terrain/town/house,pic actions]
7940 ( 0.1470, 0.3493)
7941 -- ( 0.1689, 0.3567)
7942 -- ( 0.1775, 0.3315)
7943 -- ( 0.1555, 0.3241)

```



```

7944 --cycle
7945 ;
7946 \path[hex/terrain/town/house,pic actions]
7947 ( 0.1470, 0.3493)
7948 -- ( 0.1689, 0.3567)
7949 -- ( 0.1775, 0.3315)
7950 -- ( 0.1555, 0.3241)
7951 --cycle
7952 ;
7953 \path[hex/terrain/town/house,pic actions]
7954 ( 0.1892, 0.2562)
7955 -- ( 0.2118, 0.2510)
7956 -- ( 0.2058, 0.2251)
7957 -- ( 0.1833, 0.2303)
7958 --cycle
7959 ;
7960 \path[hex/terrain/town/house,pic actions]
7961 ( 0.1892, 0.2562)
7962 -- ( 0.2118, 0.2510)
7963 -- ( 0.2058, 0.2251)
7964 -- ( 0.1833, 0.2303)
7965 --cycle
7966 ;
7967 \path[hex/terrain/town/house,pic actions]
7968 ( 0.8016, 0.0292)
7969 -- ( 0.8235, 0.0367)
7970 -- ( 0.8321, 0.0116)
7971 -- ( 0.8103, 0.0040)
7972 --cycle
7973 ;
7974 \path[hex/terrain/town/house,pic actions]
7975 ( 0.8016, 0.0292)
7976 -- ( 0.8235, 0.0367)
7977 -- ( 0.8321, 0.0116)
7978 -- ( 0.8103, 0.0040)
7979 --cycle
7980 ;
7981 \path[hex/terrain/town/house,pic actions]
7982 ( 0.7392, 0.1737)
7983 -- ( 0.7609, 0.1816)
7984 -- ( 0.7702, 0.1568)
7985 -- ( 0.7485, 0.1487)
7986 --cycle
7987 ;
7988 \path[hex/terrain/town/house,pic actions]
7989 ( 0.7392, 0.1737)
7990 -- ( 0.7609, 0.1816)
7991 -- ( 0.7702, 0.1568)
7992 -- ( 0.7485, 0.1487)
7993 --cycle
7994 ;
7995 \path[hex/terrain/town/house,pic actions]
7996 ( 0.3736, 0.7805)

```

```

7997 -- ( 0.3937, 0.7921)
7998 -- ( 0.4071, 0.7691)
7999 -- ( 0.3870, 0.7575)
8000 --cycle
8001 ;
8002 \path[hex/terrain/town/house,pic actions]
8003 ( 0.3736, 0.7805)
8004 -- ( 0.3937, 0.7921)
8005 -- ( 0.4071, 0.7691)
8006 -- ( 0.3870, 0.7575)
8007 --cycle
8008 ;
8009 \path[hex/terrain/town/house,pic actions]
8010 (-0.4808,-0.6251)
8011 -- (-0.4706,-0.6459)
8012 -- (-0.4946,-0.6576)
8013 -- (-0.5047,-0.6368)
8014 --cycle
8015 ;
8016 \path[hex/terrain/town/house,pic actions]
8017 (-0.4808,-0.6251)
8018 -- (-0.4706,-0.6459)
8019 -- (-0.4946,-0.6576)
8020 -- (-0.5047,-0.6368)
8021 --cycle
8022 ;
8023 \path[hex/terrain/town/house,pic actions]
8024 (-0.4514,-0.6075)
8025 -- (-0.4393,-0.6272)
8026 -- (-0.4620,-0.6412)
8027 -- (-0.4740,-0.6215)
8028 --cycle
8029 ;
8030 \path[hex/terrain/town/house,pic actions]
8031 (-0.4514,-0.6075)
8032 -- (-0.4393,-0.6272)
8033 -- (-0.4620,-0.6412)
8034 -- (-0.4740,-0.6215)
8035 --cycle
8036 ;
8037 \path[hex/terrain/town/house,pic actions]
8038 (-0.2390,-0.7174)
8039 -- (-0.2175,-0.7260)
8040 -- (-0.2273,-0.7508)
8041 -- (-0.2489,-0.7421)
8042 --cycle
8043 ;
8044 \path[hex/terrain/town/house,pic actions]
8045 (-0.2390,-0.7174)
8046 -- (-0.2175,-0.7260)
8047 -- (-0.2273,-0.7508)
8048 -- (-0.2489,-0.7421)
8049 --cycle

```

```

8050 ;
8051 \path[hex/terrain/town/house,pic actions]
8052 (-0.2386,-0.5506)
8053 -- (-0.2108,-0.5598)
8054 -- (-0.2277,-0.6108)
8055 -- (-0.2555,-0.6015)
8056 --cycle
8057 ;
8058 \path[hex/terrain/town/house,pic actions]
8059 (-0.2386,-0.5506)
8060 -- (-0.2108,-0.5598)
8061 -- (-0.2277,-0.6108)
8062 -- (-0.2555,-0.6015)
8063 --cycle
8064 ;
8065 \path[hex/terrain/town/house,pic actions]
8066 (-0.3574, 0.2226)
8067 -- (-0.3530, 0.2515)
8068 -- (-0.2999, 0.2435)
8069 -- (-0.3043, 0.2145)
8070 --cycle
8071 ;
8072 \path[hex/terrain/town/house,pic actions]
8073 (-0.3574, 0.2226)
8074 -- (-0.3530, 0.2515)
8075 -- (-0.2999, 0.2435)
8076 -- (-0.3043, 0.2145)
8077 --cycle
8078 ;
8079 \path[hex/terrain/town/house,pic actions]
8080 (-0.3315, 0.3242)
8081 -- (-0.3271, 0.3532)
8082 -- (-0.2740, 0.3451)
8083 -- (-0.2783, 0.3162)
8084 --cycle
8085 ;
8086 \path[hex/terrain/town/house,pic actions]
8087 (-0.3315, 0.3242)
8088 -- (-0.3271, 0.3532)
8089 -- (-0.2740, 0.3451)
8090 -- (-0.2783, 0.3162)
8091 --cycle
8092 ;
8093 \path[hex/terrain/town/house,pic actions]
8094 ( 0.2256, 0.4895)
8095 -- ( 0.2451, 0.4676)
8096 -- ( 0.2049, 0.4320)
8097 -- ( 0.1854, 0.4539)
8098 --cycle
8099 ;
8100 \path[hex/terrain/town/house,pic actions]
8101 ( 0.2256, 0.4895)
8102 -- ( 0.2451, 0.4676)

```

```

8103 -- ( 0.2049, 0.4320)
8104 -- ( 0.1854, 0.4539)
8105 --cycle
8106 ;
8107 \path[hex/terrain/town/house,pic actions]
8108 ( 0.1717, 0.5777)
8109 -- ( 0.1903, 0.5551)
8110 -- ( 0.1488, 0.5210)
8111 -- ( 0.1302, 0.5436)
8112 --cycle
8113 ;
8114 \path[hex/terrain/town/house,pic actions]
8115 ( 0.1717, 0.5777)
8116 -- ( 0.1903, 0.5551)
8117 -- ( 0.1488, 0.5210)
8118 -- ( 0.1302, 0.5436)
8119 --cycle
8120 ;
8121 \path[hex/terrain/town/house,pic actions]
8122 (-0.0995, 0.2545)
8123 -- (-0.0891, 0.2819)
8124 -- (-0.0389, 0.2629)
8125 -- (-0.0492, 0.2355)
8126 --cycle
8127 ;
8128 \path[hex/terrain/town/house,pic actions]
8129 (-0.0995, 0.2545)
8130 -- (-0.0891, 0.2819)
8131 -- (-0.0389, 0.2629)
8132 -- (-0.0492, 0.2355)
8133 --cycle
8134 ;
8135 \path[hex/terrain/town/house,pic actions]
8136 ( 0.0828, 0.2371)
8137 -- ( 0.0883, 0.2659)
8138 -- ( 0.1411, 0.2559)
8139 -- ( 0.1357, 0.2271)
8140 --cycle
8141 ;
8142 \path[hex/terrain/town/house,pic actions]
8143 ( 0.0828, 0.2371)
8144 -- ( 0.0883, 0.2659)
8145 -- ( 0.1411, 0.2559)
8146 -- ( 0.1357, 0.2271)
8147 --cycle
8148 ;
8149 \path[hex/terrain/town/house,pic actions]
8150 (-0.1049, 0.1819)
8151 -- (-0.0945, 0.2094)
8152 -- (-0.0443, 0.1904)
8153 -- (-0.0546, 0.1629)
8154 --cycle
8155 ;

```

```

8156 \path[hex/terrain/town/house,pic actions]
8157 (-0.1049, 0.1819)
8158 -- (-0.0945, 0.2094)
8159 -- (-0.0443, 0.1904)
8160 -- (-0.0546, 0.1629)
8161 --cycle
8162 ;
8163 \path[hex/terrain/town/house,pic actions]
8164 (-0.0889,-0.0631)
8165 -- (-0.0785,-0.0357)
8166 -- (-0.0283,-0.0549)
8167 -- (-0.0388,-0.0823)
8168 --cycle
8169 ;
8170 \path[hex/terrain/town/house,pic actions]
8171 (-0.0889,-0.0631)
8172 -- (-0.0785,-0.0357)
8173 -- (-0.0283,-0.0549)
8174 -- (-0.0388,-0.0823)
8175 --cycle
8176 ;
8177 \path[hex/terrain/town/house,pic actions]
8178 (-0.2282,-0.7907)
8179 -- (-0.1823,-0.7907)
8180 -- (-0.1823,-0.8518)
8181 -- (-0.2282,-0.8518)
8182 --cycle
8183 ;
8184 \path[hex/terrain/town/house,pic actions]
8185 (-0.2282,-0.7907)
8186 -- (-0.1823,-0.7907)
8187 -- (-0.1823,-0.8518)
8188 -- (-0.2282,-0.8518)
8189 --cycle
8190 ;
8191 \path[hex/terrain/town/house,pic actions]
8192 ( 0.2275,-0.7989)
8193 -- ( 0.2734,-0.7989)
8194 -- ( 0.2734,-0.8599)
8195 -- ( 0.2275,-0.8599)
8196 --cycle
8197 ;
8198 \path[hex/terrain/town/house,pic actions]
8199 ( 0.2275,-0.7989)
8200 -- ( 0.2734,-0.7989)
8201 -- ( 0.2734,-0.8599)
8202 -- ( 0.2275,-0.8599)
8203 --cycle
8204 ;
8205 \path[hex/terrain/town/house,pic actions]
8206 ( 0.2516,-0.7126)
8207 -- ( 0.2808,-0.7126)
8208 -- ( 0.2808,-0.7663)

```

```

8209  -- ( 0.2516,-0.7663)
8210  --cycle
8211  ;
8212  \path[hex/terrain/town/house,pic actions]
8213  ( 0.2516,-0.7126)
8214  -- ( 0.2808,-0.7126)
8215  -- ( 0.2808,-0.7663)
8216  -- ( 0.2516,-0.7663)
8217  --cycle
8218  ;
8219  \path[hex/terrain/town/house,pic actions]
8220  ( 0.1669,-0.7129)
8221  -- ( 0.1954,-0.7199)
8222  -- ( 0.1826,-0.7721)
8223  -- ( 0.1542,-0.7650)
8224  --cycle
8225  ;
8226  \path[hex/terrain/town/house,pic actions]
8227  ( 0.1669,-0.7129)
8228  -- ( 0.1954,-0.7199)
8229  -- ( 0.1826,-0.7721)
8230  -- ( 0.1542,-0.7650)
8231  --cycle
8232  ;
8233  \path[hex/terrain/town/house,pic actions]
8234  ( 0.1222,-0.7854)
8235  -- ( 0.1514,-0.7854)
8236  -- ( 0.1514,-0.8390)
8237  -- ( 0.1222,-0.8390)
8238  --cycle
8239  ;
8240  \path[hex/terrain/town/house,pic actions]
8241  ( 0.1222,-0.7854)
8242  -- ( 0.1514,-0.7854)
8243  -- ( 0.1514,-0.8390)
8244  -- ( 0.1222,-0.8390)
8245  --cycle
8246  ;
8247  \path[hex/terrain/town/house,pic actions]
8248  ( 0.3031,-0.7156)
8249  -- ( 0.3325,-0.7156)
8250  -- ( 0.3325,-0.7693)
8251  -- ( 0.3031,-0.7693)
8252  --cycle
8253  ;
8254  \path[hex/terrain/town/house,pic actions]
8255  ( 0.3031,-0.7156)
8256  -- ( 0.3325,-0.7156)
8257  -- ( 0.3325,-0.7693)
8258  -- ( 0.3031,-0.7693)
8259  --cycle
8260  ;
8261  \path[hex/terrain/town/house,pic actions]

```

```

8262 ( 0.3574,-0.7174)
8263 -- ( 0.3867,-0.7174)
8264 -- ( 0.3867,-0.7712)
8265 -- ( 0.3574,-0.7712)
8266 --cycle
8267 ;
8268 \path[hex/terrain/town/house,pic actions]
8269 ( 0.3574,-0.7174)
8270 -- ( 0.3867,-0.7174)
8271 -- ( 0.3867,-0.7712)
8272 -- ( 0.3574,-0.7712)
8273 --cycle
8274 ;
8275 \path[hex/terrain/town/house,pic actions]
8276 ( 0.3742,-0.8016)
8277 -- ( 0.4036,-0.8016)
8278 -- ( 0.4036,-0.8554)
8279 -- ( 0.3742,-0.8554)
8280 --cycle
8281 ;
8282 \path[hex/terrain/town/house,pic actions]
8283 ( 0.3742,-0.8016)
8284 -- ( 0.4036,-0.8016)
8285 -- ( 0.4036,-0.8554)
8286 -- ( 0.3742,-0.8554)
8287 --cycle
8288 ;
8289 \path[hex/terrain/town/house,pic actions]
8290 ( 0.4107,-0.8072)
8291 -- ( 0.4400,-0.8072)
8292 -- ( 0.4400,-0.8610)
8293 -- ( 0.4107,-0.8610)
8294 --cycle
8295 ;
8296 \path[hex/terrain/town/house,pic actions]
8297 ( 0.4107,-0.8072)
8298 -- ( 0.4400,-0.8072)
8299 -- ( 0.4400,-0.8610)
8300 -- ( 0.4107,-0.8610)
8301 --cycle
8302 ;
8303 \path[hex/terrain/town/house,pic actions]
8304 ( 0.4612,-0.7886)
8305 -- ( 0.4905,-0.7886)
8306 -- ( 0.4905,-0.8423)
8307 -- ( 0.4612,-0.8423)
8308 --cycle
8309 ;
8310 \path[hex/terrain/town/house,pic actions]
8311 ( 0.4612,-0.7886)
8312 -- ( 0.4905,-0.7886)
8313 -- ( 0.4905,-0.8423)
8314 -- ( 0.4612,-0.8423)

```

```

8315 --cycle
8316 ;
8317 \path[hex/terrain/town/house,pic actions]
8318 ( 0.5733,-0.6570)
8319 -- ( 0.6007,-0.6675)
8320 -- ( 0.5814,-0.7176)
8321 -- ( 0.5540,-0.7071)
8322 --cycle
8323 ;
8324 \path[hex/terrain/town/house,pic actions]
8325 ( 0.5733,-0.6570)
8326 -- ( 0.6007,-0.6675)
8327 -- ( 0.5814,-0.7176)
8328 -- ( 0.5540,-0.7071)
8329 --cycle
8330 ;
8331 \path[hex/terrain/town/house,pic actions]
8332 ( 0.6698,-0.4454)
8333 -- ( 0.6958,-0.4589)
8334 -- ( 0.6710,-0.5065)
8335 -- ( 0.6450,-0.4930)
8336 --cycle
8337 ;
8338 \path[hex/terrain/town/house,pic actions]
8339 ( 0.6698,-0.4454)
8340 -- ( 0.6958,-0.4589)
8341 -- ( 0.6710,-0.5065)
8342 -- ( 0.6450,-0.4930)
8343 --cycle
8344 ;
8345 \path[hex/terrain/town/house,pic actions]
8346 ( 0.5789,-0.4658)
8347 -- ( 0.6009,-0.4851)
8348 -- ( 0.5654,-0.5254)
8349 -- ( 0.5434,-0.5061)
8350 --cycle
8351 ;
8352 \path[hex/terrain/town/house,pic actions]
8353 ( 0.5789,-0.4658)
8354 -- ( 0.6009,-0.4851)
8355 -- ( 0.5654,-0.5254)
8356 -- ( 0.5434,-0.5061)
8357 --cycle
8358 ;
8359 \path[hex/terrain/town/house,pic actions]
8360 ( 0.6025,-0.4876)
8361 -- ( 0.6259,-0.5054)
8362 -- ( 0.5934,-0.5481)
8363 -- ( 0.5701,-0.5304)
8364 --cycle
8365 ;
8366 \path[hex/terrain/town/house,pic actions]
8367 ( 0.6025,-0.4876)

```



```

8368 -- ( 0.6259,-0.5054)
8369 -- ( 0.5934,-0.5481)
8370 -- ( 0.5701,-0.5304)
8371 --cycle
8372 ;
8373 \path[hex/terrain/town/house,pic actions]
8374 ( 0.6466,-0.5044)
8375 -- ( 0.6729,-0.5172)
8376 -- ( 0.6493,-0.5654)
8377 -- ( 0.6230,-0.5526)
8378 --cycle
8379 ;
8380 \path[hex/terrain/town/house,pic actions]
8381 ( 0.6466,-0.5044)
8382 -- ( 0.6729,-0.5172)
8383 -- ( 0.6493,-0.5654)
8384 -- ( 0.6230,-0.5526)
8385 --cycle
8386 ;
8387 \path[hex/terrain/town/house,pic actions]
8388 ( 0.4854,-0.5939)
8389 -- ( 0.5002,-0.5686)
8390 -- ( 0.5466,-0.5955)
8391 -- ( 0.5320,-0.6208)
8392 --cycle
8393 ;
8394 \path[hex/terrain/town/house,pic actions]
8395 ( 0.4854,-0.5939)
8396 -- ( 0.5002,-0.5686)
8397 -- ( 0.5466,-0.5955)
8398 -- ( 0.5320,-0.6208)
8399 --cycle
8400 ;
8401 \path[hex/terrain/town/house,pic actions]
8402 ( 0.4577,-0.6299)
8403 -- ( 0.4750,-0.6063)
8404 -- ( 0.5183,-0.6380)
8405 -- ( 0.5010,-0.6617)
8406 --cycle
8407 ;
8408 \path[hex/terrain/town/house,pic actions]
8409 ( 0.4577,-0.6299)
8410 -- ( 0.4750,-0.6063)
8411 -- ( 0.5183,-0.6380)
8412 -- ( 0.5010,-0.6617)
8413 --cycle
8414 ;
8415 \path[hex/terrain/town/house,pic actions]
8416 ( 0.4354,-0.6506)
8417 -- ( 0.4568,-0.6305)
8418 -- ( 0.4935,-0.6697)
8419 -- ( 0.4721,-0.6898)
8420 --cycle

```

```

8421 ;
8422 \path[hex/terrain/town/house,pic actions]
8423 ( 0.4354,-0.6506)
8424 -- ( 0.4568,-0.6305)
8425 -- ( 0.4935,-0.6697)
8426 -- ( 0.4721,-0.6898)
8427 --cycle
8428 ;
8429 \path[hex/terrain/town/house,pic actions]
8430 ( 0.3580,-0.4631)
8431 -- ( 0.3837,-0.4771)
8432 -- ( 0.3581,-0.5243)
8433 -- ( 0.3323,-0.5103)
8434 --cycle
8435 ;
8436 \path[hex/terrain/town/house,pic actions]
8437 ( 0.3580,-0.4631)
8438 -- ( 0.3837,-0.4771)
8439 -- ( 0.3581,-0.5243)
8440 -- ( 0.3323,-0.5103)
8441 --cycle
8442 ;
8443 \path[hex/terrain/town/house,pic actions]
8444 ( 0.5131,-0.3580)
8445 -- ( 0.5345,-0.3780)
8446 -- ( 0.4978,-0.4172)
8447 -- ( 0.4763,-0.3972)
8448 --cycle
8449 ;
8450 \path[hex/terrain/town/house,pic actions]
8451 ( 0.5131,-0.3580)
8452 -- ( 0.5345,-0.3780)
8453 -- ( 0.4978,-0.4172)
8454 -- ( 0.4763,-0.3972)
8455 --cycle
8456 ;
8457 \path[hex/terrain/town/house,pic actions]
8458 ( 0.2116,-0.3904)
8459 -- ( 0.2243,-0.3641)
8460 -- ( 0.2726,-0.3875)
8461 -- ( 0.2598,-0.4139)
8462 --cycle
8463 ;
8464 \path[hex/terrain/town/house,pic actions]
8465 ( 0.2116,-0.3904)
8466 -- ( 0.2243,-0.3641)
8467 -- ( 0.2726,-0.3875)
8468 -- ( 0.2598,-0.4139)
8469 --cycle
8470 ;
8471 \path[hex/terrain/town/house,pic actions]
8472 ( 0.1786,-0.4343)
8473 -- ( 0.1889,-0.4069)

```

```

8474 -- ( 0.2391,-0.4259)
8475 -- ( 0.2289,-0.4532)
8476 --cycle
8477 ;
8478 \path[hex/terrain/town/house,pic actions]
8479 ( 0.1786,-0.4343)
8480 -- ( 0.1889,-0.4069)
8481 -- ( 0.2391,-0.4259)
8482 -- ( 0.2289,-0.4532)
8483 --cycle
8484 ;
8485 \path[hex/terrain/town/house,pic actions]
8486 ( 0.1647,-0.4763)
8487 -- ( 0.1772,-0.4497)
8488 -- ( 0.2258,-0.4725)
8489 -- ( 0.2134,-0.4990)
8490 --cycle
8491 ;
8492 \path[hex/terrain/town/house,pic actions]
8493 ( 0.1647,-0.4763)
8494 -- ( 0.1772,-0.4497)
8495 -- ( 0.2258,-0.4725)
8496 -- ( 0.2134,-0.4990)
8497 --cycle
8498 ;
8499 \path[hex/terrain/town/house,pic actions]
8500 ( 0.2335,-0.5197)
8501 -- ( 0.2460,-0.4932)
8502 -- ( 0.2946,-0.5160)
8503 -- ( 0.2821,-0.5425)
8504 --cycle
8505 ;
8506 \path[hex/terrain/town/house,pic actions]
8507 ( 0.2335,-0.5197)
8508 -- ( 0.2460,-0.4932)
8509 -- ( 0.2946,-0.5160)
8510 -- ( 0.2821,-0.5425)
8511 --cycle
8512 ;
8513 \path[hex/terrain/town/house,pic actions]
8514 ( 0.2832,-0.4218)
8515 -- ( 0.2956,-0.3952)
8516 -- ( 0.3443,-0.4180)
8517 -- ( 0.3318,-0.4445)
8518 --cycle
8519 ;
8520 \path[hex/terrain/town/house,pic actions]
8521 ( 0.2832,-0.4218)
8522 -- ( 0.2956,-0.3952)
8523 -- ( 0.3443,-0.4180)
8524 -- ( 0.3318,-0.4445)
8525 --cycle
8526 ;

```

```

8527 \path[hex/terrain/town/house,pic actions]
8528 ( 0.2064,-0.6136)
8529 -- ( 0.2189,-0.5871)
8530 -- ( 0.2675,-0.6099)
8531 -- ( 0.2551,-0.6364)
8532 --cycle
8533 ;
8534 \path[hex/terrain/town/house,pic actions]
8535 ( 0.2064,-0.6136)
8536 -- ( 0.2189,-0.5871)
8537 -- ( 0.2675,-0.6099)
8538 -- ( 0.2551,-0.6364)
8539 --cycle
8540 ;
8541 \path[hex/terrain/town/house,pic actions]
8542 ( 0.1443,-0.5195)
8543 -- ( 0.1550,-0.4922)
8544 -- ( 0.2050,-0.5120)
8545 -- ( 0.1942,-0.5392)
8546 --cycle
8547 ;
8548 \path[hex/terrain/town/house,pic actions]
8549 ( 0.1443,-0.5195)
8550 -- ( 0.1550,-0.4922)
8551 -- ( 0.2050,-0.5120)
8552 -- ( 0.1942,-0.5392)
8553 --cycle
8554 ;
8555 \path[hex/terrain/town/house,pic actions]
8556 ( 0.3128,-0.5333)
8557 -- ( 0.3394,-0.5455)
8558 -- ( 0.3173,-0.5943)
8559 -- ( 0.2906,-0.5823)
8560 --cycle
8561 ;
8562 \path[hex/terrain/town/house,pic actions]
8563 ( 0.3128,-0.5333)
8564 -- ( 0.3394,-0.5455)
8565 -- ( 0.3173,-0.5943)
8566 -- ( 0.2906,-0.5823)
8567 --cycle
8568 ;
8569 \path[hex/terrain/town/house,pic actions]
8570 ( 0.1781,-0.6526)
8571 -- ( 0.1883,-0.6250)
8572 -- ( 0.2386,-0.6435)
8573 -- ( 0.2286,-0.6710)
8574 --cycle
8575 ;
8576 \path[hex/terrain/town/house,pic actions]
8577 ( 0.1781,-0.6526)
8578 -- ( 0.1883,-0.6250)
8579 -- ( 0.2386,-0.6435)

```

```

8580 -- ( 0.2286,-0.6710)
8581 --cycle
8582 ;
8583 \path[hex/terrain/town/house,pic actions]
8584 ( 0.0147,-0.5695)
8585 -- ( 0.0238,-0.5417)
8586 -- ( 0.0749,-0.5582)
8587 -- ( 0.0658,-0.5861)
8588 --cycle
8589 ;
8590 \path[hex/terrain/town/house,pic actions]
8591 ( 0.0147,-0.5695)
8592 -- ( 0.0238,-0.5417)
8593 -- ( 0.0749,-0.5582)
8594 -- ( 0.0658,-0.5861)
8595 --cycle
8596 ;
8597 \path[hex/terrain/town/house,pic actions]
8598 ( 0.0205,-0.5124)
8599 -- ( 0.0287,-0.4843)
8600 -- ( 0.0803,-0.4994)
8601 -- ( 0.0720,-0.5275)
8602 --cycle
8603 ;
8604 \path[hex/terrain/town/house,pic actions]
8605 ( 0.0205,-0.5124)
8606 -- ( 0.0287,-0.4843)
8607 -- ( 0.0803,-0.4994)
8608 -- ( 0.0720,-0.5275)
8609 --cycle
8610 ;
8611 \path[hex/terrain/town/house,pic actions]
8612 (-0.0719,-0.6560)
8613 -- (-0.0678,-0.6849)
8614 -- (-0.1209,-0.6925)
8615 -- (-0.1250,-0.6635)
8616 --cycle
8617 ;
8618 \path[hex/terrain/town/house,pic actions]
8619 (-0.0719,-0.6560)
8620 -- (-0.0678,-0.6849)
8621 -- (-0.1209,-0.6925)
8622 -- (-0.1250,-0.6635)
8623 --cycle
8624 ;
8625 \path[hex/terrain/town/house,pic actions]
8626 (-0.1330,-0.6411)
8627 -- (-0.1375,-0.6700)
8628 -- (-0.1906,-0.6618)
8629 -- (-0.1861,-0.6329)
8630 --cycle
8631 ;
8632 \path[hex/terrain/town/house,pic actions]

```

```

8633      (-0.1330,-0.6411)
8634      -- (-0.1375,-0.6700)
8635      -- (-0.1906,-0.6618)
8636      -- (-0.1861,-0.6329)
8637      --cycle
8638      ;
8639      \path[hex/terrain/town/house,pic actions]
8640      (-0.0334,-0.7381)
8641      -- (-0.0042,-0.7381)
8642      -- (-0.0042,-0.7917)
8643      -- (-0.0334,-0.7917)
8644      --cycle
8645      ;
8646      \path[hex/terrain/town/house,pic actions]
8647      (-0.0334,-0.7381)
8648      -- (-0.0042,-0.7381)
8649      -- (-0.0042,-0.7917)
8650      -- (-0.0334,-0.7917)
8651      --cycle
8652      ;
8653      \path[hex/terrain/town/house,pic actions]
8654      (-0.0998,-0.7315)
8655      -- (-0.0706,-0.7315)
8656      -- (-0.0706,-0.7852)
8657      -- (-0.0998,-0.7852)
8658      --cycle
8659      ;
8660      \path[hex/terrain/town/house,pic actions]
8661      (-0.0998,-0.7315)
8662      -- (-0.0706,-0.7315)
8663      -- (-0.0706,-0.7852)
8664      -- (-0.0998,-0.7852)
8665      --cycle
8666      ;
8667      \path[hex/terrain/town/house,pic actions]
8668      (-0.2018,-0.7234)
8669      -- (-0.1730,-0.7180)
8670      -- (-0.1631,-0.7708)
8671      -- (-0.1919,-0.7762)
8672      --cycle
8673      ;
8674      \path[hex/terrain/town/house,pic actions]
8675      (-0.2018,-0.7234)
8676      -- (-0.1730,-0.7180)
8677      -- (-0.1631,-0.7708)
8678      -- (-0.1919,-0.7762)
8679      --cycle
8680      ;
8681      \path[hex/terrain/town/house,pic actions]
8682      (-0.2956,-0.7184)
8683      -- (-0.2667,-0.7229)
8684      -- (-0.2750,-0.7760)
8685      -- (-0.3039,-0.7714)

```

```

8686 --cycle
8687 ;
8688 \path[hex/terrain/town/house,pic actions]
8689 (-0.2956,-0.7184)
8690 -- (-0.2667,-0.7229)
8691 -- (-0.2750,-0.7760)
8692 -- (-0.3039,-0.7714)
8693 --cycle
8694 ;
8695 \path[hex/terrain/town/house,pic actions]
8696 (-0.1661,-0.8014)
8697 -- (-0.1372,-0.8060)
8698 -- (-0.1454,-0.8590)
8699 -- (-0.1744,-0.8545)
8700 --cycle
8701 ;
8702 \path[hex/terrain/town/house,pic actions]
8703 (-0.1661,-0.8014)
8704 -- (-0.1372,-0.8060)
8705 -- (-0.1454,-0.8590)
8706 -- (-0.1744,-0.8545)
8707 --cycle
8708 ;
8709 \path[hex/terrain/town/house,pic actions]
8710 (-0.1269,-0.8074)
8711 -- (-0.0977,-0.8054)
8712 -- (-0.0940,-0.8590)
8713 -- (-0.1232,-0.8610)
8714 --cycle
8715 ;
8716 \path[hex/terrain/town/house,pic actions]
8717 (-0.1269,-0.8074)
8718 -- (-0.0977,-0.8054)
8719 -- (-0.0940,-0.8590)
8720 -- (-0.1232,-0.8610)
8721 --cycle
8722 ;
8723 \path[hex/terrain/town/house,pic actions]
8724 (-0.2787,-0.7975)
8725 -- (-0.2495,-0.7956)
8726 -- (-0.2459,-0.8492)
8727 -- (-0.2751,-0.8511)
8728 --cycle
8729 ;
8730 \path[hex/terrain/town/house,pic actions]
8731 (-0.2787,-0.7975)
8732 -- (-0.2495,-0.7956)
8733 -- (-0.2459,-0.8492)
8734 -- (-0.2751,-0.8511)
8735 --cycle
8736 ;
8737 \path[hex/terrain/town/house,pic actions]
8738 (-0.3966,-0.5592)

```

```

8739  -- (-0.3802,-0.5834)
8740  -- (-0.4246,-0.6135)
8741  -- (-0.4411,-0.5892)
8742  --cycle
8743  ;
8744  \path[hex/terrain/town/house,pic actions]
8745  (-0.3966,-0.5592)
8746  -- (-0.3802,-0.5834)
8747  -- (-0.4246,-0.6135)
8748  -- (-0.4411,-0.5892)
8749  --cycle
8750  ;
8751  \path[hex/terrain/town/house,pic actions]
8752  (-0.4189,-0.5000)
8753  -- (-0.4033,-0.5248)
8754  -- (-0.4488,-0.5534)
8755  -- (-0.4644,-0.5286)
8756  --cycle
8757  ;
8758  \path[hex/terrain/town/house,pic actions]
8759  (-0.4189,-0.5000)
8760  -- (-0.4033,-0.5248)
8761  -- (-0.4488,-0.5534)
8762  -- (-0.4644,-0.5286)
8763  --cycle
8764  ;
8765  \path[hex/terrain/town/house,pic actions]
8766  (-0.3561,-0.4332)
8767  -- (-0.3310,-0.4483)
8768  -- (-0.3586,-0.4944)
8769  -- (-0.3837,-0.4793)
8770  --cycle
8771  ;
8772  \path[hex/terrain/town/house,pic actions]
8773  (-0.3561,-0.4332)
8774  -- (-0.3310,-0.4483)
8775  -- (-0.3586,-0.4944)
8776  -- (-0.3837,-0.4793)
8777  --cycle
8778  ;
8779  \path[hex/terrain/town/house,pic actions]
8780  (-0.3120,-0.4787)
8781  -- (-0.2896,-0.4976)
8782  -- (-0.3241,-0.5386)
8783  -- (-0.3466,-0.5198)
8784  --cycle
8785  ;
8786  \path[hex/terrain/town/house,pic actions]
8787  (-0.3120,-0.4787)
8788  -- (-0.2896,-0.4976)
8789  -- (-0.3241,-0.5386)
8790  -- (-0.3466,-0.5198)
8791  --cycle

```



```

8792 ;
8793 \path[hex/terrain/town/house,pic actions]
8794 (-0.2660,-0.5113)
8795 -- (-0.2456,-0.5323)
8796 -- (-0.2840,-0.5697)
8797 -- (-0.3045,-0.5487)
8798 --cycle
8799 ;
8800 \path[hex/terrain/town/house,pic actions]
8801 (-0.2660,-0.5113)
8802 -- (-0.2456,-0.5323)
8803 -- (-0.2840,-0.5697)
8804 -- (-0.3045,-0.5487)
8805 --cycle
8806 ;
8807 \path[hex/terrain/town/house,pic actions]
8808 (-0.3939,-0.2212)
8809 -- (-0.3666,-0.2319)
8810 -- (-0.3863,-0.2819)
8811 -- (-0.4135,-0.2712)
8812 --cycle
8813 ;
8814 \path[hex/terrain/town/house,pic actions]
8815 (-0.3939,-0.2212)
8816 -- (-0.3666,-0.2319)
8817 -- (-0.3863,-0.2819)
8818 -- (-0.4135,-0.2712)
8819 --cycle
8820 ;
8821 \path[hex/terrain/town/house,pic actions]
8822 (-0.3038,-0.2403)
8823 -- (-0.2765,-0.2509)
8824 -- (-0.2961,-0.3010)
8825 -- (-0.3234,-0.2902)
8826 --cycle
8827 ;
8828 \path[hex/terrain/town/house,pic actions]
8829 (-0.3038,-0.2403)
8830 -- (-0.2765,-0.2509)
8831 -- (-0.2961,-0.3010)
8832 -- (-0.3234,-0.2902)
8833 --cycle
8834 ;
8835 \path[hex/terrain/town/house,pic actions]
8836 (-0.3532,-0.2251)
8837 -- (-0.3255,-0.2346)
8838 -- (-0.3428,-0.2854)
8839 -- (-0.3705,-0.2760)
8840 --cycle
8841 ;
8842 \path[hex/terrain/town/house,pic actions]
8843 (-0.3532,-0.2251)
8844 -- (-0.3255,-0.2346)

```

```

8845 -- (-0.3428,-0.2854)
8846 -- (-0.3705,-0.2760)
8847 --cycle
8848 ;
8849 \path[hex/terrain/town/house,pic actions]
8850 (-0.3482,-0.3198)
8851 -- (-0.3204,-0.3293)
8852 -- (-0.3377,-0.3801)
8853 -- (-0.3655,-0.3706)
8854 --cycle
8855 ;
8856 \path[hex/terrain/town/house,pic actions]
8857 (-0.3482,-0.3198)
8858 -- (-0.3204,-0.3293)
8859 -- (-0.3377,-0.3801)
8860 -- (-0.3655,-0.3706)
8861 --cycle
8862 ;
8863 \path[hex/terrain/town/house,pic actions]
8864 (-0.5006,-0.1767)
8865 -- (-0.4737,-0.1885)
8866 -- (-0.4953,-0.2376)
8867 -- (-0.5221,-0.2258)
8868 --cycle
8869 ;
8870 \path[hex/terrain/town/house,pic actions]
8871 (-0.5006,-0.1767)
8872 -- (-0.4737,-0.1885)
8873 -- (-0.4953,-0.2376)
8874 -- (-0.5221,-0.2258)
8875 --cycle
8876 ;
8877 \path[hex/terrain/town/house,pic actions]
8878 (-0.5739,-0.2312)
8879 -- (-0.5595,-0.2568)
8880 -- (-0.6065,-0.2830)
8881 -- (-0.6207,-0.2575)
8882 --cycle
8883 ;
8884 \path[hex/terrain/town/house,pic actions]
8885 (-0.5739,-0.2312)
8886 -- (-0.5595,-0.2568)
8887 -- (-0.6065,-0.2830)
8888 -- (-0.6207,-0.2575)
8889 --cycle
8890 ;
8891 \path[hex/terrain/town/house,pic actions]
8892 (-0.5929,-0.3943)
8893 -- (-0.5696,-0.3765)
8894 -- (-0.5369,-0.4192)
8895 -- (-0.5602,-0.4370)
8896 --cycle
8897 ;

```

```

8898 \path[hex/terrain/town/house,pic actions]
8899 (-0.5929,-0.3943)
8900 -- (-0.5696,-0.3765)
8901 -- (-0.5369,-0.4192)
8902 -- (-0.5602,-0.4370)
8903 --cycle
8904 ;
8905 \path[hex/terrain/town/house,pic actions]
8906 (-0.5005,-0.3312)
8907 -- (-0.4775,-0.3129)
8908 -- (-0.4441,-0.3550)
8909 -- (-0.4670,-0.3733)
8910 --cycle
8911 ;
8912 \path[hex/terrain/town/house,pic actions]
8913 (-0.5005,-0.3312)
8914 -- (-0.4775,-0.3129)
8915 -- (-0.4441,-0.3550)
8916 -- (-0.4670,-0.3733)
8917 --cycle
8918 ;
8919 \path[hex/terrain/town/house,pic actions]
8920 (-0.5523,-0.3618)
8921 -- (-0.5293,-0.3436)
8922 -- (-0.4960,-0.3857)
8923 -- (-0.5189,-0.4038)
8924 --cycle
8925 ;
8926 \path[hex/terrain/town/house,pic actions]
8927 (-0.5523,-0.3618)
8928 -- (-0.5293,-0.3436)
8929 -- (-0.4960,-0.3857)
8930 -- (-0.5189,-0.4038)
8931 --cycle
8932 ;
8933 \path[hex/terrain/town/house,pic actions]
8934 (-0.4383,-0.3880)
8935 -- (-0.4249,-0.4140)
8936 -- (-0.4726,-0.4386)
8937 -- (-0.4861,-0.4126)
8938 --cycle
8939 ;
8940 \path[hex/terrain/town/house,pic actions]
8941 (-0.4383,-0.3880)
8942 -- (-0.4249,-0.4140)
8943 -- (-0.4726,-0.4386)
8944 -- (-0.4861,-0.4126)
8945 --cycle
8946 ;
8947 \path[hex/terrain/town/house,pic actions]
8948 (-0.6626,-0.4293)
8949 -- (-0.6510,-0.4562)
8950 -- (-0.7003,-0.4775)

```

```

8951 -- (-0.7119,-0.4506)
8952 --cycle
8953 ;
8954 \path[hex/terrain/town/house,pic actions]
8955 (-0.6626,-0.4293)
8956 -- (-0.6510,-0.4562)
8957 -- (-0.7003,-0.4775)
8958 -- (-0.7119,-0.4506)
8959 --cycle
8960 ;
8961 \path[hex/terrain/town/house,pic actions]
8962 (-0.6449,-0.4759)
8963 -- (-0.6280,-0.4998)
8964 -- (-0.6717,-0.5309)
8965 -- (-0.6887,-0.5069)
8966 --cycle
8967 ;
8968 \path[hex/terrain/town/house,pic actions]
8969 (-0.6449,-0.4759)
8970 -- (-0.6280,-0.4998)
8971 -- (-0.6717,-0.5309)
8972 -- (-0.6887,-0.5069)
8973 --cycle
8974 ;
8975 \path[hex/terrain/town/house,pic actions]
8976 (-0.5766,-0.5683)
8977 -- (-0.5643,-0.5948)
8978 -- (-0.6130,-0.6174)
8979 -- (-0.6254,-0.5909)
8980 --cycle
8981 ;
8982 \path[hex/terrain/town/house,pic actions]
8983 (-0.5766,-0.5683)
8984 -- (-0.5643,-0.5948)
8985 -- (-0.6130,-0.6174)
8986 -- (-0.6254,-0.5909)
8987 --cycle
8988 ;
8989 \path[hex/terrain/town/house,pic actions]
8990 (-0.4733,-0.5728)
8991 -- (-0.4590,-0.5983)
8992 -- (-0.5061,-0.6244)
8993 -- (-0.5202,-0.5988)
8994 --cycle
8995 ;
8996 \path[hex/terrain/town/house,pic actions]
8997 (-0.4733,-0.5728)
8998 -- (-0.4590,-0.5983)
8999 -- (-0.5061,-0.6244)
9000 -- (-0.5202,-0.5988)
9001 --cycle
9002 ;
9003 \path[hex/terrain/town/house,pic actions]

```

```

9004      (-0.4272,-0.6520)
9005      -- (-0.4128,-0.6774)
9006      -- (-0.4595,-0.7039)
9007      -- (-0.4740,-0.6785)
9008      --cycle
9009      ;
9010      \path[hex/terrain/town/house,pic actions]
9011      (-0.4272,-0.6520)
9012      -- (-0.4128,-0.6774)
9013      -- (-0.4595,-0.7039)
9014      -- (-0.4740,-0.6785)
9015      --cycle
9016      ;
9017      \path[hex/terrain/town/house,pic actions]
9018      (-0.5374,-0.6782)
9019      -- (-0.5236,-0.7040)
9020      -- (-0.5710,-0.7292)
9021      -- (-0.5848,-0.7034)
9022      --cycle
9023      ;
9024      \path[hex/terrain/town/house,pic actions]
9025      (-0.5374,-0.6782)
9026      -- (-0.5236,-0.7040)
9027      -- (-0.5710,-0.7292)
9028      -- (-0.5848,-0.7034)
9029      --cycle
9030      ;
9031      \path[hex/terrain/town/house,pic actions]
9032      (-0.5214,-0.7131)
9033      -- (-0.5038,-0.7365)
9034      -- (-0.5468,-0.7687)
9035      -- (-0.5644,-0.7453)
9036      --cycle
9037      ;
9038      \path[hex/terrain/town/house,pic actions]
9039      (-0.5214,-0.7131)
9040      -- (-0.5038,-0.7365)
9041      -- (-0.5468,-0.7687)
9042      -- (-0.5644,-0.7453)
9043      --cycle
9044      ;
9045      \path[hex/terrain/town/house,pic actions]
9046      ( 0.2847,-0.1917)
9047      -- ( 0.2954,-0.1644)
9048      -- ( 0.3454,-0.1841)
9049      -- ( 0.3347,-0.2114)
9050      --cycle
9051      ;
9052      \path[hex/terrain/town/house,pic actions]
9053      ( 0.2847,-0.1917)
9054      -- ( 0.2954,-0.1644)
9055      -- ( 0.3454,-0.1841)
9056      -- ( 0.3347,-0.2114)

```

```

9057 --cycle
9058 ;
9059 \path[hex/terrain/town/house,pic actions]
9060 ( 0.2692,-0.2397)
9061 -- ( 0.2775,-0.2116)
9062 -- ( 0.3291,-0.2268)
9063 -- ( 0.3208,-0.2548)
9064 --cycle
9065 ;
9066 \path[hex/terrain/town/house,pic actions]
9067 ( 0.2692,-0.2397)
9068 -- ( 0.2775,-0.2116)
9069 -- ( 0.3291,-0.2268)
9070 -- ( 0.3208,-0.2548)
9071 --cycle
9072 ;
9073 \path[hex/terrain/town/house,pic actions]
9074 ( 0.2587,-0.2944)
9075 -- ( 0.2585,-0.2651)
9076 -- ( 0.3123,-0.2648)
9077 -- ( 0.3125,-0.2941)
9078 --cycle
9079 ;
9080 \path[hex/terrain/town/house,pic actions]
9081 ( 0.2587,-0.2944)
9082 -- ( 0.2585,-0.2651)
9083 -- ( 0.3123,-0.2648)
9084 -- ( 0.3125,-0.2941)
9085 --cycle
9086 ;
9087 \path[hex/terrain/town/house,pic actions]
9088 ( 0.1269,-0.2581)
9089 -- ( 0.1359,-0.2303)
9090 -- ( 0.1871,-0.2468)
9091 -- ( 0.1780,-0.2746)
9092 --cycle
9093 ;
9094 \path[hex/terrain/town/house,pic actions]
9095 ( 0.1269,-0.2581)
9096 -- ( 0.1359,-0.2303)
9097 -- ( 0.1871,-0.2468)
9098 -- ( 0.1780,-0.2746)
9099 --cycle
9100 ;
9101 \path[hex/terrain/town/house,pic actions]
9102 ( 0.1127,-0.3153)
9103 -- ( 0.1232,-0.2880)
9104 -- ( 0.1733,-0.3074)
9105 -- ( 0.1626,-0.3348)
9106 --cycle
9107 ;
9108 \path[hex/terrain/town/house,pic actions]
9109 ( 0.1127,-0.3153)

```

```

9110    -- ( 0.1232,-0.2880)
9111    -- ( 0.1733,-0.3074)
9112    -- ( 0.1626,-0.3348)
9113    --cycle
9114    ;
9115    \path[hex/terrain/town/house,pic actions]
9116    ( 0.1928,-0.0951)
9117    -- ( 0.2055,-0.0687)
9118    -- ( 0.2539,-0.0920)
9119    -- ( 0.2412,-0.1184)
9120    --cycle
9121    ;
9122    \path[hex/terrain/town/house,pic actions]
9123    ( 0.1928,-0.0951)
9124    -- ( 0.2055,-0.0687)
9125    -- ( 0.2539,-0.0920)
9126    -- ( 0.2412,-0.1184)
9127    --cycle
9128    ;
9129    \path[hex/terrain/town/house,pic actions]
9130    ( 0.2202,-0.0375)
9131    -- ( 0.2335,-0.0113)
9132    -- ( 0.2814,-0.0356)
9133    -- ( 0.2682,-0.0617)
9134    --cycle
9135    ;
9136    \path[hex/terrain/town/house,pic actions]
9137    ( 0.2202,-0.0375)
9138    -- ( 0.2335,-0.0113)
9139    -- ( 0.2814,-0.0356)
9140    -- ( 0.2682,-0.0617)
9141    --cycle
9142    ;
9143    \path[hex/terrain/town/house,pic actions]
9144    ( 0.2582, 0.0509)
9145    -- ( 0.2736, 0.0259)
9146    -- ( 0.2278,-0.0022)
9147    -- ( 0.2125, 0.0227)
9148    --cycle
9149    ;
9150    \path[hex/terrain/town/house,pic actions]
9151    ( 0.2582, 0.0509)
9152    -- ( 0.2736, 0.0259)
9153    -- ( 0.2278,-0.0022)
9154    -- ( 0.2125, 0.0227)
9155    --cycle
9156    ;
9157    \path[hex/terrain/town/house,pic actions]
9158    ( 0.2111, 0.0849)
9159    -- ( 0.2307, 0.0632)
9160    -- ( 0.1908, 0.0273)
9161    -- ( 0.1712, 0.0490)
9162    --cycle

```

```

9163 ;
9164 \path[hex/terrain/town/house,pic actions]
9165 ( 0.2111, 0.0849)
9166 -- ( 0.2307, 0.0632)
9167 -- ( 0.1908, 0.0273)
9168 -- ( 0.1712, 0.0490)
9169 --cycle
9170 ;
9171 \path[hex/terrain/town/house,pic actions]
9172 ( 0.1776, 0.1187)
9173 -- ( 0.1982, 0.0978)
9174 -- ( 0.1599, 0.0601)
9175 -- ( 0.1394, 0.0810)
9176 --cycle
9177 ;
9178 \path[hex/terrain/town/house,pic actions]
9179 ( 0.1776, 0.1187)
9180 -- ( 0.1982, 0.0978)
9181 -- ( 0.1599, 0.0601)
9182 -- ( 0.1394, 0.0810)
9183 --cycle
9184 ;
9185 \path[hex/terrain/town/house,pic actions]
9186 ( 0.2760, 0.3987)
9187 -- ( 0.2946, 0.3760)
9188 -- ( 0.2531, 0.3420)
9189 -- ( 0.2345, 0.3646)
9190 --cycle
9191 ;
9192 \path[hex/terrain/town/house,pic actions]
9193 ( 0.2760, 0.3987)
9194 -- ( 0.2946, 0.3760)
9195 -- ( 0.2531, 0.3420)
9196 -- ( 0.2345, 0.3646)
9197 --cycle
9198 ;
9199 \path[hex/terrain/town/house,pic actions]
9200 ( 0.3226, 0.3543)
9201 -- ( 0.3420, 0.3323)
9202 -- ( 0.3018, 0.2967)
9203 -- ( 0.2824, 0.3185)
9204 --cycle
9205 ;
9206 \path[hex/terrain/town/house,pic actions]
9207 ( 0.3226, 0.3543)
9208 -- ( 0.3420, 0.3323)
9209 -- ( 0.3018, 0.2967)
9210 -- ( 0.2824, 0.3185)
9211 --cycle
9212 ;
9213 \path[hex/terrain/town/house,pic actions]
9214 (-0.2277, 0.3599)
9215 -- (-0.2171, 0.3872)

```



```

9216 -- (-0.1671, 0.3676)
9217 -- (-0.1777, 0.3404)
9218 --cycle
9219 ;
9220 \path[hex/terrain/town/house,pic actions]
9221 (-0.2277, 0.3599)
9222 -- (-0.2171, 0.3872)
9223 -- (-0.1671, 0.3676)
9224 -- (-0.1777, 0.3404)
9225 --cycle
9226 ;
9227 \path[hex/terrain/town/house,pic actions]
9228 (-0.1722, 0.5368)
9229 -- (-0.1616, 0.5642)
9230 -- (-0.1116, 0.5446)
9231 -- (-0.1223, 0.5174)
9232 --cycle
9233 ;
9234 \path[hex/terrain/town/house,pic actions]
9235 (-0.1722, 0.5368)
9236 -- (-0.1616, 0.5642)
9237 -- (-0.1116, 0.5446)
9238 -- (-0.1223, 0.5174)
9239 --cycle
9240 ;
9241 \path[hex/terrain/town/house,pic actions]
9242 (-0.2400, 0.3081)
9243 -- (-0.2307, 0.3359)
9244 -- (-0.1797, 0.3189)
9245 -- (-0.1890, 0.2912)
9246 --cycle
9247 ;
9248 \path[hex/terrain/town/house,pic actions]
9249 (-0.2400, 0.3081)
9250 -- (-0.2307, 0.3359)
9251 -- (-0.1797, 0.3189)
9252 -- (-0.1890, 0.2912)
9253 --cycle
9254 ;
9255 \path[hex/terrain/town/house,pic actions]
9256 (-0.2735, 0.1997)
9257 -- (-0.2631, 0.2270)
9258 -- (-0.2129, 0.2080)
9259 -- (-0.2233, 0.1807)
9260 --cycle
9261 ;
9262 \path[hex/terrain/town/house,pic actions]
9263 (-0.2735, 0.1997)
9264 -- (-0.2631, 0.2270)
9265 -- (-0.2129, 0.2080)
9266 -- (-0.2233, 0.1807)
9267 --cycle
9268 ;

```

```

9269 \path[hex/terrain/town/house,pic actions]
9270 (-0.3047, 0.1045)
9271 -- (-0.2975, 0.1329)
9272 -- (-0.2455, 0.1200)
9273 -- (-0.2525, 0.0915)
9274 --cycle
9275 ;
9276 \path[hex/terrain/town/house,pic actions]
9277 (-0.3047, 0.1045)
9278 -- (-0.2975, 0.1329)
9279 -- (-0.2455, 0.1200)
9280 -- (-0.2525, 0.0915)
9281 --cycle
9282 ;
9283 \path[hex/terrain/town/house,pic actions]
9284 (-0.1406, 0.3596)
9285 -- (-0.1136, 0.3482)
9286 -- (-0.1345, 0.2988)
9287 -- (-0.1615, 0.3102)
9288 --cycle
9289 ;
9290 \path[hex/terrain/town/house,pic actions]
9291 (-0.1406, 0.3596)
9292 -- (-0.1136, 0.3482)
9293 -- (-0.1345, 0.2988)
9294 -- (-0.1615, 0.3102)
9295 --cycle
9296 ;
9297 \path[hex/terrain/town/house,pic actions]
9298 (-0.0597, 0.5878)
9299 -- (-0.0327, 0.5763)
9300 -- (-0.0536, 0.5269)
9301 -- (-0.0806, 0.5383)
9302 --cycle
9303 ;
9304 \path[hex/terrain/town/house,pic actions]
9305 (-0.0597, 0.5878)
9306 -- (-0.0327, 0.5763)
9307 -- (-0.0536, 0.5269)
9308 -- (-0.0806, 0.5383)
9309 --cycle
9310 ;
9311 \path[hex/terrain/town/house,pic actions]
9312 (-0.0206, 0.5864)
9313 -- ( 0.0064, 0.5749)
9314 -- (-0.0146, 0.5255)
9315 -- (-0.0416, 0.5369)
9316 --cycle
9317 ;
9318 \path[hex/terrain/town/house,pic actions]
9319 (-0.0206, 0.5864)
9320 -- ( 0.0064, 0.5749)
9321 -- (-0.0146, 0.5255)

```

```

9322 -- (-0.0416, 0.5369)
9323 --cycle
9324 ;
9325 \path[hex/terrain/town/house,pic actions]
9326 (-0.1653, 0.2738)
9327 -- (-0.1360, 0.2738)
9328 -- (-0.1360, 0.2200)
9329 -- (-0.1653, 0.2200)
9330 --cycle
9331 ;
9332 \path[hex/terrain/town/house,pic actions]
9333 (-0.1653, 0.2738)
9334 -- (-0.1360, 0.2738)
9335 -- (-0.1360, 0.2200)
9336 -- (-0.1653, 0.2200)
9337 --cycle
9338 ;
9339 \path[hex/terrain/town/house,pic actions]
9340 (-0.1782, 0.2207)
9341 -- (-0.1501, 0.2122)
9342 -- (-0.1657, 0.1608)
9343 -- (-0.1937, 0.1693)
9344 --cycle
9345 ;
9346 \path[hex/terrain/town/house,pic actions]
9347 (-0.1782, 0.2207)
9348 -- (-0.1501, 0.2122)
9349 -- (-0.1657, 0.1608)
9350 -- (-0.1937, 0.1693)
9351 --cycle
9352 ;
9353 \path[hex/terrain/town/house,pic actions]
9354 (-0.2343, 0.0622)
9355 -- (-0.2239, 0.0896)
9356 -- (-0.1737, 0.0706)
9357 -- (-0.1840, 0.0432)
9358 --cycle
9359 ;
9360 \path[hex/terrain/town/house,pic actions]
9361 (-0.2343, 0.0622)
9362 -- (-0.2239, 0.0896)
9363 -- (-0.1737, 0.0706)
9364 -- (-0.1840, 0.0432)
9365 --cycle
9366 ;
9367 \path[hex/terrain/town/house,pic actions]
9368 (-0.1289, 0.0933)
9369 -- (-0.1186, 0.1207)
9370 -- (-0.0683, 0.1017)
9371 -- (-0.0787, 0.0743)
9372 --cycle
9373 ;
9374 \path[hex/terrain/town/house,pic actions]

```

```

9375      (-0.1289, 0.0933)
9376      -- (-0.1186, 0.1207)
9377      -- (-0.0683, 0.1017)
9378      -- (-0.0787, 0.0743)
9379      --cycle
9380      ;
9381      \path[hex/terrain/town/house,pic actions]
9382      ( 0.2223, 0.7399)
9383      -- ( 0.2483, 0.7532)
9384      -- ( 0.2727, 0.7054)
9385      -- ( 0.2467, 0.6920)
9386      --cycle
9387      ;
9388      \path[hex/terrain/town/house,pic actions]
9389      ( 0.2223, 0.7399)
9390      -- ( 0.2483, 0.7532)
9391      -- ( 0.2727, 0.7054)
9392      -- ( 0.2467, 0.6920)
9393      --cycle
9394      ;
9395      \path[hex/terrain/town/house,pic actions]
9396      ( 0.5440, 0.7476)
9397      -- ( 0.5576, 0.7217)
9398      -- ( 0.5102, 0.6965)
9399      -- ( 0.4965, 0.7224)
9400      --cycle
9401      ;
9402      \path[hex/terrain/town/house,pic actions]
9403      ( 0.5440, 0.7476)
9404      -- ( 0.5576, 0.7217)
9405      -- ( 0.5102, 0.6965)
9406      -- ( 0.4965, 0.7224)
9407      --cycle
9408      ;
9409      \path[hex/terrain/town/house,pic actions]
9410      ( 0.5919, 0.6377)
9411      -- ( 0.6068, 0.6125)
9412      -- ( 0.5604, 0.5853)
9413      -- ( 0.5456, 0.6106)
9414      --cycle
9415      ;
9416      \path[hex/terrain/town/house,pic actions]
9417      ( 0.5919, 0.6377)
9418      -- ( 0.6068, 0.6125)
9419      -- ( 0.5604, 0.5853)
9420      -- ( 0.5456, 0.6106)
9421      --cycle
9422      ;
9423      \path[hex/terrain/town/house,pic actions]
9424      ( 0.6224, 0.5979)
9425      -- ( 0.6382, 0.5732)
9426      -- ( 0.5930, 0.5443)
9427      -- ( 0.5772, 0.5690)

```

```

9428 --cycle
9429 ;
9430 \path[hex/terrain/town/house,pic actions]
9431 ( 0.6224, 0.5979)
9432 -- ( 0.6382, 0.5732)
9433 -- ( 0.5930, 0.5443)
9434 -- ( 0.5772, 0.5690)
9435 --cycle
9436 ;
9437 \path[hex/terrain/town/house,pic actions]
9438 ( 0.4104, 0.6743)
9439 -- ( 0.4255, 0.6491)
9440 -- ( 0.3795, 0.6215)
9441 -- ( 0.3644, 0.6466)
9442 --cycle
9443 ;
9444 \path[hex/terrain/town/house,pic actions]
9445 ( 0.4104, 0.6743)
9446 -- ( 0.4255, 0.6491)
9447 -- ( 0.3795, 0.6215)
9448 -- ( 0.3644, 0.6466)
9449 --cycle
9450 ;
9451 \path[hex/terrain/town/house,pic actions]
9452 ( 0.4437, 0.6203)
9453 -- ( 0.4592, 0.5954)
9454 -- ( 0.4136, 0.5671)
9455 -- ( 0.3981, 0.5918)
9456 --cycle
9457 ;
9458 \path[hex/terrain/town/house,pic actions]
9459 ( 0.4437, 0.6203)
9460 -- ( 0.4592, 0.5954)
9461 -- ( 0.4136, 0.5671)
9462 -- ( 0.3981, 0.5918)
9463 --cycle
9464 ;
9465 \path[hex/terrain/town/house,pic actions]
9466 ( 0.5275, 0.4892)
9467 -- ( 0.5449, 0.4656)
9468 -- ( 0.5018, 0.4337)
9469 -- ( 0.4844, 0.4571)
9470 --cycle
9471 ;
9472 \path[hex/terrain/town/house,pic actions]
9473 ( 0.5275, 0.4892)
9474 -- ( 0.5449, 0.4656)
9475 -- ( 0.5018, 0.4337)
9476 -- ( 0.4844, 0.4571)
9477 --cycle
9478 ;
9479 \path[hex/terrain/town/house,pic actions]
9480 ( 0.2900, 0.6234)

```

```

9481  -- ( 0.3087, 0.6008)
9482  -- ( 0.2671, 0.5666)
9483  -- ( 0.2485, 0.5892)
9484  --cycle
9485  ;
9486  \path[hex/terrain/town/house,pic actions]
9487  ( 0.2900, 0.6234)
9488  -- ( 0.3087, 0.6008)
9489  -- ( 0.2671, 0.5666)
9490  -- ( 0.2485, 0.5892)
9491  --cycle
9492  ;
9493  \path[hex/terrain/town/house,pic actions]
9494  ( 0.3295, 0.5855)
9495  -- ( 0.3477, 0.5626)
9496  -- ( 0.3058, 0.5291)
9497  -- ( 0.2875, 0.5519)
9498  --cycle
9499  ;
9500  \path[hex/terrain/town/house,pic actions]
9501  ( 0.3295, 0.5855)
9502  -- ( 0.3477, 0.5626)
9503  -- ( 0.3058, 0.5291)
9504  -- ( 0.2875, 0.5519)
9505  --cycle
9506  ;
9507  \path[hex/terrain/town/house,pic actions]
9508  ( 0.3915, 0.5035)
9509  -- ( 0.4098, 0.4807)
9510  -- ( 0.3680, 0.4471)
9511  -- ( 0.3497, 0.4699)
9512  --cycle
9513  ;
9514  \path[hex/terrain/town/house,pic actions]
9515  ( 0.3915, 0.5035)
9516  -- ( 0.4098, 0.4807)
9517  -- ( 0.3680, 0.4471)
9518  -- ( 0.3497, 0.4699)
9519  --cycle
9520  ;
9521  \path[hex/terrain/town/house,pic actions]
9522  ( 0.4274, 0.4691)
9523  -- ( 0.4472, 0.4474)
9524  -- ( 0.4075, 0.4112)
9525  -- ( 0.3878, 0.4327)
9526  --cycle
9527  ;
9528  \path[hex/terrain/town/house,pic actions]
9529  ( 0.4274, 0.4691)
9530  -- ( 0.4472, 0.4474)
9531  -- ( 0.4075, 0.4112)
9532  -- ( 0.3878, 0.4327)
9533  --cycle

```

```

9534 ;
9535 \path[hex/terrain/town/house,pic actions]
9536 ( 0.0465, 0.7243)
9537 -- ( 0.0751, 0.7305)
9538 -- ( 0.0864, 0.6779)
9539 -- ( 0.0578, 0.6717)
9540 --cycle
9541 ;
9542 \path[hex/terrain/town/house,pic actions]
9543 ( 0.0465, 0.7243)
9544 -- ( 0.0751, 0.7305)
9545 -- ( 0.0864, 0.6779)
9546 -- ( 0.0578, 0.6717)
9547 --cycle
9548 ;
9549 \path[hex/terrain/town/house,pic actions]
9550 (-0.0312, 0.7116)
9551 -- (-0.0338, 0.7407)
9552 -- ( 0.0197, 0.7456)
9553 -- ( 0.0223, 0.7164)
9554 --cycle
9555 ;
9556 \path[hex/terrain/town/house,pic actions]
9557 (-0.0312, 0.7116)
9558 -- (-0.0338, 0.7407)
9559 -- ( 0.0197, 0.7456)
9560 -- ( 0.0223, 0.7164)
9561 --cycle
9562 ;
9563 \path[hex/terrain/town/house,pic actions]
9564 (-0.1044, 0.7143)
9565 -- (-0.1084, 0.7434)
9566 -- (-0.0552, 0.7507)
9567 -- (-0.0512, 0.7216)
9568 --cycle
9569 ;
9570 \path[hex/terrain/town/house,pic actions]
9571 (-0.1044, 0.7143)
9572 -- (-0.1084, 0.7434)
9573 -- (-0.0552, 0.7507)
9574 -- (-0.0512, 0.7216)
9575 --cycle
9576 ;
9577 \path[hex/terrain/town/house,pic actions]
9578 (-0.1250, 0.6753)
9579 -- (-0.1169, 0.7034)
9580 -- (-0.0653, 0.6887)
9581 -- (-0.0733, 0.6605)
9582 --cycle
9583 ;
9584 \path[hex/terrain/town/house,pic actions]
9585 (-0.1250, 0.6753)
9586 -- (-0.1169, 0.7034)

```

```

9587 -- (-0.0653, 0.6887)
9588 -- (-0.0733, 0.6605)
9589 --cycle
9590 ;
9591 \path[hex/terrain/town/house,pic actions]
9592 (-0.2293, 0.7263)
9593 -- (-0.2016, 0.7170)
9594 -- (-0.2185, 0.6660)
9595 -- (-0.2463, 0.6753)
9596 --cycle
9597 ;
9598 \path[hex/terrain/town/house,pic actions]
9599 (-0.2293, 0.7263)
9600 -- (-0.2016, 0.7170)
9601 -- (-0.2185, 0.6660)
9602 -- (-0.2463, 0.6753)
9603 --cycle
9604 ;
9605 \path[hex/terrain/town/house,pic actions]
9606 (-0.4164, 0.8019)
9607 -- (-0.3886, 0.7926)
9608 -- (-0.4056, 0.7417)
9609 -- (-0.4335, 0.7510)
9610 --cycle
9611 ;
9612 \path[hex/terrain/town/house,pic actions]
9613 (-0.4164, 0.8019)
9614 -- (-0.3886, 0.7926)
9615 -- (-0.4056, 0.7417)
9616 -- (-0.4335, 0.7510)
9617 --cycle
9618 ;
9619 \path[hex/terrain/town/house,pic actions]
9620 (-0.3769, 0.7827)
9621 -- (-0.3486, 0.7746)
9622 -- (-0.3636, 0.7230)
9623 -- (-0.3918, 0.7311)
9624 --cycle
9625 ;
9626 \path[hex/terrain/town/house,pic actions]
9627 (-0.3769, 0.7827)
9628 -- (-0.3486, 0.7746)
9629 -- (-0.3636, 0.7230)
9630 -- (-0.3918, 0.7311)
9631 --cycle
9632 ;
9633 \path[hex/terrain/town/house,pic actions]
9634 (-0.2690, 0.8085)
9635 -- (-0.2696, 0.8379)
9636 -- (-0.2159, 0.8389)
9637 -- (-0.2153, 0.8097)
9638 --cycle
9639 ;

```



```

9640 \path[hex/terrain/town/house,pic actions]
9641 (-0.2690, 0.8085)
9642 -- (-0.2696, 0.8379)
9643 -- (-0.2159, 0.8389)
9644 -- (-0.2153, 0.8097)
9645 --cycle
9646 ;
9647 \path[hex/terrain/town/house,pic actions]
9648 (-0.0864, 0.8532)
9649 -- (-0.0767, 0.8256)
9650 -- (-0.1273, 0.8076)
9651 -- (-0.1371, 0.8352)
9652 --cycle
9653 ;
9654 \path[hex/terrain/town/house,pic actions]
9655 (-0.0864, 0.8532)
9656 -- (-0.0767, 0.8256)
9657 -- (-0.1273, 0.8076)
9658 -- (-0.1371, 0.8352)
9659 --cycle
9660 ;
9661 \path[hex/terrain/town/house,pic actions]
9662 (-0.3699, 0.6041)
9663 -- (-0.3425, 0.5939)
9664 -- (-0.3609, 0.5436)
9665 -- (-0.3885, 0.5537)
9666 --cycle
9667 ;
9668 \path[hex/terrain/town/house,pic actions]
9669 (-0.3699, 0.6041)
9670 -- (-0.3425, 0.5939)
9671 -- (-0.3609, 0.5436)
9672 -- (-0.3885, 0.5537)
9673 --cycle
9674 ;
9675 \path[hex/terrain/town/house,pic actions]
9676 (-0.4770, 0.6412)
9677 -- (-0.4500, 0.6299)
9678 -- (-0.4707, 0.5804)
9679 -- (-0.4978, 0.5918)
9680 --cycle
9681 ;
9682 \path[hex/terrain/town/house,pic actions]
9683 (-0.4770, 0.6412)
9684 -- (-0.4500, 0.6299)
9685 -- (-0.4707, 0.5804)
9686 -- (-0.4978, 0.5918)
9687 --cycle
9688 ;
9689 \path[hex/terrain/town/house,pic actions]
9690 (-0.4348, 0.4860)
9691 -- (-0.4060, 0.4806)
9692 -- (-0.4159, 0.4278)

```

```

9693 -- (-0.4447, 0.4332)
9694 --cycle
9695 ;
9696 \path[hex/terrain/town/house,pic actions]
9697 (-0.4348, 0.4860)
9698 -- (-0.4060, 0.4806)
9699 -- (-0.4159, 0.4278)
9700 -- (-0.4447, 0.4332)
9701 --cycle
9702 ;
9703 \path[hex/terrain/town/house,pic actions]
9704 (-0.4771, 0.4952)
9705 -- (-0.4520, 0.4800)
9706 -- (-0.4799, 0.4341)
9707 -- (-0.5050, 0.4493)
9708 --cycle
9709 ;
9710 \path[hex/terrain/town/house,pic actions]
9711 (-0.4771, 0.4952)
9712 -- (-0.4520, 0.4800)
9713 -- (-0.4799, 0.4341)
9714 -- (-0.5050, 0.4493)
9715 --cycle
9716 ;
9717 \path[hex/terrain/town/house,pic actions]
9718 (-0.5175, 0.4232)
9719 -- (-0.4917, 0.4092)
9720 -- (-0.5176, 0.3620)
9721 -- (-0.5433, 0.3761)
9722 --cycle
9723 ;
9724 \path[hex/terrain/town/house,pic actions]
9725 (-0.5175, 0.4232)
9726 -- (-0.4917, 0.4092)
9727 -- (-0.5176, 0.3620)
9728 -- (-0.5433, 0.3761)
9729 --cycle
9730 ;
9731 \path[hex/terrain/town/house,pic actions]
9732 (-0.5739, 0.5614)
9733 -- (-0.5487, 0.5464)
9734 -- (-0.5762, 0.5003)
9735 -- (-0.6013, 0.5152)
9736 --cycle
9737 ;
9738 \path[hex/terrain/town/house,pic actions]
9739 (-0.5739, 0.5614)
9740 -- (-0.5487, 0.5464)
9741 -- (-0.5762, 0.5003)
9742 -- (-0.6013, 0.5152)
9743 --cycle
9744 ;
9745 \path[hex/terrain/town/house,pic actions]

```

```

9746      (-0.6244, 0.4780)
9747      -- (-0.5977, 0.4661)
9748      -- (-0.6195, 0.4170)
9749      -- (-0.6463, 0.4289)
9750      --cycle
9751      ;
9752      \path[hex/terrain/town/house,pic actions]
9753      (-0.6244, 0.4780)
9754      -- (-0.5977, 0.4661)
9755      -- (-0.6195, 0.4170)
9756      -- (-0.6463, 0.4289)
9757      --cycle
9758      ;
9759      \path[hex/terrain/town/house,pic actions]
9760      (-0.6236, 0.1401)
9761      -- (-0.6192, 0.1691)
9762      -- (-0.5661, 0.1611)
9763      -- (-0.5705, 0.1321)
9764      --cycle
9765      ;
9766      \path[hex/terrain/town/house,pic actions]
9767      (-0.6236, 0.1401)
9768      -- (-0.6192, 0.1691)
9769      -- (-0.5661, 0.1611)
9770      -- (-0.5705, 0.1321)
9771      --cycle
9772      ;
9773      \path[hex/terrain/town/house,pic actions]
9774      (-0.3872, 0.3590)
9775      -- (-0.3829, 0.3880)
9776      -- (-0.3297, 0.3800)
9777      -- (-0.3341, 0.3510)
9778      --cycle
9779      ;
9780      \path[hex/terrain/town/house,pic actions]
9781      (-0.3872, 0.3590)
9782      -- (-0.3829, 0.3880)
9783      -- (-0.3297, 0.3800)
9784      -- (-0.3341, 0.3510)
9785      --cycle
9786      ;
9787      \path[hex/terrain/town/house,pic actions]
9788      (-0.6525, 0.1021)
9789      -- (-0.6404, 0.1288)
9790      -- (-0.5915, 0.1066)
9791      -- (-0.6036, 0.0799)
9792      --cycle
9793      ;
9794      \path[hex/terrain/town/house,pic actions]
9795      (-0.6525, 0.1021)
9796      -- (-0.6404, 0.1288)
9797      -- (-0.5915, 0.1066)
9798      -- (-0.6036, 0.0799)

```

```

9799  --cycle
9800  ;
9801  \path[hex/terrain/town/house,pic actions]
9802  (-0.4323, 0.3237)
9803  -- (-0.4202, 0.3503)
9804  -- (-0.3713, 0.3280)
9805  -- (-0.3834, 0.3014)
9806  --cycle
9807  ;
9808  \path[hex/terrain/town/house,pic actions]
9809  (-0.4323, 0.3237)
9810  -- (-0.4202, 0.3503)
9811  -- (-0.3713, 0.3280)
9812  -- (-0.3834, 0.3014)
9813  --cycle
9814  ;
9815  \path[hex/terrain/town/house,pic actions]
9816  (-0.3470, 0.2846)
9817  -- (-0.3349, 0.3113)
9818  -- (-0.2859, 0.2891)
9819  -- (-0.2981, 0.2624)
9820  --cycle
9821  ;
9822  \path[hex/terrain/town/house,pic actions]
9823  (-0.3470, 0.2846)
9824  -- (-0.3349, 0.3113)
9825  -- (-0.2859, 0.2891)
9826  -- (-0.2981, 0.2624)
9827  --cycle
9828  ;
9829  \path[hex/terrain/town/house,pic actions]
9830  (-0.3053, 0.3741)
9831  -- (-0.2932, 0.4008)
9832  -- (-0.2443, 0.3786)
9833  -- (-0.2564, 0.3519)
9834  --cycle
9835  ;
9836  \path[hex/terrain/town/house,pic actions]
9837  (-0.3053, 0.3741)
9838  -- (-0.2932, 0.4008)
9839  -- (-0.2443, 0.3786)
9840  -- (-0.2564, 0.3519)
9841  --cycle
9842  ;
9843  \path[hex/terrain/town/house,pic actions]
9844  (-0.6751, 0.0465)
9845  -- (-0.6666, 0.0746)
9846  -- (-0.6152, 0.0590)
9847  -- (-0.6237, 0.0310)
9848  --cycle
9849  ;
9850  \path[hex/terrain/town/house,pic actions]
9851  (-0.6751, 0.0465)

```

```

9852    -- (-0.6666, 0.0746)
9853    -- (-0.6152, 0.0590)
9854    -- (-0.6237, 0.0310)
9855    --cycle
9856    ;
9857    \path[hex/terrain/town/house,pic actions]
9858    (-0.7316,-0.0595)
9859    -- (-0.7215,-0.0320)
9860    -- (-0.6711,-0.0505)
9861    -- (-0.6812,-0.0780)
9862    --cycle
9863    ;
9864    \path[hex/terrain/town/house,pic actions]
9865    (-0.7316,-0.0595)
9866    -- (-0.7215,-0.0320)
9867    -- (-0.6711,-0.0505)
9868    -- (-0.6812,-0.0780)
9869    --cycle
9870    ;
9871    \path[hex/terrain/town/house,pic actions]
9872    (-0.7748,-0.1355)
9873    -- (-0.7629,-0.1088)
9874    -- (-0.7138,-0.1305)
9875    -- (-0.7257,-0.1573)
9876    --cycle
9877    ;
9878    \path[hex/terrain/town/house,pic actions]
9879    (-0.7748,-0.1355)
9880    -- (-0.7629,-0.1088)
9881    -- (-0.7138,-0.1305)
9882    -- (-0.7257,-0.1573)
9883    --cycle
9884    ;
9885    \path[hex/terrain/town/house,pic actions]
9886    (-0.6698,-0.1385)
9887    -- (-0.6512,-0.1159)
9888    -- (-0.6098,-0.1501)
9889    -- (-0.6284,-0.1727)
9890    --cycle
9891    ;
9892    \path[hex/terrain/town/house,pic actions]
9893    (-0.6698,-0.1385)
9894    -- (-0.6512,-0.1159)
9895    -- (-0.6098,-0.1501)
9896    -- (-0.6284,-0.1727)
9897    --cycle
9898    ;
9899    \path[hex/terrain/town/house,pic actions]
9900    (-0.3325,-0.1175)
9901    -- (-0.3067,-0.1313)
9902    -- (-0.3320,-0.1787)
9903    -- (-0.3579,-0.1649)
9904    --cycle

```

```

9905 ;
9906 \path[hex/terrain/town/house,pic actions]
9907 (-0.3325,-0.1175)
9908 -- (-0.3067,-0.1313)
9909 -- (-0.3320,-0.1787)
9910 -- (-0.3579,-0.1649)
9911 --cycle
9912 ;
9913 \path[hex/terrain/town/house,pic actions]
9914 (-0.4097,-0.0630)
9915 -- (-0.3827,-0.0741)
9916 -- (-0.4031,-0.1238)
9917 -- (-0.4302,-0.1127)
9918 --cycle
9919 ;
9920 \path[hex/terrain/town/house,pic actions]
9921 (-0.4097,-0.0630)
9922 -- (-0.3827,-0.0741)
9923 -- (-0.4031,-0.1238)
9924 -- (-0.4302,-0.1127)
9925 --cycle
9926 ;
9927 \path[hex/terrain/town/house,pic actions]
9928 (-0.3028, 0.0016)
9929 -- (-0.2734, 0.0016)
9930 -- (-0.2734,-0.0522)
9931 -- (-0.3028,-0.0522)
9932 --cycle
9933 ;
9934 \path[hex/terrain/town/house,pic actions]
9935 (-0.3028, 0.0016)
9936 -- (-0.2734, 0.0016)
9937 -- (-0.2734,-0.0522)
9938 -- (-0.3028,-0.0522)
9939 --cycle
9940 ;
9941 \path[hex/terrain/town/house,pic actions]
9942 (-0.2492,-0.0037)
9943 -- (-0.2198,-0.0037)
9944 -- (-0.2198,-0.0574)
9945 -- (-0.2492,-0.0574)
9946 --cycle
9947 ;
9948 \path[hex/terrain/town/house,pic actions]
9949 (-0.2492,-0.0037)
9950 -- (-0.2198,-0.0037)
9951 -- (-0.2198,-0.0574)
9952 -- (-0.2492,-0.0574)
9953 --cycle
9954 ;
9955 \path[hex/terrain/town/house,pic actions]
9956 (-0.4151, 0.0294)
9957 -- (-0.3858, 0.0294)

```

```

9958 -- (-0.3858,-0.0243)
9959 -- (-0.4151,-0.0243)
9960 --cycle
9961 ;
9962 \path[hex/terrain/town/house,pic actions]
9963 (-0.4151, 0.0294)
9964 -- (-0.3858, 0.0294)
9965 -- (-0.3858,-0.0243)
9966 -- (-0.4151,-0.0243)
9967 --cycle
9968 ;
9969 \path[hex/terrain/town/house,pic actions]
9970 (-0.4687, 0.0340)
9971 -- (-0.4394, 0.0340)
9972 -- (-0.4394,-0.0197)
9973 -- (-0.4687,-0.0197)
9974 --cycle
9975 ;
9976 \path[hex/terrain/town/house,pic actions]
9977 (-0.4687, 0.0340)
9978 -- (-0.4394, 0.0340)
9979 -- (-0.4394,-0.0197)
9980 -- (-0.4687,-0.0197)
9981 --cycle
9982 ;
9983 \path[hex/terrain/town/house,pic actions]
9984 (-0.5170, 0.0545)
9985 -- (-0.4876, 0.0545)
9986 -- (-0.4876, 0.0008)
9987 -- (-0.5170, 0.0008)
9988 --cycle
9989 ;
9990 \path[hex/terrain/town/house,pic actions]
9991 (-0.5170, 0.0545)
9992 -- (-0.4876, 0.0545)
9993 -- (-0.4876, 0.0008)
9994 -- (-0.5170, 0.0008)
9995 --cycle
9996 ;
9997 \path[hex/terrain/town/house,pic actions]
9998 (-0.4695, 0.1540)
9999 -- (-0.4413, 0.1461)
10000 -- (-0.4557, 0.0943)
10001 -- (-0.4839, 0.1022)
10002 --cycle
10003 ;
10004 \path[hex/terrain/town/house,pic actions]
10005 (-0.4695, 0.1540)
10006 -- (-0.4413, 0.1461)
10007 -- (-0.4557, 0.0943)
10008 -- (-0.4839, 0.1022)
10009 --cycle
10010 ;

```

```

10011  \path[hex/terrain/town/house,pic actions]
10012  (-0.4511, 0.2320)
10013  -- (-0.4227, 0.2241)
10014  -- (-0.4372, 0.1724)
10015  -- (-0.4654, 0.1803)
10016  --cycle
10017  ;
10018  \path[hex/terrain/town/house,pic actions]
10019  (-0.4511, 0.2320)
10020  -- (-0.4227, 0.2241)
10021  -- (-0.4372, 0.1724)
10022  -- (-0.4654, 0.1803)
10023  --cycle
10024  ;
10025  \path[hex/terrain/town/house,pic actions]
10026  (-0.4191, 0.1396)
10027  -- (-0.3904, 0.1335)
10028  -- (-0.4017, 0.0809)
10029  -- (-0.4304, 0.0871)
10030  --cycle
10031  ;
10032  \path[hex/terrain/town/house,pic actions]
10033  (-0.4191, 0.1396)
10034  -- (-0.3904, 0.1335)
10035  -- (-0.4017, 0.0809)
10036  -- (-0.4304, 0.0871)
10037  --cycle
10038  ;
10039  \path[hex/terrain/town/house,pic actions]
10040  (-0.0048,-0.2963)
10041  -- ( 0.0056,-0.2689)
10042  -- ( 0.0558,-0.2881)
10043  -- ( 0.0453,-0.3155)
10044  --cycle
10045  ;
10046  \path[hex/terrain/town/house,pic actions]
10047  (-0.0048,-0.2963)
10048  -- ( 0.0056,-0.2689)
10049  -- ( 0.0558,-0.2881)
10050  -- ( 0.0453,-0.3155)
10051  --cycle
10052  ;
10053  \path[hex/terrain/town/house,pic actions]
10054  ( 0.0804,-0.1001)
10055  -- ( 0.0908,-0.0728)
10056  -- ( 0.1410,-0.0919)
10057  -- ( 0.1305,-0.1192)
10058  --cycle
10059  ;
10060  \path[hex/terrain/town/house,pic actions]
10061  ( 0.0804,-0.1001)
10062  -- ( 0.0908,-0.0728)
10063  -- ( 0.1410,-0.0919)

```



```

10064 -- ( 0.1305,-0.1192)
10065 --cycle
10066 ;
10067 \path[hex/terrain/town/house,pic actions]
10068 (-0.1027,-0.2588)
10069 -- (-0.0979,-0.2299)
10070 -- (-0.0449,-0.2387)
10071 -- (-0.0498,-0.2676)
10072 --cycle
10073 ;
10074 \path[hex/terrain/town/house,pic actions]
10075 (-0.1027,-0.2588)
10076 -- (-0.0979,-0.2299)
10077 -- (-0.0449,-0.2387)
10078 -- (-0.0498,-0.2676)
10079 --cycle
10080 ;
10081 \path[hex/terrain/town/house,pic actions]
10082 (-0.1889,-0.2314)
10083 -- (-0.1776,-0.2043)
10084 -- (-0.1281,-0.2251)
10085 -- (-0.1394,-0.2521)
10086 --cycle
10087 ;
10088 \path[hex/terrain/town/house,pic actions]
10089 (-0.1889,-0.2314)
10090 -- (-0.1776,-0.2043)
10091 -- (-0.1281,-0.2251)
10092 -- (-0.1394,-0.2521)
10093 --cycle
10094 ;
10095 \path[hex/terrain/town/house,pic actions]
10096 (-0.1180,-0.3033)
10097 -- (-0.1077,-0.2759)
10098 -- (-0.0575,-0.2947)
10099 -- (-0.0677,-0.3221)
10100 --cycle
10101 ;
10102 \path[hex/terrain/town/house,pic actions]
10103 (-0.1180,-0.3033)
10104 -- (-0.1077,-0.2759)
10105 -- (-0.0575,-0.2947)
10106 -- (-0.0677,-0.3221)
10107 --cycle
10108 ;
10109 \path[hex/terrain/town/house,pic actions]
10110 (-0.2120,-0.2801)
10111 -- (-0.2010,-0.2529)
10112 -- (-0.1512,-0.2729)
10113 -- (-0.1622,-0.3002)
10114 --cycle
10115 ;
10116 \path[hex/terrain/town/house,pic actions]

```

```

10117 (-0.2120,-0.2801)
10118 -- (-0.2010,-0.2529)
10119 -- (-0.1512,-0.2729)
10120 -- (-0.1622,-0.3002)
10121 --cycle
10122 ;
10123 \path[hex/terrain/town/house,pic actions]
10124 (-0.2265,-0.3343)
10125 -- (-0.2161,-0.3069)
10126 -- (-0.1659,-0.3259)
10127 -- (-0.1762,-0.3533)
10128 --cycle
10129 ;
10130 \path[hex/terrain/town/house,pic actions]
10131 (-0.2265,-0.3343)
10132 -- (-0.2161,-0.3069)
10133 -- (-0.1659,-0.3259)
10134 -- (-0.1762,-0.3533)
10135 --cycle
10136 ;
10137 \path[hex/terrain/town/house,pic actions]
10138 (-0.0728,-0.3520)
10139 -- (-0.0436,-0.3488)
10140 -- (-0.0379,-0.4022)
10141 -- (-0.0670,-0.4054)
10142 --cycle
10143 ;
10144 \path[hex/terrain/town/house,pic actions]
10145 (-0.0728,-0.3520)
10146 -- (-0.0436,-0.3488)
10147 -- (-0.0379,-0.4022)
10148 -- (-0.0670,-0.4054)
10149 --cycle
10150 ;
10151 \path[hex/terrain/town/house,pic actions]
10152 ( 0.3598,-0.6299)
10153 -- ( 0.3752,-0.6051)
10154 -- ( 0.4209,-0.6334)
10155 -- ( 0.4054,-0.6583)
10156 --cycle
10157 ;
10158 \path[hex/terrain/town/house,pic actions]
10159 ( 0.3598,-0.6299)
10160 -- ( 0.3752,-0.6051)
10161 -- ( 0.4209,-0.6334)
10162 -- ( 0.4054,-0.6583)
10163 --cycle
10164 ;
10165 \path[hex/terrain/town/house,pic actions]
10166 ( 0.3284,-0.6582)
10167 -- ( 0.3482,-0.6365)
10168 -- ( 0.3879,-0.6727)
10169 -- ( 0.3681,-0.6944)

```

```

10170  --cycle
10171  ;
10172  \path[hex/terrain/town/house,pic actions]
10173  ( 0.3284,-0.6582)
10174  -- ( 0.3482,-0.6365)
10175  -- ( 0.3879,-0.6727)
10176  -- ( 0.3681,-0.6944)
10177  --cycle
10178  ;
10179  \path[hex/terrain/town/house,pic actions]
10180  (-0.8159,-0.3188)
10181  -- (-0.7892,-0.3067)
10182  -- (-0.7670,-0.3556)
10183  -- (-0.7937,-0.3677)
10184  --cycle
10185  ;
10186  \path[hex/terrain/town/house,pic actions]
10187  (-0.8159,-0.3188)
10188  -- (-0.7892,-0.3067)
10189  -- (-0.7670,-0.3556)
10190  -- (-0.7937,-0.3677)
10191  --cycle
10192  ;
10193  \path[hex/terrain/town/house,pic actions]
10194  (-0.8755, 0.1805)
10195  -- (-0.8623, 0.2066)
10196  -- (-0.8144, 0.1824)
10197  -- (-0.8276, 0.1562)
10198  --cycle
10199  ;
10200  \path[hex/terrain/town/house,pic actions]
10201  (-0.8755, 0.1805)
10202  -- (-0.8623, 0.2066)
10203  -- (-0.8144, 0.1824)
10204  -- (-0.8276, 0.1562)
10205  --cycle
10206  ;
10207  \path[hex/terrain/town/house,pic actions]
10208  (-0.9400, 0.0507)
10209  -- (-0.9275, 0.0771)
10210  -- (-0.8789, 0.0541)
10211  -- (-0.8916, 0.0276)
10212  --cycle
10213  ;
10214  \path[hex/terrain/town/house,pic actions]
10215  (-0.9400, 0.0507)
10216  -- (-0.9275, 0.0771)
10217  -- (-0.8789, 0.0541)
10218  -- (-0.8916, 0.0276)
10219  --cycle
10220  ;
10221  \path[hex/terrain/town/house,pic actions]
10222  (-0.9500,-0.0171)

```

```

10223 -- (-0.9467, 0.0120)
10224 -- (-0.8934, 0.0060)
10225 -- (-0.8966,-0.0232)
10226 --cycle
10227 ;
10228 \path[hex/terrain/town/house,pic actions]
10229 (-0.9500,-0.0171)
10230 -- (-0.9467, 0.0120)
10231 -- (-0.8934, 0.0060)
10232 -- (-0.8966,-0.0232)
10233 --cycle
10234 ;
10235 \path[hex/terrain/town/house,pic actions]
10236 (-0.0374, 0.6594)
10237 -- (-0.0376, 0.6887)
10238 -- ( 0.0161, 0.6890)
10239 -- ( 0.0162, 0.6598)
10240 --cycle
10241 ;
10242 \path[hex/terrain/town/house,pic actions]
10243 (-0.0374, 0.6594)
10244 -- (-0.0376, 0.6887)
10245 -- ( 0.0161, 0.6890)
10246 -- ( 0.0162, 0.6598)
10247 --cycle
10248 ;
10249 \path[hex/terrain/town/house,pic actions]
10250 ( 0.1600, 0.8267)
10251 -- ( 0.1793, 0.8046)
10252 -- ( 0.1388, 0.7692)
10253 -- ( 0.1195, 0.7913)
10254 --cycle
10255 ;
10256 \path[hex/terrain/town/house,pic actions]
10257 ( 0.1600, 0.8267)
10258 -- ( 0.1793, 0.8046)
10259 -- ( 0.1388, 0.7692)
10260 -- ( 0.1195, 0.7913)
10261 --cycle
10262 ;
10263 \path[hex/terrain/town/house,pic actions]
10264 ( 0.4284, 0.3107)
10265 -- ( 0.4572, 0.3163)
10266 -- ( 0.4672, 0.2634)
10267 -- ( 0.4384, 0.2580)
10268 --cycle
10269 ;
10270 \path[hex/terrain/town/house,pic actions]
10271 ( 0.4284, 0.3107)
10272 -- ( 0.4572, 0.3163)
10273 -- ( 0.4672, 0.2634)
10274 -- ( 0.4384, 0.2580)
10275 --cycle

```

```

10276 ;
10277 \path[hex/terrain/town/house,pic actions]
10278 ( 0.4721, 0.3149)
10279 -- ( 0.5003, 0.3230)
10280 -- ( 0.5151, 0.2714)
10281 -- ( 0.4870, 0.2633)
10282 --cycle
10283 ;
10284 \path[hex/terrain/town/house,pic actions]
10285 ( 0.4721, 0.3149)
10286 -- ( 0.5003, 0.3230)
10287 -- ( 0.5151, 0.2714)
10288 -- ( 0.4870, 0.2633)
10289 --cycle
10290 ;
10291 \path[hex/terrain/town/house,pic actions]
10292 ( 0.5761, 0.3388)
10293 -- ( 0.6049, 0.3443)
10294 -- ( 0.6150, 0.2916)
10295 -- ( 0.5862, 0.2860)
10296 --cycle
10297 ;
10298 \path[hex/terrain/town/house,pic actions]
10299 ( 0.5761, 0.3388)
10300 -- ( 0.6049, 0.3443)
10301 -- ( 0.6150, 0.2916)
10302 -- ( 0.5862, 0.2860)
10303 --cycle
10304 ;
10305 \path[hex/terrain/town/house,pic actions]
10306 ( 0.6283, 0.3369)
10307 -- ( 0.6567, 0.3296)
10308 -- ( 0.6432, 0.2775)
10309 -- ( 0.6148, 0.2849)
10310 --cycle
10311 ;
10312 \path[hex/terrain/town/house,pic actions]
10313 ( 0.6283, 0.3369)
10314 -- ( 0.6567, 0.3296)
10315 -- ( 0.6432, 0.2775)
10316 -- ( 0.6148, 0.2849)
10317 --cycle
10318 ;
10319 \path[hex/terrain/town/house,pic actions]
10320 ( 0.5378, 0.2581)
10321 -- ( 0.5670, 0.2616)
10322 -- ( 0.5734, 0.2083)
10323 -- ( 0.5443, 0.2047)
10324 --cycle
10325 ;
10326 \path[hex/terrain/town/house,pic actions]
10327 ( 0.5378, 0.2581)
10328 -- ( 0.5670, 0.2616)

```

```

10329 -- ( 0.5734, 0.2083)
10330 -- ( 0.5443, 0.2047)
10331 --cycle
10332 ;
10333 \path[hex/terrain/town/house,pic actions]
10334 ( 0.4853, 0.2500)
10335 -- ( 0.5140, 0.2555)
10336 -- ( 0.5241, 0.2028)
10337 -- ( 0.4953, 0.1973)
10338 --cycle
10339 ;
10340 \path[hex/terrain/town/house,pic actions]
10341 ( 0.4853, 0.2500)
10342 -- ( 0.5140, 0.2555)
10343 -- ( 0.5241, 0.2028)
10344 -- ( 0.4953, 0.1973)
10345 --cycle
10346 ;
10347 \path[hex/terrain/town/house,pic actions]
10348 ( 0.4028, 0.0895)
10349 -- ( 0.4321, 0.0895)
10350 -- ( 0.4321, 0.0358)
10351 -- ( 0.4028, 0.0358)
10352 --cycle
10353 ;
10354 \path[hex/terrain/town/house,pic actions]
10355 ( 0.4028, 0.0895)
10356 -- ( 0.4321, 0.0895)
10357 -- ( 0.4321, 0.0358)
10358 -- ( 0.4028, 0.0358)
10359 --cycle
10360 ;
10361 \path[hex/terrain/town/house,pic actions]
10362 ( 0.4612, 0.0957)
10363 -- ( 0.4899, 0.0898)
10364 -- ( 0.4793, 0.0371)
10365 -- ( 0.4506, 0.0430)
10366 --cycle
10367 ;
10368 \path[hex/terrain/town/house,pic actions]
10369 ( 0.4612, 0.0957)
10370 -- ( 0.4899, 0.0898)
10371 -- ( 0.4793, 0.0371)
10372 -- ( 0.4506, 0.0430)
10373 --cycle
10374 ;
10375 \path[hex/terrain/town/house,pic actions]
10376 ( 0.5422,-0.0041)
10377 -- ( 0.5437,-0.0333)
10378 -- ( 0.4900,-0.0361)
10379 -- ( 0.4885,-0.0068)
10380 --cycle
10381 ;

```

```

10382 \path[hex/terrain/town/house,pic actions]
10383 ( 0.5422,-0.0041)
10384 -- ( 0.5437,-0.0333)
10385 -- ( 0.4900,-0.0361)
10386 -- ( 0.4885,-0.0068)
10387 --cycle
10388 ;
10389 \path[hex/terrain/town/house,pic actions]
10390 ( 0.6654,-0.0050)
10391 -- ( 0.6664,-0.0343)
10392 -- ( 0.6128,-0.0361)
10393 -- ( 0.6117,-0.0068)
10394 --cycle
10395 ;
10396 \path[hex/terrain/town/house,pic actions]
10397 ( 0.6654,-0.0050)
10398 -- ( 0.6664,-0.0343)
10399 -- ( 0.6128,-0.0361)
10400 -- ( 0.6117,-0.0068)
10401 --cycle
10402 ;
10403 \path[hex/terrain/town/house,pic actions]
10404 ( 0.7573, 0.2817)
10405 -- ( 0.7646, 0.2533)
10406 -- ( 0.7124, 0.2402)
10407 -- ( 0.7053, 0.2686)
10408 --cycle
10409 ;
10410 \path[hex/terrain/town/house,pic actions]
10411 ( 0.7573, 0.2817)
10412 -- ( 0.7646, 0.2533)
10413 -- ( 0.7124, 0.2402)
10414 -- ( 0.7053, 0.2686)
10415 --cycle
10416 ;
10417 \path[hex/terrain/town/house,pic actions]
10418 ( 0.7393, 0.3502)
10419 -- ( 0.7456, 0.3216)
10420 -- ( 0.6931, 0.3101)
10421 -- ( 0.6868, 0.3387)
10422 --cycle
10423 ;
10424 \path[hex/terrain/town/house,pic actions]
10425 ( 0.7393, 0.3502)
10426 -- ( 0.7456, 0.3216)
10427 -- ( 0.6931, 0.3101)
10428 -- ( 0.6868, 0.3387)
10429 --cycle
10430 ;
10431 \path[hex/terrain/town/house,pic actions]
10432 ( 0.8114, 0.0963)
10433 -- ( 0.8188, 0.0679)
10434 -- ( 0.7668, 0.0543)

```

```

10435 -- ( 0.7594, 0.0826)
10436 --cycle
10437 ;
10438 \path[hex/terrain/town/house,pic actions]
10439 ( 0.8114, 0.0963)
10440 -- ( 0.8188, 0.0679)
10441 -- ( 0.7668, 0.0543)
10442 -- ( 0.7594, 0.0826)
10443 --cycle
10444 ;
10445 \path[hex/terrain/town/house,pic actions]
10446 ( 0.8247,-0.0115)
10447 -- ( 0.8312,-0.0401)
10448 -- ( 0.7788,-0.0521)
10449 -- ( 0.7723,-0.0235)
10450 --cycle
10451 ;
10452 \path[hex/terrain/town/house,pic actions]
10453 ( 0.8247,-0.0115)
10454 -- ( 0.8312,-0.0401)
10455 -- ( 0.7788,-0.0521)
10456 -- ( 0.7723,-0.0235)
10457 --cycle
10458 ;
10459 \path[hex/terrain/town/house,pic actions]
10460 ( 0.9279, 0.0392)
10461 -- ( 0.9358, 0.0110)
10462 -- ( 0.8842,-0.0036)
10463 -- ( 0.8762, 0.0245)
10464 --cycle
10465 ;
10466 \path[hex/terrain/town/house,pic actions]
10467 ( 0.9279, 0.0392)
10468 -- ( 0.9358, 0.0110)
10469 -- ( 0.8842,-0.0036)
10470 -- ( 0.8762, 0.0245)
10471 --cycle
10472 ;
10473 \path[hex/terrain/town/house,pic actions]
10474 ( 0.9473,-0.0199)
10475 -- ( 0.9500,-0.0490)
10476 -- ( 0.8965,-0.0540)
10477 -- ( 0.8939,-0.0248)
10478 --cycle
10479 ;
10480 \path[hex/terrain/town/house,pic actions]
10481 ( 0.9473,-0.0199)
10482 -- ( 0.9500,-0.0490)
10483 -- ( 0.8965,-0.0540)
10484 -- ( 0.8939,-0.0248)
10485 --cycle
10486 ;
10487 \path[hex/terrain/town/house,pic actions]

```



```

10488 ( 0.8832, 0.1513)
10489 -- ( 0.8949, 0.1245)
10490 -- ( 0.8456, 0.1031)
10491 -- ( 0.8339, 0.1300)
10492 --cycle
10493 ;
10494 \path[hex/terrain/town/house,pic actions]
10495 ( 0.8832, 0.1513)
10496 -- ( 0.8949, 0.1245)
10497 -- ( 0.8456, 0.1031)
10498 -- ( 0.8339, 0.1300)
10499 --cycle
10500 ;
10501 \path[hex/terrain/town/house,pic actions]
10502 ( 0.8604, 0.2135)
10503 -- ( 0.8734, 0.1872)
10504 -- ( 0.8254, 0.1634)
10505 -- ( 0.8123, 0.1896)
10506 --cycle
10507 ;
10508 \path[hex/terrain/town/house,pic actions]
10509 ( 0.8604, 0.2135)
10510 -- ( 0.8734, 0.1872)
10511 -- ( 0.8254, 0.1634)
10512 -- ( 0.8123, 0.1896)
10513 --cycle
10514 ;
10515 \path[hex/terrain/town/house,pic actions]
10516 ( 0.7675, 0.2368)
10517 -- ( 0.7736, 0.2082)
10518 -- ( 0.7210, 0.1970)
10519 -- ( 0.7150, 0.2257)
10520 --cycle
10521 ;
10522 \path[hex/terrain/town/house,pic actions]
10523 ( 0.7675, 0.2368)
10524 -- ( 0.7736, 0.2082)
10525 -- ( 0.7210, 0.1970)
10526 -- ( 0.7150, 0.2257)
10527 --cycle
10528 ;
10529 \path[hex/terrain/town/house,pic actions]
10530 ( 0.7696,-0.1796)
10531 -- ( 0.7978,-0.1875)
10532 -- ( 0.7835,-0.2392)
10533 -- ( 0.7552,-0.2314)
10534 --cycle
10535 ;
10536 \path[hex/terrain/town/house,pic actions]
10537 ( 0.7696,-0.1796)
10538 -- ( 0.7978,-0.1875)
10539 -- ( 0.7835,-0.2392)
10540 -- ( 0.7552,-0.2314)

```

```

10541  --cycle
10542  ;
10543  \path[hex/terrain/town/house,pic actions]
10544  ( 0.7546,-0.0830)
10545  -- ( 0.7838,-0.0830)
10546  -- ( 0.7838,-0.1367)
10547  -- ( 0.7546,-0.1367)
10548  --cycle
10549  ;
10550  \path[hex/terrain/town/house,pic actions]
10551  ( 0.7546,-0.0830)
10552  -- ( 0.7838,-0.0830)
10553  -- ( 0.7838,-0.1367)
10554  -- ( 0.7546,-0.1367)
10555  --cycle
10556  ;
10557  \path[hex/terrain/town/house,pic actions]
10558  ( 0.7114,-0.1735)
10559  -- ( 0.7402,-0.1784)
10560  -- ( 0.7313,-0.2313)
10561  -- ( 0.7024,-0.2265)
10562  --cycle
10563  ;
10564  \path[hex/terrain/town/house,pic actions]
10565  ( 0.7114,-0.1735)
10566  -- ( 0.7402,-0.1784)
10567  -- ( 0.7313,-0.2313)
10568  -- ( 0.7024,-0.2265)
10569  --cycle
10570  ;
10571  \path[hex/terrain/town/house,pic actions]
10572  ( 0.6398,-0.0896)
10573  -- ( 0.6691,-0.0896)
10574  -- ( 0.6691,-0.1433)
10575  -- ( 0.6398,-0.1433)
10576  --cycle
10577  ;
10578  \path[hex/terrain/town/house,pic actions]
10579  ( 0.6398,-0.0896)
10580  -- ( 0.6691,-0.0896)
10581  -- ( 0.6691,-0.1433)
10582  -- ( 0.6398,-0.1433)
10583  --cycle
10584  ;
10585  \path[hex/terrain/town/house,pic actions]
10586  ( 0.5390,-0.1093)
10587  -- ( 0.5377,-0.0801)
10588  -- ( 0.5913,-0.0776)
10589  -- ( 0.5927,-0.1069)
10590  --cycle
10591  ;
10592  \path[hex/terrain/town/house,pic actions]
10593  ( 0.5390,-0.1093)

```

```

10594 -- ( 0.5377,-0.0801)
10595 -- ( 0.5913,-0.0776)
10596 -- ( 0.5927,-0.1069)
10597 --cycle
10598 ;
10599 \path[hex/terrain/town/house,pic actions]
10600 ( 0.5171,-0.2250)
10601 -- ( 0.5252,-0.1968)
10602 -- ( 0.5767,-0.2117)
10603 -- ( 0.5687,-0.2399)
10604 --cycle
10605 ;
10606 \path[hex/terrain/town/house,pic actions]
10607 ( 0.5171,-0.2250)
10608 -- ( 0.5252,-0.1968)
10609 -- ( 0.5767,-0.2117)
10610 -- ( 0.5687,-0.2399)
10611 --cycle
10612 ;
10613 \path[hex/terrain/town/house,pic actions]
10614 ( 0.5024,-0.2807)
10615 -- ( 0.5066,-0.2517)
10616 -- ( 0.5597,-0.2597)
10617 -- ( 0.5555,-0.2887)
10618 --cycle
10619 ;
10620 \path[hex/terrain/town/house,pic actions]
10621 ( 0.5024,-0.2807)
10622 -- ( 0.5066,-0.2517)
10623 -- ( 0.5597,-0.2597)
10624 -- ( 0.5555,-0.2887)
10625 --cycle
10626 ;
10627 \path[hex/terrain/town/house,pic actions]
10628 ( 0.6783,-0.2717)
10629 -- ( 0.7056,-0.2824)
10630 -- ( 0.6858,-0.3324)
10631 -- ( 0.6585,-0.3216)
10632 --cycle
10633 ;
10634 \path[hex/terrain/town/house,pic actions]
10635 ( 0.6783,-0.2717)
10636 -- ( 0.7056,-0.2824)
10637 -- ( 0.6858,-0.3324)
10638 -- ( 0.6585,-0.3216)
10639 --cycle
10640 ;
10641 \path[hex/terrain/town/house,pic actions]
10642 ( 0.4010,-0.3903)
10643 -- ( 0.4019,-0.3609)
10644 -- ( 0.4556,-0.3627)
10645 -- ( 0.4547,-0.3921)
10646 --cycle

```

```

10647 ;
10648 \path[hex/terrain/town/house,pic actions]
10649 ( 0.4010,-0.3903)
10650 -- ( 0.4019,-0.3609)
10651 -- ( 0.4556,-0.3627)
10652 -- ( 0.4547,-0.3921)
10653 --cycle
10654 ;
10655 \path[hex/terrain/town/house,pic actions]
10656 ( 0.6576,-0.1610)
10657 -- ( 0.6852,-0.1708)
10658 -- ( 0.6672,-0.2214)
10659 -- ( 0.6396,-0.2116)
10660 --cycle
10661 ;
10662 \path[hex/terrain/town/house,pic actions]
10663 ( 0.6576,-0.1610)
10664 -- ( 0.6852,-0.1708)
10665 -- ( 0.6672,-0.2214)
10666 -- ( 0.6396,-0.2116)
10667 --cycle
10668 ;
10669 \path[hex/terrain/town/house,pic actions]
10670 ( 0.4024,-0.7175)
10671 -- ( 0.4484,-0.7175)
10672 -- ( 0.4484,-0.7785)
10673 -- ( 0.4024,-0.7785)
10674 --cycle
10675 ;
10676 \path[hex/terrain/town/house,pic actions]
10677 ( 0.4024,-0.7175)
10678 -- ( 0.4484,-0.7175)
10679 -- ( 0.4484,-0.7785)
10680 -- ( 0.4024,-0.7785)
10681 --cycle
10682 ;
10683 \path[hex/terrain/town/house,pic actions]
10684 (-0.3999,-0.7917)
10685 -- (-0.3540,-0.7917)
10686 -- (-0.3540,-0.8527)
10687 -- (-0.3999,-0.8527)
10688 --cycle
10689 ;
10690 \path[hex/terrain/town/house,pic actions]
10691 (-0.3999,-0.7917)
10692 -- (-0.3540,-0.7917)
10693 -- (-0.3540,-0.8527)
10694 -- (-0.3999,-0.8527)
10695 --cycle
10696 ;
10697 \path[hex/terrain/town/house,pic actions]
10698 (-0.7770,-0.2886)
10699 -- (-0.7319,-0.2679)

```

```

10700 -- (-0.6985,-0.3406)
10701 -- (-0.7437,-0.3613)
10702 --cycle
10703 ;
10704 \path[hex/terrain/town/house,pic actions]
10705 (-0.7770,-0.2886)
10706 -- (-0.7319,-0.2679)
10707 -- (-0.6985,-0.3406)
10708 -- (-0.7437,-0.3613)
10709 --cycle
10710 ;
10711 \path[hex/terrain/town/house,pic actions]
10712 (-0.1783,-0.5367)
10713 -- (-0.1339,-0.5483)
10714 -- (-0.1492,-0.6074)
10715 -- (-0.1937,-0.5958)
10716 --cycle
10717 ;
10718 \path[hex/terrain/town/house,pic actions]
10719 (-0.1783,-0.5367)
10720 -- (-0.1339,-0.5483)
10721 -- (-0.1492,-0.6074)
10722 -- (-0.1937,-0.5958)
10723 --cycle
10724 ;
10725 \path[hex/terrain/town/house,pic actions]
10726 ( 0.3106,-0.7770)
10727 -- ( 0.3564,-0.7770)
10728 -- ( 0.3564,-0.8380)
10729 -- ( 0.3106,-0.8380)
10730 --cycle
10731 ;
10732 \path[hex/terrain/town/house,pic actions]
10733 ( 0.3106,-0.7770)
10734 -- ( 0.3564,-0.7770)
10735 -- ( 0.3564,-0.8380)
10736 -- ( 0.3106,-0.8380)
10737 --cycle
10738 ;
10739 \path[hex/terrain/town/house,pic actions]
10740 (-0.0626,-0.7954)
10741 -- (-0.0196,-0.8113)
10742 -- (-0.0406,-0.8686)
10743 -- (-0.0837,-0.8527)
10744 --cycle
10745 ;
10746 \path[hex/terrain/town/house,pic actions]
10747 (-0.0626,-0.7954)
10748 -- (-0.0196,-0.8113)
10749 -- (-0.0406,-0.8686)
10750 -- (-0.0837,-0.8527)
10751 --cycle
10752 ;

```

```

10753 \path[hex/terrain/town/house,pic actions]
10754 ( 0.0570,-0.7843)
10755 -- ( 0.1025,-0.7910)
10756 -- ( 0.0936,-0.8514)
10757 -- ( 0.0481,-0.8446)
10758 --cycle
10759 ;
10760 \path[hex/terrain/town/house,pic actions]
10761 ( 0.0570,-0.7843)
10762 -- ( 0.1025,-0.7910)
10763 -- ( 0.0936,-0.8514)
10764 -- ( 0.0481,-0.8446)
10765 --cycle
10766 ;
10767 \path[hex/terrain/town/house,pic actions]
10768 ( 0.0906,-0.6908)
10769 -- ( 0.1345,-0.7046)
10770 -- ( 0.1161,-0.7629)
10771 -- ( 0.0723,-0.7490)
10772 --cycle
10773 ;
10774 \path[hex/terrain/town/house,pic actions]
10775 ( 0.0906,-0.6908)
10776 -- ( 0.1345,-0.7046)
10777 -- ( 0.1161,-0.7629)
10778 -- ( 0.0723,-0.7490)
10779 --cycle
10780 ;
10781 \path[hex/terrain/town/house,pic actions]
10782 (-0.4731,-0.7998)
10783 -- (-0.4283,-0.7899)
10784 -- (-0.4151,-0.8496)
10785 -- (-0.4600,-0.8595)
10786 --cycle
10787 ;
10788 \path[hex/terrain/town/house,pic actions]
10789 (-0.4731,-0.7998)
10790 -- (-0.4283,-0.7899)
10791 -- (-0.4151,-0.8496)
10792 -- (-0.4600,-0.8595)
10793 --cycle
10794 ;
10795 \path[hex/terrain/town/house,pic actions]
10796 ( 0.4125,-0.0879)
10797 -- ( 0.4578,-0.0951)
10798 -- ( 0.4483,-0.1553)
10799 -- ( 0.4029,-0.1481)
10800 --cycle
10801 ;
10802 \path[hex/terrain/town/house,pic actions]
10803 ( 0.4125,-0.0879)
10804 -- ( 0.4578,-0.0951)
10805 -- ( 0.4483,-0.1553)

```

```

10806 -- ( 0.4029,-0.1481)
10807 --cycle
10808 ;
10809 \path[hex/terrain/town/house,pic actions]
10810 ( 0.2078, 0.8568)
10811 -- ( 0.2536, 0.8583)
10812 -- ( 0.2555, 0.7973)
10813 -- ( 0.2097, 0.7958)
10814 --cycle
10815 ;
10816 \path[hex/terrain/town/house,pic actions]
10817 ( 0.2078, 0.8568)
10818 -- ( 0.2536, 0.8583)
10819 -- ( 0.2555, 0.7973)
10820 -- ( 0.2097, 0.7958)
10821 --cycle
10822 ;
10823 \path[hex/terrain/town/house,pic actions]
10824 ( 0.5829,-0.2493)
10825 -- ( 0.6289,-0.2493)
10826 -- ( 0.6289,-0.3104)
10827 -- ( 0.5829,-0.3104)
10828 --cycle
10829 ;
10830 \path[hex/terrain/town/house,pic actions]
10831 ( 0.5829,-0.2493)
10832 -- ( 0.6289,-0.2493)
10833 -- ( 0.6289,-0.3104)
10834 -- ( 0.5829,-0.3104)
10835 --cycle
10836 ;
10837 \path[hex/terrain/town/house,pic actions]
10838 ( 0.2923,-0.1390)
10839 -- ( 0.3109,-0.0970)
10840 -- ( 0.3667,-0.1218)
10841 -- ( 0.3481,-0.1638)
10842 --cycle
10843 ;
10844 \path[hex/terrain/town/house,pic actions]
10845 ( 0.2923,-0.1390)
10846 -- ( 0.3109,-0.0970)
10847 -- ( 0.3667,-0.1218)
10848 -- ( 0.3481,-0.1638)
10849 --cycle
10850 ;
10851 \path[hex/terrain/town/house,pic actions]
10852 ( 0.6866,-0.0789)
10853 -- ( 0.7324,-0.0789)
10854 -- ( 0.7324,-0.1400)
10855 -- ( 0.6866,-0.1400)
10856 --cycle
10857 ;
10858 \path[hex/terrain/town/house,pic actions]

```

```

10859 ( 0.6866,-0.0789)
10860 -- ( 0.7324,-0.0789)
10861 -- ( 0.7324,-0.1400)
10862 -- ( 0.6866,-0.1400)
10863 --cycle
10864 ;
10865 \path[hex/terrain/town/house,pic actions]
10866 ( 0.8206,-0.0922)
10867 -- ( 0.8649,-0.1044)
10868 -- ( 0.8487,-0.1632)
10869 -- ( 0.8045,-0.1511)
10870 --cycle
10871 ;
10872 \path[hex/terrain/town/house,pic actions]
10873 ( 0.8206,-0.0922)
10874 -- ( 0.8649,-0.1044)
10875 -- ( 0.8487,-0.1632)
10876 -- ( 0.8045,-0.1511)
10877 --cycle
10878 ;
10879 \path[hex/terrain/town/house,pic actions]
10880 (-0.3075, 0.5809)
10881 -- (-0.2648, 0.5640)
10882 -- (-0.2872, 0.5072)
10883 -- (-0.3299, 0.5241)
10884 --cycle
10885 ;
10886 \path[hex/terrain/town/house,pic actions]
10887 (-0.3075, 0.5809)
10888 -- (-0.2648, 0.5640)
10889 -- (-0.2872, 0.5072)
10890 -- (-0.3299, 0.5241)
10891 --cycle
10892 ;
10893 \path[hex/terrain/town/house,pic actions]
10894 (-0.7746, 0.3900)
10895 -- (-0.7312, 0.3750)
10896 -- (-0.7511, 0.3173)
10897 -- (-0.7945, 0.3322)
10898 --cycle
10899 ;
10900 \path[hex/terrain/town/house,pic actions]
10901 (-0.7746, 0.3900)
10902 -- (-0.7312, 0.3750)
10903 -- (-0.7511, 0.3173)
10904 -- (-0.7945, 0.3322)
10905 --cycle
10906 ;
10907 \path[hex/terrain/town/house,pic actions]
10908 (-0.8224, 0.3024)
10909 -- (-0.7807, 0.2831)
10910 -- (-0.8064, 0.2277)
10911 -- (-0.8481, 0.2470)

```



```

10912  --cycle
10913  ;
10914  \path[hex/terrain/town/house,pic actions]
10915  (-0.8224, 0.3024)
10916  -- (-0.7807, 0.2831)
10917  -- (-0.8064, 0.2277)
10918  -- (-0.8481, 0.2470)
10919  --cycle
10920  ;
10921  \path[hex/terrain/town/house,pic actions]
10922  (-0.7172, 0.2999)
10923  -- (-0.6959, 0.3406)
10924  -- (-0.6418, 0.3122)
10925  -- (-0.6632, 0.2715)
10926  --cycle
10927  ;
10928  \path[hex/terrain/town/house,pic actions]
10929  (-0.7172, 0.2999)
10930  -- (-0.6959, 0.3406)
10931  -- (-0.6418, 0.3122)
10932  -- (-0.6632, 0.2715)
10933  --cycle
10934  ;
10935  \path[hex/terrain/town/house,pic actions]
10936  (-0.7505, 0.2368)
10937  -- (-0.7273, 0.2764)
10938  -- (-0.6746, 0.2456)
10939  -- (-0.6979, 0.2060)
10940  --cycle
10941  ;
10942  \path[hex/terrain/town/house,pic actions]
10943  (-0.7505, 0.2368)
10944  -- (-0.7273, 0.2764)
10945  -- (-0.6746, 0.2456)
10946  -- (-0.6979, 0.2060)
10947  --cycle
10948  ;
10949  \path[hex/terrain/town/house,pic actions]
10950  (-0.7726, 0.1668)
10951  -- (-0.7521, 0.2080)
10952  -- (-0.6975, 0.1808)
10953  -- (-0.7180, 0.1396)
10954  --cycle
10955  ;
10956  \path[hex/terrain/town/house,pic actions]
10957  (-0.7726, 0.1668)
10958  -- (-0.7521, 0.2080)
10959  -- (-0.6975, 0.1808)
10960  -- (-0.7180, 0.1396)
10961  --cycle
10962  ;
10963  \path[hex/terrain/town/house,pic actions]
10964  (-0.8067, 0.1033)

```

```

10965 -- (-0.7877, 0.1452)
10966 -- (-0.7322, 0.1199)
10967 -- (-0.7512, 0.0781)
10968 --cycle
10969 ;
10970 \path[hex/terrain/town/house,pic actions]
10971 (-0.8067, 0.1033)
10972 -- (-0.7877, 0.1452)
10973 -- (-0.7322, 0.1199)
10974 -- (-0.7512, 0.0781)
10975 --cycle
10976 ;
10977 \path[hex/terrain/town/house,pic actions]
10978 (-0.8292, 0.0434)
10979 -- (-0.8106, 0.0854)
10980 -- (-0.7548, 0.0608)
10981 -- (-0.7733, 0.0188)
10982 --cycle
10983 ;
10984 \path[hex/terrain/town/house,pic actions]
10985 (-0.8292, 0.0434)
10986 -- (-0.8106, 0.0854)
10987 -- (-0.7548, 0.0608)
10988 -- (-0.7733, 0.0188)
10989 --cycle
10990 ;
10991 \path[hex/terrain/town/house,pic actions]
10992 (-0.8479,-0.0238)
10993 -- (-0.8336, 0.0199)
10994 -- (-0.7757, 0.0009)
10995 -- (-0.7899,-0.0427)
10996 --cycle
10997 ;
10998 \path[hex/terrain/town/house,pic actions]
10999 (-0.8479,-0.0238)
11000 -- (-0.8336, 0.0199)
11001 -- (-0.7757, 0.0009)
11002 -- (-0.7899,-0.0427)
11003 --cycle
11004 ;
11005 \path[hex/terrain/town/house,pic actions]
11006 (-0.9015,-0.0795)
11007 -- (-0.8746,-0.0423)
11008 -- (-0.8252,-0.0782)
11009 -- (-0.8521,-0.1153)
11010 --cycle
11011 ;
11012 \path[hex/terrain/town/house,pic actions]
11013 (-0.9015,-0.0795)
11014 -- (-0.8746,-0.0423)
11015 -- (-0.8252,-0.0782)
11016 -- (-0.8521,-0.1153)
11017 --cycle

```

```

11018 ;
11019 \path[hex/terrain/town/house,pic actions]
11020 (-0.5616,-0.6142)
11021 -- (-0.5431,-0.6563)
11022 -- (-0.5990,-0.6808)
11023 -- (-0.6175,-0.6387)
11024 --cycle
11025 ;
11026 \path[hex/terrain/town/house,pic actions]
11027 (-0.5616,-0.6142)
11028 -- (-0.5431,-0.6563)
11029 -- (-0.5990,-0.6808)
11030 -- (-0.6175,-0.6387)
11031 --cycle
11032 ;
11033 \path[hex/terrain/town/house,pic actions]
11034 (-0.0094,-0.6230)
11035 -- ( 0.0047,-0.5793)
11036 -- ( 0.0627,-0.5978)
11037 -- ( 0.0487,-0.6416)
11038 --cycle
11039 ;
11040 \path[hex/terrain/town/house,pic actions]
11041 (-0.0094,-0.6230)
11042 -- ( 0.0047,-0.5793)
11043 -- ( 0.0627,-0.5978)
11044 -- ( 0.0487,-0.6416)
11045 --cycle
11046 ;
11047 \path[hex/terrain/town/house,pic actions]
11048 ( 0.0303,-0.4683)
11049 -- ( 0.0443,-0.4246)
11050 -- ( 0.1024,-0.4432)
11051 -- ( 0.0884,-0.4869)
11052 --cycle
11053 ;
11054 \path[hex/terrain/town/house,pic actions]
11055 ( 0.0303,-0.4683)
11056 -- ( 0.0443,-0.4246)
11057 -- ( 0.1024,-0.4432)
11058 -- ( 0.0884,-0.4869)
11059 --cycle
11060 ;
11061 \path[hex/terrain/town/house,pic actions]
11062 (-0.2507,-0.3956)
11063 -- (-0.2367,-0.3518)
11064 -- (-0.1786,-0.3704)
11065 -- (-0.1926,-0.4142)
11066 --cycle
11067 ;
11068 \path[hex/terrain/town/house,pic actions]
11069 (-0.2507,-0.3956)
11070 -- (-0.2367,-0.3518)

```

```

11071 -- (-0.1786,-0.3704)
11072 -- (-0.1926,-0.4142)
11073 --cycle
11074 ;
11075 \path[hex/terrain/town/house,pic actions]
11076 (-0.3208,-0.3936)
11077 -- (-0.3069,-0.3498)
11078 -- (-0.2487,-0.3684)
11079 -- (-0.2627,-0.4122)
11080 --cycle
11081 ;
11082 \path[hex/terrain/town/house,pic actions]
11083 (-0.3208,-0.3936)
11084 -- (-0.3069,-0.3498)
11085 -- (-0.2487,-0.3684)
11086 -- (-0.2627,-0.4122)
11087 --cycle
11088 ;
11089 \path[hex/terrain/town/house,pic actions]
11090 ( 0.1634,-0.1430)
11091 -- ( 0.1790,-0.0997)
11092 -- ( 0.2365,-0.1205)
11093 -- ( 0.2209,-0.1637)
11094 --cycle
11095 ;
11096 \path[hex/terrain/town/house,pic actions]
11097 ( 0.1634,-0.1430)
11098 -- ( 0.1790,-0.0997)
11099 -- ( 0.2365,-0.1205)
11100 -- ( 0.2209,-0.1637)
11101 --cycle
11102 ;
11103 \path[hex/terrain/town/house,pic actions]
11104 ( 0.1520,-0.2030)
11105 -- ( 0.1715,-0.1614)
11106 -- ( 0.2268,-0.1873)
11107 -- ( 0.2072,-0.2289)
11108 --cycle
11109 ;
11110 \path[hex/terrain/town/house,pic actions]
11111 ( 0.1520,-0.2030)
11112 -- ( 0.1715,-0.1614)
11113 -- ( 0.2268,-0.1873)
11114 -- ( 0.2072,-0.2289)
11115 --cycle
11116 ;
11117 \path[hex/terrain/town/house,pic actions]
11118 ( 0.0852,-0.3696)
11119 -- ( 0.1047,-0.3280)
11120 -- ( 0.1600,-0.3540)
11121 -- ( 0.1404,-0.3956)
11122 --cycle
11123 ;

```

```

11124 \path[hex/terrain/town/house,pic actions]
11125 ( 0.0852,-0.3696)
11126 -- ( 0.1047,-0.3280)
11127 -- ( 0.1600,-0.3540)
11128 -- ( 0.1404,-0.3956)
11129 --cycle
11130 ;
11131 \path[hex/terrain/town/house,pic actions]
11132 ( 0.0197,-0.2063)
11133 -- ( 0.0392,-0.1647)
11134 -- ( 0.0944,-0.1907)
11135 -- ( 0.0750,-0.2323)
11136 --cycle
11137 ;
11138 \path[hex/terrain/town/house,pic actions]
11139 ( 0.0197,-0.2063)
11140 -- ( 0.0392,-0.1647)
11141 -- ( 0.0944,-0.1907)
11142 -- ( 0.0750,-0.2323)
11143 --cycle
11144 ;
11145 \path[hex/terrain/town/house,pic actions]
11146 ( 0.3100, 0.7769)
11147 -- ( 0.3513, 0.7971)
11148 -- ( 0.3781, 0.7423)
11149 -- ( 0.3369, 0.7221)
11150 --cycle
11151 ;
11152 \path[hex/terrain/town/house,pic actions]
11153 ( 0.3100, 0.7769)
11154 -- ( 0.3513, 0.7971)
11155 -- ( 0.3781, 0.7423)
11156 -- ( 0.3369, 0.7221)
11157 --cycle
11158 ;
11159 \path[hex/terrain/town/house,pic actions]
11160 ( 0.5097, 0.3286)
11161 -- ( 0.5510, 0.3488)
11162 -- ( 0.5778, 0.2940)
11163 -- ( 0.5366, 0.2738)
11164 --cycle
11165 ;
11166 \path[hex/terrain/town/house,pic actions]
11167 ( 0.5097, 0.3286)
11168 -- ( 0.5510, 0.3488)
11169 -- ( 0.5778, 0.2940)
11170 -- ( 0.5366, 0.2738)
11171 --cycle
11172 ;
11173 \path[hex/terrain/town/house,pic actions]
11174 ( 0.4014, 0.8173)
11175 -- ( 0.4429, 0.8369)
11176 -- ( 0.4689, 0.7817)

```

```

11177 -- ( 0.4274, 0.7621)
11178 --cycle
11179 ;
11180 \path[hex/terrain/town/house,pic actions]
11181 ( 0.4014, 0.8173)
11182 -- ( 0.4429, 0.8369)
11183 -- ( 0.4689, 0.7817)
11184 -- ( 0.4274, 0.7621)
11185 --cycle
11186 ;
11187 \path[hex/terrain/town/house,pic actions]
11188 ( 0.2627, 0.7599)
11189 -- ( 0.3055, 0.7765)
11190 -- ( 0.3276, 0.7196)
11191 -- ( 0.2848, 0.7030)
11192 --cycle
11193 ;
11194 \path[hex/terrain/town/house,pic actions]
11195 ( 0.2627, 0.7599)
11196 -- ( 0.3055, 0.7765)
11197 -- ( 0.3276, 0.7196)
11198 -- ( 0.2848, 0.7030)
11199 --cycle
11200 ;
11201 \path[hex/terrain/town/house,pic actions]
11202 ( 0.1763, 0.7193)
11203 -- ( 0.2174, 0.7400)
11204 -- ( 0.2448, 0.6855)
11205 -- ( 0.2038, 0.6648)
11206 --cycle
11207 ;
11208 \path[hex/terrain/town/house,pic actions]
11209 ( 0.1763, 0.7193)
11210 -- ( 0.2174, 0.7400)
11211 -- ( 0.2448, 0.6855)
11212 -- ( 0.2038, 0.6648)
11213 --cycle
11214 ;
11215 \path[hex/terrain/town/house,pic actions]
11216 (-0.0655, 0.4707)
11217 -- (-0.0222, 0.4555)
11218 -- (-0.0424, 0.3979)
11219 -- (-0.0858, 0.4131)
11220 --cycle
11221 ;
11222 \path[hex/terrain/town/house,pic actions]
11223 (-0.0655, 0.4707)
11224 -- (-0.0222, 0.4555)
11225 -- (-0.0424, 0.3979)
11226 -- (-0.0858, 0.4131)
11227 --cycle
11228 ;
11229 \path[hex/terrain/town/house,pic actions]

```

```

11230 ( 0.0019, 0.5606)
11231 -- ( 0.0452, 0.5454)
11232 -- ( 0.0251, 0.4878)
11233 -- (-0.0183, 0.5030)
11234 --cycle
11235 ;
11236 \path[hex/terrain/town/house,pic actions]
11237 ( 0.0019, 0.5606)
11238 -- ( 0.0452, 0.5454)
11239 -- ( 0.0251, 0.4878)
11240 -- (-0.0183, 0.5030)
11241 --cycle
11242 ;
11243 \path[hex/terrain/town/house,pic actions]
11244 ( 0.0634, 0.0555)
11245 -- ( 0.1067, 0.0403)
11246 -- ( 0.0865,-0.0174)
11247 -- ( 0.0432,-0.0022)
11248 --cycle
11249 ;
11250 \path[hex/terrain/town/house,pic actions]
11251 ( 0.0634, 0.0555)
11252 -- ( 0.1067, 0.0403)
11253 -- ( 0.0865,-0.0174)
11254 -- ( 0.0432,-0.0022)
11255 --cycle
11256 ;
11257 \path[hex/terrain/town/house,pic actions]
11258 (-0.0445, 0.0687)
11259 -- (-0.0010, 0.0535)
11260 -- (-0.0213,-0.0041)
11261 -- (-0.0646, 0.0110)
11262 --cycle
11263 ;
11264 \path[hex/terrain/town/house,pic actions]
11265 (-0.0445, 0.0687)
11266 -- (-0.0010, 0.0535)
11267 -- (-0.0213,-0.0041)
11268 -- (-0.0646, 0.0110)
11269 --cycle
11270 ;
11271 \path[hex/terrain/town/house,pic actions]
11272 ( 0.0541, 0.5519)
11273 -- ( 0.0966, 0.5344)
11274 -- ( 0.0732, 0.4779)
11275 -- ( 0.0308, 0.4956)
11276 --cycle
11277 ;
11278 \path[hex/terrain/town/house,pic actions]
11279 ( 0.0541, 0.5519)
11280 -- ( 0.0966, 0.5344)
11281 -- ( 0.0732, 0.4779)
11282 -- ( 0.0308, 0.4956)

```

```

11283  --cycle
11284  ;
11285  \path[hex/terrain/town/house,pic actions]
11286  ( 0.0096, 0.8274)
11287  -- ( 0.0163, 0.7820)
11288  -- (-0.0441, 0.7731)
11289  -- (-0.0508, 0.8185)
11290  --cycle
11291  ;
11292  \path[hex/terrain/town/house,pic actions]
11293  ( 0.0096, 0.8274)
11294  -- ( 0.0163, 0.7820)
11295  -- (-0.0441, 0.7731)
11296  -- (-0.0508, 0.8185)
11297  --cycle
11298  ;
11299  \path[hex/terrain/town/house,pic actions]
11300  (-0.0878, 0.6237)
11301  -- (-0.0810, 0.5783)
11302  -- (-0.1415, 0.5693)
11303  -- (-0.1482, 0.6147)
11304  --cycle
11305  ;
11306  \path[hex/terrain/town/house,pic actions]
11307  (-0.0878, 0.6237)
11308  -- (-0.0810, 0.5783)
11309  -- (-0.1415, 0.5693)
11310  -- (-0.1482, 0.6147)
11311  --cycle
11312  ;
11313  \path[hex/terrain/town/house,pic actions]
11314  (-0.0678, 0.8193)
11315  -- (-0.0575, 0.7745)
11316  -- (-0.1168, 0.7608)
11317  -- (-0.1273, 0.8055)
11318  --cycle
11319  ;
11320  \path[hex/terrain/town/house,pic actions]
11321  (-0.0678, 0.8193)
11322  -- (-0.0575, 0.7745)
11323  -- (-0.1168, 0.7608)
11324  -- (-0.1273, 0.8055)
11325  --cycle
11326  ;
11327  \path[hex/terrain/town/house,pic actions]
11328  (-0.1958, 0.8007)
11329  -- (-0.1517, 0.7877)
11330  -- (-0.1688, 0.7292)
11331  -- (-0.2129, 0.7420)
11332  --cycle
11333  ;
11334  \path[hex/terrain/town/house,pic actions]
11335  (-0.1958, 0.8007)

```



```

11336 -- (-0.1517, 0.7877)
11337 -- (-0.1688, 0.7292)
11338 -- (-0.2129, 0.7420)
11339 --cycle
11340 ;
11341 \path[hex/terrain/town/house,pic actions]
11342 ( 0.6001, 0.0672)
11343 -- ( 0.6452, 0.0758)
11344 -- ( 0.6566, 0.0159)
11345 -- ( 0.6115, 0.0072)
11346 --cycle
11347 ;
11348 \path[hex/terrain/town/house,pic actions]
11349 ( 0.6001, 0.0672)
11350 -- ( 0.6452, 0.0758)
11351 -- ( 0.6566, 0.0159)
11352 -- ( 0.6115, 0.0072)
11353 --cycle
11354 ;
11355 \path[hex/terrain/town/house,pic actions]
11356 ( 0.8357, 0.2798)
11357 -- ( 0.8514, 0.2365)
11358 -- ( 0.7940, 0.2158)
11359 -- ( 0.7783, 0.2591)
11360 --cycle
11361 ;
11362 \path[hex/terrain/town/house,pic actions]
11363 ( 0.8357, 0.2798)
11364 -- ( 0.8514, 0.2365)
11365 -- ( 0.7940, 0.2158)
11366 -- ( 0.7783, 0.2591)
11367 --cycle
11368 ;
11369 \path[hex/terrain/town/house,pic actions]
11370 ( 0.4450, 0.0292)
11371 -- ( 0.4606,-0.0141)
11372 -- ( 0.4032,-0.0348)
11373 -- ( 0.3876, 0.0085)
11374 --cycle
11375 ;
11376 \path[hex/terrain/town/house,pic actions]
11377 ( 0.4450, 0.0292)
11378 -- ( 0.4606,-0.0141)
11379 -- ( 0.4032,-0.0348)
11380 -- ( 0.3876, 0.0085)
11381 --cycle
11382 ;
11383 \path[hex/terrain/town/house,pic actions]
11384 ( 0.9043, 0.1125)
11385 -- ( 0.9184, 0.0687)
11386 -- ( 0.8603, 0.0500)
11387 -- ( 0.8462, 0.0937)
11388 --cycle

```

```

11389 ;
11390 \path[hex/terrain/town/house,pic actions]
11391 ( 0.9043, 0.1125)
11392 -- ( 0.9184, 0.0687)
11393 -- ( 0.8603, 0.0500)
11394 -- ( 0.8462, 0.0937)
11395 --cycle
11396 ;
11397 \path[hex/terrain/town/house,pic actions]
11398 ( 0.7148,-0.2814)
11399 -- ( 0.7591,-0.2935)
11400 -- ( 0.7430,-0.3524)
11401 -- ( 0.6987,-0.3402)
11402 --cycle
11403 ;
11404 \path[hex/terrain/town/house,pic actions]
11405 ( 0.7148,-0.2814)
11406 -- ( 0.7591,-0.2935)
11407 -- ( 0.7430,-0.3524)
11408 -- ( 0.6987,-0.3402)
11409 --cycle
11410 ;
11411 \path[hex/terrain/town/house,pic actions]
11412 ( 0.5891,-0.1425)
11413 -- ( 0.5806,-0.1876)
11414 -- ( 0.5207,-0.1764)
11415 -- ( 0.5291,-0.1313)
11416 --cycle
11417 ;
11418 \path[hex/terrain/town/house,pic actions]
11419 ( 0.5891,-0.1425)
11420 -- ( 0.5806,-0.1876)
11421 -- ( 0.5207,-0.1764)
11422 -- ( 0.5291,-0.1313)
11423 --cycle
11424 ;
11425 \path[hex/terrain/town/house,pic actions]
11426 ( 0.5865, 0.0684)
11427 -- ( 0.5782, 0.0233)
11428 -- ( 0.5181, 0.0345)
11429 -- ( 0.5266, 0.0796)
11430 --cycle
11431 ;
11432 \path[hex/terrain/town/house,pic actions]
11433 ( 0.5865, 0.0684)
11434 -- ( 0.5782, 0.0233)
11435 -- ( 0.5181, 0.0345)
11436 -- ( 0.5266, 0.0796)
11437 --cycle
11438 ;
11439 \path[hex/terrain/town/house,pic actions]
11440 ( 0.4044,-0.3422)
11441 -- ( 0.4189,-0.2987)

```

```

11442 -- ( 0.4768,-0.3180)
11443 -- ( 0.4623,-0.3616)
11444 --cycle
11445 ;
11446 \path[hex/terrain/town/house,pic actions]
11447 ( 0.4044,-0.3422)
11448 -- ( 0.4189,-0.2987)
11449 -- ( 0.4768,-0.3180)
11450 -- ( 0.4623,-0.3616)
11451 --cycle
11452 ;
11453 \path[hex/terrain/town/house,pic actions]
11454 ( 0.4665,-0.7188)
11455 -- ( 0.5125,-0.7188)
11456 -- ( 0.5125,-0.7799)
11457 -- ( 0.4665,-0.7799)
11458 --cycle
11459 ;
11460 \path[hex/terrain/town/house,pic actions]
11461 ( 0.4665,-0.7188)
11462 -- ( 0.5125,-0.7188)
11463 -- ( 0.5125,-0.7799)
11464 -- ( 0.4665,-0.7799)
11465 --cycle
11466 ;
11467 \path[hex/terrain/town/house,pic actions]
11468 (-0.1285,-0.5747)
11469 -- (-0.0826,-0.5747)
11470 -- (-0.0826,-0.6356)
11471 -- (-0.1285,-0.6356)
11472 --cycle
11473 ;
11474 \path[hex/terrain/town/house,pic actions]
11475 (-0.1285,-0.5747)
11476 -- (-0.0826,-0.5747)
11477 -- (-0.0826,-0.6356)
11478 -- (-0.1285,-0.6356)
11479 --cycle
11480 ;
11481 \path[hex/terrain/town/house,pic actions]
11482 (-0.2861,-0.6694)
11483 -- (-0.2789,-0.6240)
11484 -- (-0.2186,-0.6336)
11485 -- (-0.2258,-0.6789)
11486 --cycle
11487 ;
11488 \path[hex/terrain/town/house,pic actions]
11489 (-0.2861,-0.6694)
11490 -- (-0.2789,-0.6240)
11491 -- (-0.2186,-0.6336)
11492 -- (-0.2258,-0.6789)
11493 --cycle
11494 ;

```

```

11495 \path[hex/terrain/town/house,pic actions]
11496 (-0.1486,-0.3725)
11497 -- (-0.1414,-0.3271)
11498 -- (-0.0811,-0.3367)
11499 -- (-0.0883,-0.3820)
11500 --cycle
11501 ;
11502 \path[hex/terrain/town/house,pic actions]
11503 (-0.1486,-0.3725)
11504 -- (-0.1414,-0.3271)
11505 -- (-0.0811,-0.3367)
11506 -- (-0.0883,-0.3820)
11507 --cycle
11508 ;
11509 \path[hex/terrain/town/house,pic actions]
11510 (-0.3576,-0.5916)
11511 -- (-0.3319,-0.6297)
11512 -- (-0.3826,-0.6638)
11513 -- (-0.4082,-0.6256)
11514 --cycle
11515 ;
11516 \path[hex/terrain/town/house,pic actions]
11517 (-0.3576,-0.5916)
11518 -- (-0.3319,-0.6297)
11519 -- (-0.3826,-0.6638)
11520 -- (-0.4082,-0.6256)
11521 --cycle
11522 ;
11523 \path[hex/terrain/town/house,pic actions]
11524 (-0.5468,-0.2716)
11525 -- (-0.5213,-0.3098)
11526 -- (-0.5719,-0.3438)
11527 -- (-0.5976,-0.3056)
11528 --cycle
11529 ;
11530 \path[hex/terrain/town/house,pic actions]
11531 (-0.5468,-0.2716)
11532 -- (-0.5213,-0.3098)
11533 -- (-0.5719,-0.3438)
11534 -- (-0.5976,-0.3056)
11535 --cycle
11536 ;
11537 \path[hex/terrain/town/house,pic actions]
11538 (-0.4969,-0.5222)
11539 -- (-0.4767,-0.5634)
11540 -- (-0.5315,-0.5902)
11541 -- (-0.5518,-0.5490)
11542 --cycle
11543 ;
11544 \path[hex/terrain/town/house,pic actions]
11545 (-0.4969,-0.5222)
11546 -- (-0.4767,-0.5634)
11547 -- (-0.5315,-0.5902)

```

```

11548 -- (-0.5518,-0.5490)
11549 --cycle
11550 ;
11551 \path[hex/terrain/town/house,pic actions]
11552 (-0.3963,-0.6922)
11553 -- (-0.3778,-0.7343)
11554 -- (-0.4338,-0.7588)
11555 -- (-0.4522,-0.7168)
11556 --cycle
11557 ;
11558 \path[hex/terrain/town/house,pic actions]
11559 (-0.3963,-0.6922)
11560 -- (-0.3778,-0.7343)
11561 -- (-0.4338,-0.7588)
11562 -- (-0.4522,-0.7168)
11563 --cycle
11564 ;
11565 \path[hex/terrain/town/house,pic actions]
11566 (-0.6145,-0.5157)
11567 -- (-0.5944,-0.5570)
11568 -- (-0.6493,-0.5836)
11569 -- (-0.6694,-0.5423)
11570 --cycle
11571 ;
11572 \path[hex/terrain/town/house,pic actions]
11573 (-0.6145,-0.5157)
11574 -- (-0.5944,-0.5570)
11575 -- (-0.6493,-0.5836)
11576 -- (-0.6694,-0.5423)
11577 --cycle
11578 ;
11579 \path[hex/terrain/town/house,pic actions]
11580 (-0.8791,-0.2053)
11581 -- (-0.8402,-0.1810)
11582 -- (-0.8079,-0.2327)
11583 -- (-0.8468,-0.2571)
11584 --cycle
11585 ;
11586 \path[hex/terrain/town/house,pic actions]
11587 (-0.8791,-0.2053)
11588 -- (-0.8402,-0.1810)
11589 -- (-0.8079,-0.2327)
11590 -- (-0.8468,-0.2571)
11591 --cycle
11592 ;
11593 \path[hex/terrain/town/house,pic actions]
11594 (-0.9144, 0.1039)
11595 -- (-0.8919, 0.1439)
11596 -- (-0.8388, 0.1140)
11597 -- (-0.8613, 0.0740)
11598 --cycle
11599 ;
11600 \path[hex/terrain/town/house,pic actions]

```

```

11601      (-0.9144, 0.1039)
11602      -- (-0.8919, 0.1439)
11603      -- (-0.8388, 0.1140)
11604      -- (-0.8613, 0.0740)
11605      --cycle
11606      ;
11607      \path[hex/terrain/town/house,pic actions]
11608      (-0.4095, 0.2277)
11609      -- (-0.3639, 0.2229)
11610      -- (-0.3703, 0.1622)
11611      -- (-0.4159, 0.1670)
11612      --cycle
11613      ;
11614      \path[hex/terrain/town/house,pic actions]
11615      (-0.4095, 0.2277)
11616      -- (-0.3639, 0.2229)
11617      -- (-0.3703, 0.1622)
11618      -- (-0.4159, 0.1670)
11619      --cycle
11620      ;
11621      \path[hex/terrain/town/house,pic actions]
11622      (-0.3590, 0.4200)
11623      -- (-0.3365, 0.4600)
11624      -- (-0.2833, 0.4302)
11625      -- (-0.3058, 0.3901)
11626      --cycle
11627      ;
11628      \path[hex/terrain/town/house,pic actions]
11629      (-0.3590, 0.4200)
11630      -- (-0.3365, 0.4600)
11631      -- (-0.2833, 0.4302)
11632      -- (-0.3058, 0.3901)
11633      --cycle
11634      ;
11635      \path[hex/terrain/town/house,pic actions]
11636      (-0.0764, 0.3204)
11637      -- (-0.0539, 0.3604)
11638      -- (-0.0007, 0.3306)
11639      -- (-0.0232, 0.2905)
11640      --cycle
11641      ;
11642      \path[hex/terrain/town/house,pic actions]
11643      (-0.0764, 0.3204)
11644      -- (-0.0539, 0.3604)
11645      -- (-0.0007, 0.3306)
11646      -- (-0.0232, 0.2905)
11647      --cycle
11648      ;
11649      \path[hex/terrain/town/house,pic actions]
11650      (-0.1364, 0.0430)
11651      -- (-0.1139, 0.0831)
11652      -- (-0.0607, 0.0532)
11653      -- (-0.0832, 0.0131)

```

```

11654 --cycle
11655 ;
11656 \path[hex/terrain/town/house,pic actions]
11657 (-0.1364, 0.0430)
11658 -- (-0.1139, 0.0831)
11659 -- (-0.0607, 0.0532)
11660 -- (-0.0832, 0.0131)
11661 --cycle
11662 ;
11663 \path[hex/terrain/town/house,pic actions]
11664 (-0.1269, 0.1239)
11665 -- (-0.1149, 0.1681)
11666 -- (-0.0560, 0.1521)
11667 -- (-0.0681, 0.1078)
11668 --cycle
11669 ;
11670 \path[hex/terrain/town/house,pic actions]
11671 (-0.1269, 0.1239)
11672 -- (-0.1149, 0.1681)
11673 -- (-0.0560, 0.1521)
11674 -- (-0.0681, 0.1078)
11675 --cycle
11676 ;
11677 \path[hex/terrain/town/house,pic actions]
11678 (-0.6443,-0.1022)
11679 -- (-0.6321,-0.0579)
11680 -- (-0.5733,-0.0740)
11681 -- (-0.5854,-0.1183)
11682 --cycle
11683 ;
11684 \path[hex/terrain/town/house,pic actions]
11685 (-0.6443,-0.1022)
11686 -- (-0.6321,-0.0579)
11687 -- (-0.5733,-0.0740)
11688 -- (-0.5854,-0.1183)
11689 --cycle
11690 ;
11691 \path[hex/terrain/town/house,pic actions]
11692 (-0.6032, 0.2357)
11693 -- (-0.5912, 0.2800)
11694 -- (-0.5323, 0.2639)
11695 -- (-0.5443, 0.2196)
11696 --cycle
11697 ;
11698 \path[hex/terrain/town/house,pic actions]
11699 (-0.6032, 0.2357)
11700 -- (-0.5912, 0.2800)
11701 -- (-0.5323, 0.2639)
11702 -- (-0.5443, 0.2196)
11703 --cycle
11704 ;
11705 \path[hex/terrain/town/house,pic actions]
11706 (-0.7230, 0.0020)

```

```

11707 -- (-0.7026, 0.0432)
11708 -- (-0.6479, 0.0162)
11709 -- (-0.6682,-0.0250)
11710 --cycle
11711 ;
11712 \path[hex/terrain/town/house,pic actions]
11713 (-0.7230, 0.0020)
11714 -- (-0.7026, 0.0432)
11715 -- (-0.6479, 0.0162)
11716 -- (-0.6682,-0.0250)
11717 --cycle
11718 ;
11719 \path[hex/terrain/town/house,pic actions]
11720 (-0.5055, 0.2596)
11721 -- (-0.4629, 0.2423)
11722 -- (-0.4859, 0.1858)
11723 -- (-0.5285, 0.2031)
11724 --cycle
11725 ;
11726 \path[hex/terrain/town/house,pic actions]
11727 (-0.5055, 0.2596)
11728 -- (-0.4629, 0.2423)
11729 -- (-0.4859, 0.1858)
11730 -- (-0.5285, 0.2031)
11731 --cycle
11732 ;
11733 \path[hex/terrain/town/house,pic actions]
11734 ( 0.1337, 0.3296)
11735 -- ( 0.1283, 0.2840)
11736 -- ( 0.0677, 0.2911)
11737 -- ( 0.0731, 0.3367)
11738 --cycle
11739 ;
11740 \path[hex/terrain/town/house,pic actions]
11741 ( 0.1337, 0.3296)
11742 -- ( 0.1283, 0.2840)
11743 -- ( 0.0677, 0.2911)
11744 -- ( 0.0731, 0.3367)
11745 --cycle
11746 ;
11747 \path[hex/terrain/town/house,pic actions]
11748 ( 0.1476, 0.4414)
11749 -- ( 0.1506, 0.3955)
11750 -- ( 0.0897, 0.3916)
11751 -- ( 0.0867, 0.4375)
11752 --cycle
11753 ;
11754 \path[hex/terrain/town/house,pic actions]
11755 ( 0.1476, 0.4414)
11756 -- ( 0.1506, 0.3955)
11757 -- ( 0.0897, 0.3916)
11758 -- ( 0.0867, 0.4375)
11759 --cycle

```



```

11760 ;
11761 \path[hex/terrain/town/house,pic actions]
11762 ( 0.0539,-0.1542)
11763 -- ( 0.0687,-0.1107)
11764 -- ( 0.1264,-0.1304)
11765 -- ( 0.1116,-0.1738)
11766 --cycle
11767 ;
11768 \path[hex/terrain/town/house,pic actions]
11769 ( 0.0539,-0.1542)
11770 -- ( 0.0687,-0.1107)
11771 -- ( 0.1264,-0.1304)
11772 -- ( 0.1116,-0.1738)
11773 --cycle
11774 ;
11775 \path[hex/terrain/town/house,pic actions]
11776 (-0.0962,-0.1436)
11777 -- (-0.0814,-0.1001)
11778 -- (-0.0237,-0.1198)
11779 -- (-0.0385,-0.1633)
11780 --cycle
11781 ;
11782 \path[hex/terrain/town/house,pic actions]
11783 (-0.0962,-0.1436)
11784 -- (-0.0814,-0.1001)
11785 -- (-0.0237,-0.1198)
11786 -- (-0.0385,-0.1633)
11787 --cycle
11788 ;
11789 \path[hex/terrain/town/house,pic actions]
11790 (-0.1683,-0.0622)
11791 -- (-0.1535,-0.0188)
11792 -- (-0.0958,-0.0385)
11793 -- (-0.1106,-0.0820)
11794 --cycle
11795 ;
11796 \path[hex/terrain/town/house,pic actions]
11797 (-0.1683,-0.0622)
11798 -- (-0.1535,-0.0188)
11799 -- (-0.0958,-0.0385)
11800 -- (-0.1106,-0.0820)
11801 --cycle
11802 ;
11803 \path[hex/terrain/town/house,pic actions]
11804 (-0.1842,-0.1310)
11805 -- (-0.1694,-0.0876)
11806 -- (-0.1116,-0.1073)
11807 -- (-0.1264,-0.1508)
11808 --cycle
11809 ;
11810 \path[hex/terrain/town/house,pic actions]
11811 (-0.1842,-0.1310)
11812 -- (-0.1694,-0.0876)

```

```

11813 -- (-0.1116,-0.1073)
11814 -- (-0.1264,-0.1508)
11815 --cycle
11816 ;
11817 \path[hex/terrain/town/house,pic actions]
11818 ( 0.1167,-0.5813)
11819 -- ( 0.1315,-0.5379)
11820 -- ( 0.1892,-0.5576)
11821 -- ( 0.1744,-0.6011)
11822 --cycle
11823 ;
11824 \path[hex/terrain/town/house,pic actions]
11825 ( 0.1167,-0.5813)
11826 -- ( 0.1315,-0.5379)
11827 -- ( 0.1892,-0.5576)
11828 -- ( 0.1744,-0.6011)
11829 --cycle
11830 ;
11831 \path[hex/terrain/town/house,pic actions]
11832 ( 0.0916,-0.6322)
11833 -- ( 0.1064,-0.5888)
11834 -- ( 0.1642,-0.6085)
11835 -- ( 0.1493,-0.6520)
11836 --cycle
11837 ;
11838 \path[hex/terrain/town/house,pic actions]
11839 ( 0.0916,-0.6322)
11840 -- ( 0.1064,-0.5888)
11841 -- ( 0.1642,-0.6085)
11842 -- ( 0.1493,-0.6520)
11843 --cycle
11844 ;
11845 \path[hex/terrain/town/house,pic actions]
11846 ( 0.3791,-0.5978)
11847 -- ( 0.3941,-0.5544)
11848 -- ( 0.4518,-0.5741)
11849 -- ( 0.4369,-0.6176)
11850 --cycle
11851 ;
11852 \path[hex/terrain/town/house,pic actions]
11853 ( 0.3791,-0.5978)
11854 -- ( 0.3941,-0.5544)
11855 -- ( 0.4518,-0.5741)
11856 -- ( 0.4369,-0.6176)
11857 --cycle
11858 ;
11859 \path[hex/terrain/town/house,pic actions]
11860 ( 0.4116,-0.5397)
11861 -- ( 0.4392,-0.5029)
11862 -- ( 0.4880,-0.5396)
11863 -- ( 0.4604,-0.5764)
11864 --cycle
11865 ;

```

```

11866 \path[hex/terrain/town/house,pic actions]
11867 ( 0.4116,-0.5397)
11868 -- ( 0.4392,-0.5029)
11869 -- ( 0.4880,-0.5396)
11870 -- ( 0.4604,-0.5764)
11871 --cycle
11872 ;
11873 \path[hex/terrain/town/house,pic actions]
11874 ( 0.2218,-0.5853)
11875 -- ( 0.2366,-0.5418)
11876 -- ( 0.2944,-0.5615)
11877 -- ( 0.2796,-0.6051)
11878 --cycle
11879 ;
11880 \path[hex/terrain/town/house,pic actions]
11881 ( 0.2218,-0.5853)
11882 -- ( 0.2366,-0.5418)
11883 -- ( 0.2944,-0.5615)
11884 -- ( 0.2796,-0.6051)
11885 --cycle
11886 ;
11887 \path[hex/terrain/town/house,pic actions]
11888 ( 0.3094, 0.1262)
11889 -- ( 0.3519, 0.1085)
11890 -- ( 0.3284, 0.0522)
11891 -- ( 0.2860, 0.0698)
11892 --cycle
11893 ;
11894 \path[hex/terrain/town/house,pic actions]
11895 ( 0.3094, 0.1262)
11896 -- ( 0.3519, 0.1085)
11897 -- ( 0.3284, 0.0522)
11898 -- ( 0.2860, 0.0698)
11899 --cycle
11900 ;
11901 \path[hex/terrain/town/house,pic actions]
11902 ( 0.2797, 0.1784)
11903 -- ( 0.3041, 0.1395)
11904 -- ( 0.2524, 0.1070)
11905 -- ( 0.2280, 0.1459)
11906 --cycle
11907 ;
11908 \path[hex/terrain/town/house,pic actions]
11909 ( 0.2797, 0.1784)
11910 -- ( 0.3041, 0.1395)
11911 -- ( 0.2524, 0.1070)
11912 -- ( 0.2280, 0.1459)
11913 --cycle
11914 ;
11915 \path[hex/terrain/town/house,pic actions]
11916 ( 0.7950, 0.1548)
11917 -- ( 0.8065, 0.1103)
11918 -- ( 0.7475, 0.0949)

```

```

11919    -- ( 0.7359, 0.1394)
11920    --cycle
11921    ;
11922    \path[hex/terrain/town/house,pic actions]
11923    ( 0.7950, 0.1548)
11924    -- ( 0.8065, 0.1103)
11925    -- ( 0.7475, 0.0949)
11926    -- ( 0.7359, 0.1394)
11927    --cycle
11928    ;
11929    \path[hex/terrain/town/house,pic actions]
11930    ( 0.5739, 0.6926)
11931    -- ( 0.5961, 0.6525)
11932    -- ( 0.5427, 0.6229)
11933    -- ( 0.5205, 0.6632)
11934    --cycle
11935    ;
11936    \path[hex/terrain/town/house,pic actions]
11937    ( 0.5739, 0.6926)
11938    -- ( 0.5961, 0.6525)
11939    -- ( 0.5427, 0.6229)
11940    -- ( 0.5205, 0.6632)
11941    --cycle
11942    ;
11943    \path[hex/terrain/town/house,pic actions]
11944    ( 0.6499, 0.5535)
11945    -- ( 0.6714, 0.5129)
11946    -- ( 0.6174, 0.4844)
11947    -- ( 0.5959, 0.5250)
11948    --cycle
11949    ;
11950    \path[hex/terrain/town/house,pic actions]
11951    ( 0.6499, 0.5535)
11952    -- ( 0.6714, 0.5129)
11953    -- ( 0.6174, 0.4844)
11954    -- ( 0.5959, 0.5250)
11955    --cycle
11956    ;
11957    \path[hex/terrain/town/house,pic actions]
11958    (-0.4994, 0.7998)
11959    -- (-0.4558, 0.8143)
11960    -- (-0.4364, 0.7565)
11961    -- (-0.4800, 0.7419)
11962    --cycle
11963    ;
11964    \path[hex/terrain/town/house,pic actions]
11965    (-0.4994, 0.7998)
11966    -- (-0.4558, 0.8143)
11967    -- (-0.4364, 0.7565)
11968    -- (-0.4800, 0.7419)
11969    --cycle
11970    ;
11971    \path[hex/terrain/town/house,pic actions]

```

```

11972      (-0.3350, 0.7630)
11973      -- (-0.2917, 0.7475)
11974      -- (-0.3125, 0.6901)
11975      -- (-0.3558, 0.7057)
11976      --cycle
11977      ;
11978      \path[hex/terrain/town/house,pic actions]
11979      (-0.3350, 0.7630)
11980      -- (-0.2917, 0.7475)
11981      -- (-0.3125, 0.6901)
11982      -- (-0.3558, 0.7057)
11983      --cycle
11984      ;
11985      \path[hex/terrain/town/house,pic actions]
11986      (-0.4472, 0.6282)
11987      -- (-0.4040, 0.6124)
11988      -- (-0.4252, 0.5551)
11989      -- (-0.4683, 0.5710)
11990      --cycle
11991      ;
11992      \path[hex/terrain/town/house,pic actions]
11993      (-0.4472, 0.6282)
11994      -- (-0.4040, 0.6124)
11995      -- (-0.4252, 0.5551)
11996      -- (-0.4683, 0.5710)
11997      --cycle
11998      ;
11999      \path[hex/terrain/town/house,pic actions]
12000      (-0.5200, 0.6603)
12001      -- (-0.4792, 0.6394)
12002      -- (-0.5070, 0.5851)
12003      -- (-0.5480, 0.6061)
12004      --cycle
12005      ;
12006      \path[hex/terrain/town/house,pic actions]
12007      (-0.5200, 0.6603)
12008      -- (-0.4792, 0.6394)
12009      -- (-0.5070, 0.5851)
12010      -- (-0.5480, 0.6061)
12011      --cycle
12012      ;
12013      \path[hex/terrain/town/house,pic actions]
12014      (-0.5301, 0.5359)
12015      -- (-0.4915, 0.5109)
12016      -- (-0.5247, 0.4597)
12017      -- (-0.5633, 0.4846)
12018      --cycle
12019      ;
12020      \path[hex/terrain/town/house,pic actions]
12021      (-0.5301, 0.5359)
12022      -- (-0.4915, 0.5109)
12023      -- (-0.5247, 0.4597)
12024      -- (-0.5633, 0.4846)

```

```

12025  --cycle
12026  ;
12027  \path[hex/terrain/town/house,pic actions]
12028  (-0.6860, 0.5063)
12029  -- (-0.6426, 0.4914)
12030  -- (-0.6624, 0.4337)
12031  -- (-0.7058, 0.4486)
12032  --cycle
12033  ;
12034  \path[hex/terrain/town/house,pic actions]
12035  (-0.6860, 0.5063)
12036  -- (-0.6426, 0.4914)
12037  -- (-0.6624, 0.4337)
12038  -- (-0.7058, 0.4486)
12039  --cycle
12040  ;
12041  \path[hex/terrain/town/house,pic actions]
12042  (-0.5849, 0.4574)
12043  -- (-0.5414, 0.4425)
12044  -- (-0.5613, 0.3847)
12045  -- (-0.6047, 0.3997)
12046  --cycle
12047  ;
12048  \path[hex/terrain/town/house,pic actions]
12049  (-0.5849, 0.4574)
12050  -- (-0.5414, 0.4425)
12051  -- (-0.5613, 0.3847)
12052  -- (-0.6047, 0.3997)
12053  --cycle
12054  ;
12055  \path[hex/terrain/town/house,pic actions]
12056  (-0.4531,-0.1794)
12057  -- (-0.4094,-0.1941)
12058  -- (-0.4289,-0.2518)
12059  -- (-0.4725,-0.2372)
12060  --cycle
12061  ;
12062  \path[hex/terrain/town/house,pic actions]
12063  (-0.4531,-0.1794)
12064  -- (-0.4094,-0.1941)
12065  -- (-0.4289,-0.2518)
12066  -- (-0.4725,-0.2372)
12067  --cycle
12068  ;
12069  \path[hex/terrain/town/house,pic actions]
12070  (-0.3573, 0.0277)
12071  -- (-0.3138, 0.0131)
12072  -- (-0.3333,-0.0447)
12073  -- (-0.3768,-0.0300)
12074  --cycle
12075  ;
12076  \path[hex/terrain/town/house,pic actions]
12077  (-0.3573, 0.0277)

```

```

12078 -- (-0.3138, 0.0131)
12079 -- (-0.3333,-0.0447)
12080 -- (-0.3768,-0.0300)
12081 --cycle
12082 ;
12083 \path[hex/terrain/town/house,pic actions]
12084 ( 0.3354,-0.4695)
12085 -- ( 0.3141,-0.5101)
12086 -- ( 0.2601,-0.4816)
12087 -- ( 0.2815,-0.4410)
12088 --cycle
12089 ;
12090 \path[hex/terrain/town/house,pic actions]
12091 ( 0.3354,-0.4695)
12092 -- ( 0.3141,-0.5101)
12093 -- ( 0.2601,-0.4816)
12094 -- ( 0.2815,-0.4410)
12095 --cycle
12096 ;
12097 \path[hex/terrain/town/house,pic actions]
12098 ( 0.6206,-0.4111)
12099 -- ( 0.6599,-0.4350)
12100 -- ( 0.6281,-0.4872)
12101 -- ( 0.5889,-0.4632)
12102 --cycle
12103 ;
12104 \path[hex/terrain/town/house,pic actions]
12105 ( 0.6206,-0.4111)
12106 -- ( 0.6599,-0.4350)
12107 -- ( 0.6281,-0.4872)
12108 -- ( 0.5889,-0.4632)
12109 --cycle
12110 ;
12111 \path[hex/terrain/town/house,pic actions]
12112 ( 0.6061,-0.5834)
12113 -- ( 0.6495,-0.5984)
12114 -- ( 0.6296,-0.6561)
12115 -- ( 0.5861,-0.6411)
12116 --cycle
12117 ;
12118 \path[hex/terrain/town/house,pic actions]
12119 ( 0.6061,-0.5834)
12120 -- ( 0.6495,-0.5984)
12121 -- ( 0.6296,-0.6561)
12122 -- ( 0.5861,-0.6411)
12123 --cycle
12124 ;
12125 \path[hex/terrain/town/house,pic actions]
12126 ( 0.2902, 0.2707)
12127 -- ( 0.3361, 0.2673)
12128 -- ( 0.3317, 0.2065)
12129 -- ( 0.2859, 0.2098)
12130 --cycle

```

```

12131 ;
12132 \path[hex/terrain/town/house,pic actions]
12133 ( 0.2902, 0.2707)
12134 -- ( 0.3361, 0.2673)
12135 -- ( 0.3317, 0.2065)
12136 -- ( 0.2859, 0.2098)
12137 --cycle
12138 ;
12139 \path[hex/terrain/town/house,pic actions]
12140 ( 0.2215, 0.2766)
12141 -- ( 0.2673, 0.2733)
12142 -- ( 0.2630, 0.2124)
12143 -- ( 0.2172, 0.2157)
12144 --cycle
12145 ;
12146 \path[hex/terrain/town/house,pic actions]
12147 ( 0.2215, 0.2766)
12148 -- ( 0.2673, 0.2733)
12149 -- ( 0.2630, 0.2124)
12150 -- ( 0.2172, 0.2157)
12151 --cycle
12152 ;
12153 \path[hex/terrain/town/house,pic actions]
12154 (-0.0159, 0.4498)
12155 -- ( 0.0299, 0.4466)
12156 -- ( 0.0256, 0.3857)
12157 -- (-0.0202, 0.3889)
12158 --cycle
12159 ;
12160 \path[hex/terrain/town/house,pic actions]
12161 (-0.0159, 0.4498)
12162 -- ( 0.0299, 0.4466)
12163 -- ( 0.0256, 0.3857)
12164 -- (-0.0202, 0.3889)
12165 --cycle
12166 ;
12167 \path[hex/terrain/town/house,pic actions]
12168 ( 0.0377, 0.1701)
12169 -- ( 0.0835, 0.1668)
12170 -- ( 0.0791, 0.1060)
12171 -- ( 0.0333, 0.1092)
12172 --cycle
12173 ;
12174 \path[hex/terrain/town/house,pic actions]
12175 ( 0.0377, 0.1701)
12176 -- ( 0.0835, 0.1668)
12177 -- ( 0.0791, 0.1060)
12178 -- ( 0.0333, 0.1092)
12179 --cycle
12180 ;
12181 \path[hex/terrain/town/house,pic actions]
12182 ( 0.0944, 0.1648)
12183 -- ( 0.1403, 0.1657)

```



```

12184 -- ( 0.1415, 0.1047)
12185 -- ( 0.0955, 0.1038)
12186 --cycle
12187 ;
12188 \path[hex/terrain/town/house,pic actions]
12189 ( 0.0944, 0.1648)
12190 -- ( 0.1403, 0.1657)
12191 -- ( 0.1415, 0.1047)
12192 -- ( 0.0955, 0.1038)
12193 --cycle
12194 ;
12195 \path[hex/terrain/town/house,pic actions]
12196 ( 0.2434, 0.4429)
12197 -- ( 0.2698, 0.4054)
12198 -- ( 0.2199, 0.3702)
12199 -- ( 0.1935, 0.4077)
12200 --cycle
12201 ;
12202 \path[hex/terrain/town/house,pic actions]
12203 ( 0.2434, 0.4429)
12204 -- ( 0.2698, 0.4054)
12205 -- ( 0.2199, 0.3702)
12206 -- ( 0.1935, 0.4077)
12207 --cycle
12208 ;
12209 \path[hex/terrain/town/house,pic actions]
12210 ( 0.4777, 0.5914)
12211 -- ( 0.4980, 0.5501)
12212 -- ( 0.4432, 0.5232)
12213 -- ( 0.4229, 0.5644)
12214 --cycle
12215 ;
12216 \path[hex/terrain/town/house,pic actions]
12217 ( 0.4777, 0.5914)
12218 -- ( 0.4980, 0.5501)
12219 -- ( 0.4432, 0.5232)
12220 -- ( 0.4229, 0.5644)
12221 --cycle
12222 ;
12223 \path[hex/terrain/town/house,pic actions]
12224 ( 0.4936, 0.5331)
12225 -- ( 0.5191, 0.4949)
12226 -- ( 0.4683, 0.4611)
12227 -- ( 0.4428, 0.4993)
12228 --cycle
12229 ;
12230 \path[hex/terrain/town/house,pic actions]
12231 ( 0.4936, 0.5331)
12232 -- ( 0.5191, 0.4949)
12233 -- ( 0.4683, 0.4611)
12234 -- ( 0.4428, 0.4993)
12235 --cycle
12236 ;

```

```

12237 \path[hex/terrain/town/house,pic actions]
12238 ( 0.4667, 0.4393)
12239 -- ( 0.4871, 0.3980)
12240 -- ( 0.4323, 0.3711)
12241 -- ( 0.4120, 0.4123)
12242 --cycle
12243 ;
12244 \path[hex/terrain/town/house,pic actions]
12245 ( 0.4667, 0.4393)
12246 -- ( 0.4871, 0.3980)
12247 -- ( 0.4323, 0.3711)
12248 -- ( 0.4120, 0.4123)
12249 --cycle
12250 ;
12251 \path[hex/terrain/town/house,pic actions]
12252 (-0.2446,-0.1495)
12253 -- (-0.2153,-0.1488)
12254 -- (-0.2138,-0.2024)
12255 -- (-0.2431,-0.2032)
12256 --cycle
12257 ;
12258 \path[hex/terrain/town/house,pic actions]
12259 (-0.2446,-0.1495)
12260 -- (-0.2153,-0.1488)
12261 -- (-0.2138,-0.2024)
12262 -- (-0.2431,-0.2032)
12263 --cycle
12264 ;
12265 \path[hex/terrain/town/house,pic actions]
12266 (-0.1018, 0.2179)
12267 -- (-0.0915, 0.2454)
12268 -- (-0.0412, 0.2264)
12269 -- (-0.0516, 0.1989)
12270 --cycle
12271 ;
12272 \path[hex/terrain/town/house,pic actions]
12273 (-0.1018, 0.2179)
12274 -- (-0.0915, 0.2454)
12275 -- (-0.0412, 0.2264)
12276 -- (-0.0516, 0.1989)
12277 --cycle
12278 ;
12279 \path[hex/terrain/town/house,pic actions]
12280 ( 0.4189, 0.2515)
12281 -- ( 0.4645, 0.2567)
12282 -- ( 0.4714, 0.1960)
12283 -- ( 0.4257, 0.1909)
12284 --cycle
12285 ;
12286 \path[hex/terrain/town/house,pic actions]
12287 ( 0.4189, 0.2515)
12288 -- ( 0.4645, 0.2567)
12289 -- ( 0.4714, 0.1960)

```

```

12290 -- ( 0.4257, 0.1909)
12291 --cycle
12292 ;
12293 \path[hex/terrain/town/house,pic actions]
12294 ( 0.5784, 0.2650)
12295 -- ( 0.6240, 0.2702)
12296 -- ( 0.6308, 0.2095)
12297 -- ( 0.5852, 0.2043)
12298 --cycle
12299 ;
12300 \path[hex/terrain/town/house,pic actions]
12301 ( 0.5784, 0.2650)
12302 -- ( 0.6240, 0.2702)
12303 -- ( 0.6308, 0.2095)
12304 -- ( 0.5852, 0.2043)
12305 --cycle
12306 ;
12307 \path[hex/terrain/town/house,pic actions]
12308 ( 0.5509, 0.4874)
12309 -- ( 0.5966, 0.4925)
12310 -- ( 0.6034, 0.4319)
12311 -- ( 0.5577, 0.4267)
12312 --cycle
12313 ;
12314 \path[hex/terrain/town/house,pic actions]
12315 ( 0.5509, 0.4874)
12316 -- ( 0.5966, 0.4925)
12317 -- ( 0.6034, 0.4319)
12318 -- ( 0.5577, 0.4267)
12319 --cycle
12320 ;
12321 \path[hex/terrain/town/house,pic actions]
12322 ( 0.1390, 0.6195)
12323 -- ( 0.1654, 0.5820)
12324 -- ( 0.1155, 0.5468)
12325 -- ( 0.0890, 0.5843)
12326 --cycle
12327 ;
12328 \path[hex/terrain/town/house,pic actions]
12329 ( 0.1390, 0.6195)
12330 -- ( 0.1654, 0.5820)
12331 -- ( 0.1155, 0.5468)
12332 -- ( 0.0890, 0.5843)
12333 --cycle
12334 ;
12335 \path[hex/terrain/town/house,pic actions]
12336 (-0.1780,-0.4082)
12337 -- (-0.1533,-0.3695)
12338 -- (-0.1018,-0.4023)
12339 -- (-0.1265,-0.4410)
12340 --cycle
12341 ;
12342 \path[hex/terrain/town/house,pic actions]

```

```

12343      (-0.1780,-0.4082)
12344      -- (-0.1533,-0.3695)
12345      -- (-0.1018,-0.4023)
12346      -- (-0.1265,-0.4410)
12347      --cycle
12348      ;
12349      \path[hex/terrain/town/house,pic actions]
12350      (-0.2611,-0.2396)
12351      -- (-0.2175,-0.2543)
12352      -- (-0.2370,-0.3121)
12353      -- (-0.2805,-0.2974)
12354      --cycle
12355      ;
12356      \path[hex/terrain/town/house,pic actions]
12357      (-0.2611,-0.2396)
12358      -- (-0.2175,-0.2543)
12359      -- (-0.2370,-0.3121)
12360      -- (-0.2805,-0.2974)
12361      --cycle
12362      ;
12363      \path[hex/terrain/town/house,pic actions]
12364      ( 0.1640,-0.8299)
12365      -- ( 0.1872,-0.8299)
12366      -- ( 0.1872,-0.8565)
12367      -- ( 0.1640,-0.8565)
12368      --cycle
12369      ;
12370      \path[hex/terrain/town/house,pic actions]
12371      ( 0.1640,-0.8299)
12372      -- ( 0.1872,-0.8299)
12373      -- ( 0.1872,-0.8565)
12374      -- ( 0.1640,-0.8565)
12375      --cycle
12376      ;
12377      \path[hex/terrain/town/house,pic actions]
12378      (-0.1330,-0.7413)
12379      -- (-0.1099,-0.7413)
12380      -- (-0.1099,-0.7679)
12381      -- (-0.1330,-0.7679)
12382      --cycle
12383      ;
12384      \path[hex/terrain/town/house,pic actions]
12385      (-0.1330,-0.7413)
12386      -- (-0.1099,-0.7413)
12387      -- (-0.1099,-0.7679)
12388      -- (-0.1330,-0.7679)
12389      --cycle
12390      ;
12391      \path[hex/terrain/town/house,pic actions]
12392      (-0.3280,-0.8061)
12393      -- (-0.3049,-0.8061)
12394      -- (-0.3049,-0.8327)
12395      -- (-0.3280,-0.8327)

```

```

12396 --cycle
12397 ;
12398 \path[hex/terrain/town/house,pic actions]
12399 (-0.3280,-0.8061)
12400 -- (-0.3049,-0.8061)
12401 -- (-0.3049,-0.8327)
12402 -- (-0.3280,-0.8327)
12403 --cycle
12404 ;
12405 \path[hex/terrain/town/house,pic actions]
12406 (-0.7302,-0.0754)
12407 -- (-0.7099,-0.0866)
12408 -- (-0.7228,-0.1099)
12409 -- (-0.7430,-0.0988)
12410 --cycle
12411 ;
12412 \path[hex/terrain/town/house,pic actions]
12413 (-0.7302,-0.0754)
12414 -- (-0.7099,-0.0866)
12415 -- (-0.7228,-0.1099)
12416 -- (-0.7430,-0.0988)
12417 --cycle
12418 ;
12419 \path[hex/terrain/town/house,pic actions]
12420 (-0.0147, 0.1985)
12421 -- ( 0.0078, 0.1934)
12422 -- ( 0.0020, 0.1675)
12423 -- (-0.0206, 0.1726)
12424 --cycle
12425 ;
12426 \path[hex/terrain/town/house,pic actions]
12427 (-0.0147, 0.1985)
12428 -- ( 0.0078, 0.1934)
12429 -- ( 0.0020, 0.1675)
12430 -- (-0.0206, 0.1726)
12431 --cycle
12432 ;
12433 \path[hex/terrain/town/house,pic actions]
12434 ( 0.7613, 0.0272)
12435 -- ( 0.7841, 0.0313)
12436 -- ( 0.7889, 0.0050)
12437 -- ( 0.7661, 0.0009)
12438 --cycle
12439 ;
12440 \path[hex/terrain/town/house,pic actions]
12441 ( 0.7613, 0.0272)
12442 -- ( 0.7841, 0.0313)
12443 -- ( 0.7889, 0.0050)
12444 -- ( 0.7661, 0.0009)
12445 --cycle
12446 ;
12447 \path[hex/terrain/town/house,pic actions]
12448 ( 0.0160, 0.0427)

```

```

12449  -- ( 0.0379, 0.0352)
12450  -- ( 0.0294, 0.0100)
12451  -- ( 0.0075, 0.0174)
12452  --cycle
12453  ;
12454  \path[hex/terrain/town/house,pic actions]
12455  ( 0.0160, 0.0427)
12456  -- ( 0.0379, 0.0352)
12457  -- ( 0.0294, 0.0100)
12458  -- ( 0.0075, 0.0174)
12459  --cycle
12460  ;
12461  \path[hex/terrain/town/house,pic actions]
12462  ( 0.3515,-0.2403)
12463  -- ( 0.3743,-0.2442)
12464  -- ( 0.3697,-0.2705)
12465  -- ( 0.3469,-0.2665)
12466  --cycle
12467  ;
12468  \path[hex/terrain/town/house,pic actions]
12469  ( 0.3515,-0.2403)
12470  -- ( 0.3743,-0.2442)
12471  -- ( 0.3697,-0.2705)
12472  -- ( 0.3469,-0.2665)
12473  --cycle
12474  ;
12475  \path[hex/terrain/town/house,pic actions]
12476  ( 0.0718, 0.3637)
12477  -- ( 0.0933, 0.3723)
12478  -- ( 0.1032, 0.3476)
12479  -- ( 0.0817, 0.3390)
12480  --cycle
12481  ;
12482  \path[hex/terrain/town/house,pic actions]
12483  ( 0.0718, 0.3637)
12484  -- ( 0.0933, 0.3723)
12485  -- ( 0.1032, 0.3476)
12486  -- ( 0.0817, 0.3390)
12487  --cycle
12488  ;
12489  \path[hex/terrain/town/house,pic actions]
12490  (-0.2555, 0.2647)
12491  -- (-0.2413, 0.2902)
12492  -- (-0.1944, 0.2641)
12493  -- (-0.2086, 0.2385)
12494  --cycle
12495  ;
12496  \path[hex/terrain/town/house,pic actions]
12497  (-0.2555, 0.2647)
12498  -- (-0.2413, 0.2902)
12499  -- (-0.1944, 0.2641)
12500  -- (-0.2086, 0.2385)
12501  --cycle

```

```

12502 ;
12503 \path[hex/terrain/town/house,pic actions]
12504 (-0.2832, 0.1509)
12505 -- (-0.2826, 0.1802)
12506 -- (-0.2289, 0.1792)
12507 -- (-0.2295, 0.1498)
12508 --cycle
12509 ;
12510 \path[hex/terrain/town/house,pic actions]
12511 (-0.2832, 0.1509)
12512 -- (-0.2826, 0.1802)
12513 -- (-0.2289, 0.1792)
12514 -- (-0.2295, 0.1498)
12515 --cycle
12516 ;
12517 \path[hex/terrain/town/house,pic actions]
12518 (-0.5694, 0.6977)
12519 -- (-0.5248, 0.6870)
12520 -- (-0.5390, 0.6277)
12521 -- (-0.5837, 0.6384)
12522 --cycle
12523 ;
12524 \path[hex/terrain/town/house,pic actions]
12525 (-0.5694, 0.6977)
12526 -- (-0.5248, 0.6870)
12527 -- (-0.5390, 0.6277)
12528 -- (-0.5837, 0.6384)
12529 --cycle
12530 ;
12531 \path[hex/terrain/town/house,pic actions]
12532 (-0.6046, 0.6071)
12533 -- (-0.5747, 0.5723)
12534 -- (-0.6210, 0.5326)
12535 -- (-0.6509, 0.5674)
12536 --cycle
12537 ;
12538 \path[hex/terrain/town/house,pic actions]
12539 (-0.6046, 0.6071)
12540 -- (-0.5747, 0.5723)
12541 -- (-0.6210, 0.5326)
12542 -- (-0.6509, 0.5674)
12543 --cycle
12544 ;
12545 \path[hex/terrain/town/house,pic actions]
12546 (-0.2915,-0.1208)
12547 -- (-0.2462,-0.1288)
12548 -- (-0.2569,-0.1889)
12549 -- (-0.3021,-0.1809)
12550 --cycle
12551 ;
12552 \path[hex/terrain/town/house,pic actions]
12553 (-0.2915,-0.1208)
12554 -- (-0.2462,-0.1288)

```

```

12555 -- (-0.2569,-0.1889)
12556 -- (-0.3021,-0.1809)
12557 --cycle
12558 ;
12559 \path[hex/terrain/town/house,pic actions]
12560 ( 0.1636, 0.0236)
12561 -- ( 0.2095, 0.0215)
12562 -- ( 0.2067,-0.0394)
12563 -- ( 0.1608,-0.0374)
12564 --cycle
12565 ;
12566 \path[hex/terrain/town/house,pic actions]
12567 ( 0.1636, 0.0236)
12568 -- ( 0.2095, 0.0215)
12569 -- ( 0.2067,-0.0394)
12570 -- ( 0.1608,-0.0374)
12571 --cycle
12572 ;
12573 \path[hex/terrain/town/house,pic actions]
12574 (-0.0653,-0.5296)
12575 -- (-0.0423,-0.5269)
12576 -- (-0.0391,-0.5533)
12577 -- (-0.0621,-0.5560)
12578 --cycle
12579 ;
12580 \path[hex/terrain/town/house,pic actions]
12581 (-0.0653,-0.5296)
12582 -- (-0.0423,-0.5269)
12583 -- (-0.0391,-0.5533)
12584 -- (-0.0621,-0.5560)
12585 --cycle
12586 ;
12587 \path[hex/terrain/town/house,pic actions]
12588 (-0.3393, 0.1912)
12589 -- (-0.3173, 0.1843)
12590 -- (-0.3254, 0.1589)
12591 -- (-0.3474, 0.1659)
12592 --cycle
12593 ;
12594 \path[hex/terrain/town/house,pic actions]
12595 (-0.3393, 0.1912)
12596 -- (-0.3173, 0.1843)
12597 -- (-0.3254, 0.1589)
12598 -- (-0.3474, 0.1659)
12599 --cycle
12600 ;
12601 \path[hex/terrain/town/house,pic actions]
12602 (-0.2247, 0.5875)
12603 -- (-0.2027, 0.5801)
12604 -- (-0.2113, 0.5549)
12605 -- (-0.2332, 0.5623)
12606 --cycle
12607 ;

```



```

12608 \path[hex/terrain/town/house,pic actions]
12609 (-0.2247, 0.5875)
12610 -- (-0.2027, 0.5801)
12611 -- (-0.2113, 0.5549)
12612 -- (-0.2332, 0.5623)
12613 --cycle
12614 ;
12615 \path[hex/terrain/town/house,pic actions]
12616 ( 0.3747, 0.1590)
12617 -- ( 0.4022, 0.1690)
12618 -- ( 0.4206, 0.1185)
12619 -- ( 0.3930, 0.1085)
12620 --cycle
12621 ;
12622 \path[hex/terrain/town/house,pic actions]
12623 ( 0.3747, 0.1590)
12624 -- ( 0.4022, 0.1690)
12625 -- ( 0.4206, 0.1185)
12626 -- ( 0.3930, 0.1085)
12627 --cycle
12628 ;
12629 }
12630 }
12631 \fi

```

hex/terrain/mountain

This is an example of a terrain picture.

```

12632 \tikzset{
12633   hex/terrain/mountain/.pic={%
12634     \path[draw=black,fill=white] (0,0) -- (.3,.9)--(.45,0) -- cycle;
12635     \path[draw=black,fill=lightgray,pic actions]
12636       (-.6 ,-.9) --
12637       (-.3 , .3) --
12638       ( 0, 0) --
12639       ( .45, 0) --
12640       ( .6 , -.9) -- cycle;
12641   }
12642 }

```

hex/terrain/tree

```

12643 \tikzset{
12644   hex/terrain/tree/.pic={
12645     \path[draw,very thick,pic actions]
12646       (-.15,.0)
12647       arc (269:135:.1)
12648       arc (215: 90:.1)
12649       arc (180: 45:.1)
12650       arc (135: 0:.1)
12651       arc ( 90:-45:.1)

```

```

12652   arc ( 45:-90:.1)
12653   (-.15,.025)
12654   arc (60:-60:.25)
12655   arc (150:30:.075)
12656   arc (150:30:.075)
12657   arc (150:30:.075)
12658   arc (-120:-240:.25);
12659
12660 }
12661 }

```

5.4.6 Ridges

A hex can be decorated with up to 6 ridges — one for each edge of the hexagon. The first thing is to set up the graphics style to use for the ridges. We use the `wave` decoration.

```

12662 \tikzset{%
12663   hex/ridges/.style={
12664     line cap=round,
12665     draw=pgfstrokecolor,
12666     rounded corners=.25cm,
12667     scale line widths,
12668     decoration={
12669       path has corners=true,
12670       pre=waves,
12671       post=waves,
12672       pre length=-.1cm,
12673       post length=0cm,
12674       waves,
12675       radius=.2cm,
12676       segment length=.2cm},
12677     decorate}}

```

To properly set up the ridges, we need to concatenate ridge paths in order. To facilitate that, we define 6 `\ifs` — one for each edge.

```

12678 \newif\ifhex@r@ne
12679 \newif\ifhex@r@n
12680 \newif\ifhex@r@nw
12681 \newif\ifhex@r@sw
12682 \newif\ifhex@r@s
12683 \newif\ifhex@r@se

```

Next is the keys for each edge. These will set the above `\ifs` to `true`. We put these into the family `/hex/r` so that we can parse them separately.

```

12684 \tikzset{%
12685   /hex/ridges/.search also={/tikz},
12686   /hex/ridges/.cd,
12687   north east/.is if=hex@r@ne,
12688   north/.is if=hex@r@n,
12689   north west/.is if=hex@r@nw,
12690   south west/.is if=hex@r@sw,

```

```

12691 south/.is if=hex@r@s,
12692 south east/.is if=hex@r@se,
12693 radius/.store in=\hex@r@r,
12694 NE/.is if=hex@r@ne,
12695 N/.is if=hex@r@n,
12696 NW/.is if=hex@r@nw,
12697 SW/.is if=hex@r@sw,
12698 S/.is if=hex@r@s,
12699 SE/.is if=hex@r@se,
12700 r/.store in=\hex@r@r,
12701 }

```

\hex@do@ridges

This is the macro that actually generates the ridge. We use the same PGF filtered key parsing trick as above. Note that the routine below is handcrafted since it is relatively simple.

```

12702 \def\hex@do@ridges{%
12703   \edef\hex@r@tmp{[
12704     /hex/ridges/.cd,%
12705     radius=0.8,%
12706     /tikz/every hex ridges/.try,
12707     \hex@ridges]}
12708   \expandafter\scope\hex@r@tmp%
12709   \hex@dbg{3}{Ridges: '\meaning\hex@ridges', '\meaning\hex@r@tmp'
12710     ^^Jnorth east=\ifhex@r@ne yes\else no\fi
12711     ^^Jnorth      =\ifhex@r@n  yes\else no\fi
12712     ^^Jnorth west=\ifhex@r@nw yes\else no\fi
12713     ^^Jsouth west=\ifhex@r@sw yes\else no\fi
12714     ^^Jsouth      =\ifhex@r@s  yes\else no\fi
12715     ^^Jsouth east=\ifhex@r@se yes\else no\fi
12716     ^^Jradius     =\hex@r@r
12717   }
12718   \def\hex@r@p{
12719     % Hand written algorithm
12720     \ifhex@r@ne
12721       \def\hex@r@p{(0:\hex@r@r)--(60:\hex@r@r)}
12722     \fi
12723     \ifhex@r@n
12724       \hex@dbg{4}{Ridge along north edge: '\hex@r@p'}
12725       \ifhex@r@ne\else
12726         \xdef\hex@r@p{\hex@r@p ( 60:\hex@r@r)}
12727       \fi
12728       \xdef\hex@r@p{\hex@r@p --(120:\hex@r@r)}
12729     \fi
12730     \ifhex@r@nw
12731       \ifhex@r@n\else
12732         \xdef\hex@r@p{\hex@r@p (120:\hex@r@r)}
12733       \fi
12734       \xdef\hex@r@p{\hex@r@p --(180:\hex@r@r)}
12735     \fi
12736     \ifhex@r@sw
12737       \ifhex@r@nw\else

```

```

12738     \xdef\hex@r@p{\hex@r@p (180:\hex@r@r)}
12739     \fi
12740     \xdef\hex@r@p{\hex@r@p --(240:\hex@r@r)}
12741     \fi
12742     \ifhex@r@s
12743     \ifhex@r@sw\else
12744     \xdef\hex@r@p{\hex@r@p (240:\hex@r@r)}
12745     \fi
12746     \xdef\hex@r@p{\hex@r@p --(300:\hex@r@r)}
12747     \fi
12748     \ifhex@r@se
12749     \ifhex@r@s\else
12750     \xdef\hex@r@p{\hex@r@p (300:\hex@r@r)}
12751     \fi
12752     \xdef\hex@r@p{\hex@r@p --(360:\hex@r@r)}
12753     \fi
12754     \hex@dbg{3}{ Ridges path: \hex@r@p}
12755     \draw[hex/ridges] \hex@r@p;
12756 \endscope% End of ridges scope
12757 }

```

5.4.7 Towns

Similar to above, we define a namespace and family for towns. First thing is the graphics style for towns.

```

12758 \tikzset{%
12759   hex/town/.style={
12760     scale line widths,
12761     thin,
12762     fill=pgfstrokecolor,
12763     color=pgfstrokecolor},
12764   hex/town name/.style={
12765     transform shape,
12766     shape=rectangle,
12767     above right=.1,
12768     color=pgfstrokecolor,
12769     font=\sffamily\normalsize}
12770 }

```

Next is the namespace for dealing with towns.

```

12771 \tikzset{%
12772   /hex/town/.search also={/tikz},%
12773   /hex/town/.cd,
12774   pic/.store in=\hex@c@pic,
12775   type/.store in=\hex@c@pic,
12776   place/.store in=\hex@c@pos,
12777   location/.store in=\hex@c@pos,
12778   name/.store in=\hex@c@name,
12779   village/.style={pic=hex/town/village},
12780   town/.style={pic=hex/town/town},
12781   city/.style={pic=hex/town/city}
12782 }

```

And some pictures for making the towns.

```

12783 \tikzset{%
12784   hex/town/village/.pic={\path[fill,pic actions] circle(.1);},
12785   hex/town/town/.pic={\path[fill,pic actions] circle(.2);},
12786   hex/town/city/.pic={%
12787     \path[fill,pic actions] circle(.25);
12788     \path[draw,pic actions] circle(.35);}
12789 }

```

\hex@do@town

The macro to make the towns. This uses same tricks as above.

```

12790 \def\hex@c@nameparse{%
12791   \@ifnextchar[{\hex@c@namep@rse}{\hex@c@namep@rse[]}]%
12792 }
12793 \def\hex@c@namep@rse[#1]#2\endhex@c@nameparse{%
12794   \def\hex@c@node{node[shape=rectangle,hex/town name,#1]{#2}}
12795
12796 \def\hex@do@town{%
12797   \edef\hex@c@tmp{[
12798     /hex/town/.cd,%
12799     town,%
12800     /tikz/hex/town,%
12801     /tikz/every hex town/.try,
12802     \hex@town]}
12803 \expandafter\scope\hex@c@tmp%
12804   \ifx\hex@c@pic\empty\else%
12805     \@ifundefined{hex@c@pos}{\let\hex@c@pos\empty}{}
12806     \@ifundefined{hex@c@name}{\let\hex@c@name\empty}{}
12807     \expandafter\hex@c@nameparse\hex@c@name\endhex@c@nameparse%
12808     \ifx\hex@c@pos\empty\def\hex@c@pos{(0,0)}\fi
12809     \hex@dbg{2}{Town:
12810       ^^J text=\hex@c@name
12811       ^^J pic=\hex@c@pic
12812       ^^J place=\hex@c@pos
12813       ^^J node=\hex@c@node
12814     }
12815     \filldraw \hex@c@pos pic{\hex@c@pic} \hex@c@node;
12816   \fi%
12817 \endscope%
12818 }

```

5.4.8 Labels

Like terrains, we will set up some macros for dealing with labels.

To process coordinates and turn them into labels, we set up two counters.

```

12819 \newcounter{hex@l@c}
12820 \newcounter{hex@l@r}

```

In case we want to invert the row axis, we set-up a key to set the maximum row number.

```

12821 \def\hex@max@row{-1}
12822 \tikzset{
12823   max hex row/.store in=\hex@max@row,
12824 }

```

Again, we will make a separate namespace/family for the handling labels. We also define a counter which we will use to typeset alphabetic column numbers.

First a graphics style.

```

12825 \tikzset{%
12826   hex/label/.style={%
12827     draw=none,%
12828     shape=rectangle,%
12829     anchor=north,%
12830     color=gray,%
12831     font=\sffamily\bfseries\scriptsize,%
12832     inner sep=0},
12833 }

```

Next, the choices of how to make a label. These are put in the `/hex/label` family to make it easy to parse out only these keys. This uses some macros defined below. Note, this uses the macros `\hex@col` and `\hex@row` defined by the hex coordinate system.

```

12834 \tikzset{%
12835   /hex/label/.search also={/tikz},
12836   /hex/label/.cd,
12837   none/.code={\global\let\hex@l@text\@empty},
12838   auto/.is choice,
12839   auto/none/.code={\global\let\hex@l@text\@empty},
12840   auto/numbers/.code={%
12841     \hex@l@abs%
12842     \xdef\hex@l@text{%
12843       \hex@l@n@pad{the\c@hex@l@c}%
12844       \hex@l@n@pad{the\c@hex@l@r}}},
12845   auto/alpha column/.code={%
12846     \xdef\hex@l@text{%
12847       \ifnum0>\hex@col\AlphaAlph{-\hex@col}\else\AlphaAlph{\hex@col}\fi%
12848       \hex@row}},
12849   auto/alpha 2 column/.code={%
12850     \hex@l@abs%
12851     \advance\c@hex@l@c27\relax%
12852     \xdef\hex@l@text{%
12853       \AlphaAlph{\value{hex@l@c}}%
12854       \hex@l@n@pad{hex@row}}},
12855   auto/inv y x plus 1/.code={%
12856     \hex@dbg{3}{Inverse row, add one to column with arg '#1'}
12857     \let\hex@l@text\@empty%
12858     \ifnum\hex@max@row>0%
12859       \pgfmathtruncatemacro{\hex@l@row}{\hex@max@row-\hex@row}
12860       \pgfmathtruncatemacro{\hex@l@col}{1+\hex@col}
12861       \xdef\hex@l@text{%
12862         \hex@l@n@pad{\hex@l@col}%

```

```

12863     \hex@l@n@pad{\hex@l@row}}
12864     \else\message{Max row number not set}\fi},
12865 auto/x and y plus 1/.code={%
12866   \hex@dbg{3}{Inverse row, add one to column with arg '#1'}
12867   \pgfmathtruncatemacro{\hex@l@row}{1+\hex@row}
12868   \pgfmathtruncatemacro{\hex@l@col}{1+\hex@col}
12869   \xdef\hex@l@text{%
12870     \hex@l@n@pad{\hex@l@col}%
12871     \hex@l@n@pad{\hex@l@row}}},
12872 auto/.default=numbers,
12873 %text/.store in=\hex@l@text,
12874 text/.code={\gdef\hex@l@text{#1}},
12875 place/.store in=\hex@l@pos,
12876 location/.forward to=/hex/label/place,
12877 rotate/.store in=\hex@l@rot
12878 }

```

\hex@l@abs

This takes the absolute value of row and column numbers.

```

12879 \def\hex@l@abs{
12880   \setcounter{hex@l@c}{\hex@col}
12881   \setcounter{hex@l@r}{\hex@row}
12882   \expandafter\ifnum\value{hex@l@c}<0\multiply\c@hex@l@c by-1\fi%
12883   \expandafter\ifnum\value{hex@l@r}<0\multiply\c@hex@l@r by-1\fi%
12884   % \hex@dbg{0}{\hex@col->\the\c@hex@l@c\space\hex@row->\the\c@hex@l@r}
12885 }

```

\hex@l@n@pad

This will pad a number with a 0 if the number is smaller than 10.

```

12886 \long\def\hex@l@n@pad#1{%
12887   \ifnum#1<10 0\fi%
12888   #1}

```

\hex@do@label

This macro puts in the label. First, we reset label keys, then we read in the keys from the argument. If this results in the macro `\hex@l@text` to be non-empty, then we set the label via a TikZ node.

```

12889 \def\hex@do@label{%
12890   \hex@dbg{1}{Hex label: '\meaning\hex@label'}%
12891   \edef\hex@l@tmp{[%
12892     /hex/label/.cd,%
12893     rotate=0,%
12894     place={(90:.8)},%
12895     /tikz/hex/label/.try,%
12896     /tikz/every hex label/.try,%
12897     \hex@label]}%

```

```

12898 \expandafter\scope\hex@l@tmp%
12899   \hex@dbg{1}{Label:
12900     ^^J Text: '\meaning\hex@l@text'
12901     ^^J Location: '\meaning\hex@l@pos'
12902     ^^J Rotation: '\meaning\hex@l@rot'
12903   }%
12904   \@ifundefined{hex@l@text}{\let\hex@l@text\empty}{}%
12905   \ifx\hex@l@text\empty\else%
12906     \node[rotate=\hex@l@rot] at \hex@l@pos {\hex@l@text};%
12907   \fi%
12908 \endscope%
12909 }

```

5.4.9 Extra graphics

To make the interface a bit more flexible we allow for adding arbitrary stuff to the hexes. Some examples of pictures to add in the `extra` stuff.

hex/fortress

Draw a fortress. An example of a extra graphics entity.

```

12910 \tikzset{%
12911   hex/fortress/.pic={
12912     \path[draw,pic actions]
12913     (0: .9) --
12914     (0: .7) --
12915     (60: .7) -- ( 60:.9) -- ( 60:.7) --
12916     (120:.7) -- (120:.9) -- (120:.7) --
12917     (180:.7) -- (180:.9) -- (180:.7) --
12918     (240:.7) -- (240:.9) -- (240:.7) --
12919     (300:.7) -- (300:.9) -- (300:.7) --
12920     (0: .7) -- cycle;}}

```

hex/fortress 2

Draw a fortress. An example of a extra graphics entity.

```

12921 \tikzset{
12922   hex/fortress 2/.pic={%
12923     \draw[pic actions,transform shape] (0:0.64)
12924     foreach \a in {15,45,...,345}{
12925       --(\a:0.64)
12926       --(\a:0.80)
12927       --(\a+15:0.80)
12928       --(\a+15:0.64)}
12929     --cycle;
12930   },
12931 }

```


5.4.10 Some macros

```
12932 \DeclareRobustCommand\fortmark[1][scale=.25]{\tikz[#1,transform shape]{%
12933   \pic{hex/fortress 2}}
12934 \providecommand\terrainmark[2][scale=.2]{%
12935   \tikz[#1]{\hex[label=,terrain=#2]}}
12936 \providecommand\clearhex[1][scale=.2]{\tikz[#1]{\hex[label=]}}
12937 \providecommand\woodshex[1][scale=.2]{\terrainmark[#1]{woods}}
12938 \providecommand\mountainhex[1][scale=.2]{\terrainmark[#1]{mountains}}
12939 \providecommand\cityhex[1][scale=.2]{\terrainmark[#1]{city}}
12940 \providecommand\beachhex[1][scale=.2]{\terrainmark[#1]{beach}}
12941 \providecommand\seahex[1][scale=.2]{\tikz[#1]{\hex[label=,fill=sea]}}
12942 \providecommand\riverhex[1][scale=.2]{%
12943   \tikz[#1]{%
12944     \hex[label=](c=0,r=0)%
12945     \river[](\hex cs:e=SW)--(\hex cs:e=NE);}}
12946 \providecommand\roadhex[1][scale=.2]{%
12947   \tikz[#1]{%
12948     \hex[label=](c=0,r=0)%
12949     \road(\hex cs:e=SW)--(\hex cs:e=NE);}}
```

5.4.11 Edges, borders, roads, rivers, and so on

Styles of drawing edges, borders, rivers, roads, and railroads.

```
12950 % A decoration to extract outline of a path
12951 \pgfdeclaredecoration{outline}{init}
12952 {%
12953   \state{init}[next state=tick,width=Opt]{
12954     \xdef\outlinerev{}}
12955   \state{tick}[%
12956     width=+\pgfdecorationsegmentlength]%
12957   {
12958     \pgfpathlineto{\pgfpointadd{\pgfpointorigin}{
12959       \pgfpointpolar{\pgfdecorationsegmentangle}{
12960         +\pgfdecorationsegmentamplitude}}}}
12961     \pgf@xa=\pgf@x
12962     \pgf@ya=\pgf@y
12963     \message{^^J\the\pgf@x,\the\pgf@y}
12964     \pgfpointadd{\pgfpointorigin}{
12965       \pgfpointpolar{-\pgfdecorationsegmentangle}{
12966         \pgfdecorationsegmentamplitude}}
12967     \pgfpointtransformed{\pgfpoint{\pgf@x}{\pgf@y}}%
12968     \message{^^J\the\pgf@x,\the\pgf@y}
12969     \xdef\outlinerev{\the\pgf@x/\the\pgf@y,\outlinerev}
12970     \pgf@x=\pgf@xa
12971     \pgf@y=\pgf@ya
12972   }%
12973   \state{final}
12974   {
12975     \pgfpathlineto{\pgfpointdecoratedpathlast}
12976     \foreach \x/\y in \outlinerev{
12977       \ifx\x\empty\else
12978         \ifx\y\empty\else
```

```

12979         \pgf@xa=\x
12980         \pgf@ya=\y
12981         \pgf@nlt@lineto{\pgf@xa}{\pgf@ya}
12982     \fi
12983 \fi
12984 }
12985 }%
12986 }%
12987
12988 \tikzset{
12989   hex/road/.style={
12990     rounded corners=3\pgflinewidth,% .25cm,
12991     color=black,
12992     transform shape,
12993     scale line widths,
12994     thick},
12995   hex/railroad/.style={
12996     %scale line widths,
12997     rounded corners=.25cm,
12998     color=gray!50!black,
12999     transform shape,
13000     postaction={draw,decorate},
13001     decoration={ticks,
13002       segment length=9\pgflinewidth,
13003       amplitude=3\pgflinewidth,%.1cm
13004     }
13005   },
13006   hex/river/.style={
13007     color=blue,
13008     scale line widths,
13009     line width=3pt,
13010     transform shape,
13011     decorate,
13012     decoration={random steps,
13013       segment length=.3cm,
13014       amplitude=.15cm,
13015       pre=lineto,
13016       post=lineto,
13017       pre length=.05cm,
13018       post length=.05cm},
13019     rounded corners=.08cm},
13020   hex/border/.style={
13021     color=gray,
13022     rounded corners=3pt,
13023     dashed,
13024     transform shape,
13025     scale line widths,
13026     very thick
13027   },
13028   every river/.style={},
13029   every road/.style={},
13030   every railroad/.style={},
13031   every border/.style={},

```

13032 }

```
\road  
\railroad  
\river  
\border
```

```
13033 \def\road{%  
13034   \hex@dbg{3}{Road}  
13035   \@ifnextchar[{\road@}{\road@[]}]%  
13036 }  
13037 \def\road@[#1]{\draw[hex/road,every hex road/.try,#1]}  
13038 \def\railroad{%  
13039   \hex@dbg{3}{Rail road}  
13040   \@ifnextchar[{\railroad@}{\railroad@[]}]%  
13041 }  
13042 \def\railroad@[#1]{\draw[hex/railroad,every hex railroad/.try,#1]}  
13043 \def\river{%  
13044   \hex@dbg{3}{River}  
13045   \@ifnextchar[{\river@}{\river@[]}]%  
13046 }  
13047 \def\river@[#1]{\draw[hex/river,every hex river/.try,#1]}  
13048 \def\border{%  
13049   \hex@dbg{3}{Border}  
13050   \@ifnextchar[{\border@}{\border@[]}]%  
13051 }  
13052 \def\border@[#1]{\draw[hex/border,every hex border/.try,#1]}
```

5.4.12 Other paths

```
\shiftScalePath
```

Shifts and scales a path and defines a macro to contain the path

```
\shiftScalePath{<macro>}{<relative-coordinates>}
```

where *<relative-coordinates>* is a comma separated list of relative coordinates (to the lower-left and upper-right corners)

```
<x>/<y>
```

Note, this requires that `\boardXmin`, `\boardYmin` and `\boardXmax`, `\boardYmax` is defined. This can be done using the `\boardframe` macro.

```
13053 \def\shiftScalePath#1#2{%  
13054   \let\tmp@path\undefined%  
13055   \foreach \x/\y in {#2}{%  
13056     \pgfmathparse{\x*\boardW+\boardXmin}\xdef\tmp@x{\pgfmathresult}%  
13057     \pgfmathparse{\y*\boardH+\boardYmin}\xdef\tmp@y{\pgfmathresult}%  
13058     \ifundefined{tmp@path}{\def\tmp@path{}}{\xdef\tmp@path{tmp@path--}}%  
13059     \xdef\tmp@path{\tmp@path(\tmp@x,\tmp@y)}%  
13060   \expandafter\xdef\csname #1\endcsname{\tmp@path}}
```

5.4.13 Move, attacks, retreats from hex to hex

```
\hex@getscale
```

Get current scaling factor.

```
13061 \def\hex@getscale#1{%
13062   \begingroup
13063   \pgfgettransformentries{%
13064     \scaleA}{%
13065     \scaleB}{%
13066     \scaleC}{%
13067     \scaleD}{%
13068     \whatevs}{%
13069     \whatevs}%
13070   \pgfmathsetmacro{#1}{sqrt(abs(\scaleA*\scaleD-\scaleB*\scaleC))}%
13071   \expandafter
13072   \endgroup
13073   \expandafter\def\expandafter#1\expandafter{#1}%
13074 }
```

Key to get the scale

```
13075 \tikzset{%
13076   hex/get scale/.code={
13077     \hex@getscale{\hex@scale}},
13078 }
```

Style for moves. Use like

```
\path[move] <coordinates>;
```

```
13079 \tikzset{%
13080   % Argument is colour
13081   hex/move/.style={
13082     hex/get scale,
13083     decorate,
13084     decoration={
13085       markings,
13086       mark=between positions 0 and 1 step 0.75*\hex@scale*\hex@dy with {
13087         \node [single arrow,
13088           single arrow head extend=3pt,
13089           fill=#1,
13090           inner sep=\hex@scale*.5mm,
13091           minimum width=\hex@scale*2mm,
13092           minimum height=\hex@scale*\hex@dy/2,
13093           transform shape]{};
13094       }
13095     },
13096   },
```

A short move style

```
\path[short move] <coordinates>;
```

```

13097 % Argument is colour
13098 hex/short move/.style={
13099   hex/get scale,
13100   decorate,
13101   decoration={
13102     markings,
13103     mark=between positions 0 and 1 step 0.5*\hex@scale*\hex@dy with {
13104       \node [single arrow,
13105         single arrow head extend=3pt,
13106         fill=#1,
13107         inner sep=\hex@scale*.5mm,
13108         minimum width=\hex@scale*2mm,
13109         minimum height=\hex@scale*\hex@dy/3,
13110         transform shape]{};
13111     }
13112   },
13113 },

```

A short move style

```
\path[long move] <coordinates>;
```

```

13114 % Argument is colour
13115 hex/long move/.style={
13116   hex/get scale,
13117   transform shape,
13118   decorate,
13119   decoration={
13120     markings,
13121     mark=between positions 0 and -.7*\hex@scale*\hex@dy
13122     step 2*\hex@scale*\hex@dy with {
13123       \node [single arrow,
13124         single arrow head extend=3pt,
13125         fill=#1,
13126         anchor=west,
13127         inner sep=\hex@scale*.25mm,
13128         outer sep=.3*\hex@scale*\hex@dy,
13129         minimum width=\hex@scale*2mm,
13130         minimum height=1.4*\hex@scale*\hex@dy,
13131         transform shape]{};
13132     }
13133   },
13134 },

```

A short move style

```
\path[move with start] <coordinates>;
```

```

13135 % Argument is colour
13136 hex/move with start/.style={
13137   hex/get scale,
13138   decorate,
13139   decoration={
13140     markings,
13141     mark=at position 0 with {

```

```

13142     \node [inner sep=0,
13143           circle,
13144           minimum size=\hex@scale*5mm,
13145           fill=#1,
13146           transform shape] {};},
13147   mark=between positions 0 and 1 step 0.75*\hex@scale*\hex@dy with {
13148     \node [single arrow,
13149           single arrow head extend=\hex@scale*3pt,
13150           fill=#1,
13151           inner sep=\hex@scale*1mm,
13152           minimum width=\hex@scale*3mm,
13153           minimum height=\hex@scale*\hex@dy/2,
13154           transform shape]{};
13155   }
13156 },
13157 },
13158 % Default fill colour is black
13159 hex/move/.default=black,
13160 hex/move with start/.default=black,
13161 hex/short move/.default=black,
13162 hex/long move/.default=black,
13163 % Arguments are draw and fill color

```

A move cost style

```
\path[move] ... (coordinate)node[hex/move cost] ...;
```

```

13164 hex/move cost/.style 2 args={
13165   minimum size=1mm,
13166   inner sep=0.1mm,
13167   circle,
13168   fill=#2,
13169   transform shape,
13170   text=#1,
13171   font=\sffamily\bfseries\Large},
13172 hex/move cost/.default={black}{none},
13173 % Argument is fill colour

```

A short line style for retreats, advances, and so on

```
\path[short line] (start)--(end);
```

```

13174 hex/short line/.style={%
13175   hex/get scale,
13176   inherit options/.code={\csname tikz@options\endcsname},
13177   inherit options,
13178   decorate,
13179   decoration={
13180     markings,
13181     mark=between positions \hex@scale*\hex@dy
13182     and 1 step 2*\hex@scale*\hex@dy with {
13183       \node [single arrow,draw=black,fill=#1,
13184             single arrow head extend=\hex@scale*3pt,
13185             inner sep=1mm,
13186             minimum width=0.75*\hex@scale*\hex@dy,

```

```

13187     minimum height=\hex@scale*\hex@dy,
13188     transform shape[]{};
13189   }
13190 },
13191 },

```

An attack indication style

```
\path[attack] (start)--(end);
```

```

13192 % Argument is fill color
13193 hex/attack/.style={
13194   hex/get scale,
13195   inherit options/.code={\csname tikz@options\endcsname},
13196   inherit options,
13197   decorate,
13198   decoration={
13199     markings,
13200     mark=between positions \hex@scale*\hex@dy
13201     and 1 step 2*\hex@scale*\hex@dy with {
13202       \node [regular polygon,
13203         fill=#1,
13204         draw=#1,
13205         regular polygon sides=3,
13206         inner sep=0,
13207         minimum size=0.75*\hex@scale*\hex@dy,
13208         rotate=-90,
13209         transform shape]{};
13210     }
13211   },
13212 },

```

Short hands

```
\path[attack] (start)--(end);
```

```

13213 % Default colour is red for attacks
13214 hex/attack/.default=red!70!black,
13215 %%
13216 hex/retreat/.style={hex/short line=#1},
13217 hex/retreat/.default=white,
13218 %%
13219 hex/advance/.style={hex/short line=#1},
13220 hex/advance/.default={green!70!black},
13221 }

```

5.4.14 Board clipping and frame

```
\boardframe
```

Define the bounding box around the board

```
\boardframe[margin](lower=left)(upper-right){margin}
```

where $\langle lower-left \rangle$ and $\langle upper-right \rangle$ specifies the lower left and upper right hexes (inclusive) of the board.

```

13222 \tikzset{
13223   hex/board frame/.style={draw}
13224 }
13225 \def\boardframe{%
13226   \@ifnextchar[{\bo@rdframe}{\bo@rdframe[0]}%}
13227 }
13228 \def\bo@rdframe[#1](#2)(#3){%
13229   \hex@coords@conv{#2}
13230   \edef\llx{\hex@x}
13231   \edef\lly{\hex@y}
13232   \edef\llc{\hex@col}
13233   \edef\llr{\hex@row}
13234   \edef\ellc{\hex@eff@col}
13235   \edef\ellr{\hex@eff@row}
13236   %
13237   \hex@coords@conv{#3}
13238   \edef\urx{\hex@x}
13239   \edef\ury{\hex@y}
13240   \edef\urc{\hex@col}
13241   \edef\urr{\hex@row}
13242   \edef\eurc{\hex@eff@col}
13243   \edef\eurr{\hex@eff@row}
13244   %
13245   \def\margin{#1}
13246   %
13247   \hex@dbg{2}{%
13248     Board Hex range: (\llc,\llr)x(\urc,\urr)
13249     ^^JEffective range: (\ellc,\ellr)x(\eurc,\eurr)
13250     ^^JBB:           (\llx,\lly)x(\urx,\ury)}%
13251   \ifnum\hex@dbg{1}>1
13252     \draw[red,very thick](hex cs:c=\llc,r=\llr) rectangle(hex cs:c=\urc,r=\urr);
13253     \draw[red,ultra thick,dashed](\llx,\lly) rectangle(\urx,\ury);
13254     \draw[->,very thick,blue] (0,0) -- (0,1) (0,0) -- (1,0);
13255   \fi
13256   % Calculate how many half hex hides to add to the "bottom"
13257   %
13258   \def\oddeven{isodd}
13259   \ifnum\hex@coords@row@fac<0\def\oddeven{iseven}\fi%
13260   \pgfmathparse{
13261     ifthenelse(\hex@got@bot@short(\ellc),
13262       ifthenelse(\hex@bot@short@col(\llc)*not(\oddeven(\ellc)),2,
13263         ifthenelse(\hex@bot@short@col(\llc),0,1)),
13264       ifthenelse(\oddeven(\ellc),1,2))}
13265   \edef\olly{\pgfmathresult}%
13266   \hex@dbg{2}{Delta lly: \olly half heights}
13267   % Calculate how many half hex heights to add to the "top"
13268   \def\oddeven{iseven}
13269   \ifnum\hex@coords@row@fac<0\def\oddeven{isodd}\fi%
13270   %
13271   \pgfmathparse{
13272     ifthenelse(\hex@got@top@short(\urc),
13273       ifthenelse(\hex@top@short@col(\urc)*\oddeven(\eurc),0,

```



```

13274     \ifthenelse(\hex@top@short@col(\urc),2,1)),
13275     \ifthenelse(\oddeven(\eurc),1,2))}
13276 \edef\oury{\pgfmathresult}%
13277 \hex@dbg{2}{Delta ury: \oury half heights}
13278 % Calculate new LLY and URY
13279 \pgfmathparse{\lly-\hex@coords@row@fac*(\olly*\hex@yy+\margin)}
13280 \edef\lly{\pgfmathresult}
13281 \pgfmathparse{\ury+\hex@coords@row@fac*(\oury*\hex@yy+\margin)}
13282 \edef\ury{\pgfmathresult}
13283 % Calculate new LLX and URX
13284 \pgfmathparse{\llx-1-\margin}\edef\llx{\pgfmathresult}
13285 \pgfmathparse{\urx+1+\margin}\edef\urx{\pgfmathresult}
13286 % Calculate width and height
13287 \pgfmathparse{\urx-\llx}\edef\w{\pgfmathresult}
13288 \pgfmathparse{\ury-\lly}\edef\h{\pgfmathresult}
13289 \hex@dbg{0}{Board Frame: (\llx,\lly)x(\urx,\ury) (\w x\h) (\llc,\llr)x(\urc,\urr)}
13290 \draw[hex/board frame/.try](\llx,\lly) rectangle(\urx,\ury);
13291 \xdef\boardXmin{\llx}%
13292 \xdef\boardYmin{\lly}%
13293 \xdef\boardXmax{\urx}%
13294 \xdef\boardYmax{\ury}%
13295 }
13296

```

`\boardclip`

Clip the board to not show incomplete hexes

`\boardclip{<nx>}{<ny>}{<preaction>}`

```

13297 \def\boardpath(#1)(#2){%
13298 \hex@coords@reset%
13299 \tikzset{/hex/coords/.cd, #1}
13300 \edef\llx{\hex@col}
13301 \edef\lly{\hex@row}
13302 %%
13303 \hex@coords@reset%
13304 \tikzset{/hex/coords/.cd, #2}
13305 \edef\urx{\hex@col}
13306 \edef\ury{\hex@row}
13307 \let\board@odd\@undefined%
13308 \hex@dbg{1}{Board BB in hex: (\llx,\lly)x(\urx,\ury)}
13309 %%
13310 \def\fv{south}
13311 \def\sv{north}
13312 \ifnum\hex@coords@row@fac<0
13313 \def\fv{north}
13314 \def\sv{south}
13315 \fi
13316
13317 \edef\hex@board@path{(hex cs:c=\llx,r=\lly,v=\fv\space west)}
13318 %% First the left side
13319 \foreach \r in {\lly,...,\ury} {%

```

```

13320 \edef\t{
13321   --(hex cs:c=\llx,r=\r,v=west)
13322   --(hex cs:c=\llx,r=\r,v=\sv\space west)}
13323 \wg@addto@macro{\hex@board@path}{\t}
13324 %% Then for top of board
13325 \foreach \c in {\llx,...,\urx} {%
13326   % To be done
13327   \pgfmathparse{int(ifthenelse(\hex@bot@short@col(\c),1,0))}
13328   \edef\tmp{\pgfmathresult}
13329   \ifnum\tmp>0
13330   \edef\t{
13331     % --(hex cs:c=\c,r=\ury,v=\sv\space west)
13332     % --(hex cs:c=\c,r=\ury,v=\sv\space east)}
13333   \else
13334   \edef\t{
13335     --(hex cs:c=\c,r=\ury,v=\fv\space east)
13336     --(hex cs:c=\c,r=\ury,v=\fv\space west)}
13337   \fi
13338   \wg@addto@macro{\hex@board@path}{\t}
13339 %% Then for right of board
13340 \foreach \r in {\ury,...,\lly} {%
13341   \edef\t{
13342     --(hex cs:c=\urx,r=\r,v=east)
13343     --(hex cs:c=\urx,r=\r,v=\fv\space east)}
13344   \wg@addto@macro{\hex@board@path}{\t}
13345
13346 %% Then for bottom of board
13347 \edef\t{--(hex cs:r=\lly,c=\urx,v=\fv\space west)}
13348 \wg@addto@macro{\hex@board@path}{\t}
13349 \foreach \c in {\urx,...,\llx} {%
13350   \pgfmathparse{int(ifthenelse(\hex@bot@short@col(\c),1,0))}
13351   \edef\tmp{\pgfmathresult}
13352   \ifnum\tmp>0
13353   \edef\t{
13354     --(hex cs:c=\c,r=\lly,v=\sv\space east)
13355     --(hex cs:c=\c,r=\lly,v=\sv\space west)}
13356   \else
13357   \edef\t{
13358     --(hex cs:c=\c,r=\lly,v=\fv\space east)
13359     --(hex cs:c=\c,r=\lly,v=\fv\space west)}
13360   \fi
13361   \wg@addto@macro{\hex@board@path}{\t}
13362
13363 \def\t{--cycle}
13364 \wg@addto@macro{\hex@board@path}{\t}
13365 \global\let\hexboardpath\hex@board@path
13366 }
13367 %\def\boardclip#1#2#3{%
13368 % \pgfmathparse{int(#1-1)}\xdef\board@range{\pgfmathresult,...,0}%
13369 % %% \show\board@range
13370 % \draw \ifx|#3|\else[preaction={#3}]\fi%
13371 % [clip]
13372 % % [decorate,decoration={show path construction,

```

```

13373 % % moveto code={\fill[red](\tikzinputsegmentfirst) circle(2pt)
13374 % % node [fill=none,below]{moveto};},
13375 % % lineto code={\draw[thick,blue,->](\tikzinputsegmentfirst)--
13376 % % (\tikzinputsegmentlast) node [above] {lineto};},
13377 % % curveto code={\draw[thick,green,->](\tikzinputsegmentfirst)..
13378 % % controls(\tikzinputsegmentsupporta) and
13379 % % (\tikzinputsegmentsupportb)
13380 % % ..(\tikzinputsegmentlast) node[above]{curveto};},
13381 % % closepath code={\draw[thick,orange,->](\tikzinputsegmentfirst)--
13382 % % (\tikzinputsegmentlast) node [above] {closepath};}
13383 % % }}
13384 % (hex cs:r=0,c=0,v=south west)
13385 % %% First the left side
13386 % \foreach \r in {0,1,...,#2} {%
13387 %   --(hex cs:c=0,r=\r,v=west)--(hex cs:c=0,r=\r,v=north west)}
13388 % %% Then for top of board
13389 % \foreach \c in {0,1,...,#1} {%
13390 %   --(hex cs:r=#2,c=\c,v=north west)--(hex cs:c=\c,r=#2,v=north east)}
13391 % %% Then for right of board
13392 % \foreach \r in {#2,...,0} {%
13393 %   --(hex cs:c=#1,r=\r,v=east)--(hex cs:c=#1,r=\r,v=south east)}
13394 % %% Then for bottom of board
13395 % --(hex cs:r=0,c=#1,v=south west) \foreach \c in \board@range {%
13396 %   --(hex cs:r=0,c=\c,v=south east) --(hex cs:c=\c,r=0,v=south west) }
13397 % --cycle; }
13398 %% New definition - much simpler
13399 \def\boardclip(#1)(#2)#3{%
13400 \boardpath(#1)(#2)
13401 \draw \ifx|#3|\else[preaction={#3}]\fi%
13402 [clip] \hexboardpath;
13403 }
13404

```

\debuggrid

Show a debug grid. This requires `\boardframe`.

```

13405 \def\debuggrid{%
13406 \foreach \i in {0,0.1,0.2,0.3,0.4,0.5,0.6,0.7,0.8,0.9,1} {%
13407 \pgfmathparse{\i*\boardW+\boardXmin}%
13408 \edef\debug@x{\pgfmathresult}%
13409 \draw [very thin,gray](\debug@x,\boardYmin) --
13410 (\debug@x,\boardYmax) node [below,rotate=90] at
13411 (\debug@x,\boardYmin) {\i}; }%
13412 \foreach \i in {0,0.1,0.2,0.3,0.4,0.5,0.6,0.7,0.8,0.9,1} {%
13413 \pgfmathparse{\i*\boardH+\boardYmin}%
13414 \edef\debug@x{\pgfmathresult}%
13415 \draw [very thin,gray] (\boardXmin,\debug@x) --
13416 (\boardXmax,\debug@x) node [left,rotate=90] at
13417 (\boardXmin,\debug@x) {\i}; } }

```

Some dummy styles. These will be defined by the export class to facilitate getting information from the board.

```

13418 \tikzset{%
13419   zoned/.style={},
13420   zone scope/.style={},
13421   zone path/.style={}
13422 }

```

5.5 The wargame.chit TikZ library

We define the library for making chits. We load the hex TikZ `wargame.natoapp6c` library and the `amsmath` and `amstext` packages as we need those.

```

13423 \RequirePackage{amsmath}
13424 \RequirePackage{amstext}
13425 \usetikzlibrary{wargame.util,wargame.natoapp6c,math}

```

5.5.1 Debugging

```

\chitdbglvl
\chit@dbg

```

Some macros for debugging. Similar to what we have in `wargame.hex` (see Section 5.4).

```

13426 \newcount\chitdbglvl\chitdbglvl=\wargamedbglvl
13427 \def\chit@dbg#1#2{%
13428   \ifnum#1>\chitdbglvl\relax\else\message{^^J#2}\fi}

```

5.5.2 The chit key namespace

```

/chit/full
/chit/symbol
/chit/left
/chit/right
/chit/upper left
/chit/upper right
/chit/lower left
/chit/lower right
/chit/factors
/chit/setup
/chit/id

```

The parts of a chit

```

13429 \tikzset{%
13430   /chit/.search also={/tikz},
13431   /chit/.cd,
13432   full/.store in=\chit@full,          full/.initial=,%
13433   symbol/.store in=\chit@symbol,      symbol/.initial=,%
13434   left/.store in=\chit@left,          left/.initial=,%
13435   unique/.style={/chit/left={#1}},%
13436   right/.store in=\chit@right,        right/.initial=,%

```

```

13437 parent/.style={/chit/right={#1}},%
13438 upper left/.store in=\chit@upper@left, upper left/.initial=%
13439 upper right/.store in=\chit@upper@right, upper right/.initial=%
13440 lower left/.store in=\chit@lower@left, lower left/.initial=%
13441 lower right/.store in=\chit@lower@right, lower right/.initial=%
13442 factors/.store in=\chit@factors, factors/.initial=%
13443 setup/.store in=\chit@setup, setup/.initial=%
13444 id/.store in=\chit@id, id/.initial=%
13445 frame/.store in=\chit@frame, frame/.initial=%
13446 }

```

```

/tikz/chit/full
/tikz/chit/symbol
/tikz/chit/left
/tikz/chit/right
/tikz/chit/upper left
/tikz/chit/upper right
/tikz/chit/lower left
/tikz/chit/lower right
/tikz/chit/factors
/tikz/chit/setup
/tikz/chit/id

```

Styles of each element in a chit. Users may override these at their own peril. That is, it is OK to override them, but the user should be careful.

```

13447 \tikzset{
13448   chit/symbol/.style={scale=.4,transform shape},
13449   chit/parts/.style={shape=rectangle,transform shape},
13450   chit/factors/.style={chit/parts,anchor=south},
13451   chit/left/.style={chit/parts,anchor=south,rotate=90},
13452   chit/right/.style={chit/parts,anchor=north,rotate=90},
13453   chit/upper left/.style={chit/parts,anchor=north west},
13454   chit/upper right/.style={chit/parts,anchor=north east},
13455   chit/lower left/.style={chit/parts,anchor=south west},
13456   chit/lower right/.style={chit/parts,anchor=south east},
13457   chit/setup/.style={chit/parts},
13458   chit/full/.style={chit/parts},
13459 }

```

5.5.3 The chit styles

```

/tikz/chit

```

This key sets up a node to make a chit. The key takes a single argument which in turn must contain key–value pairs in the /chit (or /tikz) namespace(s). We set the `shape` parameter of the node, and calls the passed keys in the /chit namespace to set-up elements of the chit.

```

13460 \tikzset{%
13461   chit/.code={%
13462     \pgfkeys{/tikz/transform shape,/tikz/shape=chit}

```

```
13463 \pgfkeys{/chit/.cd,#1}}
```

We define a counter to set-up unique names for chit nodes.

```
13464 \newcounter{chit@id}\setcounter{chit@id}{0}
```

5.5.4 The \chit shape

```
\chit@n@to
\@chit@n@to
\@@chit@n@to
\@chit@n@to@
```

These macros puts the NATO App6(c) symbol into a chit. The first macro takes the identifier and position of the symbol, and then scans for options. If no options are given, then we go directly to the rendering (\@chit@n@to@). Otherwise, we may also need to scan for an offset given as ($\langle\delta-x,\delta-y\rangle$).

```
13465 \def\chit@n@to#1#2{%
13466   %% Without a following start square bracket '[' by-pass to final
13467   \chit@dbg{4}{Chit NATO App6(c) first step '#1' '#2'}
13468   \ifnextchar[{%
13469     %\message{^^JStart square bracket}%
13470     \@chit@n@to{#1}{#2}}{%
13471     %\message{^^JNo start square bracket}%
13472     \@chit@n@to@{#1}{#2}}%]]
13473 }
```

The following macro is called if we had no options.

```
13474 \def\@chit@n@to@#1#2#3\@end@chit@n@to@{%
13475   \chit@dbg{4}{Chit NATO App6(c) w/o offset:
13476     ^^J Options: #3
13477     ^^J ID: #1
13478     ^^J Position: #2}
13479   \node[chit/symbol,natoapp6c={#3,id=#1}] (#1) at (#2) {};
13480   \chit@dbg{4}{Chit NATO App6(c) ended}%
13481 }
```

This is called if we had an option-like argument. Check if we have an offset

```
13482 \def\@chit@n@to#1#2[#3]{%
13483   \chit@dbg{4}{Chit NATO App6(c) second step '#1' '#2' '#3'}
13484   \ifnextchar({\@chit@n@to{#1}{#2}{#3}}{\@chit@n@to{#1}{#2}{#3}(0,0)}%)
13485 }
```

This called if we had option-like argument.

```
13486 \def\@@chit@n@to#1#2#3(#4)\@end@chit@n@to@{%
13487   \chit@dbg{4}{Chit NATO App6(c) w/offset:
13488     ^^J Options: #3
13489     ^^J ID: #1
13490     ^^J Position: #2
13491     ^^J Offset: #4}
13492   \node[chit/symbol,natoapp6c={#3,id=#1}] (#1) at ($(#2)+(#4)$) {};
```

```
\chit@tr@ns@nchor
\chit@nchor
```

Get anchor of sub-symbol element in chit. We need to do this, because the symbol is translated and scaled.

```
13493 \def\chit@tr@ns@nchor#1{%
13494   \pgf@x=0.4\pgf@x%
13495   \pgf@y=0.4\pgf@y\advance\pgf@y#1}

13496 \def\chit@nchor#1#2#3{%
13497   \wg@sub@nchor{#1}{#2}
13498   \chit@tr@ns@nchor{#3}}
13499 \def\chit@report{}
13500 \tikzset{
13501   zone turn/.style={},
13502   zone mult/.style={}
13503 }
```

Now follows the actual chit shape. This is rather long, so we will break it up a bit

The first thing is we declare some saved anchors. These are computed (and defined as internal macros) when the shape is instantiated. The anchors give the centre and north east corner of the node, the place to put the NATO App6(c) symbol and factors. We also set a dimension for the margins (corner and factors elements).

```
13504 \pgfdeclareshape{chit}{
13505   \savedanchor\center{\pgf@x=0cm\pgf@y=0cm}
13506   \savedanchor\northeast{\pgf@x=0.6cm\pgf@y=0.6cm}
13507   \savedanchor\symbol1{\pgf@x=0cm\pgf@y=0.2cm}
13508   \savedanchor\factors{\pgf@x=0cm\pgf@y=-0.5cm}
13509   \saveddimen\margin{\pgf@x=0.04cm}
```

Next, we define some saved macros. These are called (and declares internal macros) when the shape is instantiated. We define macros for the identifier,

```
13510 \savedmacro\id{%
13511   \chit@dbg{4}{Chit ID: \meaning\chit@id}%
13512   \@ifundefined{chit@id}{\let\chit@id\pgfutil@empty}{}%
13513   \ifx\chit@id\pgfutil@empty%
13514     \wg@r@ndom@id%
13515     \edef\id{chit\wg@uuiid}%
13516   \else%
13517     \edef\id{\chit@id}%
13518   \fi%
13519   \chit@dbg{4}{Chit ID stored: \meaning\chit@id}
13520 }
13521 \savedmacro\chitframeopt{%
13522   \let\chitframeopt\pgfutil@empty%
13523   \@ifundefined{chit@frame}{}{%
13524     \edef\chitframeopt{\chit@frame}}
13525   \n@to@pp@dbg{3}{Chit Frame options: \meaning\chitframeopt}%
13526 }
```

We define the regular anchors of the shape. That is, the centre, corners, and edges.

```

13527 \anchor{center}{\center}
13528 \anchor{north east}{\northeast}
13529 \anchor{north west}{\northeast\pgf@x=-\pgf@x}
13530 \anchor{south west}{\northeast\pgf@x=-\pgf@x\pgf@y=-\pgf@y}
13531 \anchor{south east}{\northeast\pgf@y=-\pgf@y}
13532 \anchor{north}      {\northeast\pgf@x=0cm}
13533 \anchor{south}     {\northeast\pgf@x=0cm\pgf@y=-\pgf@y}
13534 \anchor{east}      {\northeast\pgf@y=0cm}
13535 \anchor{west}      {\northeast\pgf@x=-\pgf@x\pgf@y=0cm}

```

Next, we want to be able to reference the symbol anchors too. So we define these anchors from the embedded node anchors. Note, these anchors will not exist if the chit is made with `full=<args>`.

```

13536 \anchor{symbol north east}{\chit@nchor{M\id symbol}{north east}{0.2cm}}
13537 \anchor{symbol north west}{\chit@nchor{M\id symbol}{north west}{0.2cm}}
13538 \anchor{symbol south east}{\chit@nchor{M\id symbol}{south east}{0.2cm}}
13539 \anchor{symbol south west}{\chit@nchor{M\id symbol}{south west}{0.2cm}}
13540 \anchor{symbol north}     {\chit@nchor{M\id symbol}{north}{0.2cm}}
13541 \anchor{symbol west}      {\chit@nchor{M\id symbol}{west}{0.2cm}}
13542 \anchor{symbol south}     {\chit@nchor{M\id symbol}{south}{0.2cm}}
13543 \anchor{symbol east}      {\chit@nchor{M\id symbol}{east}{0.2cm}}
13544 \anchor{symbol upper}     {\chit@nchor{M\id symbol}{upper}{0.2cm}}
13545 \anchor{symbol lower}     {\chit@nchor{M\id symbol}{lower}{0.2cm}}
13546 \anchor{symbol left}      {\chit@nchor{M\id symbol}{left}{0.2cm}}
13547 \anchor{symbol right}     {\chit@nchor{M\id symbol}{right}{0.2cm}}
13548 \anchor{symbol echelon}    {\chit@nchor{M\id symbol}{north}{0.2cm}}
13549 \anchor{symbol below}     {\chit@nchor{M\id symbol}{south}{0.1cm}}

```

Some anchors to sub-elements. Some of them only exists if we have NATO App6(c) symbol in the chit.

```

13550 \anchor{symbol}      {\symbol}
13551 \anchor{factors}     {\factors}
13552 \anchor{left}        {\chit@nchor{M\id symbol}{west}{.2cm}\advance\pgf@x-\margin}
13553 \anchor{right}       {\chit@nchor{M\id symbol}{east}{.2cm}\advance\pgf@x+\margin}
13554 \anchor{upper right} {%
13555   \northeast \advance\pgf@x-\margin \advance\pgf@y-\margin%
13556 }
13557 \anchor{upper left}{
13558   \northeast \advance\pgf@x-\margin \advance\pgf@y-\margin \pgf@x=-\pgf@x%
13559 }
13560 \anchor{lower right} {%
13561   \northeast \advance\pgf@x-\margin \advance\pgf@y-\margin \pgf@y=-\pgf@y%
13562 }
13563 \anchor{lower left}{
13564   \northeast \advance\pgf@x-\margin \advance\pgf@y-\margin%
13565   \pgf@x=-\pgf@x \pgf@y=-\pgf@y%
13566 }

```

Now for the actual path. For the background path, we simply specify the frame. This is so that this will get drawn (and possibly filled) using the appropriate options.

```

13567 \backgroundpath{%
13568   %% This is the outline of the chit only. The rest of the chit is
13569   %% made on the foreground "path".

```



```

13570 \northeast%
13571 \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
13572 \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13573 \wg@tmpa=-\wg@tmpa \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13574 \wg@tmpb=-\wg@tmpb \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13575 \wg@tmpa=-\wg@tmpa \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13576 \pgfclosepath
13577 }

```

Finally, we make the foreground rendered path. This is where we do the most stuff. We do it in the *behind* foreground path so that we can ensure things are drawn the way we want it.

The first thing is to set-up the clipping to the chit frame.

```

13578 \behindforegroundpath{%
13579 \chit@dbg{4}{%
13580 Chit foreground: \meaning\id
13581 ^^J ID (set): \meaning\chit@id
13582 ^^J Symbol: \meaning\chit@symbol
13583 ^^J Full: \meaning\chit@full
13584 ^^J Factors: \meaning\chit@factors
13585 ^^J Left: \meaning\chit@left
13586 ^^J Right: \meaning\chit@right
13587 ^^J Upper left: \meaning\chit@upper@left
13588 ^^J Lower left: \meaning\chit@lower@left
13589 ^^J Upper right: \meaning\chit@upper@right
13590 ^^J Lower right: \meaning\chit@lower@right}
13591 \chit@report{}}
13592 \pgfscope
13593 %
13594 \northeast%
13595 \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
13596 \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13597 \wg@tmpa=-\wg@tmpa \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13598 \wg@tmpb=-\wg@tmpb \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13599 \wg@tmpa=-\wg@tmpa \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13600 \pgfclosepath
13601 \pgfusepath{clip}

```

If we do not have the symbol key set, then we set the full key as a picture.

```

13602 \@ifundefined{chit@symbol}{%
13603 %% Draw full stuff
13604 \@ifundefined{chit@full}{-%
13605 \center\wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
13606 \wg@pic@all{\chit@full}{\the\wg@tmpa,\the\wg@tmpb}{chit/full}}%
13607 }%

```

Otherwise, we put in a node with shape `natoapp6c` and pass the `symbol` key–value pairs as options.

```

13608 \edef\symid{\id symbol}%
13609 \symbol%
13610 \edef\args{\the\pgf@x,\the\pgf@y}\chit@symbol}%
13611 \chit@dbg{6}{Arguments to chit NATO symbol: \meaning\args}%
13612 \expandafter\chit@n@to\args\end@chit@n@to%

```

```
13613 \chit@dbg{6}{After making NATO symbol in chit}%
```

Having made the NATO App6(c) symbol, which we gave the node name $\langle id \rangle$ symbol where $\langle id \rangle$ is the ID of this chit, we can make the rest of the chit elements. These are the left and right elements, which are set west and east of the symbol, respectively; the factors; and the four corner elements.

If the respective elements have not been specified, we do not make them.

First the left and right elements. Note that these uses the anchors of the embedded `natoapp6c` node for placement.

```
13614 % Put in left of symbol
13615 \@ifundefined{chit@left}{-}{%
13616 \begin{scope}[]
13617 \pgfpointanchor{\symid}{west}%
13618 \wg@tmpa=\pgf@x\advance\wg@tmpa-\margin%
13619 \wg@tmpb=\pgf@y%
13620 \wg@pic@all{\chit@left}{-}{\the\wg@tmpa,\the\wg@tmpb}{chit/left}%
13621 \end{scope}}%
13622 % Put in right of symbol
13623 \@ifundefined{chit@right}{-}{%
13624 \begin{scope}[]
13625 \pgfpointanchor{\symid}{east}%
13626 \wg@tmpa=\pgf@x\advance\wg@tmpa+\margin%
13627 \wg@tmpb=\pgf@y%
13628 \wg@pic@all{\chit@right}{-}{\the\wg@tmpa,\the\wg@tmpb}{chit/right}%
13629 \end{scope}}%
```

Next, we want to put in the corner elements. But before we do that, we use our saved anchors and dimensions to calculate the coordinates. Note that the corner elements are anchored to the corners (plus margin) of the chit frame.

```
13630 % Get coordinates
13631 \northeast%
13632 \wg@tmpa=\pgf@x%
13633 \wg@tmpb=\pgf@y%
13634 \advance\wg@tmpa-\margin%
13635 \advance\wg@tmpb-\margin%
```

With the coordinates extracted, we set the four corner elements. Note, for the anchoring to work, we should specify pictures that have anchors (e.g., nodes). If not, we must take care to give offsets or the like.

```
13636 % Put in upper left corner
13637 \@ifundefined{chit@upper@left}{-}{%
13638 \begin{scope}[]
13639 \wg@pic@all{\chit@upper@left}{-}{-\the\wg@tmpa,\the\wg@tmpb}{%
13640 chit/upper left}%
13641 \end{scope}}
13642 % Put in upper right corner
13643 \@ifundefined{chit@upper@right}{-}{%
13644 \begin{scope}[]
13645 \wg@pic@all{\chit@upper@right}{-}{\the\wg@tmpa,\the\wg@tmpb}{%
13646 chit/upper right}%
13647 \end{scope}}
13648 % Put in lower left corner
13649 \@ifundefined{chit@lower@left}{-}{%
13650 \begin{scope}[]
```

```

13651     \wg@pic@all{\chit@lower@left}{-}\the\wg@tmpa,-\the\wg@tmpb}{%
13652         chit/lower left}%
13653     \end{scope}}
13654 % Put in lower right corner
13655 \ifundefined{chit@lower@right}{-}{%
13656     \begin{scope}[]
13657         \wg@pic@all{\chit@lower@right}{-}\the\wg@tmpa,-\the\wg@tmpb}{%
13658             chit/lower right}%
13659     \end{scope}}

```

Finally, we put in the unit factors. They are put at the bottom of the chit frame (plus margin) and are typically anchored to the south anchor of the element. Note, we can put in several factors if need be.

```

13660 % Put in factors
13661 \ifundefined{chit@factors}{-}{%
13662     \advance\wg@tmpb-\margin%
13663     \begin{scope}[]
13664         \wg@pic@all{\chit@factors}{0,-}\the\wg@tmpb}{chit/factors}%
13665     \end{scope}}%
13666 }%
13667 \endpgfscope%
13668 % Draw frame?
13669 \edef\tmp@opt{[\chitframeopt]}
13670 \expandafter\scope\tmp@opt
13671 \northeast%
13672 \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
13673 \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13674 \wg@tmpa=-\wg@tmpa \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13675 \wg@tmpb=-\wg@tmpb \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13676 \wg@tmpa=-\wg@tmpa \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
13677 \pgfclosepath
13678 \pgfusepath{stroke}
13679 \endscope
13680 }
13681 }

```

5.5.5 The `\chit` wrapper macro

```

\chit
\chit@
\chit@

```

The macro to make the chits. This is a wrapper around a node with shape `chit`. The syntax of this macro is

```

\chit[<chit options>](<position>)(<identifier>);

```

Note that the trailing semi-colon is optional. Here *<chit options>* are any key-value pairs in the `/chit` (and `/tikz`) namespace.

The first macro parses for options.

```

13682 \def\chit{%
13683     \chit@dbg{5}{Chit}

```

```

13684 \@ifnextchar[{\chit@}{\chit@[ ]}%]
13685 }

```

Parse for coordinates.

```

13686 \def\chit@[#1]{%
13687 \chit@dbg{5}{Chit second: '#1'}
13688 \@ifnextchar({\chit@@{#1}}{\chit@@{#1}(0,0)}%)
13689 }

```

Parse for name.

```

13690 \def\chit@@#1(#2){%
13691 \@ifnextchar({\chit@@@{#1}{#2}}{\chit@@@{#1}{#2}()})%
13692 }

```

The work horse. This simply makes a `\node` with the shape `chit`. Note, we allow for a trailing semi-colon (`;`) to have a similar feel to other *TikZ* macros.

```

13693 \def\chit@@@#1#2(#3){%
13694 \chit@dbg{5}{Chit final:
13695   ^^J Options:   #1
13696   ^^J Position:  #2
13697   ^^J Name:      '#3'}
13698 \let\name\pgfutil@empty%
13699 \chit@dbg{1}{=== Before chit node}%
13700 \node[draw,chit={every chit/.try,id=#3,#1}] (tmp) at (#2) {};
13701 \chit@dbg{2}{=== After chit node}%
13702 \ifx|#3|\relax%
13703 \else%
13704   \chit@dbg{3}{=== Renaming chit to user defined name '#3'}%
13705   \pgfnoderename{#3}{tmp}%
13706 \fi%
13707 \@ifnextchar;{\@gobble}{}%
13708 }

```

5.5.6 Predefined chit element pictures

```

/tikz/pics/chit/1 factor
/tikz/pics/chit/2 factors
/tikz/pics/chit/2 factors artillery
/tikz/pics/chit/3 factors
/tikz/pics/chit/4 factors
/tikz/pics/chit/identifier
/tikz/pics/chit/small identifier
/tikz/pics/chit/identifier macro

```

These pictures can be used as the value of `chit` keys.

```

13709 \tikzset{%
13710   chit/1 factor/.pic={
13711     \chit@dbg{4}{ Chit 1 factor: #1}%
13712     \node[chit/factor,chit/1 factor,pic actions]{#1};},

```

```

13713 pics/chit/2 factors/.style args={#1,#2}{%
13714   code={%
13715     \chit@dbg{4}{ Chit 2 factors: #1 and #2}%
13716     \node[chit/factor,chit/2 factors,pic actions]{#1--#2};}},
13717 pics/chit/2 factors artillery/.style args={#1,#2,#3}{%
13718   code={
13719     \chit@dbg{4}{ Chit 2 factors w/artillery: '#1' '#2' '#3'}%
13720     \node[chit/factor,chit/2 factors,pic actions]{%
13721       #1$\overset{\text{\scriptsize #3}}{\text{--}}\text{#2}};}},
13722 pics/chit/3 factors/.style args={#1,#2,#3}{%
13723   code={
13724     \chit@dbg{4}{ Chit 3 factors: '#1' '#2' '#3'}%
13725     \node[chit/factor,chit/3 factors,pic actions]{#1-#2-#3};}},
13726 pics/chit/4 factors/.style args={#1,#2,#3,#4}{%
13727   code={
13728     \chit@dbg{4}{ Chit 3 factors: '#1' '#2' '#3' '#4'}%
13729     \node[chit/factor,chit/4 factors,pic actions]{#1-#2-#3-#4};}},
13730 chit/identifier/.pic={
13731   \chit@dbg{4}{ Chit identifier: '#1'}%
13732   \node[chit/identifier,pic actions]{#1};
13733 },
13734 chit/small identifier/.pic={
13735   \chit@dbg{4}{ Chit small identifier: '#1'}%
13736   \node[chit/small identifier,pic actions]{#1};
13737 },
13738 chit/identifier macro/.pic={%
13739   \chit@dbg{4}{ Chit identifier macro: \meaning#1}
13740   \edef\chit@i@tmp{#1}
13741   \node[chit/identifier,pic actions]{\chit@i@tmp};},
13742 }

```

```

/tikz/chit/factor
/tikz/chit/1 factor
/tikz/chit/2 factors
/tikz/chit/3 factors
/tikz/chit/4 factors
/tikz/chit/identifier
/tikz/chit/small identifier

```

Styles used by the above pictures. Users can change these as they see fit.

```

13743 \tikzset{%
13744   chit/factor/.style={
13745     shape=rectangle,
13746     font=\sffamily\bfseries\large,
13747     anchor=base,
13748     inner sep=0,
13749     %text=pgfstrokecolor,
13750     draw=none,
13751     fill=none,
13752   },
13753   chit/1 factor/.style={},

```

```

13754 chit/2 factors/.style={},
13755 chit/3 factors/.style={},
13756 chit/4 factors/.style={text/.append style=\small},
13757 chit/identifier/.style={
13758     shape=rectangle,
13759     font=\sffamily\bfseries\scriptsize,
13760     inner sep=0,
13761     % text=pgfstrokecolor,
13762     draw=none,
13763     fill=none,
13764 },
13765 chit/small identifier/.style={
13766     shape=rectangle,
13767     font=\sffamily\bfseries\tiny,
13768     inner sep=0,
13769     % text=pgfstrokecolor,
13770     draw=none,
13771     fill=none,
13772 },
13773 }

```

5.5.7 Other pictures

Pictures for frame, factors, left, right, and below.

```

13774 \tikzset{
13775     pics/chit/shade/.style={
13776         code={%
13777             \path[fill=white,opacity=#1,pic actions] (-.6,-.6) rectangle(.6,.6);}},
13778     pics/chit/eliminate/.style={
13779         code={%
13780             \path[fill=red,opacity=#1,pic actions] (-.6,-.6) rectangle(.6,.6);}},
13781     pics/chit/shade/.default=0.5,
13782     pics/chit/eliminate/.default=0.25,
13783 }
13784 \def\shadechit(#1){%
13785     \pic at (#1) {chit/shade};}
13786 \def\eliminatechit(#1){%
13787     \pic at (#1) {chit/eliminate};}

```

5.5.8 Stacking of chits

Stacking of chits. The key `chit/stack direction` sets the default direction to make the stack in.

```

13788 % offset, location, direction, list
13789 \tikzset{%
13790     chit/stack direction/.store in=\chit@stack@dir,
13791     chit/stack direction/.initial={(.3,.3)},
13792 }

```

Now the code

```

13793 \def\chit@stack@dir{(.3,.3)}

```

```

13794 \def\stackchits(#1){%
13795   \@ifnextchar({\stackchits{#1}}{\stackchits{#1}(.3,.3)}%)
13796 }
13797 \def\stackchits#1(#2)#3{
13798   \chit@dbg{2}{Stacking chits '#1', '#2', '#3'}
13799   \edef\xy{#1}
13800   \chit@dbg{4}{Stack start at \xy}
13801   \foreach[count=\i from 0] \c/\o in {#3} {%
13802     \ifx\c\empty\else%
13803       \edef\ccc{\c}
13804       \chit@dbg{2}{Adding \meaning\ccc\space to stack at (\xy)' '\o'}
13805       \expandafter\ccc(\xy)
13806       %%
13807       \ifx\c\o\else
13808         %\chit@dbg{0}{Option: \o}
13809         \edef\ccc{\o}
13810         \expandafter\ccc(\xy)
13811       \fi
13812       \expandafter\ccc(\xy)
13813       \tikzmath{%
13814         coordinate \cc;
13815         \cc = (\xy) + (#2);}
13816       \xdef\xy{\cc}
13817     \fi
13818   }
13819 }

```

5.5.9 Making order of battle charts

Macros for making OOBs

Style for turns

```

13820 \tikzset{
13821   chit/oob turn/.pic={\node[pic actions]{#1};}}

```

current c, current r, n-columns, cell size, y

```

13822 \def\chit@oob@cellupdate(#1,#2)#3#4#5{%
13823   \edef\ff{\ifwg@oob@inv-1\else1\fi}%
13824   \chit@dbg{1}{ \space Cell update 'c=|#1|' vs '#4'*('#3'-1)}
13825   \pgfmathparse{int(ifthenelse(abs(#1)>=#4*(#3-1),#5-1,#5))}%
13826   \xdef#5{\pgfmathresult}
13827   \pgfmathparse{ifthenelse(abs(#1)>=#4*(#3-1),#2-#4,#2)}%
13828   \xdef#2{\pgfmathresult}%
13829   \pgfmathparse{ifthenelse(abs(#1)>=#4*(#3-1),0,#1+\ff*#4)}%
13830   \xdef#1{\pgfmathresult}%
13831   \chit@dbg{1}{ \space\space-> '\string#5'=#5 '\string#2'=#2 '\string#1'=#1}
13832 }

```

current c, current r, cell size, extra vertical spacing

```

13833 \def\chit@oob@rowupdate(#1,#2)#3#4{%
13834   \chit@dbg{2}{ Row update   c='#1',r='#2',s='#3',e='#4'}

```

```

13835 %\pgfmathparse{ifthenelse(#1>0,#2-#3,#2)}%
13836 \pgfmathparse{#2-#3)}%
13837 \xdef#2{\pgfmathresult}%
13838 %\xdef#1{0}
13839 \chit@dbg{2}{ \space\space-> update '\string#2'=#2}
13840 }

```

current c, current r, cell size, extra spacing

```

13841 \def\chit@oob@turnupdate(#1,#2)#3#4{%
13842 \chit@dbg{2}{ Turn update c='#1',r='#2',s='#3',e='#4'}
13843 % \pgfmathparse{#2-ifthenelse(#1>0,#3,0)-#4}%
13844 \pgfmathparse{#2-#4-ifthenelse(abs(#1)>0.0001,#3,0)}
13845 \xdef#2{\pgfmathresult}%
13846 \xdef#1{0}%
13847 \chit@dbg{2}{ \space\space-> update '\string#1'=#1,'\string#2'=#2}
13848 }

```

chit list, n-colls, cell size, extra vertical spacing

This expects a list of lists of chits, one list per turn; the maximum number of columns; the size of cells, extra spacing between turns.

Note, the list of lists leaf elements should be styles for the chits.

This depends on the Tikz pic `chit/oob turn` which takes the number as argument.

```

13849 \newif\ifwg@oob@inv\wg@oob@invfalse
13850 \def\wg@star@oob{\wg@oob@invtrue\wg@oob}
13851 \def\wg@nostar@oob{\wg@oob@invfalse\wg@oob}
13852 \def\oob{%
13853 \@ifstar{\wg@star@oob%
13854 }{\wg@nostar@oob%
13855 }%
13856 }
13857 \def\wg@oob#1#2#3#4{
13858 \def\r{0}
13859 \chit@dbg{1}{OOB: '#1'}
13860 \foreach[count=\ti from 0] \t/\y in #1{
13861 \xdef\o{\r}
13862 \def\c{0}
13863 \ifx\t\y\def\y{0}\fi
13864 \chit@dbg{1}{Turn \ti\space(\r,\t,y=\y):'}
13865 \ifwg@oob@inv%
13866 \pic at (.5,\r) {chit/oob turn=\ti};%
13867 \else
13868 \pic at (-.5,\r) {chit/oob turn=\ti};%
13869 \fi%
13870 \ifx\t\empty\else%
13871 \foreach \u/\m in \t{
13872 %% \chit@dbg{2}{ '\u'='\m'}
13873 \ifx\u\empty\else
13874 \ifx\m\empty\def\m{1}\fi
13875 \ifx\u\m\def\m{1}\fi
13876 \foreach \n in {1,...,\m}{%
13877 \ifx\u\chit@blank\else

```



```

13878         \chit[\u=\ti,zone oob point={\u}{\c}{\r}](\c,\r);
13879         \fi
13880         \chit@oob@cellupdate(\c,\r){#2}{#3}{\y}
13881     }
13882     \fi
13883 }
13884 \fi
13885 \chit@dbg{1}{ End of chits in turn
13886 \ti\space(c='\c',r='\r',o='\o',y='\y')}
13887 % IF no units where given, then we force \c to be non-zero so that
13888 % \chit@oob@turnupdate increments the row
13889 \ifx\t@empty
13890 \def\c{#3}
13891 \chit@dbg{2}{ Turn is empty, set c='\c'}
13892 \fi
13893 %\ifnum\y<0% No explicit number of rows given
13894 % \def\c{#3}
13895 % \chit@dbg{2}{ No explicit number of rows given, set c='\c'}
13896 %\fi
13897 % In case the user gave and explicit number of rows, add the rows
13898 % that are missing. \y is initially set to the number of
13899 % requested rows, and then decremented every time we go down one
13900 % row. So if the number of rows we did so far is N, and the
13901 % requested number of rows is M, then the loop below adds M-N
13902 % rows.
13903 \ifnum\y>0%
13904 \chit@dbg{2}{ Looping rows from 2 to \y, break when row > \y}%
13905 \foreach \rr in {2,...,\y}{
13906     %\ifnum\rr>\y% A little funny, but \y can be negative!
13907     % \chit@dbg{2}{ \space Breaking loop \rr\space > \y}%
13908     % \breakforeach%
13909     %\else%
13910     \chit@oob@rowupdate(\c,\r){#3}{#4}
13911     %\fi
13912 }
13913 \fi
13914 % This will zero \c. However, if on entry |\c|>0, then we also
13915 % increment the row
13916 \chit@oob@turnupdate(\c,\r){#3}{#4}
13917 \chit@dbg{1}{End of turn \ti\space(c='\c',r='\r',o='\o',y='\y')}
13918 }
13919 \chit@dbg{2}{End of OOB (c='\c',r='\r',y='\y')}
13920 }

```

5.5.10 Table of chits

```

13921 \tikzset{
13922   chit/cell background/.style={fill=black},
13923   blank chit/.style={/chit/frame={draw=none,fill=none}},
13924 }

```

These macros are used when we set tables of chits. This allows us to define blank spaces in the table by giving the element `blank chit`.

```

13925 \def\chit@blank{blank chit}
13926 \def\chit@cellbg(#1,#2)#3{%
13927   \draw[chit/cell background](#1-#3/2,#2-#3/2) rectangle++(#3,#3);
13928 }

```

\ifchits@reset

This ‘if’ controls whether to reset the coordinates to the origin when \chits is called. If true, then reset for a new table.

```
13929 \newif\ifchits@reset\chits@resettrue
```

\chits \@chits \chit@sng@cellupdate

```

13930 \def\chit@sng@cellupdate(#1,#2)#3#4{%
13931   \chit@dbg{2}{Current ‘#1’ vs ‘#4’*(‘#3’+1)}
13932   \pgfmathparse{ifthenelse(#1>=#4*(#3-1),#2-#4,#2)}%
13933   \xdef#2{\pgfmathresult}%
13934   \pgfmathparse{ifthenelse(#1>=#4*(#3-1),0,#1+#4)}%
13935   \xdef#1{\pgfmathresult}%
13936 }

```

The starred version (\chits*) of this macro continues the previously set chit table.

```

13937 \def\chits{%
13938   \@ifstar{\chits@resetfalse\@chits}{\chits@resettrue\@chits}}
13939 \def\@chits#1#2#3{
13940   \ifchits@reset
13941     \def\r{0}%
13942     \def\c{0}%
13943     \fi
13944     \chit@dbg{1}{Chits to make: #1}%
13945     \foreach[count=\ti from 0] \t/\x in #1{%
13946       \chit@dbg{2}{Turn ‘\t’ with option ‘\x’}
13947       \ifx\t\empty\else%
13948         \foreach \u/\m in \t{%
13949           \ifx\u\empty\else%
13950             \chit@dbg{2}{Next chit ‘\u’ with possible multiplicity ‘\m’}%
13951             \ifx\m\empty\def\m{1}\fi%
13952             \ifx\u\m\def\m{1}\fi%
13953             \chit@dbg{2}{Next chit ‘\u’ multiplicity ‘\m’}%
13954             \foreach \n in {1,...,\m}{%
13955               \ifx\u\chit@blank%
13956                 \chit@dbg{3}{Ignoring blank chit:\u}%
13957               \else%
13958                 \chit@cellbg(\c,\r){#3}%
13959                 \chit[\u=\ti](\c,\r)%
13960                 \chit@sng@cellupdate(\c,\r){#2}{#3}%
13961               \fi%
13962             }%

```

```

13963     \fi%
13964     }%
13965     \fi%
13966     }%
13967 }

```

```

\doublechits
\@doublechits
\chit@dbl@cellupdate
\chit@dbl@flip

```

1. coordinates
2. coordinates
3. cell-size

```

13968 \def\chit@dbl@flip(#1,#2)#3{%
13969   \pgfmathparse{-#1}%
13970   \xdef\mc{\pgfmathresult}%
13971 }

```

1. coordinates
2. coordinates
3. Number of columns
4. cell-size

```

13972 \def\chit@dbl@cellupdate(#1,#2)#3#4{%
13973   \pgfmathparse{ifthenelse(#1<=#4/2,#2,#4+#2)}%
13974   \xdef#2{\pgfmathresult}%
13975   \pgfmathparse{ifthenelse(#1<=#4/2,#4+#1,-(#3-.5)*#4)}%
13976   \xdef#1{\pgfmathresult}%
13977 }

```

1. List of list of keys
2. Number of columns
3. size of each cell

The starred version (`\doublechits*`) of this macro continues the previously set `chit` table.

```

13978 \def\doublechits{%
13979   \ifstar{\chits@resetfalse\@doublechits}{\chits@resettrue\@doublechits}}

13980 \def\@doublechits#1#2#3{%
13981   \chit@dbg{1}{Setting double-sided chits: #1}
13982   \ifchits@reset
13983     \pgfmathparse{-(#2-.5)*#3}
13984     \xdef\c{\pgfmathresult}

```

```

13985 \def\r{0}
13986 \fi
13987
13988 \foreach[count=\ti from 0] \t/\x in #1{
13989 \ifx\t\empty\else%
13990 \foreach \u/\m in \t{
13991 \ifx\u\empty\else
13992 \ifx\m\empty\def\m{1}\else%
13993 \ifx\u\m\def\m{1}\fi\fi
13994 \chit@dbg{2}{'\u'='\m' (\c,\r)}
13995 \foreach \n in {1,...,\m}{%
13996 \ifx\u\chit@blank
13997 \chit@dbg{3}{Ignoring blank chit:\u}
13998 \else
13999 \chit@cellbg(\c,\r){#3}
14000 \chit[\u=\ti](\c,\r)
14001 \chit@dbl@flip(\c,\r){#3}
14002 \chit@cellbg(\mc,\r){#3}
14003 \chit[\u\space flipped=\ti,zone turn=\t,zone mult=\n](\mc,\r)
14004 \chit@dbl@cellupdate(\c,\r){#2}{#3}
14005 \fi
14006 }
14007 \fi
14008 }
14009 \fi
14010 }
14011 \draw[dashed](0,-3*#3/4)--(0,\r-#3/4);
14012 \draw[dashed,<-] (#3/5,-2*#3/3)--(#3/2,-2*#3/3) node[anchor=west]{Back};
14013 \draw[dashed,<-] (-#3/5,-2*#3/3)--(-#3/2,-2*#3/3) node[anchor=east]{Front};
14014 }

```

5.5.11 Some utilities

Game turn marker

```

14015 \tikzset{
14016 number chit/.pic={
14017 \node[shape=rectangle,font=\sffamily\bfseries\LARGE]{%
14018 \begin{tabular}{c} #1\end{tabular}};},
14019 game turn/.pic={
14020 \node[shape=rectangle,font=\sffamily\bfseries]{%
14021 \begin{tabular}{c} Game\Turn\end{tabular}};},
14022 game turn/.style={
14023 /chit/full={game turn},
14024 color=black,
14025 fill=white},
14026 game turn flipped/.style={game turn},
14027 dummy chit/.style={fill=white},
14028 }

```

Marks of chits

```

14029 \providecommand\chitmark[2][]{\tikz[scale=.25,#1]{\chit[#2]}}

```

Stacking mark

```
14030 \tikzset{
14031   wg stacking/.style={fill=white,
14032     /chit/symbol={ [faction=friendly,command=land] }},
14033 }
14034 \DeclareRobustCommand\stackmark[1] [] {%
14035   \tikz[baseline=(current bounding box.center),scale=.3,#1]{
14036     \stackchits(0,0)(.3,-.3){%
14037       \noexpand\chit [wg stacking],
14038       \noexpand\chit [wg stacking],
14039       \noexpand\chit [wg stacking]}}}
```

ZOC mark

```
14040 \DeclareRobustCommand\zocmark[1] [] {%
14041   \tikz[baseline=(current bounding box.center),scale=.1,#1]{%
14042     \begin{scope}[hex/first row and column are=0,
14043       hex/row direction is=normal,
14044       hex/column direction is=normal,
14045       hex/short columns=none]
14046       \hex[label=,fill=gray](c=1,r=1)%
14047       \hex[label=,fill=white](c=1,r=2)%
14048       \hex[label=,fill=white](c=1,r=0)%
14049       \hex[label=,fill=white](c=0,r=0)%
14050       \hex[label=,fill=white](c=0,r=1)%
14051       \hex[label=,fill=white](c=2,r=1)%
14052       \hex[label=,fill=white](c=2,r=0)
14053     \end{scope}}}
```

```
14054 \tikzset{
14055   zone point/.code n args={3}{},
14056   zone oob point/.code n args={3}{}}
```

5.6 The wargame.natoapp6c TikZ library

In this section we define the code for the Tikz library. The library defines a number of `pic` keys we can use to draw various parts of a marker. The markers conform to NATO App 6(c) specification. The implementation here is heavily inspired by the package `milsymb` [4] available at CTAN.

5.6.1 Debugging

```
\natoappdbglvl
\n@to@pp@dbg
```

Set the debug level, and make debug message.

```
14057 \usetikzlibrary{wargame.util}
14058 \usetikzlibrary{calc}
14059 \usetikzlibrary{arrows.meta}
14060 \usetikzlibrary{shapes.symbols}
14061 \usetikzlibrary{positioning,intersections}
```

```

14062 \newcount\natoappdbg1\ NATOAPPDBG1=\wargamedbg1
14063 \def\n@to@pp@dbg#1#2{%
14064   \ifnum#1>\ NATOAPPDBG1\relax\else\message{^^J#2}\fi}

```





5.6.2 Colours

```

\c@friendly
\c@hostile
\c@neutral
\c@unknown

```

Define standard colours for marker affiliations.

Name	
friendly	
hostile	
neutral	
unknown	

```

14065 \definecolor{friendly}{RGB}{128, 224, 255}
14066 \definecolor{hostile}{RGB}{255, 128, 128}
14067 \definecolor{neutral}{RGB}{170, 255, 170}
14068 \definecolor{unknown}{RGB}{255, 255, 128}
14069 \tikzset{%
14070   faction/.code={%
14071     \ifundefined{natoapp@fac}{%
14072       }\tikzset{fill=\natoapp@fac}}}

```

5.6.3 Some dimensions

We define a number of dimensions which we will use in the following. They provide a rough parameterisation of the node shapes, but shouldn't really be changed. We have them here so that the code uses as few hard coded numbers as possible.

The dimensions are

- Installation 'hat' *x* coordinate
- Installation 'hat' height
- Activity width of boxes
- Height of space bar
- Radius of the symbol

```

14073 \newdimen\n@to@pp@inst@x\n@to@pp@inst@x=0.2cm
14074 \newdimen\n@to@pp@inst@h\n@to@pp@inst@h=0.15cm
14075 \newdimen\n@to@pp@act@w\n@to@pp@act@w=0.15cm
14076 \newdimen\n@to@pp@space@h\n@to@pp@space@h=0.1cm
14077 \newdimen\n@to@pp@r\n@to@pp@r=0.5cm

```

5.6.4 Some utilities

```
\n@to@pp@isclip
```

This detects if we're in a node that is being used for clipping

```
14078 %\def\n@to@pp@cliptoken{clip}
14079 %\def\n@to@pp@isclip{FF\fi%
14080 % % \message{^^Jclip is \meaning\pgf@up@clip}%
14081 % \ifx\pgf@up@clip\n@to@pp@cliptoken}
14082 \newif\ifn@to@pp@isclip\n@to@pp@isclipfalse
```

```
\n@to@pp@sav@fill@color
\n@to@pp@sav@stroke@color
```

Macros to hold saved colours.

```
14083 \let\n@to@pp@sav@stroke@color\relax
14084 \let\n@to@pp@sav@fill@color\relax
```

```
\n@to@pp@stroke@to@fill
\n@to@pp@restore@fill
```

Macro to get stroke and fill colours and set the fill colour to the stroke colour, and to restore to the old setting. This is used by the frame shapes below to make sure that filled elements of the frame uses the same colour as the for strokes.

```
14085 \newcommand\n@to@pp@stroke@to@fill{%
14086 %
14087 \expandafter\let\expandafter\n@to@pp@sav@stroke@color%
14088 \csname\string\color@pgfstrokecolor\endcsname%
14089 %
14090 \expandafter\let\expandafter\n@to@pp@sav@fill@color%
14091 \csname\string\color@pgffillcolor\endcsname%
14092 %
14093 \expandafter\pgf@setfillcolor\n@to@pp@sav@stroke@color%
14094 %
14095 % \message{^^J=== Set fill to stroke color
14096 % ^^J Old fill: \meaning\n@to@pp@sav@fill@color
14097 % ^^J Old stroke: \meaning\n@to@pp@sav@stroke@color}
14098 }

14099 \newcommand\n@to@pp@restore@fill{%
14100 % \message{^^J=== Restore fill color
14101 % ^^J Old fill: \meaning\n@to@pp@sav@fill@color
14102 % ^^J Old stroke: \meaning\n@to@pp@sav@stroke@color}
14103 %
14104 \ifx\n@to@pp@sav@fill@color\relax\else%
14105 \expandafter\pgf@setfillcolor\n@to@pp@sav@fill@color%
14106 \fi%
14107 \global\let\n@to@pp@sav@fill@color\relax
14108 \global\let\n@to@pp@sav@stroke@color\relax
14109 }
```

We also make an environment, just to simplify the use

```

14110 \newenvironment{n@to@pp@stroketo@fill}{%
14111   \pgfscope%
14112   \n@to@pp@stroke@to@fill%
14113 }{%
14114   \n@to@pp@restore@fill%
14115   \endpgfscope%
14116 }

```

5.6.5 Faction names as macros

```

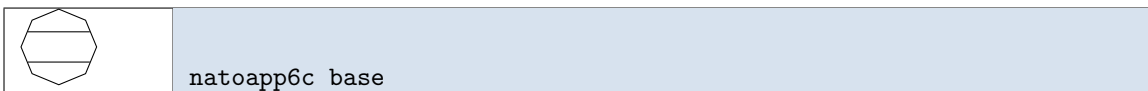
14117 \def\n@to@pp@friendly{friendly}
14118 \def\n@to@pp@hostile{hostile}
14119 \def\n@to@pp@neutral{neutral}
14120 \def\n@to@pp@unknown{unknown}

```

5.6.6 Node shapes

Here we define bases for all commands and affiliations. These are defined as node shapes. This means we will render the NATO App6(c) symbols as nodes with embedded nodes of the relevant shape.

First, the generic bounding box symbol for all markers.



Place-holder symbol. This shape will form the basis of many of the other frame shapes. We define the relevant sizes and anchors.

```

14121 \pgfdeclareshape{natoapp6c base}{%
14122   \saveddimen\radius{\pgf@x=\n@to@pp@r}
14123   \saveddimen\liney{\pgf@x=.2cm}
14124   \saveddimen\linex{\pgf@x=0.41cm}
14125   \savedanchor\center{\pgf@x=0cm\pgf@y=0cm}
14126   \savedanchor\upper{\pgf@x=0cm\pgf@y=0.35cm}
14127   \anchor{north east}{\pgf@x=\radius\pgf@y=\radius}
14128   \anchor{south west}{\pgf@x=-\radius\pgf@y=-\radius}
14129   \anchor{north west}{\pgf@x=-\radius\pgf@y=\radius}
14130   \anchor{south east}{\pgf@x=\radius\pgf@y=-\radius}
14131   \anchor{south}{\pgf@x=0cm\pgf@y=-\radius}
14132   \anchor{north}{\pgf@x=0cm\pgf@y=\radius}
14133   \anchor{west}{\pgf@x=-\radius\pgf@y=0cm}
14134   \anchor{east}{\pgf@x=\radius\pgf@y=0cm}
14135   \anchor{center}{\center}
14136   \anchor{upper}{\upper}
14137   \anchor{lower}{\upper\pgf@y=-\pgf@y}
14138   \anchor{left}{\upper\pgf@x=-\pgf@y\pgf@y=0cm}
14139   \anchor{right}{\upper\pgf@x=\pgf@y\pgf@y=0cm}
14140   \savedmacro\init{
14141     \def\octagon{%
14142       \pgfpathmoveto{\pgfqpointpolar{0} {\radius}}%
14143       \pgfpathlineto{\pgfqpointpolar{45} {\radius}}%

```

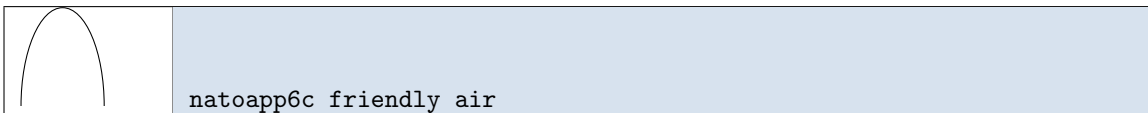


```

14144 \pgfpathlineto{\pgfqpointpolar{90}{\radius}}%
14145 \pgfpathlineto{\pgfqpointpolar{135}{\radius}}%
14146 \pgfpathlineto{\pgfqpointpolar{180}{\radius}}%
14147 \pgfpathlineto{\pgfqpointpolar{225}{\radius}}%
14148 \pgfpathlineto{\pgfqpointpolar{270}{\radius}}%
14149 \pgfpathlineto{\pgfqpointpolar{315}{\radius}}%
14150 \pgfpathclose}
14151 \def\topline{%
14152 \pgfpathmoveto{\pgfqpoint{\linex}{\liney}}%
14153 \pgfpathlineto{\pgfqpoint{-\linex}{\liney}}}%
14154 \def\bottomline{%
14155 \pgfpathmoveto{\pgfqpoint{\linex}{-\liney}}%
14156 \pgfpathlineto{\pgfqpoint{-\linex}{-\liney}}}%
14157 }
14158 \backgroundpath{%
14159 \init%
14160 \octagon}
14161 \behindforegroundpath{%
14162 \init%
14163 \octagon%
14164 \pgfusepath{stroke}%
14165 \topline%
14166 \pgfusepath{stroke}%
14167 \bottomline%
14168 \pgfusepath{stroke}%
14169 }
14170 }

```

5.6.7 ‘Friendly’ node shapes



Macro for friendly air shape

```

14171 \def\n@to@friendly@air{%
14172 \southeast \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
14173 \pgfpathmoveto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
14174 \cntrl \wg@tmpb=\pgf@y%
14175 \pgfpatharc{180}{0}{\wg@tmpa and \wg@tmpb}}

```

The friendly air command.

```

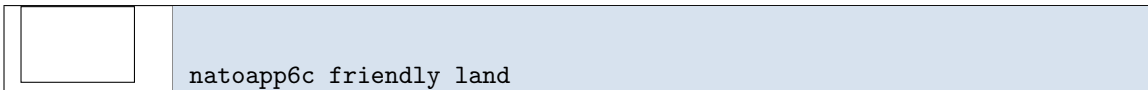
14176 \pgfdeclareshape{natoapp6c friendly air}{%
14177 \inheritsavedanchors[from=natoapp6c base]
14178 \savedanchor\southeast{%
14179 \pgf@x=1.1\n@to@pp@r%
14180 \pgf@y=-\n@to@pp@r}
14181 \savedanchor\cntrl{\pgf@x=0cm\pgf@y=2.6\n@to@pp@r}
14182 \savedanchor\north{\pgf@x=0cm\pgf@y=1.6\n@to@pp@r}
14183 \anchor{south east}{\southeast}

```

```

14184 \anchor{south west}{\southeast\pgf@x=-\pgf@x}
14185 \anchor{north east}{\southeast\wg@tmpa=\pgf@x\north\pgf@x=\wg@tmpa}
14186 \anchor{north west}{\southeast\wg@tmpa=\pgf@x\north\pgf@x=-\wg@tmpa}
14187 \anchor{north}{\north}
14188 \anchor{east}{%
14189   \north\wg@tmpb\pgf@y%
14190   \southeast\wg@tmpc=\pgf@y\wg@tmpa=\pgf@x%
14191   \advance\wg@tmpb-\wg@tmpc
14192   \divide\wg@tmpb2%
14193   \advance\wg@tmpb\wg@tmpc%
14194   \pgf@x=\wg@tmpa%
14195   \pgf@y=\wg@tmpb}
14196 \anchor{west}{%
14197   \north\wg@tmpb\pgf@y%
14198   \southeast\wg@tmpc=\pgf@y\wg@tmpa=\pgf@x%
14199   \advance\wg@tmpb-\wg@tmpc
14200   \divide\wg@tmpb2%
14201   \advance\wg@tmpb\wg@tmpc%
14202   \pgf@x=-\wg@tmpa%
14203   \pgf@y=\wg@tmpb}
14204 \anchor{south}{\southeast\pgf@x=0cm}
14205 \inheritanchor[from=natoapp6c base]{upper}
14206 \inheritanchor[from=natoapp6c base]{lower}
14207 \inheritanchor[from=natoapp6c base]{left}
14208 \inheritanchor[from=natoapp6c base]{right}
14209 \inheritanchor[from=natoapp6c base]{center}
14210 \backgroundpath{%
14211   \n@to@friendly@@ir%
14212 }
14213 \behindforegroundpath{%
14214   \n@to@friendly@@ir%
14215   \pgfusepath{stroke}%
14216 }
14217 }

```



Macro for friendly land command

```

14218 \def\n@to@friendly@l@nd{%
14219   \northeast \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
14220   \pgfpathmoveto{\pgfpoint{ \wg@tmpa}{ \wg@tmpb}}%
14221   \pgfpathlineto{\pgfpoint{-\wg@tmpa}{ \wg@tmpb}}%
14222   \pgfpathlineto{\pgfpoint{-\wg@tmpa}{-\wg@tmpb}}%
14223   \pgfpathlineto{\pgfpoint{ \wg@tmpa}{-\wg@tmpb}}%
14224   \pgfclosepath}

```

The friendly land command. The most used command frame.

```

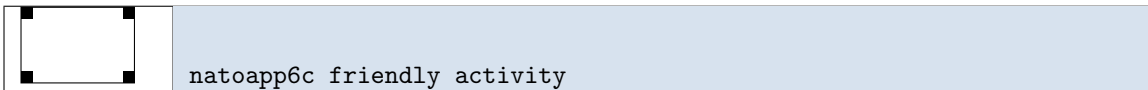
14225 \pgfdeclareshape{natoapp6c friendly land}{%
14226   \inheritssavedanchors[from=natoapp6c base]

```

```

14227 \savedanchor\northeast{%
14228   \pgf@x=1.5\n@to@pp@r%
14229   \pgf@y=\n@to@pp@r}
14230 \anchor{north east}{\northeast}
14231 \anchor{north west}{\northeast\pgf@x=-\pgf@x}
14232 \anchor{south east}{\northeast\pgf@y=-\pgf@y}
14233 \anchor{south west}{\northeast\pgf@x=-\pgf@x\pgf@y=-\pgf@y}
14234 \anchor{north}{\northeast\pgf@x=0cm}
14235 \anchor{south}{\northeast\pgf@x=0cm\pgf@y=-\pgf@y}
14236 \anchor{east}{\northeast\pgf@y=0cm}
14237 \anchor{west}{\northeast\pgf@x=-\pgf@x\pgf@y=0cm}
14238 \inheritanchor[from=natoapp6c base]{upper}
14239 \inheritanchor[from=natoapp6c base]{lower}
14240 \inheritanchor[from=natoapp6c base]{left}
14241 \inheritanchor[from=natoapp6c base]{right}
14242 \inheritanchor[from=natoapp6c base]{center}
14243 \backgroundpath{%
14244   \n@to@friendly@l@nd%
14245 }
14246 \behindforegroundpath{%
14247   \n@to@friendly@l@nd%
14248   \pgfusepath{stroke}%
14249 }
14250 }

```



The friendly activity command. Similar to land command, but with boxes in the corners.

```

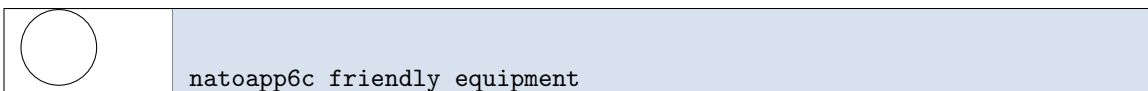
14251 \pgfdeclareshape{natoapp6c friendly activity}{%
14252   \inheritssavedanchors[from=natoapp6c friendly land]
14253   \inheritanchor[from=natoapp6c friendly land]{center}
14254   \inheritanchor[from=natoapp6c friendly land]{inner north east}
14255   \inheritanchor[from=natoapp6c friendly land]{inner north west}
14256   \inheritanchor[from=natoapp6c friendly land]{inner south west}
14257   \inheritanchor[from=natoapp6c friendly land]{inner south east}
14258   \inheritanchor[from=natoapp6c friendly land]{north east}
14259   \inheritanchor[from=natoapp6c friendly land]{north west}
14260   \inheritanchor[from=natoapp6c friendly land]{south east}
14261   \inheritanchor[from=natoapp6c friendly land]{south west}
14262   \inheritanchor[from=natoapp6c friendly land]{north}
14263   \inheritanchor[from=natoapp6c friendly land]{west}
14264   \inheritanchor[from=natoapp6c friendly land]{east}
14265   \inheritanchor[from=natoapp6c friendly land]{south}
14266   \inheritanchor[from=natoapp6c friendly land]{upper}
14267   \inheritanchor[from=natoapp6c friendly land]{lower}
14268   \inheritanchor[from=natoapp6c friendly land]{left}
14269   \inheritanchor[from=natoapp6c friendly land]{right}
14270   \inheritanchor[from=natoapp6c friendly land]{center}
14271   \inheritbackgroundpath[from=natoapp6c friendly land]
14272   \behindforegroundpath{

```

```

14273 \begin{n@to@pp@stroketofill}
14274 \n@to@friendly@l@nd%
14275 \pgfusepath{stroke}
14276 %
14277 \northeast \wg@tmpa=\pgf@x\wg@tmpb\pgf@y%
14278 \wg@tmpc=\wg@tmpa\advance\wg@tmpc-\n@to@pp@act@w
14279 \wg@tmpd=\wg@tmpb\advance\wg@tmpd-\n@to@pp@act@w
14280 %
14281 \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
14282 \pgfpathlineto{\pgfqpoint{\wg@tmpc}{\wg@tmpb}}%
14283 \pgfpathlineto{\pgfqpoint{\wg@tmpc}{\wg@tmpd}}%
14284 \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpd}}%
14285 \pgfclosepath
14286 %
14287 \pgfusepath{fill}%
14288 \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpd}}%
14289 \pgfpathlineto{\pgfqpoint{\wg@tmpc}{-\wg@tmpd}}%
14290 \pgfpathlineto{\pgfqpoint{\wg@tmpc}{-\wg@tmpb}}%
14291 \pgfpathlineto{\pgfqpoint{\wg@tmpa}{-\wg@tmpb}}%
14292 \pgfclosepath
14293 \pgfusepath{fill}%
14294 %
14295 \pgfpathmoveto{\pgfqpoint{-\wg@tmpc}{\wg@tmpb}}%
14296 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
14297 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpd}}%
14298 \pgfpathlineto{\pgfqpoint{-\wg@tmpc}{\wg@tmpd}}%
14299 \pgfclosepath
14300 \pgfusepath{fill}%
14301 %
14302 \pgfpathmoveto{\pgfqpoint{-\wg@tmpc}{-\wg@tmpd}}%
14303 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{-\wg@tmpd}}%
14304 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{-\wg@tmpb}}%
14305 \pgfpathlineto{\pgfqpoint{-\wg@tmpc}{-\wg@tmpb}}%
14306 \pgfclosepath
14307 \pgfusepath{fill}%
14308 \end{n@to@pp@stroketofill}
14309 }
14310 }

```



The friendly equipment command. A circle.

```

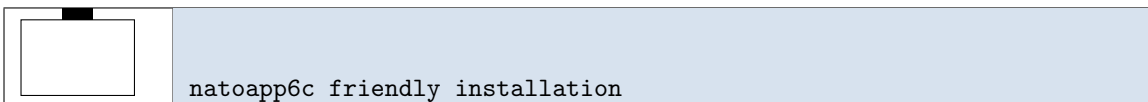
14311 \pgfdeclareshape{natoapp6c friendly equipment}{%
14312 \inheritsavedanchors[from=natoapp6c base]
14313 \savedanchor\northeast{%
14314 \pgf@x=\n@to@pp@r%
14315 \pgf@y=\n@to@pp@r}
14316 \anchor{north east}{\northeast}
14317 \anchor{north west}{\northeast\pgf@x=-\pgf@x}
14318 \anchor{south east}{\northeast\pgf@y=-\pgf@y}

```

```

14319 \anchor{south west}{\northeast\pgf@x=-\pgf@x\pgf@y=-\pgf@y}
14320 \anchor{north}{\northeast\pgf@x=0cm}
14321 \anchor{south}{\northeast\pgf@x=0cm\pgf@y=-\pgf@y}
14322 \anchor{east}{\northeast\pgf@y=0cm}
14323 \anchor{west}{\northeast\pgf@x=-\pgf@x\pgf@y=0cm}
14324 \inheritanchor[from=natoapp6c base]{upper}
14325 \inheritanchor[from=natoapp6c base]{lower}
14326 \inheritanchor[from=natoapp6c base]{left}
14327 \inheritanchor[from=natoapp6c base]{right}
14328 \inheritanchor[from=natoapp6c base]{center}
14329 \backgroundpath{%
14330     \northeast\wg@tmpa\pgf@x%
14331     \pgfpathcircle{\pgf@point{0cm}{0cm}}{\wg@tmpa}
14332 }
14333 \behindforegroundpath{%
14334     \northeast\wg@tmpa\pgf@x%
14335     \pgfpathcircle{\pgf@point{0cm}{0cm}}{\wg@tmpa}
14336     \pgfusepath{stroke}%
14337 }
14338 }

```



The friendly installation command. Similar to the land command, but with a ‘hat’ on top.

```

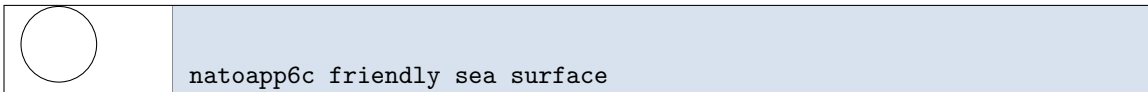
14339 \pgfdeclareshape{natoapp6c friendly installation}{%
14340     \inheritsavedanchors[from=natoapp6c friendly land]
14341     \inheritanchor[from=natoapp6c friendly land]{center}
14342     \inheritanchor[from=natoapp6c friendly land]{inner north east}
14343     \inheritanchor[from=natoapp6c friendly land]{inner north west}
14344     \inheritanchor[from=natoapp6c friendly land]{inner south west}
14345     \inheritanchor[from=natoapp6c friendly land]{inner south east}
14346     \inheritanchor[from=natoapp6c friendly land]{north east}
14347     \inheritanchor[from=natoapp6c friendly land]{north west}
14348     \inheritanchor[from=natoapp6c friendly land]{south east}
14349     \inheritanchor[from=natoapp6c friendly land]{south west}
14350     \inheritanchor[from=natoapp6c friendly land]{north}
14351     \inheritanchor[from=natoapp6c friendly land]{west}
14352     \inheritanchor[from=natoapp6c friendly land]{east}
14353     \inheritanchor[from=natoapp6c friendly land]{south}
14354     \inheritanchor[from=natoapp6c friendly land]{upper}
14355     \inheritanchor[from=natoapp6c friendly land]{lower}
14356     \inheritanchor[from=natoapp6c friendly land]{left}
14357     \inheritanchor[from=natoapp6c friendly land]{right}
14358     \inheritanchor[from=natoapp6c friendly land]{center}
14359     \inheritbackgroundpath[from=natoapp6c friendly land]
14360     \behindforegroundpath{
14361         \begin{n@to@pp@stroketo@fill}
14362             \n@to@friendly@l@nd%
14363             \pgfusepath{stroke}
14364             %

```

```

14365 \northeast \wg@tmpa=\pgf@y%
14366 \wg@tmpb=\wg@tmpa\advance\wg@tmpb\n@to@pp@inst@h%
14367 %
14368 \pgfpathmoveto{\pgfqpoint{ \n@to@pp@inst@x}{\wg@tmpb}}%
14369 \pgfpathlineto{\pgfqpoint{-\n@to@pp@inst@x}{\wg@tmpb}}%
14370 \pgfpathlineto{\pgfqpoint{-\n@to@pp@inst@x}{\wg@tmpa}}%
14371 \pgfpathlineto{\pgfqpoint{ \n@to@pp@inst@x}{\wg@tmpa}}%
14372 \pgfclosepath
14373 \pgfusepath{fill}%
14374 \end{n@to@pp@stroketo@fill}
14375 }
14376 }

```

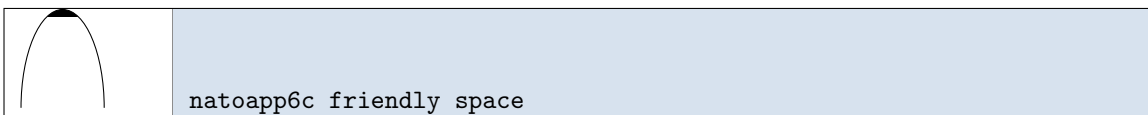


The friendly sea surface command. Same as equipment command.

```

14377 \pgfdeclareshape{natoapp6c friendly sea surface}{%
14378 \inherit@savedanchors[from=natoapp6c friendly equipment]
14379 \inheritanchor[from=natoapp6c friendly equipment]{inner north east}
14380 \inheritanchor[from=natoapp6c friendly equipment]{inner north west}
14381 \inheritanchor[from=natoapp6c friendly equipment]{inner south west}
14382 \inheritanchor[from=natoapp6c friendly equipment]{inner south east}
14383 \inheritanchor[from=natoapp6c friendly equipment]{north east}
14384 \inheritanchor[from=natoapp6c friendly equipment]{north west}
14385 \inheritanchor[from=natoapp6c friendly equipment]{south east}
14386 \inheritanchor[from=natoapp6c friendly equipment]{south west}
14387 \inheritanchor[from=natoapp6c friendly equipment]{north}
14388 \inheritanchor[from=natoapp6c friendly equipment]{west}
14389 \inheritanchor[from=natoapp6c friendly equipment]{east}
14390 \inheritanchor[from=natoapp6c friendly equipment]{south}
14391 \inheritanchor[from=natoapp6c friendly equipment]{upper}
14392 \inheritanchor[from=natoapp6c friendly equipment]{lower}
14393 \inheritanchor[from=natoapp6c friendly equipment]{left}
14394 \inheritanchor[from=natoapp6c friendly equipment]{right}
14395 \inheritanchor[from=natoapp6c friendly equipment]{center}
14396 \inheritbackgroundpath[from=natoapp6c friendly equipment]
14397 \inheritbehindforegroundpath[from=natoapp6c friendly equipment]
14398 }

```



The friendly space command. Similar to air command, but with a bar on top.

```

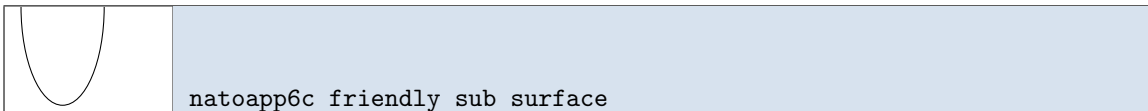
14399 \pgfdeclareshape{natoapp6c friendly space}{%
14400 \inherit@savedanchors[from=natoapp6c friendly air]
14401 \inheritanchor[from=natoapp6c friendly air]{north east}

```

```

14402 \inheritanchor[from=natoapp6c friendly air]{north west}
14403 \inheritanchor[from=natoapp6c friendly air]{south east}
14404 \inheritanchor[from=natoapp6c friendly air]{south west}
14405 \inheritanchor[from=natoapp6c friendly air]{north}
14406 \inheritanchor[from=natoapp6c friendly air]{west}
14407 \inheritanchor[from=natoapp6c friendly air]{east}
14408 \inheritanchor[from=natoapp6c friendly air]{south}
14409 \inheritanchor[from=natoapp6c friendly air]{upper}
14410 \inheritanchor[from=natoapp6c friendly air]{lower}
14411 \inheritanchor[from=natoapp6c friendly air]{left}
14412 \inheritanchor[from=natoapp6c friendly air]{right}
14413 \inheritanchor[from=natoapp6c friendly air]{center}
14414 \inheritbackgroundpath[from=natoapp6c friendly air]
14415 \behindforegroundpath{%
14416   \begin{n@to@pp@stroketo@fill}
14417     \n@to@friendly@air%
14418     \pgfusepath{stroke,clip}%
14419     %
14420     \cntrl\wg@tmpa=\pgf@y%
14421     \north\wg@tmpb=\pgf@y
14422     \advance\wg@tmpb-\n@to@pp@space@h
14423     %
14424     \pgfpathmoveto{\pgfqpoint{ \n@to@pp@r}{\wg@tmpa}}%
14425     \pgfpathlineto{\pgfqpoint{-\n@to@pp@r}{\wg@tmpa}}%
14426     \pgfpathlineto{\pgfqpoint{-\n@to@pp@r}{\wg@tmpb}}%
14427     \pgfpathlineto{\pgfqpoint{ \n@to@pp@r}{\wg@tmpb}}%
14428     \pgfclosepath%
14429     \pgfusepath{fill}%
14430   \end{n@to@pp@stroketo@fill}
14431 }
14432 }

```



Macro for friendly sub surface command

```

14433 \def\n@to@friendly@sub{%
14434   \northeast \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
14435   \pgfpathmoveto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
14436   \cntrl \wg@tmpb=\pgf@y%
14437   \pgfpatharc{180}{0}{\wg@tmpa and \wg@tmpb}}

```

The friendly sub surface command.

```

14438 \pgfdeclareshape{natoapp6c friendly sub surface}{%
14439   \inheritsavedanchors[from=natoapp6c base]
14440   \savedanchor\northeast{%
14441     \pgf@x=1.1\n@to@pp@r%
14442     \pgf@y=\n@to@pp@r}
14443   \savedanchor\cntrl{\pgf@x=0cm\pgf@y=-2.6\n@to@pp@r}

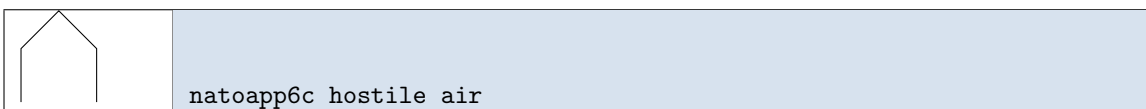
```

```

14444 \savedanchor\south{\pgf@x=0cm\pgf@y=-1.6\n@to@pp@r}
14445 \anchor{north east}{\northeast}
14446 \anchor{north west}{\northeast\pgf@x=-\pgf@x}
14447 \anchor{south east}{\northeast\wg@tmpa=\pgf@x\south\pgf@x=\wg@tmpa}
14448 \anchor{south west}{\northeast\wg@tmpa=\pgf@x\south\pgf@x=-\wg@tmpa}
14449 \anchor{south}{\south}
14450 \anchor{east}{
14451   \northeast\wg@tmpb=\pgf@y\wg@tmpa=\pgf@x%
14452   \south\wg@tmpc\pgf@y%
14453   \advance\wg@tmpb-\wg@tmpc
14454   \divide\wg@tmpb2%
14455   \advance\wg@tmpb\wg@tmpc%
14456   \pgf@x=\wg@tmpa%
14457   \pgf@y=\wg@tmpb}
14458 \anchor{west}{
14459   \northeast\wg@tmpb=\pgf@y\wg@tmpa=\pgf@x%
14460   \south\wg@tmpc\pgf@y%
14461   \advance\wg@tmpb-\wg@tmpc
14462   \divide\wg@tmpb2%
14463   \advance\wg@tmpb\wg@tmpc%
14464   \pgf@x=-\wg@tmpa%
14465   \pgf@y=\wg@tmpb}
14466 \anchor{north}{\northeast\pgf@x=0cm}
14467 \inheritanchor[from=natoapp6c base]{upper}
14468 \inheritanchor[from=natoapp6c base]{lower}
14469 \inheritanchor[from=natoapp6c base]{left}
14470 \inheritanchor[from=natoapp6c base]{right}
14471 \inheritanchor[from=natoapp6c base]{center}
14472 \backgroundpath{%
14473   \n@to@friendly@sub%
14474 }
14475 \behindforegroundpath{%
14476   \n@to@friendly@sub%
14477   \pgfusepath{stroke}%
14478 }
14479 }

```

5.6.8 ‘Hostile’ node shapes



The hostile air command

Macro for hostile air shape

```

14480 \def\n@to@hostile@@ir{%
14481   \southeast \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
14482   \cntrl \wg@tmpc=\pgf@y%
14483   \north \wg@tmpd=\pgf@y%
14484   \pgfpathmoveto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
14485   \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpc}}%

```



```

14486 \pgfpathlineto{\pgfqpoint{ 0cm}{\wg@tmpd}}%
14487 \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpc}}%
14488 \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
14489 }

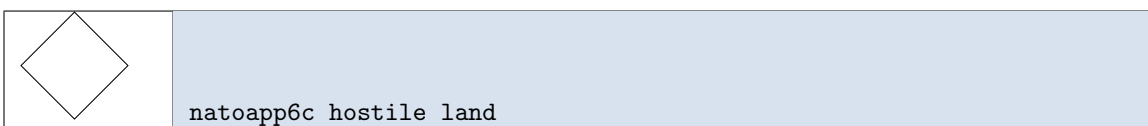
```

The hostile air command.

```

14490 \pgfdeclareshape{natoapp6c hostile air}{%
14491 \inheritsavedanchors[from=natoapp6c base]
14492 \savedanchor\southeast{%
14493 \pgf@x=\n@to@pp@r%
14494 \pgf@y=-\n@to@pp@r}
14495 \savedanchor\cntrl{%
14496 \pgf@x=\n@to@pp@r%
14497 \pgf@y=0.414\n@to@pp@r% (sqrt(2)-1)
14498 }
14499 \savedanchor\north{\pgf@x=0cm\pgf@y=1.414\n@to@pp@r}
14500 \anchor{south east}{\southeast}
14501 \anchor{south west}{\southeast\pgf@x=-\pgf@x}
14502 \anchor{north east}{\southeast\wg@tmpa=\pgf@x\north\pgf@x=\wg@tmpa}
14503 \anchor{north west}{\southeast\wg@tmpa=\pgf@x\north\pgf@x=-\wg@tmpa}
14504 \anchor{north}{\north}
14505 \anchor{east}{%
14506 \north\wg@tmpb\pgf@y%
14507 \southeast\wg@tmpc=\pgf@y\wg@tmpa=\pgf@x%
14508 \advance\wg@tmpb-\wg@tmpc
14509 \divide\wg@tmpb2%
14510 \advance\wg@tmpb\wg@tmpc%
14511 \pgf@x=\wg@tmpa%
14512 \pgf@y=\wg@tmpb}
14513 \anchor{west}{%
14514 \north\wg@tmpb\pgf@y%
14515 \southeast\wg@tmpc=\pgf@y\wg@tmpa=\pgf@x%
14516 \advance\wg@tmpb-\wg@tmpc
14517 \divide\wg@tmpb2%
14518 \advance\wg@tmpb\wg@tmpc%
14519 \pgf@x=-\wg@tmpa%
14520 \pgf@y=\wg@tmpb}
14521 \anchor{south}{\southeast\pgf@x=0cm}
14522 \inheritanchor[from=natoapp6c base]{upper}
14523 \inheritanchor[from=natoapp6c base]{lower}
14524 \inheritanchor[from=natoapp6c base]{left}
14525 \inheritanchor[from=natoapp6c base]{right}
14526 \inheritanchor[from=natoapp6c base]{center}
14527 \backgroundpath{%
14528 \n@to@hostile@@ir%
14529 }
14530 \behindforegroundpath{%
14531 \n@to@hostile@@ir%
14532 \pgfusepath{stroke}%
14533 }
14534 }

```



Macro for hostile land command

```

14535 \def\n@to@hostile@l@nd{%
14536   \northeast \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
14537   \pgfpathmoveto{\pgfqpoint{ \wg@tmpa}{ 0cm}}%
14538   \pgfpathlineto{\pgfqpoint{ 0cm}{ \wg@tmpb}}%
14539   \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{ 0cm}}%
14540   \pgfpathlineto{\pgfqpoint{ 0cm}{-\wg@tmpb}}%
14541   \pgfclosepath}

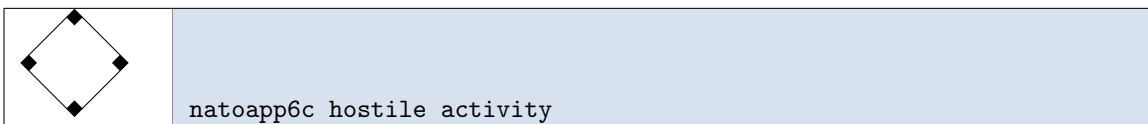
```

The hostile land command.

```

14542 \pgfdeclareshape{natoapp6c hostile land}{%
14543   \inheritsavedanchors[from=natoapp6c base]
14544   \savedanchor\northeast{%
14545     \pgf@x=1.414\n@to@pp@r%
14546     \pgf@y=1.414\n@to@pp@r}
14547   \anchor{north east}{\northeast}
14548   \anchor{north west}{\northeast\pgf@x=-\pgf@x}
14549   \anchor{south east}{\northeast\pgf@y=-\pgf@y}
14550   \anchor{south west}{\northeast\pgf@x=-\pgf@x\pgf@y=-\pgf@y}
14551   \anchor{north}{\northeast\pgf@x=0cm}
14552   \anchor{south}{\northeast\pgf@x=0cm\pgf@y=-\pgf@y}
14553   \anchor{east}{\northeast\pgf@y=0cm}
14554   \anchor{west}{\northeast\pgf@x=-\pgf@x\pgf@y=0cm}
14555   \inheritanchor[from=natoapp6c base]{upper}
14556   \inheritanchor[from=natoapp6c base]{lower}
14557   \inheritanchor[from=natoapp6c base]{left}
14558   \inheritanchor[from=natoapp6c base]{right}
14559   \inheritanchor[from=natoapp6c base]{center}
14560   \backgroundpath{%
14561     \n@to@hostile@l@nd%
14562   }
14563   \behindforegroundpath{%
14564     \n@to@hostile@l@nd%
14565     \pgfusepath{stroke}%
14566   }
14567 }

```



The hostile activity command. Similar to land command, but with boxes in the corners.

```

14568 \pgfdeclareshape{natoapp6c hostile activity}{%
14569   \inheritsavedanchors[from=natoapp6c hostile land]
14570   \inheritanchor[from=natoapp6c hostile land]{center}

```

```

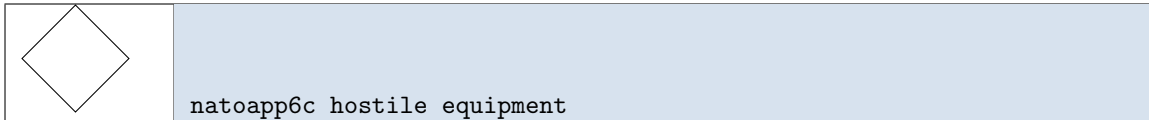
14571 \inheritanchor[from=natoapp6c hostile land]{inner north east}
14572 \inheritanchor[from=natoapp6c hostile land]{inner north west}
14573 \inheritanchor[from=natoapp6c hostile land]{inner south west}
14574 \inheritanchor[from=natoapp6c hostile land]{inner south east}
14575 \inheritanchor[from=natoapp6c hostile land]{north east}
14576 \inheritanchor[from=natoapp6c hostile land]{north west}
14577 \inheritanchor[from=natoapp6c hostile land]{south east}
14578 \inheritanchor[from=natoapp6c hostile land]{south west}
14579 \inheritanchor[from=natoapp6c hostile land]{north}
14580 \inheritanchor[from=natoapp6c hostile land]{west}
14581 \inheritanchor[from=natoapp6c hostile land]{east}
14582 \inheritanchor[from=natoapp6c hostile land]{south}
14583 \inheritanchor[from=natoapp6c hostile land]{upper}
14584 \inheritanchor[from=natoapp6c hostile land]{lower}
14585 \inheritanchor[from=natoapp6c hostile land]{left}
14586 \inheritanchor[from=natoapp6c hostile land]{right}
14587 \inheritanchor[from=natoapp6c hostile land]{center}
14588 \inheritbackgroundpath[from=natoapp6c hostile land]
14589 \behindforegroundpath{
14590   \begin{n@to@pp@stroketo@fill}
14591     \n@to@hostile@l@nd%,
14592     \pgfusepath{stroke}
14593     %
14594     \northeast \wg@tmpb=\pgf@y%
14595     \wg@tmpa=0.707\n@to@pp@act@w
14596     \wg@tmpc=\wg@tmpb\advance\wg@tmpc-1.414\n@to@pp@act@w
14597     \wg@tmpd=\wg@tmpb\advance\wg@tmpd-\wg@tmpa
14598     %
14599     \pgfpathmoveto{\pgfqpoint{ \wg@tmpa}{\wg@tmpd}}%
14600     \pgfpathlineto{\pgfqpoint{      0cm}{\wg@tmpb}}%
14601     \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpd}}%
14602     \pgfpathlineto{\pgfqpoint{      0cm}{\wg@tmpc}}%
14603     \pgfclosepath
14604     \pgfusepath{fill}%
14605     %
14606     \pgfpathmoveto{\pgfqpoint{-\wg@tmpc}{0cm}}%
14607     \pgfpathlineto{\pgfqpoint{-\wg@tmpd}{\wg@tmpa}}%
14608     \pgfpathlineto{\pgfqpoint{-\wg@tmpb}{0cm}}%
14609     \pgfpathlineto{\pgfqpoint{-\wg@tmpd}{-\wg@tmpa}}%
14610     \pgfclosepath
14611     \pgfusepath{fill}%
14612     %
14613     \pgfpathmoveto{\pgfqpoint{ \wg@tmpa}{-\wg@tmpd}}%
14614     \pgfpathlineto{\pgfqpoint{      0cm}{-\wg@tmpc}}%
14615     \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{-\wg@tmpd}}%
14616     \pgfpathlineto{\pgfqpoint{      0cm}{-\wg@tmpb}}%
14617     \pgfclosepath
14618     \pgfusepath{fill}%
14619     %
14620     \pgfpathmoveto{\pgfqpoint{\wg@tmpb}{0cm}}%
14621     \pgfpathlineto{\pgfqpoint{\wg@tmpd}{\wg@tmpa}}%
14622     \pgfpathlineto{\pgfqpoint{\wg@tmpc}{0cm}}%
14623     \pgfpathlineto{\pgfqpoint{\wg@tmpd}{-\wg@tmpa}}%

```

```

14624     \pgfclosepath
14625     \pgfusepath{fill}%
14626     \end{n@to@pp@stroketofill}
14627   }
14628 }

```

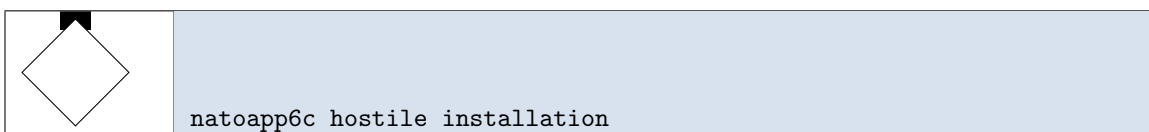


The hostile equipment command. Same as land command.

```

14629 \pgfdeclareshape{natoapp6c hostile equipment}{%
14630   \inheritssavedanchors[from=natoapp6c hostile land]
14631   \inheritanchor[from=natoapp6c hostile land]{inner north east}
14632   \inheritanchor[from=natoapp6c hostile land]{inner north west}
14633   \inheritanchor[from=natoapp6c hostile land]{inner south west}
14634   \inheritanchor[from=natoapp6c hostile land]{inner south east}
14635   \inheritanchor[from=natoapp6c hostile land]{north east}
14636   \inheritanchor[from=natoapp6c hostile land]{north west}
14637   \inheritanchor[from=natoapp6c hostile land]{south east}
14638   \inheritanchor[from=natoapp6c hostile land]{south west}
14639   \inheritanchor[from=natoapp6c hostile land]{north}
14640   \inheritanchor[from=natoapp6c hostile land]{west}
14641   \inheritanchor[from=natoapp6c hostile land]{east}
14642   \inheritanchor[from=natoapp6c hostile land]{south}
14643   \inheritanchor[from=natoapp6c hostile land]{upper}
14644   \inheritanchor[from=natoapp6c hostile land]{lower}
14645   \inheritanchor[from=natoapp6c hostile land]{left}
14646   \inheritanchor[from=natoapp6c hostile land]{right}
14647   \inheritanchor[from=natoapp6c hostile land]{center}
14648   \inheritbackgroundpath[from=natoapp6c hostile land]
14649   \inheritbehindforegroundpath[from=natoapp6c hostile land]
14650 }

```



The hostile installation command. Similar to land command, but with a ‘hat’ on top.

```

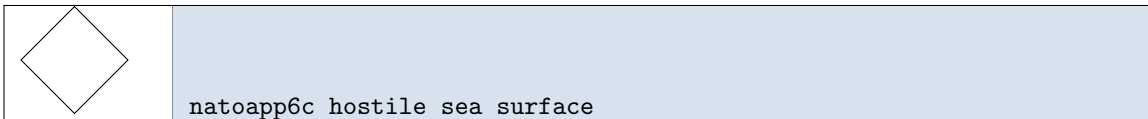
14651 \pgfdeclareshape{natoapp6c hostile installation}{%
14652   \inheritssavedanchors[from=natoapp6c hostile land]
14653   \inheritanchor[from=natoapp6c hostile land]{center}
14654   \inheritanchor[from=natoapp6c hostile land]{inner north east}
14655   \inheritanchor[from=natoapp6c hostile land]{inner north west}
14656   \inheritanchor[from=natoapp6c hostile land]{inner south west}
14657   \inheritanchor[from=natoapp6c hostile land]{inner south east}
14658   \inheritanchor[from=natoapp6c hostile land]{north east}
14659   \inheritanchor[from=natoapp6c hostile land]{north west}

```

```

14660 \inheritanchor[from=natoapp6c hostile land]{south east}
14661 \inheritanchor[from=natoapp6c hostile land]{south west}
14662 \inheritanchor[from=natoapp6c hostile land]{north}
14663 \inheritanchor[from=natoapp6c hostile land]{west}
14664 \inheritanchor[from=natoapp6c hostile land]{east}
14665 \inheritanchor[from=natoapp6c hostile land]{south}
14666 \inheritanchor[from=natoapp6c hostile land]{upper}
14667 \inheritanchor[from=natoapp6c hostile land]{lower}
14668 \inheritanchor[from=natoapp6c hostile land]{left}
14669 \inheritanchor[from=natoapp6c hostile land]{right}
14670 \inheritanchor[from=natoapp6c hostile land]{center}
14671 \inheritbackgroundpath[from=natoapp6c hostile land]
14672 \behindforegroundpath{
14673   \begin{n@to@pp@stroketo@fill}
14674     \n@to@hostile@l@nd%
14675     \pgfusepath{stroke}
14676     %
14677     \northeast \wg@tmpa=\pgf@x\wg@tmpb\pgf@y%
14678     \wg@tmpc=\wg@tmpb
14679     \advance\wg@tmpc\n@to@pp@inst@h%
14680     \advance\wg@tmpc-0.05cm%
14681     %
14682     \pgfpathmoveto{\pgfqpoint{ \wg@tmpa}{0cm}}
14683     \pgfpathlineto{\pgfqpoint{ \wg@tmpa}{\wg@tmpc}}
14684     \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpc}}
14685     \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{0cm}}
14686     \pgfpathlineto{\pgfqpoint{ 0cm}{\wg@tmpb}}
14687     \pgfclosepath%
14688     \pgfusepath{clip}
14689     %
14690     \wg@tmpd=\wg@tmpb%
14691     \advance\wg@tmpd-\n@to@pp@inst@h%
14692     %
14693     \pgfpathmoveto{\pgfqpoint{ \n@to@pp@inst@x}{\wg@tmpc}}%
14694     \pgfpathlineto{\pgfqpoint{-\n@to@pp@inst@x}{\wg@tmpc}}%
14695     \pgfpathlineto{\pgfqpoint{-\n@to@pp@inst@x}{\wg@tmpd}}%
14696     \pgfpathlineto{\pgfqpoint{ \n@to@pp@inst@x}{\wg@tmpd}}%
14697     \pgfclosepath
14698     \pgfusepath{fill}%
14699   \end{n@to@pp@stroketo@fill}
14700 }
14701 }

```



The hostile sea surface command. Same as land command

```

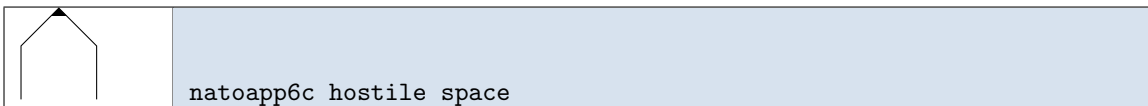
14702 \pgfdeclareshape{natoapp6c hostile sea surface}{%
14703   \inheritsavedanchors[from=natoapp6c hostile equipment]
14704   \inheritanchor[from=natoapp6c hostile equipment]{inner north east}

```

```

14705 \inheritanchor[from=natoapp6c hostile equipment]{inner north west}
14706 \inheritanchor[from=natoapp6c hostile equipment]{inner south west}
14707 \inheritanchor[from=natoapp6c hostile equipment]{inner south east}
14708 \inheritanchor[from=natoapp6c hostile equipment]{north east}
14709 \inheritanchor[from=natoapp6c hostile equipment]{north west}
14710 \inheritanchor[from=natoapp6c hostile equipment]{south east}
14711 \inheritanchor[from=natoapp6c hostile equipment]{south west}
14712 \inheritanchor[from=natoapp6c hostile equipment]{north}
14713 \inheritanchor[from=natoapp6c hostile equipment]{west}
14714 \inheritanchor[from=natoapp6c hostile equipment]{east}
14715 \inheritanchor[from=natoapp6c hostile equipment]{south}
14716 \inheritanchor[from=natoapp6c hostile equipment]{upper}
14717 \inheritanchor[from=natoapp6c hostile equipment]{lower}
14718 \inheritanchor[from=natoapp6c hostile equipment]{left}
14719 \inheritanchor[from=natoapp6c hostile equipment]{right}
14720 \inheritanchor[from=natoapp6c hostile equipment]{center}
14721 \inheritbackgroundpath[from=natoapp6c hostile equipment]
14722 \inheritbehindforegroundpath[from=natoapp6c hostile equipment]
14723 }

```



The hostile space command. Similar to air command, but with bar on top.

```

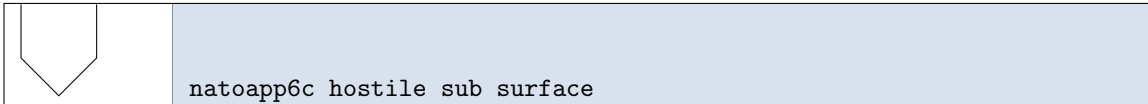
14724 \pgfdeclareshape{natoapp6c hostile space}{%
14725 \inheritssavedanchors[from=natoapp6c hostile air]
14726 \inheritanchor[from=natoapp6c hostile air]{north east}
14727 \inheritanchor[from=natoapp6c hostile air]{north west}
14728 \inheritanchor[from=natoapp6c hostile air]{south east}
14729 \inheritanchor[from=natoapp6c hostile air]{south west}
14730 \inheritanchor[from=natoapp6c hostile air]{north}
14731 \inheritanchor[from=natoapp6c hostile air]{west}
14732 \inheritanchor[from=natoapp6c hostile air]{east}
14733 \inheritanchor[from=natoapp6c hostile air]{south}
14734 \inheritanchor[from=natoapp6c hostile air]{upper}
14735 \inheritanchor[from=natoapp6c hostile air]{lower}
14736 \inheritanchor[from=natoapp6c hostile air]{left}
14737 \inheritanchor[from=natoapp6c hostile air]{right}
14738 \inheritanchor[from=natoapp6c hostile air]{center}
14739 \inheritbackgroundpath[from=natoapp6c hostile air]
14740 \behindforegroundpath{%
14741 \begin{n@to@pp@stroketo@fill}
14742 \n@to@hostile@@ir%
14743 \pgfusepath{stroke,clip}%
14744 %
14745 \north\wg@tmpa=\pgf@y\wg@tmpb=\pgf@y
14746 \advance\wg@tmpb-\n@to@pp@space@h
14747 %
14748 \pgfpathmoveto{\pgfqpoint{ \n@to@pp@r}{\wg@tmpa}}%
14749 \pgfpathlineto{\pgfqpoint{-\n@to@pp@r}{\wg@tmpa}}%

```

```

14750     \pgfpathlineto{\pgfqpoint{-\n@to@pp@r}{\wg@tmpb}}%
14751     \pgfpathlineto{\pgfqpoint{ \n@to@pp@r}{\wg@tmpb}}%
14752     \pgfclosepath%
14753     \pgfusepath{fill}%
14754 \end{n@to@pp@stroketo@fill}
14755 }
14756 }

```



Macro for hostile sub surface command

```

14757 \def\n@to@hostile@sub{%
14758   \northeast \wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
14759   \cntrl \wg@tmpc=\pgf@y%
14760   \south \wg@tmpd=\pgf@y%
14761   \pgfpathmoveto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
14762   \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpc}}%
14763   \pgfpathlineto{\pgfqpoint{ 0cm}{\wg@tmpd}}%
14764   \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpc}}%
14765   \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
14766 }

```

The hostile sub surface command

```

14767 \pgfdeclareshape{natoapp6c hostile sub surface}{%
14768   \inheritsavedanchors[from=natoapp6c base]
14769   \savedanchor\northeast{%
14770     \pgf@x=\n@to@pp@r%
14771     \pgf@y=\n@to@pp@r}
14772   \savedanchor\cntrl{\pgf@x=\n@to@pp@r\pgf@y=-0.414\n@to@pp@r}
14773   \savedanchor\south{\pgf@x=0cm\pgf@y=-1.414\n@to@pp@r}
14774   \anchor{north east}{\northeast}
14775   \anchor{north west}{\northeast\pgf@x=-\pgf@x}
14776   \anchor{south east}{\northeast\wg@tmpa=\pgf@x\south\pgf@x=\wg@tmpa}
14777   \anchor{south west}{\northeast\wg@tmpa=\pgf@x\south\pgf@x=-\wg@tmpa}
14778   \anchor{south}{\south}
14779   \anchor{east}{
14780     \northeast\wg@tmpb=\pgf@y\wg@tmpa=\pgf@x%
14781     \south\wg@tmpc\pgf@y%
14782     \advance\wg@tmpb-\wg@tmpc
14783     \divide\wg@tmpb2%
14784     \advance\wg@tmpb\wg@tmpc%
14785     \pgf@x=\wg@tmpa%
14786     \pgf@y=\wg@tmpb}
14787   \anchor{west}{
14788     \northeast\wg@tmpb=\pgf@y\wg@tmpa=\pgf@x%
14789     \south\wg@tmpc\pgf@y%
14790     \advance\wg@tmpb-\wg@tmpc
14791     \divide\wg@tmpb2%
14792     \advance\wg@tmpb\wg@tmpc%

```

```

14793 \pgf@x=-\wg@tmpa%
14794 \pgf@y=\wg@tmpb}
14795 \anchor{north}{\northeast\pgf@x=0cm}
14796 \inheritanchor[from=natoapp6c base]{upper}
14797 \inheritanchor[from=natoapp6c base]{lower}
14798 \inheritanchor[from=natoapp6c base]{left}
14799 \inheritanchor[from=natoapp6c base]{right}
14800 \inheritanchor[from=natoapp6c base]{center}
14801 \backgroundpath{%
14802 \n@to@hostile@sub%
14803 }
14804 \behindforegroundpath{%
14805 \n@to@hostile@sub%
14806 \pgfusepath{stroke}%
14807 }
14808 }

```

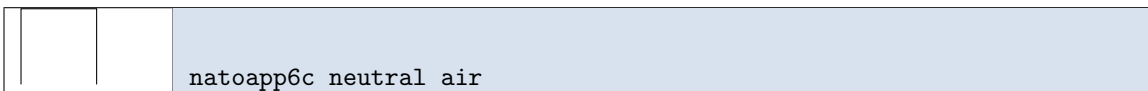
5.6.9 ‘Neutral’ node shapes

Macro for neutral shapes

```

14809 \def\n@to@pp@neutr@l@init{%
14810 \northeast\wg@tmpa=\pgf@x\wg@tmpb=\pgf@y%
14811 \def\n@to@pp@neutr@l@left {\pgflineto{\pgfqpoint{-\wg@tmpa}{-\wg@tmpb}}}%
14812 \def\n@to@pp@neutr@l@right {\pgflineto{\pgfqpoint{ \wg@tmpa}{ \wg@tmpb}}}%
14813 \def\n@to@pp@neutr@l@top {\pgflineto{\pgfqpoint{-\wg@tmpa}{ \wg@tmpb}}}%
14814 \def\n@to@pp@neutr@l@bottom{\pgflineto{\pgfqpoint{ \wg@tmpa}{-\wg@tmpb}}}%
14815 \def\n@to@pp@neutr@l@nw {\pgfmoveto{\pgfqpoint{-\wg@tmpa}{ \wg@tmpb}}}%
14816 \def\n@to@pp@neutr@l@ne {\pgfmoveto{\pgfqpoint{ \wg@tmpa}{ \wg@tmpb}}}%
14817 \def\n@to@pp@neutr@l@se {\pgfmoveto{\pgfqpoint{ \wg@tmpa}{-\wg@tmpb}}}%
14818 \def\n@to@pp@neutr@l@sw {\pgfmoveto{\pgfqpoint{-\wg@tmpa}{-\wg@tmpb}}}%
14819 }

```



The neutral air command

```

14820 \pgfdeclareshape{natoapp6c neutral air}{%
14821 \inheritsavedanchors[from=natoapp6c base]
14822 \savedanchor\northeast{\pgf@x=\n@to@pp@r\pgf@y=\n@to@pp@r}
14823 \anchor{north east}{\northeast}
14824 \anchor{north west}{\northeast\pgf@x=-\pgf@x}
14825 \anchor{south east}{\northeast\pgf@y=-\pgf@y}
14826 \anchor{south west}{\northeast\pgf@x=-\pgf@x\pgf@y=-\pgf@y}
14827 \anchor{north}{\northeast\pgf@x=0cm}
14828 \anchor{east}{\northeast\pgf@y=0cm}
14829 \anchor{west}{\northeast\pgf@x=-\pgf@x\pgf@y=0cm}
14830 \anchor{south}{\northeast\pgf@x=0cm\pgf@y=-\pgf@y}
14831 \inheritanchor[from=natoapp6c base]{upper}
14832 \inheritanchor[from=natoapp6c base]{lower}

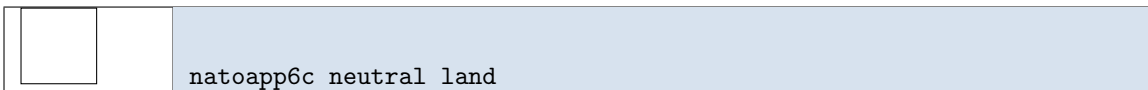
```



```

14833 \inheritanchor[from=natoapp6c base]{left}
14834 \inheritanchor[from=natoapp6c base]{right}
14835 \inheritanchor[from=natoapp6c base]{center}
14836 \backgroundpath{%
14837   \n@to@pp@neutr@l@init%
14838   \n@to@pp@neutr@l@se
14839   \n@to@pp@neutr@l@right%
14840   \n@to@pp@neutr@l@top%
14841   \n@to@pp@neutr@l@left%
14842 }
14843 \behindforegroundpath{%
14844   \n@to@pp@neutr@l@init%
14845   \n@to@pp@neutr@l@se
14846   \n@to@pp@neutr@l@right%
14847   \n@to@pp@neutr@l@top%
14848   \n@to@pp@neutr@l@left%
14849   \pgfusepath{stroke}%
14850 }
14851 }

```



The neutral land command

```

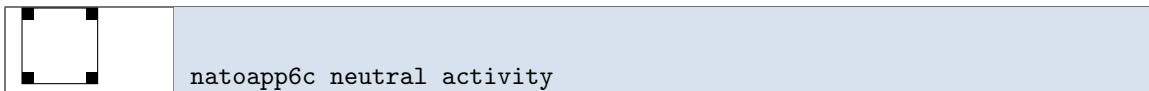
14852 \pgfdeclareshape{natoapp6c neutral land}{%
14853   \inheritsavedanchors[from=natoapp6c neutral air]
14854   \inheritanchor[from=natoapp6c neutral air]{north east}
14855   \inheritanchor[from=natoapp6c neutral air]{north west}
14856   \inheritanchor[from=natoapp6c neutral air]{south east}
14857   \inheritanchor[from=natoapp6c neutral air]{south west}
14858   \inheritanchor[from=natoapp6c neutral air]{north}
14859   \inheritanchor[from=natoapp6c neutral air]{west}
14860   \inheritanchor[from=natoapp6c neutral air]{east}
14861   \inheritanchor[from=natoapp6c neutral air]{south}
14862   \inheritanchor[from=natoapp6c neutral air]{upper}
14863   \inheritanchor[from=natoapp6c neutral air]{lower}
14864   \inheritanchor[from=natoapp6c neutral air]{left}
14865   \inheritanchor[from=natoapp6c neutral air]{right}
14866   \inheritanchor[from=natoapp6c neutral air]{center}
14867   \backgroundpath{%
14868     \n@to@pp@neutr@l@init%
14869     \n@to@pp@neutr@l@ne
14870     \n@to@pp@neutr@l@top%
14871     \n@to@pp@neutr@l@left%
14872     \n@to@pp@neutr@l@bottom%
14873     \pgfclosepath
14874   }
14875   \behindforegroundpath{%
14876     \n@to@pp@neutr@l@init%
14877     \n@to@pp@neutr@l@ne
14878     \n@to@pp@neutr@l@top%

```

```

14879 \n@to@pp@neutr@l@left%
14880 \n@to@pp@neutr@l@bottom%
14881 \pgfclosepath
14882 \pgfusepath{stroke}%
14883 }
14884 }

```



The neutral activity command. Similar to land command but with boxes added in the corners.

```

14885 \pgfdeclareshape{natoapp6c neutral activity}{%
14886 \inheritssavedanchors[from=natoapp6c neutral land]
14887 \inheritanchor[from=natoapp6c neutral land]{center}
14888 \inheritanchor[from=natoapp6c neutral land]{inner north east}
14889 \inheritanchor[from=natoapp6c neutral land]{inner north west}
14890 \inheritanchor[from=natoapp6c neutral land]{inner south west}
14891 \inheritanchor[from=natoapp6c neutral land]{inner south east}
14892 \inheritanchor[from=natoapp6c neutral land]{north east}
14893 \inheritanchor[from=natoapp6c neutral land]{north west}
14894 \inheritanchor[from=natoapp6c neutral land]{south east}
14895 \inheritanchor[from=natoapp6c neutral land]{south west}
14896 \inheritanchor[from=natoapp6c neutral land]{north}
14897 \inheritanchor[from=natoapp6c neutral land]{west}
14898 \inheritanchor[from=natoapp6c neutral land]{east}
14899 \inheritanchor[from=natoapp6c neutral land]{south}
14900 \inheritanchor[from=natoapp6c neutral land]{upper}
14901 \inheritanchor[from=natoapp6c neutral land]{lower}
14902 \inheritanchor[from=natoapp6c neutral land]{left}
14903 \inheritanchor[from=natoapp6c neutral land]{right}
14904 \inheritanchor[from=natoapp6c neutral land]{center}
14905 \inheritbackgroundpath[from=natoapp6c neutral land]
14906 \behindforegroundpath{
14907 \begin{n@to@pp@stroketofill}
14908 \n@to@pp@neutr@l@init%
14909 \n@to@pp@neutr@l@ne
14910 \n@to@pp@neutr@l@top%
14911 \n@to@pp@neutr@l@left%
14912 \n@to@pp@neutr@l@bottom%
14913 \pgfclosepath
14914 \pgfusepath{stroke}
14915 %
14916 \northeast \wg@tmpa=\pgf@x\wg@tmpb\pgf@y%
14917 \wg@tmpc=\wg@tmpa\advance\wg@tmpc-\n@to@pp@act@w
14918 \wg@tmpd=\wg@tmpb\advance\wg@tmpd-\n@to@pp@act@w
14919 %
14920 \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
14921 \pgfpathlineto{\pgfqpoint{\wg@tmpc}{\wg@tmpb}}%
14922 \pgfpathlineto{\pgfqpoint{\wg@tmpc}{\wg@tmpd}}%
14923 \pgfpathlineto{\pgfqpoint{\wg@tmpa}{\wg@tmpd}}%
14924 \pgfclosepath

```

```

14925 \pgfusepath{fill}%
14926 %
14927 \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpd}}%
14928 \pgfpathlineto{\pgfqpoint{\wg@tmpc}{-\wg@tmpd}}%
14929 \pgfpathlineto{\pgfqpoint{\wg@tmpc}{-\wg@tmpb}}%
14930 \pgfpathlineto{\pgfqpoint{\wg@tmpa}{-\wg@tmpb}}%
14931 \pgfclosepath
14932 \pgfusepath{fill}%
14933 %
14934 \pgfpathmoveto{\pgfqpoint{-\wg@tmpc}{\wg@tmpb}}%
14935 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
14936 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpd}}%
14937 \pgfpathlineto{\pgfqpoint{-\wg@tmpc}{\wg@tmpd}}%
14938 \pgfclosepath
14939 \pgfusepath{fill}%
14940 %
14941 \pgfpathmoveto{\pgfqpoint{-\wg@tmpc}{-\wg@tmpd}}%
14942 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{-\wg@tmpd}}%
14943 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{-\wg@tmpb}}%
14944 \pgfpathlineto{\pgfqpoint{-\wg@tmpc}{-\wg@tmpb}}%
14945 \pgfclosepath
14946 \pgfusepath{fill}%
14947 \end{node@pp@stroketo@fill}
14948 }
14949 }

```

natoapp6c neutral equipment

The neutral equipment command. Same as land command

```

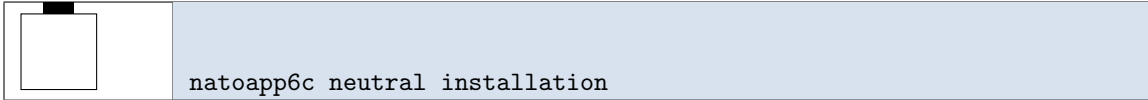
14950 \pgfdeclareshape{natoapp6c neutral equipment}{%
14951 \inheritshadedanchors[from=natoapp6c neutral land]
14952 \inheritanchor[from=natoapp6c neutral land]{center}
14953 \inheritanchor[from=natoapp6c neutral land]{inner north east}
14954 \inheritanchor[from=natoapp6c neutral land]{inner north west}
14955 \inheritanchor[from=natoapp6c neutral land]{inner south west}
14956 \inheritanchor[from=natoapp6c neutral land]{inner south east}
14957 \inheritanchor[from=natoapp6c neutral land]{north east}
14958 \inheritanchor[from=natoapp6c neutral land]{north west}
14959 \inheritanchor[from=natoapp6c neutral land]{south east}
14960 \inheritanchor[from=natoapp6c neutral land]{south west}
14961 \inheritanchor[from=natoapp6c neutral land]{north}
14962 \inheritanchor[from=natoapp6c neutral land]{west}
14963 \inheritanchor[from=natoapp6c neutral land]{east}
14964 \inheritanchor[from=natoapp6c neutral land]{south}
14965 \inheritanchor[from=natoapp6c neutral land]{upper}
14966 \inheritanchor[from=natoapp6c neutral land]{lower}
14967 \inheritanchor[from=natoapp6c neutral land]{left}
14968 \inheritanchor[from=natoapp6c neutral land]{right}
14969 \inheritanchor[from=natoapp6c neutral land]{center}
14970 \inheritbackgroundpath[from=natoapp6c neutral land]

```

```

14971 \inheritbehindbackgroundpath[from=natoapp6c neutral land]
14972 }

```



The neutral installation command. Similar to land command but with a ‘hat’ on top.

```

14973 \pgfdeclareshape{natoapp6c neutral installation}{%
14974 \inheritssavedanchors[from=natoapp6c neutral land]
14975 \inheritanchor[from=natoapp6c neutral land]{center}
14976 \inheritanchor[from=natoapp6c neutral land]{inner north east}
14977 \inheritanchor[from=natoapp6c neutral land]{inner north west}
14978 \inheritanchor[from=natoapp6c neutral land]{inner south west}
14979 \inheritanchor[from=natoapp6c neutral land]{inner south east}
14980 \inheritanchor[from=natoapp6c neutral land]{north east}
14981 \inheritanchor[from=natoapp6c neutral land]{north west}
14982 \inheritanchor[from=natoapp6c neutral land]{south east}
14983 \inheritanchor[from=natoapp6c neutral land]{south west}
14984 \inheritanchor[from=natoapp6c neutral land]{north}
14985 \inheritanchor[from=natoapp6c neutral land]{west}
14986 \inheritanchor[from=natoapp6c neutral land]{east}
14987 \inheritanchor[from=natoapp6c neutral land]{south}
14988 \inheritanchor[from=natoapp6c neutral land]{upper}
14989 \inheritanchor[from=natoapp6c neutral land]{lower}
14990 \inheritanchor[from=natoapp6c neutral land]{left}
14991 \inheritanchor[from=natoapp6c neutral land]{right}
14992 \inheritanchor[from=natoapp6c neutral land]{center}
14993 \inheritbackgroundpath[from=natoapp6c neutral land]
14994 \behindforegroundpath{
14995 \begin{n@to@pp@stroketo@fill}
14996 \n@to@pp@neutr@l@init%
14997 \n@to@pp@neutr@l@ne
14998 \n@to@pp@neutr@l@top%
14999 \n@to@pp@neutr@l@left%
15000 \n@to@pp@neutr@l@bottom%
15001 \pgfclosepath
15002 \pgfusepath{stroke}
15003 %
15004 \northeast \wg@tmpa=\pgf@y%
15005 \wg@tmpb=\wg@tmpa\advance\wg@tmpb\n@to@pp@inst@h%
15006 %
15007 \pgfpathmoveto{\pgfqpoint{ \n@to@pp@inst@x}{\wg@tmpb}}%
15008 \pgfpathlineto{\pgfqpoint{-\n@to@pp@inst@x}{\wg@tmpb}}%
15009 \pgfpathlineto{\pgfqpoint{-\n@to@pp@inst@x}{\wg@tmpa}}%
15010 \pgfpathlineto{\pgfqpoint{ \n@to@pp@inst@x}{\wg@tmpa}}%
15011 \pgfclosepath
15012 \pgfusepath{fill}%
15013 \end{n@to@pp@stroketo@fill}
15014 }
15015 }

```

	natoapp6c neutral sea surface
--	-------------------------------

The neutral sea surface command. Same as land command.

```
15016 \pgfdeclareshape{natoapp6c neutral sea surface}{%
15017   \inheritsavedanchors[from=natoapp6c neutral equipment]
15018   \inheritanchor[from=natoapp6c neutral equipment]{inner north east}
15019   \inheritanchor[from=natoapp6c neutral equipment]{inner north west}
15020   \inheritanchor[from=natoapp6c neutral equipment]{inner south west}
15021   \inheritanchor[from=natoapp6c neutral equipment]{inner south east}
15022   \inheritanchor[from=natoapp6c neutral equipment]{north east}
15023   \inheritanchor[from=natoapp6c neutral equipment]{north west}
15024   \inheritanchor[from=natoapp6c neutral equipment]{south east}
15025   \inheritanchor[from=natoapp6c neutral equipment]{south west}
15026   \inheritanchor[from=natoapp6c neutral equipment]{north}
15027   \inheritanchor[from=natoapp6c neutral equipment]{west}
15028   \inheritanchor[from=natoapp6c neutral equipment]{east}
15029   \inheritanchor[from=natoapp6c neutral equipment]{south}
15030   \inheritanchor[from=natoapp6c neutral equipment]{upper}
15031   \inheritanchor[from=natoapp6c neutral equipment]{lower}
15032   \inheritanchor[from=natoapp6c neutral equipment]{left}
15033   \inheritanchor[from=natoapp6c neutral equipment]{right}
15034   \inheritanchor[from=natoapp6c neutral equipment]{center}
15035   \inheritbackgroundpath[from=natoapp6c neutral equipment]
15036   \inheritbehindforegroundpath[from=natoapp6c neutral equipment]
15037 }
```

	natoapp6c neutral space
--	-------------------------

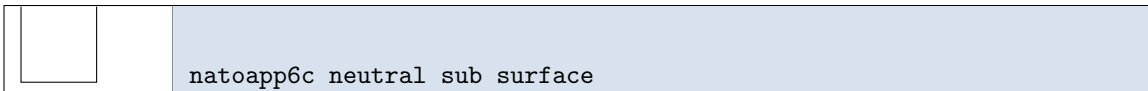
The neutral space command. Similar to air command but with a bar.

```
15038 \pgfdeclareshape{natoapp6c neutral space}{%
15039   \inheritsavedanchors[from=natoapp6c neutral air]
15040   \inheritanchor[from=natoapp6c neutral air]{north east}
15041   \inheritanchor[from=natoapp6c neutral air]{north west}
15042   \inheritanchor[from=natoapp6c neutral air]{south east}
15043   \inheritanchor[from=natoapp6c neutral air]{south west}
15044   \inheritanchor[from=natoapp6c neutral air]{north}
15045   \inheritanchor[from=natoapp6c neutral air]{west}
15046   \inheritanchor[from=natoapp6c neutral air]{east}
15047   \inheritanchor[from=natoapp6c neutral air]{south}
15048   \inheritanchor[from=natoapp6c neutral air]{upper}
15049   \inheritanchor[from=natoapp6c neutral air]{lower}
15050   \inheritanchor[from=natoapp6c neutral air]{left}
15051   \inheritanchor[from=natoapp6c neutral air]{right}
15052   \inheritanchor[from=natoapp6c neutral air]{center}
15053   \inheritbackgroundpath[from=natoapp6c neutral air]
15054   \behindforegroundpath{%
```

```

15055 \begin{n@to@pp@stroketofill}
15056 \n@to@pp@neutr@l@init%
15057 \n@to@pp@neutr@l@e
15058 \n@to@pp@neutr@l@right%
15059 \n@to@pp@neutr@l@top%
15060 \n@to@pp@neutr@l@left%
15061 \pgfusepath{stroke}%
15062 %
15063 \n@to@pp@neutr@l@e
15064 \n@to@pp@neutr@l@top%
15065 \northeast\wg@tmpa=\pgf{x\wg@tmpb=\pgf{y%
15066 \advance\wg@tmpb-\n@to@pp@space@h
15067 %
15068 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpc}}%
15069 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
15070 \pgfpathlineto{\pgfqpoint{ \wg@tmpa}{\wg@tmpb}}%
15071 \pgfclosepath%
15072 \pgfusepath{fill}%
15073 \end{n@to@pp@stroketofill}
15074 }
15075 }

```



The neutral sub surface command

```

15076 \pgfdeclareshape{natoapp6c neutral sub surface}{%
15077 \inheritshadedanchors[from=natoapp6c neutral air]
15078 \inheritanchor[from=natoapp6c neutral air]{north east}
15079 \inheritanchor[from=natoapp6c neutral air]{north west}
15080 \inheritanchor[from=natoapp6c neutral air]{south east}
15081 \inheritanchor[from=natoapp6c neutral air]{south west}
15082 \inheritanchor[from=natoapp6c neutral air]{north}
15083 \inheritanchor[from=natoapp6c neutral air]{west}
15084 \inheritanchor[from=natoapp6c neutral air]{east}
15085 \inheritanchor[from=natoapp6c neutral air]{south}
15086 \inheritanchor[from=natoapp6c neutral air]{upper}
15087 \inheritanchor[from=natoapp6c neutral air]{lower}
15088 \inheritanchor[from=natoapp6c neutral air]{left}
15089 \inheritanchor[from=natoapp6c neutral air]{right}
15090 \inheritanchor[from=natoapp6c neutral air]{center}
15091 \backgroundpath{%
15092 \n@to@pp@neutr@l@init%
15093 \n@to@pp@neutr@l@nw
15094 \n@to@pp@neutr@l@left%
15095 \n@to@pp@neutr@l@bottom%
15096 \n@to@pp@neutr@l@right%
15097 }
15098 \behindforegroundpath{%
15099 \n@to@pp@neutr@l@init%
15100 \n@to@pp@neutr@l@nw

```

```

15101 \n@to@pp@neutr@l@left%
15102 \n@to@pp@neutr@l@bottom%
15103 \n@to@pp@neutr@l@right%
15104 \pgfusepath{stroke}%
15105 }
15106 }

```

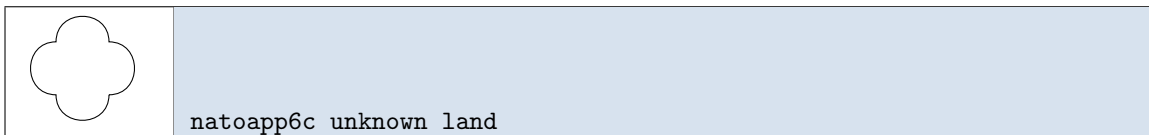
5.6.10 ‘Unknown’ node shapes

Macro to define unknown path elements

```

15107 \def\n@to@pp@unknown@init{%
15108 \def\n@to@pp@unknown@top{%
15109 \innernortheast \wg@tmpa=\pgf@x%
15110 \cntrlnortheast \wg@tmpb=\pgf@x%
15111 \pgfpathcurveto{%
15112 \pgfqpoint{ \wg@tmpa}{\wg@tmpb}}{%
15113 \pgfqpoint{-\wg@tmpa}{\wg@tmpb}}{%
15114 \pgfqpoint{-\wg@tmpa}{\wg@tmpa}}}
15115 \def\n@to@pp@unknown@left{%
15116 \innernortheast \wg@tmpa=\pgf@x%
15117 \cntrlnortheast \wg@tmpb=\pgf@x%
15118 \pgfpathcurveto{%
15119 \pgfqpoint{-\wg@tmpb}{ \wg@tmpa}}{%
15120 \pgfqpoint{-\wg@tmpb}{-\wg@tmpa}}{%
15121 \pgfqpoint{-\wg@tmpa}{-\wg@tmpa}}}
15122 \def\n@to@pp@unknown@bottom{%
15123 \innernortheast \wg@tmpa=\pgf@x%
15124 \cntrlnortheast \wg@tmpb=\pgf@x%
15125 \pgfpathcurveto{%
15126 \pgfqpoint{-\wg@tmpa}{-\wg@tmpb}}{%
15127 \pgfqpoint{ \wg@tmpa}{-\wg@tmpb}}{%
15128 \pgfqpoint{ \wg@tmpa}{-\wg@tmpa}}}
15129 \def\n@to@pp@unknown@right{%
15130 \innernortheast \wg@tmpa=\pgf@x%
15131 \cntrlnortheast \wg@tmpb=\pgf@x%
15132 \pgfpathcurveto{%
15133 \pgfqpoint{ \wg@tmpb}{-\wg@tmpa}}{%
15134 \pgfqpoint{ \wg@tmpb}{ \wg@tmpa}}{%
15135 \pgfqpoint{ \wg@tmpa}{ \wg@tmpa}}}
15136 }

```



The unknown land command

```

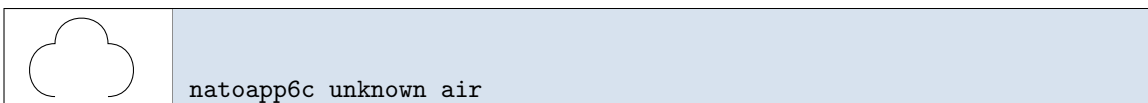
15137 \pgfdeclareshape{natoapp6c unknown land}{%
15138 \inheritsavedanchors[from=natoapp6c base]
15139 \savedanchor\innernortheast{\pgf@x=.7\n@to@pp@r\pgf@y=.7\n@to@pp@r}

```

```

15140 \savedanchor\cntrlnortheast{\pgf@x=1.6\n@to@pp@r\pgf@y=1.6\n@to@pp@r}
15141 \savedanchor\northeast{\pgf@x=1.4\n@to@pp@r\pgf@y=1.4\n@to@pp@r}
15142 \anchor{inner north east}{\innernortheast}
15143 \anchor{inner north west}{\innernortheast\pgf@x=-\pgf@x}
15144 \anchor{inner south west}{\innernortheast\pgf@x=-\pgf@x\pgf@y=-\pgf@y}
15145 \anchor{inner south east}{\innernortheast\pgf@y=-\pgf@y}
15146 \anchor{north east}{\northeast}
15147 \anchor{north west}{\northeast\pgf@x=-\pgf@x}
15148 \anchor{south west}{\northeast\pgf@x=-\pgf@x\pgf@y=-\pgf@y}
15149 \anchor{south east}{\northeast\pgf@y=-\pgf@y}
15150 \anchor{north}{\northeast\pgf@x=0cm}
15151 \anchor{east}{\northeast\pgf@y=0cm}
15152 \anchor{south}{\northeast\pgf@x=0cm\pgf@y=-\pgf@y}
15153 \anchor{west}{\northeast\pgf@x=-\pgf@x\pgf@y=0cm}
15154 \inheritanchor[from=natoapp6c base]{center}
15155 \inheritanchor[from=natoapp6c base]{upper}
15156 \inheritanchor[from=natoapp6c base]{lower}
15157 \inheritanchor[from=natoapp6c base]{left}
15158 \inheritanchor[from=natoapp6c base]{right}
15159 \backgroundpath{%
15160   \n@to@pp@unknown@init
15161   \innernortheast \wg@tmpa=\pgf@x%
15162   \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpa}}%
15163   \n@to@pp@unknown@right %
15164   \n@to@pp@unknown@top %
15165   \n@to@pp@unknown@left %
15166   \n@to@pp@unknown@bottom%
15167 }
15168 \behindforegroundpath{%
15169   \n@to@pp@unknown@init
15170   \innernortheast \wg@tmpa=\pgf@x%
15171   \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpa}}%
15172   \n@to@pp@unknown@right %
15173   \n@to@pp@unknown@top %
15174   \n@to@pp@unknown@left %
15175   \n@to@pp@unknown@bottom%
15176   \pgfusepath{stroke}}
15177 }

```



The unknown air command. To consider: Should clipping path extend below the actual symbol to include that part of the base symbol?

```

15178 \pgfdeclareshape{natoapp6c unknown air}{%
15179   \inheritssavedanchors[from=natoapp6c unknown land]
15180   \inheritanchor[from=natoapp6c unknown land]{inner north east}
15181   \inheritanchor[from=natoapp6c unknown land]{inner north west}
15182   \inheritanchor[from=natoapp6c unknown land]{inner south west}
15183   \inheritanchor[from=natoapp6c unknown land]{inner south east}

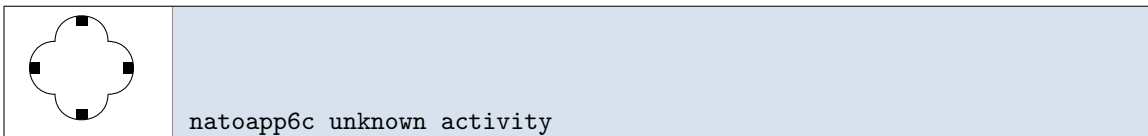
```



```

15184 \inheritanchor[from=natoapp6c unknown land]{north east}
15185 \inheritanchor[from=natoapp6c unknown land]{north west}
15186 \inheritanchor[from=natoapp6c unknown land]{north}
15187 \inheritanchor[from=natoapp6c unknown land]{west}
15188 \inheritanchor[from=natoapp6c unknown land]{east}
15189 \inheritanchor[from=natoapp6c unknown land]{upper}
15190 \inheritanchor[from=natoapp6c unknown land]{lower}
15191 \inheritanchor[from=natoapp6c unknown land]{left}
15192 \inheritanchor[from=natoapp6c unknown land]{right}
15193 \inheritanchor[from=natoapp6c unknown land]{center}
15194 \anchor{south}{\innernortheast\pgf@x=0cm\pgf@y=-\pgf@y}
15195 \anchor{south east}{
15196   \northeast\wg@tmpa=\pgf@x
15197   \innernortheast\pgf@y=-\pgf@y
15198   \pgf@x=\wg@tmpa}
15199 \anchor{south west}{
15200   \northeast\wg@tmpa=\pgf@x
15201   \innernortheast\pgf@y=-\pgf@y
15202   \pgf@x=-\wg@tmpa}
15203 \backgroundpath{%
15204   \n@to@pp@unknown@init
15205   \innernortheast \wg@tmpa=\pgf@x%
15206   \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpa}}%
15207   \n@to@pp@unknown@right %
15208   \n@to@pp@unknown@top %
15209   \n@to@pp@unknown@left %
15210   \ifn@to@pp@isclip
15211   \pgfpathlineto{\pgfqpoint{0cm}{-\radius}}
15212   \pgfpathclose
15213   \fi
15214 }
15215 \behindforegroundpath{%
15216   \n@to@pp@unknown@init
15217   \innernortheast \wg@tmpa=\pgf@x%
15218   \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpa}}%
15219   \n@to@pp@unknown@right %
15220   \n@to@pp@unknown@top %
15221   \n@to@pp@unknown@left %
15222   \pgfusepath{stroke}%
15223 }
15224 }

```



The unknown activity command. Similar to land command, but with boxes in the the ‘corners’.

```

15225 \pgfdeclareshape{natoapp6c unknown activity}{%
15226   \inheritshapedanchors[from=natoapp6c unknown land]
15227   \inheritanchor[from=natoapp6c unknown land]{inner north east}

```

```

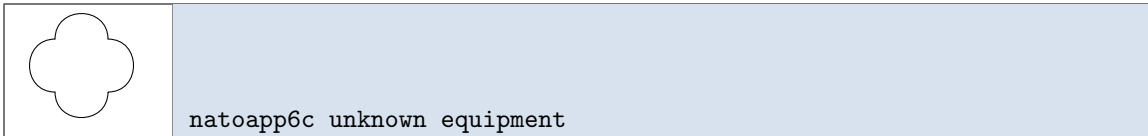
15228 \inheritanchor[from=natoapp6c unknown land]{inner north west}
15229 \inheritanchor[from=natoapp6c unknown land]{inner south west}
15230 \inheritanchor[from=natoapp6c unknown land]{inner south east}
15231 \inheritanchor[from=natoapp6c unknown land]{north east}
15232 \inheritanchor[from=natoapp6c unknown land]{north west}
15233 \inheritanchor[from=natoapp6c unknown land]{south east}
15234 \inheritanchor[from=natoapp6c unknown land]{south west}
15235 \inheritanchor[from=natoapp6c unknown land]{north}
15236 \inheritanchor[from=natoapp6c unknown land]{west}
15237 \inheritanchor[from=natoapp6c unknown land]{east}
15238 \inheritanchor[from=natoapp6c unknown land]{south}
15239 \inheritanchor[from=natoapp6c unknown land]{upper}
15240 \inheritanchor[from=natoapp6c unknown land]{lower}
15241 \inheritanchor[from=natoapp6c unknown land]{left}
15242 \inheritanchor[from=natoapp6c unknown land]{right}
15243 \inheritanchor[from=natoapp6c unknown land]{center}
15244 \inheritbackgroundpath[from=natoapp6c unknown land]
15245 \behindforegroundpath{
15246   \n@to@pp@unknown@init
15247   \innernortheast \wg@tmpa=\pgf@x%
15248   \begin{n@to@pp@stroketo@fill}
15249     \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpa}}%
15250     \n@to@pp@unknown@right %
15251     \n@to@pp@unknown@top %
15252     \n@to@pp@unknown@left %
15253     \n@to@pp@unknown@bottom%
15254     \pgfusepath{stroke,clip}
15255     %
15256     \northeast\wg@tmpa\pgf@x
15257     \advance\wg@tmpa0.005cm
15258     \wg@tmpb=\wg@tmpa
15259     \advance\wg@tmpb-\n@to@pp@act@w
15260     \wg@tmpc=\n@to@pp@act@w
15261     \divide\wg@tmpc2
15262     %
15263     \pgfpathmoveto{\pgfqpoint{ \wg@tmpc}{\wg@tmpa}}%
15264     \pgfpathlineto{\pgfqpoint{-\wg@tmpc}{\wg@tmpa}}%
15265     \pgfpathlineto{\pgfqpoint{-\wg@tmpc}{\wg@tmpb}}%
15266     \pgfpathlineto{\pgfqpoint{ \wg@tmpc}{\wg@tmpb}}%
15267     \pgfclosepath%
15268     \pgfusepath{fill}
15269     %
15270     \pgfpathmoveto{\pgfqpoint{ \wg@tmpc}{-\wg@tmpb}}%
15271     \pgfpathlineto{\pgfqpoint{-\wg@tmpc}{-\wg@tmpb}}%
15272     \pgfpathlineto{\pgfqpoint{-\wg@tmpc}{-\wg@tmpa}}%
15273     \pgfpathlineto{\pgfqpoint{ \wg@tmpc}{-\wg@tmpa}}%
15274     \pgfclosepath%
15275     \pgfusepath{fill}
15276     %
15277     \pgfpathmoveto{\pgfqpoint{ \wg@tmpa}{ \wg@tmpc}}%
15278     \pgfpathlineto{\pgfqpoint{ \wg@tmpb}{ \wg@tmpc}}%
15279     \pgfpathlineto{\pgfqpoint{ \wg@tmpb}{-\wg@tmpc}}%
15280     \pgfpathlineto{\pgfqpoint{ \wg@tmpa}{-\wg@tmpc}}%

```

```

15281 \pgfclosepath%
15282 \pgfusepath{fill}
15283 %
15284 \pgfpathmoveto{\pgfqpoint{-\wg@tmpb}{ \wg@tmpc}}%
15285 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{ \wg@tmpc}}%
15286 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{-\wg@tmpc}}%
15287 \pgfpathlineto{\pgfqpoint{-\wg@tmpb}{-\wg@tmpc}}%
15288 \pgfclosepath%
15289 \pgfusepath{fill}
15290 \end{ nato@pp@stroketo@fill}
15291 }
15292 }

```

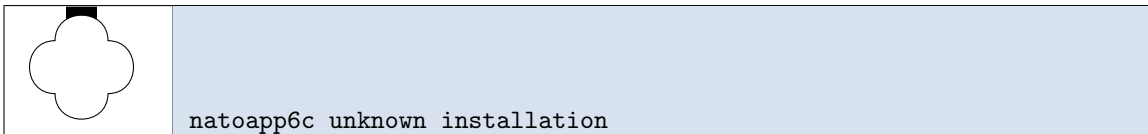


The unknown equipment command. Same as land command.

```

15293 \pgfdeclareshape{natoapp6c unknown equipment}{%
15294 \inherit savedanchors[from=natoapp6c unknown land]
15295 \inherit anchor[from=natoapp6c unknown land]{inner north east}
15296 \inherit anchor[from=natoapp6c unknown land]{inner north west}
15297 \inherit anchor[from=natoapp6c unknown land]{inner south west}
15298 \inherit anchor[from=natoapp6c unknown land]{inner south east}
15299 \inherit anchor[from=natoapp6c unknown land]{north east}
15300 \inherit anchor[from=natoapp6c unknown land]{north west}
15301 \inherit anchor[from=natoapp6c unknown land]{south east}
15302 \inherit anchor[from=natoapp6c unknown land]{south west}
15303 \inherit anchor[from=natoapp6c unknown land]{north}
15304 \inherit anchor[from=natoapp6c unknown land]{west}
15305 \inherit anchor[from=natoapp6c unknown land]{east}
15306 \inherit anchor[from=natoapp6c unknown land]{south}
15307 \inherit anchor[from=natoapp6c unknown land]{upper}
15308 \inherit anchor[from=natoapp6c unknown land]{lower}
15309 \inherit anchor[from=natoapp6c unknown land]{left}
15310 \inherit anchor[from=natoapp6c unknown land]{right}
15311 \inherit anchor[from=natoapp6c unknown land]{center}
15312 \inherit backgroundpath[from=natoapp6c unknown land]
15313 \inherit behind foregroundpath[from=natoapp6c unknown land]
15314 }

```



The unknown installation command. Similar to land command, but with a ‘hat’ on top. Note, NATO App6(d) makes the ‘hat’ lower part disconnected from the main symbol. I find that ugly, so we do it like NATO App6(c).

```

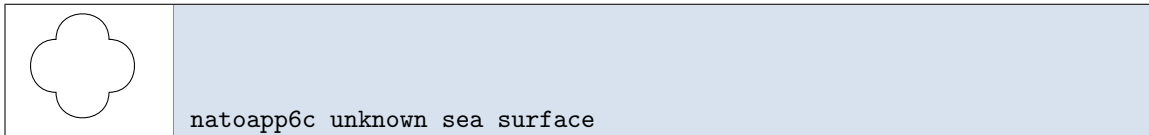
15315 \pgfdeclareshape{natoapp6c unknown installation}{%
15316   \inheritshapedanchors[from=natoapp6c unknown land]
15317   \inheritanchor[from=natoapp6c unknown land]{center}
15318   \inheritanchor[from=natoapp6c unknown land]{inner north east}
15319   \inheritanchor[from=natoapp6c unknown land]{inner north west}
15320   \inheritanchor[from=natoapp6c unknown land]{inner south west}
15321   \inheritanchor[from=natoapp6c unknown land]{inner south east}
15322   \inheritanchor[from=natoapp6c unknown land]{north east}
15323   \inheritanchor[from=natoapp6c unknown land]{north west}
15324   \inheritanchor[from=natoapp6c unknown land]{south east}
15325   \inheritanchor[from=natoapp6c unknown land]{south west}
15326   \inheritanchor[from=natoapp6c unknown land]{north}
15327   \inheritanchor[from=natoapp6c unknown land]{west}
15328   \inheritanchor[from=natoapp6c unknown land]{east}
15329   \inheritanchor[from=natoapp6c unknown land]{south}
15330   \inheritanchor[from=natoapp6c unknown land]{upper}
15331   \inheritanchor[from=natoapp6c unknown land]{lower}
15332   \inheritanchor[from=natoapp6c unknown land]{left}
15333   \inheritanchor[from=natoapp6c unknown land]{right}
15334   \inheritanchor[from=natoapp6c unknown land]{center}
15335   \inheritbackgroundpath[from=natoapp6c unknown land]
15336   \behindforegroundpath{
15337     \n@to@pp@unknown@init
15338     \innernortheast \wg@tmpa=\pgf@x%
15339
15340     \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpa}}%
15341     \n@to@pp@unknown@right %
15342     \n@to@pp@unknown@top %
15343     \n@to@pp@unknown@left %
15344     \n@to@pp@unknown@bottom%
15345     \pgfusepath{stroke}
15346     %
15347     \begin{n@to@pp@stroketofill}
15348       \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{\wg@tmpa}}%
15349       \n@to@pp@unknown@top %
15350       %
15351       \northeast\wg@tmpb=\pgf@y\wg@tmpc=\pgf@y%
15352       \advance\wg@tmpb\n@to@pp@inst@h%
15353       \advance\wg@tmpb-0.05cm%
15354       \advance\wg@tmpc-\n@to@pp@inst@h%
15355       \advance\wg@tmpc-\n@to@pp@inst@h%
15356       %
15357       \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
15358       \pgfpathlineto{\pgfqpoint{ \wg@tmpa}{\wg@tmpb}}%
15359       \pgfclosepath%
15360       \pgfusepath{clip}%
15361       %
15362       \pgfpathmoveto{\pgfqpoint{ \n@to@pp@inst@x}{\wg@tmpb}}%
15363       \pgfpathlineto{\pgfqpoint{-\n@to@pp@inst@x}{\wg@tmpb}}%
15364       \pgfpathlineto{\pgfqpoint{-\n@to@pp@inst@x}{\wg@tmpc}}%
15365       \pgfpathlineto{\pgfqpoint{ \n@to@pp@inst@x}{\wg@tmpc}}%
15366       \pgfclosepath%
15367       \pgfusepath{fill}%

```

```

15368 \end{n@to@pp@stroketo@fill}
15369 }
15370 }

```



The unknown sea surface command. Same as land command

```

15371 \pgfdeclareshape{natoapp6c unknown sea surface}{%
15372 \inherit@savedanchors[from=natoapp6c unknown land]
15373 \inheritanchor[from=natoapp6c unknown land]{inner north east}
15374 \inheritanchor[from=natoapp6c unknown land]{inner north west}
15375 \inheritanchor[from=natoapp6c unknown land]{inner south west}
15376 \inheritanchor[from=natoapp6c unknown land]{inner south east}
15377 \inheritanchor[from=natoapp6c unknown land]{north east}
15378 \inheritanchor[from=natoapp6c unknown land]{north west}
15379 \inheritanchor[from=natoapp6c unknown land]{south east}
15380 \inheritanchor[from=natoapp6c unknown land]{south west}
15381 \inheritanchor[from=natoapp6c unknown land]{north}
15382 \inheritanchor[from=natoapp6c unknown land]{west}
15383 \inheritanchor[from=natoapp6c unknown land]{east}
15384 \inheritanchor[from=natoapp6c unknown land]{south}
15385 \inheritanchor[from=natoapp6c unknown land]{upper}
15386 \inheritanchor[from=natoapp6c unknown land]{lower}
15387 \inheritanchor[from=natoapp6c unknown land]{left}
15388 \inheritanchor[from=natoapp6c unknown land]{right}
15389 \inheritanchor[from=natoapp6c unknown land]{center}
15390 \inheritbackgroundpath[from=natoapp6c unknown land]
15391 \inheritbehindforegroundpath[from=natoapp6c unknown land]
15392 }

```



The unknown space command. Similar to air command, but with a top bar.

```

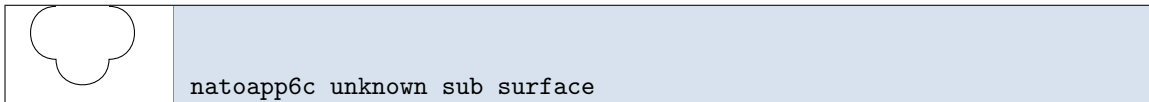
15393 \pgfdeclareshape{natoapp6c unknown space}{%
15394 \inherit@savedanchors[from=natoapp6c unknown air]
15395 \inheritanchor[from=natoapp6c unknown air]{inner north east}
15396 \inheritanchor[from=natoapp6c unknown air]{inner north west}
15397 \inheritanchor[from=natoapp6c unknown air]{inner south west}
15398 \inheritanchor[from=natoapp6c unknown air]{inner south east}
15399 \inheritanchor[from=natoapp6c unknown air]{north east}
15400 \inheritanchor[from=natoapp6c unknown air]{north west}
15401 \inheritanchor[from=natoapp6c unknown air]{south east}
15402 \inheritanchor[from=natoapp6c unknown air]{south west}
15403 \inheritanchor[from=natoapp6c unknown air]{north}

```

```

15404 \inheritanchor[from=natoapp6c unknown air]{west}
15405 \inheritanchor[from=natoapp6c unknown air]{east}
15406 \inheritanchor[from=natoapp6c unknown air]{south}
15407 \inheritanchor[from=natoapp6c unknown air]{upper}
15408 \inheritanchor[from=natoapp6c unknown air]{lower}
15409 \inheritanchor[from=natoapp6c unknown air]{left}
15410 \inheritanchor[from=natoapp6c unknown air]{right}
15411 \inheritanchor[from=natoapp6c unknown air]{center}
15412 \inheritbackgroundpath[from=natoapp6c unknown air]
15413 \behindforegroundpath{%
15414   \n@to@pp@unknown@init
15415   \innernortheast \wg@tmpa=\pgf@x%
15416   \begin{n@to@pp@stroketofill}
15417     \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{-\wg@tmpa}}%
15418     \n@to@pp@unknown@right %
15419     \n@to@pp@unknown@top %
15420     \n@to@pp@unknown@left %
15421     \pgfusepath{stroke,clip}%
15422     %
15423     \northeast\wg@tmpa=\pgf@y\wg@tmpb=\pgf@y
15424     \advance\wg@tmpb-\n@to@pp@space@h
15425     %
15426     \pgfpathmoveto{\pgfqpoint{ \radius}{\wg@tmpa}}%
15427     \pgfpathlineto{\pgfqpoint{-\radius}{\wg@tmpa}}%
15428     \pgfpathlineto{\pgfqpoint{-\radius}{\wg@tmpb}}%
15429     \pgfpathlineto{\pgfqpoint{ \radius}{\wg@tmpb}}%
15430     \pgfclosepath%
15431     \pgfusepath{fill}%
15432   \end{n@to@pp@stroketofill}
15433 }
15434 }

```



The unknown sub surface command.

```

15435 \pgfdeclareshape{natoapp6c unknown sub surface}{%
15436   \inheritssavedanchors[from=natoapp6c unknown land]
15437   \inheritanchor[from=natoapp6c unknown land]{inner north east}
15438   \inheritanchor[from=natoapp6c unknown land]{inner north west}
15439   \inheritanchor[from=natoapp6c unknown land]{inner south west}
15440   \inheritanchor[from=natoapp6c unknown land]{inner south east}
15441   \inheritanchor[from=natoapp6c unknown land]{south east}
15442   \inheritanchor[from=natoapp6c unknown land]{south west}
15443   \inheritanchor[from=natoapp6c unknown land]{south}
15444   \inheritanchor[from=natoapp6c unknown land]{west}
15445   \inheritanchor[from=natoapp6c unknown land]{east}
15446   \inheritanchor[from=natoapp6c unknown land]{upper}
15447   \inheritanchor[from=natoapp6c unknown land]{lower}
15448   \inheritanchor[from=natoapp6c unknown land]{left}
15449   \inheritanchor[from=natoapp6c unknown land]{right}

```

```

15450 \inheritanchor[from=natoapp6c unknown land]{center}
15451 \anchor{north}{\innernortheast\pgf@x=0cm}
15452 \anchor{north east}{
15453   \northeast\wg@tmpa=\pgf@x
15454   \innernortheast\pgf@y=\pgf@y
15455   \pgf@x=\wg@tmpa}
15456 \anchor{north west}{
15457   \northeast\wg@tmpa=\pgf@x
15458   \innernortheast\pgf@y=\pgf@y
15459   \pgf@x=-\wg@tmpa}
15460 \backgroundpath{%
15461   \n@to@pp@unknown@init
15462   \innernortheast \wg@tmpa=\pgf@x%
15463   \pgfpathmoveto{\pgfpoint{-\wg@tmpa}{\wg@tmpa}}%
15464   \n@to@pp@unknown@left %
15465   \n@to@pp@unknown@bottom %
15466   \n@to@pp@unknown@right %
15467   \ifn@to@pp@isclip
15468   \pgfpathlineto{\pgfpoint{0cm}{\radius}}
15469   \pgfpathclose
15470   \fi
15471 }
15472 \behindforegroundpath{%
15473   \n@to@pp@unknown@init
15474   \innernortheast \wg@tmpa=\pgf@x%
15475   \pgfpathmoveto{\pgfpoint{-\wg@tmpa}{\wg@tmpa}}%
15476   \n@to@pp@unknown@left %
15477   \n@to@pp@unknown@bottom %
15478   \n@to@pp@unknown@right %
15479   \pgfusepath{stroke}}
15480 }

```

5.6.11 Echelons

Dimensions

```

15481 \def\n@to@pp@e@y{.12}
15482 \def\n@to@pp@e@yy{.24}

```

Paths as macros

```

15483 \def\n@to@pp@e@d#1{(#1*\n@to@pp@e@y,0)$ circle(0.09)}
15484 \def\n@to@pp@e@b#1{%
15485   ($#1*\n@to@pp@e@y,-\n@to@pp@e@y)$ -- ($#1*\n@to@pp@e@y,\n@to@pp@e@y)$}
15486 \def\n@to@pp@e@x#1{%
15487   ($-\n@to@pp@e@y,-\n@to@pp@e@y)+(#1*\n@to@pp@e@y,0)$--
15488   ++(\n@to@pp@e@yy,\n@to@pp@e@yy)
15489   ($-\n@to@pp@e@y,\n@to@pp@e@y)+(#1*\n@to@pp@e@y,0)$--
15490   ++(\n@to@pp@e@yy,-\n@to@pp@e@yy)}

```

Pictures

```

15491 \tikzset{
15492   pics/natoapp6c/s/echelon/.is choice,

```

```

15493 pics/natoapp6c/s/echelon/squad/.style={code={
15494     \path[draw,fill=pgfstrokecolor,pic actions]
15495     \foreach \o in {0}{\n@to@pp@e@d{\o}};}},
15496 pics/natoapp6c/s/echelon/section/.style={code={
15497     \path[draw,fill=pgfstrokecolor,pic actions]
15498     \foreach \o in {-1,1}{\n@to@pp@e@d{\o}};}},
15499 pics/natoapp6c/s/echelon/platoon/.style={code={
15500     \path[draw,fill=pgfstrokecolor,pic actions]
15501     \foreach \o in {-2,0,2}{\n@to@pp@e@d{\o}};}},
15502 pics/natoapp6c/s/echelon/company/.style={code={
15503     \path[draw,pic actions]
15504     \foreach \o in {0}{\n@to@pp@e@b{\o}};}},
15505 pics/natoapp6c/s/echelon/battalion/.style={code={
15506     \path[draw,pic actions]
15507     \foreach \o in {-1,1}{\n@to@pp@e@b{\o}};}},
15508 pics/natoapp6c/s/echelon/regiment/.style={code={
15509     \path[draw,pic actions]
15510     \foreach \o in {-2,0,2}{\n@to@pp@e@b{\o}};}},
15511 pics/natoapp6c/s/echelon/brigade/.style={code={
15512     \path[draw,pic actions]
15513     \foreach \o in {0}{\n@to@pp@e@x{\o}};}},
15514 pics/natoapp6c/s/echelon/division/.style={code={
15515     \path[draw,pic actions]
15516     \foreach \o in {-1,1}{\n@to@pp@e@x{\o}};}},
15517 pics/natoapp6c/s/echelon/corps/.style={code={
15518     \path[draw,pic actions]
15519     \foreach \o in {-2,0,2}{\n@to@pp@e@x{\o}};}},
15520 pics/natoapp6c/s/echelon/army/.style={code={
15521     \path[draw,pic actions]
15522     \foreach \o in {-3,-1,1,3}{\n@to@pp@e@x{\o}};}},
15523 pics/natoapp6c/s/echelon/army group/.style={code={
15524     \path[draw,pic actions]
15525     \foreach \o in {-4,-2,0,2,4}{\n@to@pp@e@x{\o}};}},
15526 pics/natoapp6c/s/echelon/theatre/.style={code={
15527     \path[draw,pic actions]
15528     \foreach \o in {-5,-3,-1,1,3,5}{\n@to@pp@e@x{\o}};}},
15529 pics/natoapp6c/s/echelon/command/.style={code={
15530     \path[draw,pic actions]
15531     (-.3,-.1) -- (-.3,.1) (-.4, 0) -- (-.2, 0)
15532     (.3,-.1) -- (.3,.1) (.4, 0) -- (.2, 0)};}},
15533 pics/natoapp6c/s/echelon/dummy/.style={code={%
15534     \path[draw,pic actions] (M.north west) rectangle
15535     ($(M.north east)+(0,.1)$)};}},
15536 }

```

5.6.12 Text on symbols

```

/tikz/natoapp6c/normal text
/tikz/natoapp6c/squashed text
/tikz/natoapp6c/small text
/tikz/natoapp6c/small squashed text

```


NATO App6 does not specify any particular font for text symbols (main, modifiers, or amplifiers) but here we choose to use T_EX Gyro Heros (a Gothic font, i.e., Helvetica-like).

```

15537 \newcommand\n@to@ppfont[2][b]{%
15538   \fontencoding{T1}\fontfamily{qhv}\fontseries{#1}\fontsize{#2}{0}\selectfont}
15539 \tikzset{%
15540   natoapp6c/text/.style={%
15541     shape=rectangle,%
15542     draw=none,%
15543     fill=none,%
15544     transform shape,%
15545     anchor=center},
15546   natoapp6c/normal text/.style={font=\n@to@ppfont{12}},
15547   natoapp6c/squashed text/.style={font=\n@to@ppfont[bc]{12}},
15548   natoapp6c/small text/.style={font=\n@to@ppfont{10}},
15549   natoapp6c/squashed small text/.style={font=\n@to@ppfont[bc]{10}},
15550 }

```

```

\n@to@pp@text@normal
\n@to@pp@text@squashed
\n@to@pp@text@small
\n@to@pp@text@smallsquashed

```

These macros are short-hands for making a node at (0,0) in the local scope.

```

15551 \newcommand\n@to@pp@text@normal[2][ ] {%
15552   \node[natoapp6c/text,natoapp6c/normal text,#1]{#2}}
15553 \newcommand\n@to@pp@text@squashed[2][ ]{%
15554   \node[natoapp6c/text,natoapp6c/squashed text,#1]{#2}}
15555 \newcommand\n@to@pp@text@small[2][ ] {%
15556   \node[natoapp6c/text,natoapp6c/small text,#1]{#2}}
15557 \newcommand\n@to@pp@text@smallsquashed[2][ ]{%
15558   \node[natoapp6c/text,natoapp6c/squashed small text,#1]{#2}}

```

5.6.13 Text natoapp6c namespace

```

/natoapp6c

```

Here, we set up the key path /natoapp6c

```

15559 \def\natoapp@report{}
15560 \tikzset{
15561   /natoapp6c/.search also={/tikz},
15562   /natoapp6c/.cd,
15563 }

```

Choices of faction, command, and echelon

```
natoapp6c/id
natoapp6c/fac
natoapp6c/cmd
natoapp6c/ech
```

The keys `id`, `specfac`, `cmd`, and `ech` are internal keys used to store the choice of faction, command, and echelon, respectively, in.

```
15564 \tikzset{
15565   /natoapp6c/.cd,
15566   id/.store in=\natoapp@id,
15567   fac/.store in=\natoapp@fac,
15568   cmd/.store in=\natoapp@cmd,
15569   ech/.store in=\natoapp@ech,
15570 }
```

```
natoapp6c/faction
```

Choice of \langle *faction* \rangle . This is limited to predefined values. The choice is stored in the key `natoapp6c/fac`.

```
15571 \tikzset{
15572   /natoapp6c/.cd,
15573   faction/.is choice,
15574   faction/none/.code={\let\natoapp@fac\@undefined},
15575   faction/friendly/.style={fac=friendly},
15576   faction/friend/.style={fac=friendly},
15577   faction/hostile/.style={fac=hostile},
15578   faction/enemy/.style={fac=hostile},
15579   faction/neutral/.style={fac=neutral},
15580   faction/unknown/.style={fac=unknown},
15581   faction/?/.style={fac=unknown},
15582   faction/.initial=friendly,
15583 }
```

```
natoapp6c/command
```

Choice of \langle *command* \rangle . This is limited to predefined values. The choice is stored in the key `natoapp6c/cmd`.

```
15584 \tikzset{
15585   /natoapp6c/.cd,
15586   command/.is choice,
15587   command/base/.style={cmd=base},
15588   command/activity/.style={cmd=activity},
15589   command/air/.style={cmd=air},
15590   command/missile/.style={cmd=air},
15591   command/equipment/.style={cmd=equipment},
15592   command/installation/.style={cmd=installation},
15593   command/land/.style={cmd=land},
15594   command/sea surface/.style={cmd=sea surface},
15595   command/space/.style={cmd=space},
15596   command/sub surface/.style={cmd=sub surface},
15597   command/sea mine/.style={cmd=sub surface},
```

15598 }

natoapp6c/echolon

Unit size. The choice is limited to one of the below. The choice is stored in the key `natoapp6c/ech`.

```
15599 \tikzset{
15600 /natoapp6c/.cd,
15601 echolon/.is choice,
15602 echolon/none/.style={ech=},
15603 echolon/team/.style={ech=},
15604 echolon/squad/.style={ech=squad},
15605 echolon/section/.style={ech=section},
15606 echolon/platoon/.style={ech=platoon},
15607 echolon/company/.style={ech=company},
15608 echolon/battalion/.style={ech=battalion},
15609 echolon/regiment/.style={ech=regiment},
15610 echolon/brigade/.style={ech=brigade},
15611 echolon/division/.style={ech=division},
15612 echolon/corps/.style={ech=corps},
15613 echolon/army/.style={ech=army},
15614 echolon/army group/.style={ech=army group},
15615 echolon/theatre/.style={ech=theatre},
15616 echolon/command/.style={ech=command},
15617 echolon/dummy/.style={ech=dummy},
15618 }
```

```
natoapp6c/main
natoapp6c/left
natoapp6c/right
natoapp6c/top
natoapp6c/bottom
natoapp6c/below
natoapp6c/frame
```

```
\natoapp@main
\natoapp@left
\natoapp@right
\natoapp@upper
\natoapp@lower
\natoapp@below
```

The various parts of the symbols. The keys `upper` and `lower` are aliases for `top` and `bottom`, respectively. The choices are stored in macros

```
15619 \newif\ifnatoapp@decoy\natoapp@decoyfalse
15620 \tikzset{
15621 /natoapp6c/.cd,
15622 main/.store in=\natoapp@main, main/.initial=,%
15623 left/.store in=\natoapp@left, left/.initial=,%
```

```

15624 right/.store in=\natoapp@right, right/.initial=,%
15625 upper/.store in=\natoapp@upper, upper/.initial=,%
15626 lower/.store in=\natoapp@lower, lower/.initial=,%
15627 top/.store in=\natoapp@upper,%
15628 bottom/.store in=\natoapp@lower,%
15629 below/.store in=\natoapp@below, below/.initial=,%
15630 frame/.store in=\natoapp@frame, frame/.initial=,%
15631 decoy/.is if=natoapp@decoy,%
15632 }

```

```

/tikz/natoapp6c/main
/tikz/natoapp6c/modifiers
/tikz/natoapp6c/lower
/tikz/natoapp6c/upper
/tikz/natoapp6c/left
/tikz/natoapp6c/right
/tikz/natoapp6c/echelon
/tikz/natoapp6c/below

```

Styles used by the various parts of the symbol.

```

15633 \tikzset{
15634   natoapp6c/parts/.style={draw,shape=rectangle,transform shape},
15635   natoapp6c/main/.style={natoapp6c/parts},
15636   natoapp6c/modifiers/.style={natoapp6c/parts,scale=.6},
15637   natoapp6c/lower/.style={natoapp6c/parts},
15638   natoapp6c/upper/.style={natoapp6c/parts},
15639   natoapp6c/left/.style={natoapp6c/parts},
15640   natoapp6c/right/.style={natoapp6c/parts},
15641   natoapp6c/echelon/.style={natoapp6c/parts},
15642   natoapp6c/below/.style={natoapp6c/parts}
15643 }

```

5.6.14 The natoapp6c styles

```

/tikz/natoapp6c

```

This key sets up a node to make a NATO App6(c) symbol. The key takes a single argument which in turn must contain key–value pairs in the /natoapp6c (or /tikz) namespace(s). We set the `shape` parameter of the node, and calls the passed keys in the /natoapp6c namespace to set-up elements of the chit.

```

15644 \tikzset{%
15645   natoapp6c/.code={%
15646     \pgfkeys{/tikz/transform shape,/tikz/shape=natoapp6c}
15647     \pgfkeys{/natoapp6c/.cd,#1}}

```

We define a counter to set-up unique names for symbol nodes.

```

15648 \newcounter{natoappid}\setcounter{natoappid}{0}

```

5.6.15 The \natoapp6c shape

```
\ifn@to@pp@below
\ifn@to@pp@mod
```

We define an \if to allow us to detect if something is rendered below the frame

```
15649 \newif\ifn@to@pp@below\n@to@pp@belowfalse%
15650 \newif\ifn@to@pp@mod\n@to@pp@modfalse%
```



natoapp6c

Next, we define the mother shape of NATO App6(c) nodes. This is a composite node with sub-nodes for the various parts (including the frame) of the symbol.

It is quite complex so we will go through the implementation in bits.

First, we make some saved anchors (the centre) and macros (identifier, frame type, and frame options).

```
15651 \pgfdeclareshape{natoapp6c}{%
15652   \savedanchor\center{\pgf@x=0cm\pgf@y=0cm}
15653   \savedmacro\id{%
15654     \n@to@pp@dbg{3}{NATO App6(c) id (set): \meaning\natoapp@id}
15655     \@ifundefined{natoapp@id}{\let\natoapp@id\pgfutil@empty}{%
15656       \ifx\natoapp@id\pgfutil@empty\relax%
15657         \wg@r@ndom@id%
15658         \edef\id{natoapp6c\wg@uuid}%
15659       \else%
15660         \edef\id{\natoapp@id}%
15661       \fi%
15662     \n@to@pp@dbg{3}{NATO App6(c) id: \meaning\id}}
15663   \savedmacro\frameshape{%
15664     \let\frameshape\pgfutil@empty%
15665     \@ifundefined{natoapp@cmd}{\def\frameshape{base}}{%
15666       \edef\frameshape{\natoapp@cmd}
15667     \@ifundefined{natoapp@fac}{\def\frameshape{base}}{%
15668       \edef\frameshape{\natoapp@fac\space\frameshape}}}
15669   \n@to@pp@dbg{3}{NATO App6(c) frame shape: \meaning\frameshape}}
15670   \savedmacro\frameopt{%
15671     \let\frameopt\pgfutil@empty%
15672     \@ifundefined{natoapp@frame}{%
15673       \edef\frameopt{\natoapp@frame}}
15674   \n@to@pp@dbg{3}{NATO App6(c) Frame options: \meaning\frameopt}%
15675 }
```

Then we define a number of regular anchors

```
15676 \anchor{center} {\center}
```

The remaining anchors depend on the shape being used. We reference the anchors of the embedded node of the frame.

```
15677 \anchor{north east}{\wg@sub@nchor{M\id}{north east}}
```

```

15678 \anchor{north west}{\wg@sub@nchor{M\id}{north west}}
15679 \anchor{south east}{\wg@sub@nchor{M\id}{south east}}
15680 \anchor{south west}{\wg@sub@nchor{M\id}{south west}}
15681 \anchor{north}      {\wg@sub@nchor{M\id}{north}}
15682 \anchor{west}       {\wg@sub@nchor{M\id}{west}}
15683 \anchor{south}      {\wg@sub@nchor{M\id}{south}}
15684 \anchor{east}       {\wg@sub@nchor{M\id}{east}}
15685 \anchor{upper}     {\wg@sub@nchor{M\id}{upper}}
15686 \anchor{lower}     {\wg@sub@nchor{M\id}{lower}}
15687 \anchor{left}      {\wg@sub@nchor{M\id}{left}}
15688 \anchor{right}     {\wg@sub@nchor{M\id}{right}}

```

The next two anchors are a little funny.

```

15689 \anchor{echelon}  {%
15690   \n@to@pp@dbg{3}{NATO App6(c) get echelon anchor}%
15691   \wg@sub@nchor{M\id}{north}}%
15692   \wg@tmpa=\n@to@pp@e@y cm%
15693   \advance\pgf@y\wg@tmpa%
15694 }%
15695 \anchor{below}     {%
15696   \n@to@pp@dbg{3}{NATO App6(c) get below anchor}%
15697   \wg@sub@nchor{M\id}{south}}
15698   \wg@tmpa=\n@to@pp@e@yy cm%
15699   \advance\pgf@y-\wg@tmpa}

```

All right, so time to make the actual frame. Note that we do this in a ‘behind’ path so we can actually draw stuff. First, we flag that we’re not in a modifier, nor in the ‘below’ part.

```

15700 \behindbackgroundpath{%
15701   \n@to@pp@dbg{3}{NATO App6(c) background path: \meaning\id
15702     ^^J ID: \meaning\natoapp@id
15703     ^^J Faction: \meaning\natoapp@fac
15704     ^^J Command: \meaning\natoapp@cmd
15705     ^^J Echelon: \meaning\natoapp@ech
15706     ^^J Main: \meaning\natoapp@main
15707     ^^J Left: \meaning\natoapp@left
15708     ^^J Right: \meaning\natoapp@right
15709     ^^J Upper: \meaning\natoapp@upper
15710     ^^J Lower: \meaning\natoapp@lower
15711     ^^J Below: \meaning\natoapp@below
15712     ^^J Shape: \meaning\frameshape
15713     ^^J Options: \meaning\frameopt}
15714   \natoapp@report
15715   \n@to@pp@modfalse
15716   \n@to@pp@belowfalse

```

If the symbol is empty, then do nothing.

```

15717   \ifx\frameshape\pgfutil@empty%
15718   \n@to@pp@dbg{2}{NATO App6(c) has no frame!}
15719   \else

```

We start a scope because we want to do some clipping here. Then, we use the frame to clip the remaining part. Note

that we do this via a node which we give the identifier M. Various elements of the symbol can then refer to this shape to define paths, etc.

```

15720 \begin{scope}
15721 \pgfinterruptboundingbox
15722 %% Clip to shape in scope
15723 %% \message{^^JClipping to NATO App6(c) shape}
15724 \n@to@pp@iscliptrue%
15725 \n@to@pp@dbg{2}{NATO App6(c) frame node M (clip)}
15726 \pgfnode{natoapp6c \frameshape}{center}{M}{\pgfusepath{clip}}
15727 \n@to@pp@isclipfalse%

```

Next, we should see if we need to fill the frame. We do that by expanding the passed `frame` key-values in a scope, and *then* get the fill colour.

```

15728 %% Start new scope including frame key options
15729 \edef\tmp@opt{[\frameshape]}
15730 \expandafter\scope\tmp@opt
15731 % Get fill color {possibly from frame key}
15732 \expandafter\let\expandafter\tmp@fill%
15733 \csname\string\color@pgffillcolor\endcsname%

```

If the fill colour is not `\relax`, then we fill the frame. Note that this is done in the background, so when we draw in the foreground we will render on top of the fill.

```

15734 % Check if we need to fill shape (fill colour us not \relax)
15735 \ifx\tmp@fill\relax\else%
15736 \n@to@pp@dbg{2}{NATO App6(c) frame fill}
15737 \pgfnode{natoapp6c \frameshape}{center}{M}{\pgfusepath{fill}}%
15738 \fi%
15739 % End the fill scope
15740 \endscope%

```

Now we need to render some of the elements of the symbol. We start with the main elements. We can specify many main elements (to make composite symbols).

```

15741 % Render mains
15742 \@ifundefined{natoapp@main}{%
15743 \n@to@pp@dbg{2}{NATO App6(c) mains: \meaning\natoapp@main}
15744 \begin{scope}[natoapp6c/main]
15745 \wg@pic@all{\natoapp@main}{natoapp6c/s/}{M.center}{natoapp6c/main}%
15746 \end{scope}}%
15747 % Modifiers flagged

```

The next thing is to render the various modifiers. We start by flagging this globally.

```

15748 \n@to@pp@modtrue
15749 \n@to@pp@dbg{2}{NATO App6(c) modifiers}

```

Below we render the lower, upper, left, and right elements. This is all done in the same way. Note that the elements positions are dictated by anchors of the frame shape (via shape identifier M).

```

15750 % Render lowers
15751 \@ifundefined{natoapp@lower}{%
15752 \begin{scope}%

```

```

15753     \wg@pic@all{\natoapp@lower}{natoapp6c/s/}{M.lower}{%
15754         natoapp6c/modifiers,natoapp6c/lower}%
15755     \end{scope}}%
15756     % Render uppers
15757     \@ifundefined{natoapp@upper}{}{%
15758         \begin{scope}[]
15759             \wg@pic@all{\natoapp@upper}{natoapp6c/s/}{M.upper}{%
15760                 natoapp6c/modifiers,natoapp6c/upper}%
15761             \end{scope}}%
15762     % Render lefts
15763     \@ifundefined{natoapp@left}{}{%
15764         \begin{scope}[]
15765             \wg@pic@all{\natoapp@left}{natoapp6c/s/}{M.left}{%
15766                 natoapp6c/modifiers,natoapp6c/left}%
15767             \end{scope}}%
15768     % Render rights
15769     \@ifundefined{natoapp@right}{}{%
15770         \begin{scope}[]
15771             \wg@pic@all{\natoapp@right}{natoapp6c/s/}{M.right}{%
15772                 natoapp6c/modifiers,natoapp6c/right}%
15773             \end{scope}}%
15774     % Modifiers end
15775     \n@to@pp@modfalse%
15776     \endpgfinterruptboundingbox
15777 \end{scope}}%
15778 \fi%
15779 }

```

That concludes rendering most of the symbol. We have not put in the echelon, below element, or drawn the frame yet. That we will do on the foreground path.

In the foreground ‘behind’ path we render the echelon, below element, and draw the frame.

```

15780 \behindforegroundpath{%
15781     \n@to@pp@dbg{2}{NATO App6(c) foreground path:
15782     ^^J Echelon: \meaning\natoapp@ech
15783     ^^J Symbol: \meaning\frameshape
15784     ^^J Below: \meaning\natoapp@below
15785     ^^J Frame: \meaning\frameopt}
15786     %

```

We check if we have a frame. If not, stop.

```

15787     \ifx\frameshape\pgfutil@empty%
15788         \n@to@pp@dbg{2}{NATO App6(c) has no frame shape!}%
15789     \else%

```

We want to draw the rest of the symbol as a part of the frame, so we expand the `frame` options in a scope.

```

15790
15791     \edef\tmp@opt{[\frameopt]}
15792     \expandafter\scope\tmp@opt

```


First thing in this scope is to draw the actual frame. Again, this is done via a node with the right shape. Note that we label this node as $M\langle id \rangle$ so we way refer to it later on.

```
15793 \n@to@pp@dbg{2}{NATO App6(c) inner node 'M\id' ===}
15794 \pgfnode{natoapp6c \frameshape}{center}{M\id}{\pgfusepath{stroke}}
```

If the user gave an echelon, then put that in. Note that echelons are limited to predefined values.

```
15795 % Put in the echelon
15796 \@ifundefined{natoapp@ech}{}{%
15797 \ifx\natoapp@ech\pgfutil@empty\else%
15798 \def\args{echelon=\natoapp@ech}
15799 \expandafter\wg@pic\args@endwg@pic%
15800 {natoapp6c/s/}{$(M.north)+(0,1.2*\n@to@pp@e@y)}{natoapp6c/echelon}
15801 \fi%
15802 }
```

If the user want something under the frame, put that in.

```
15803 % Put in stuff below main
15804 \@ifundefined{natoapp@below}{}{%
15805 \n@to@pp@belowtrue
15806 \begin{scope}
15807 \wg@pic@all{\natoapp@below}{natoapp6c/s/}{%
15808 $(M.south)+(0,-\n@to@pp@e@yy)}{natoapp6c/below}%
15809 \end{scope}%
15810 \n@to@pp@belowfalse}
15811 }
```

If the decoy flag was set, we draw that.

```
15812 \ifnatoapp@decoy%
15813 \scope[dash pattern=on 3\pgflinewidth off 2\pgflinewidth]%
15814 \n@to@pp@dbg{1}{Drawing decoy modifier}%
15815 \wg@sub@nchor{M\id}{north east}
15816 \wg@tmpa=\pgf@x%
15817 \wg@tmpb=\pgf@y%
15818 \pgfpathmoveto{\pgfqpoint{\wg@tmpa}{\wg@tmpb}}%
15819 \wg@tmpc=\n@to@pp@e@yy cm%
15820 \advance\wg@tmpc\n@to@pp@e@yy cm%
15821 \advance\wg@tmpc\wg@tmpb%
15822 \pgfpathlineto{\pgfqpoint{0cm}{\wg@tmpc}}%
15823 \pgfpathlineto{\pgfqpoint{-\wg@tmpa}{\wg@tmpb}}%
15824 \pgfusepath{stroke}%
15825 \endscope%
15826 \fi%
15827 \endscope%
15828 \fi%
15829 }
15830 }
```

That finished the shape for NATO App6(c) symbols. We could stop here, but for convenience we define a wrapper macro.

5.6.16 The `\natoapp` wrapper macro

`\natoapp`

This is a wrapper macro for inserting a node with a NATO App6(c) symbol in it. The syntax of the macro is

```
\natoapp[<natoapp6c options>](<position>)(<identifier>);
```

Note that the trailing semi-colon (;) is optional.

This macro forwards to `\n@toapp`.

```
15831 \newcommand\natoapp[1] [] {%
15832   \n@toapp@dbg{2}{NATO App6(c) macro -> '#1'}
15833   \tikzset{/natoapp6c/.cd,faction=friendly,command=land}%
15834   \@ifnextchar({\n@toapp{#1}}{\n@toapp{#1}(0,0)}%)
15835 }
```

`\n@toapp`

This macro takes care to parse the location argument — if any. It forwards to `\n@to@pp`.

```
15836 \def\n@toapp#1(#2){%
15837   \n@to@pp@dbg{2}{NATO App6(c) second macro -> '#1', '#2'}
15838   \@ifnextchar({\n@to@pp{#1}{#2}}{\n@to@pp{#1}{#2}()})%
15839 }
```

`\n@to@pp`

This is the main work-horse of the wrapper. It makes a node with the shape `natoapp6c` passing the relevant parameters. The syntax of the macro is

```
15840 \def\n@to@pp#1#2(#3){%
15841   %\let\name\pgfutil@empty%
15842   %\ifx|#3|\else\edef\name{(#3)}\fi%
15843   %\n@to@pp@dbg{3}{Arguments: #1}%
15844   %\edef\args{[natoapp6c=#1],transform shape] \name at (#2) {}}
15845   %\expandafter\node\args;%
15846   \node[draw,transform shape,natoapp6c=#1] (#3) at (#2) {};%
15847   \@ifnextchar;{\@gobble{}}}
```

5.6.17 Macros for markings

`\natoappmark`

A macro for making NATO App6(c) markings.

```
15848 \providecommand\natoappmark[2] [] {%
15849   \tikz[scale=.25,#1]{\natoapp[faction=friendly,command=land,main=#2]}}
```

`\echelonmark`

```
15850 \providecommand\echelonmark[2] [] {\tikz[scale=.5,#1]{%
15851   \pic[scale line widths,line width=1pt] {natoapp6c/s/echelon=#2};}}
```

Some specific NATO App6(c) markers.

```
15852 \DeclareRobustCommand\armouredmark[1] [] {\natoappmark[#1]{armoured}}
15853 \DeclareRobustCommand\infantrymark[1] [] {\natoappmark[#1]{infantry}}
15854 \DeclareRobustCommand\artillerymark[1] [] {%
15855   \natoappmark[#1]{\fill=pgfstrokecolor}artillery}}
15856 \DeclareRobustCommand\combinedmark[1] [] {\natoappmark[#1]{combined arms}}
15857 \DeclareRobustCommand\pgmark[1] []      {\natoappmark[#1]{\armoured,infantry}}
15858 \DeclareRobustCommand\reconnaissancemark[1] [] {\natoappmark[#1]{reconnaissance}}
15859 \DeclareRobustCommand\corpsmark[1] [] {\natoappmark[#1]{,echelon=corps}}
15860 \DeclareRobustCommand\divisionmark[1] [] {\natoappmark[#1]{,echelon=division}}
15861 \DeclareRobustCommand\brigademark[1] []  {\natoappmark[#1]{,echelon=brigade}}
15862 \DeclareRobustCommand\regimentmark[1] [] {\natoappmark[#1]{,echelon=regiment}}
15863 \DeclareRobustCommand\sofmark[1] []     {\natoappmark[#1]{\infantry,text=SOF}}
15864 \DeclareRobustCommand\mountaineermark[1] [] {%
15865   \natoappmark[#1]{infantry,lower=mountain}}
15866 \DeclareRobustCommand\airbornemark[1] [] {%
15867   \natoappmark[#1]{infantry,lower=airborne}}
15868 \DeclareRobustCommand\amphibiousmark[1] [] {\natoappmark[#1]{,lower=amphibious}}
15869 \DeclareRobustCommand\airassaultmark[1] [] {%
15870   \natoappmark[#1]{infantry,upper=air assault}}
```

5.6.18 Utility macros used in the symbols

Here, we define the main symbols used when making markers. Since some of these symbols share code, we will create some regular \TeX macros to hold the path definitions. This is by far the simplest way of storing just the path specifications.

`\testpath`

```
15871 \def\testpath#1{\csname n@toapp@#1\endcsname}
```

Corps support for friendly, hostile, neutral, and unknown factions.

```
\n@toapp@corps@sup@friendly
\n@toapp@corps@sup@hostile
\n@toapp@corps@sup@neutral
\n@toapp@corps@sup@unknown
```

```
15872 \def\n@toapp@corps@sup@friendly{(.75,.5)--(.5,0)--(.75,-.5)}
15873 % (M.north east)--(M.east-.25,0)--(M.south east)}
15874 \def\n@toapp@corps@sup@hostile{(.95,.5)--(.45,0)--(.95,-.5)}
15875 \def\n@toapp@corps@sup@neutral{(.5,.5)--(.35,0)--(.5,-.5)}
15876 \def\n@toapp@corps@sup@unknown{(.75,.5)--(.5,0)--(.75,-.5)}
```

Corps support, base

`\n@toapp@corps@support`

```
15877 \def\n@toapp@corps@support#1{
15878 \ifx\n@to@pp@friendly#1\n@toapp@corps@sup@friendly%
15879 \else\ifx\n@to@pp@hostile#1\n@toapp@corps@sup@hostile%
15880 \else\ifx\n@to@pp@neutral#1\n@toapp@corps@sup@neutral%
15881 \else\ifx\n@to@pp@unknown#1\n@toapp@corps@sup@unknown%
15882 \fi\fi\fi\fi}
```



`natoapp6c/s/TBD`

Special placeholder for symbols To Be Done.

```
15883 \tikzset{
15884 natoapp6c/s/TBD/.pic={\n@to@pp@text@normal{\color{magenta}TBD};}
15885 }
```

5.6.19 Symbols used when defining weaponry



`natoapp6c/s/weapon`

```
15886 \tikzset{
15887 pics/natoapp6c/s/weapon/.is choice,
15888 pics/natoapp6c/s/weapon/base/.style={
15889 code={\path [pic actions] (0,-0.2)--(0,.2);}},
15890 pics/natoapp6c/s/weapon/top/.style={
15891 code={\path [pic actions] (0,.2)--(0,.35);}},
15892 pics/natoapp6c/s/weapon/bottom/.style={
15893 code={\path [pic actions] (0,-.35)--(0,-.2);}},
15894 pics/natoapp6c/s/weapon/rifle/.style={
15895 code={\path [pic actions] (0.2, 0.1)--(0, 0.35)--(-0.2,0.1);}},
15896 pics/natoapp6c/s/weapon/machine gun/.style={
15897 code={\path [pic actions] (0.2, -0.35)--(-0.2, -0.35);}},
15898 pics/natoapp6c/s/weapon/grenade launcher/.style={
15899 code={\path [pic actions] (0,0) circle (0.1);}},
15900 pics/natoapp6c/s/weapon/missile launcher/.style={
15901 code={%
15902 \path [pic actions] (0.2, 0.15)
15903 to[out=90,in=90,looseness=1.75] (-0.2, 0.15);}},
15904 pics/natoapp6c/s/weapon/non lethal/.style={
15905 code={\path [pic actions] (-.2,.35) -- (.2,.35);}},
15906 pics/natoapp6c/s/weapon/multi fire/.style={
15907 code={\path[pic actions] (.2,-.2)--(.2, .2) (-.2,-.2)--(-.2,0.2);}},
15908 pics/natoapp6c/s/weapon/air defence/.style={
15909 code={%
15910 \path[pic actions] (0.2, -0.4)
15911 to[out=90,in=90,looseness=1.7] (-0.2, -0.4) -- cycle;}},
15912 pics/natoapp6c/s/weapon/anti tank/.style={
15913 code={\path[pic actions] (0.2, -0.4)--(0,-0.2)--(-0.2,-0.4);}},
```

```

15914 pics/natoapp6c/s/weapon/full/.style={
15915   code={%
15916     \pic[draw]{natoapp6c/s/weapon=base};
15917     \pic[draw]{natoapp6c/s/weapon=top};
15918     \pic[draw]{natoapp6c/s/weapon=bottom};}},
15919 pics/natoapp6c/s/weapon/.default=full
15920 }

```



natoapp6c/s/type

(Weight) class of weapons: light, medium, heavy

```

15921 \tikzset{
15922   pics/natoapp6c/s/type/.is choice,
15923   pics/natoapp6c/s/type/light/.style={
15924     code={\path [fill=pgfstrokecolor,pic actions] (-0.2, -0.12) rectangle (.2,-.08);}},
15925   pics/natoapp6c/s/type/medium/.style={
15926     code={
15927       \path [fill=pgfstrokecolor,pic actions]
15928         (-0.2, -0.12) rectangle (.2,-.08)
15929         (-0.2, -0.22) rectangle (.2,-.18);}},
15930   pics/natoapp6c/s/type/heavy/.style={
15931     code={
15932       \path [fill=pgfstrokecolor,pic actions]
15933         (-0.2, -0.12) rectangle (.2,-.08)
15934         (-0.2, -0.22) rectangle (.2,-.18)
15935         (-0.2, -0.32) rectangle (.2,-.28);}},
15936   pics/natoapp6c/s/type/vlight/.style={
15937     code={\path [fill=pgfstrokecolor,pic actions]
15938       (-.025,-0.2) rectangle (.025,.2);}},
15939   pics/natoapp6c/s/type/vmedium/.style={
15940     code={\path [fill=pgfstrokecolor,pic actions]
15941       (-.075,-0.2) rectangle (-.025,.2)
15942       (.025, -0.2) rectangle (.075,.2);}},
15943   pics/natoapp6c/s/type/vheavy/.style={
15944     code={\path [fill=pgfstrokecolor,pic actions]
15945       (-.125,-0.2) rectangle (-.075,.2)
15946       (-.025,-0.2) rectangle (.025,.2)
15947       (.075,-0.2) rectangle (.125,.2);}},
15948   pics/natoapp6c/s/type/.default=light,
15949 }

```

5.6.20 The symbols

Next, we define all the symbols. Note that we define them all as if they are in the `main` section of the symbol, since `top`, `bottom`, and `below` symbols are automatically scaled.



natoapp6c/s/above corps support

```

15950 \tikzset{%

```

```

15951 natoapp6c/s/above corps support/.pic={%
15952   \edef\n@toapp@path{\n@toapp@corps@support{\natoapp@fac}}
15953   \expandafter\path[draw] \n@toapp@path;
15954   \expandafter\path[draw,xscale=-1] \n@toapp@path;},
15955 }

```



natoapp6c/s/air assault with organic lift

```

15956 \tikzset{%
15957   natoapp6c/s/air assault with organic lift/.pic={%
15958     \ifx\n@toapp@hostile\natoapp@fac%
15959     \def\n@toapp@path{(-.75,-.2)--(-.15,-.2)--(0,-.5)--(.15,-.2)--(.75,-.2)}
15960     \else
15961     \def\n@toapp@path{(-.75,-.2)--(-.1,-.2)--(0,-.325)--(.1,-.2)--(.75,-.2)}
15962     \fi
15963     \path[draw] \n@toapp@path;},
15964 }

```



natoapp6c/s/air decoy

```

15965 \tikzset{%
15966   natoapp6c/s/air decoy/.pic={%
15967     \pic[pic actions]{natoapp6c/s/decoy};
15968     \path[fill=pgfstrokelcolor,pic actions] (0.4, -0.2) rectangle (-0.4, -0.15);},
15969 }

```



natoapp6c/s/air assault

```

15970 \tikzset{%
15971   natoapp6c/s/air assault/.pic={%
15972     \path[draw] ([shift={(150:.4)}]0,-.1)--(0,-.1)--([shift={(30:.4)}]0,-.1);},
15973 }

```



natoapp6c/s/air defence

```

15974 \tikzset{%
15975   natoapp6c/s/air defence/.pic={%
15976     \ifx\natoapp@fac\n@toapp@friendly%
15977     \def\n@toapp@opt{[out=90,in=90,looseness=.675]}%
15978     \else\ifx\natoapp@fac\n@toapp@neutral%
15979     \def\n@toapp@opt{[out=90,in=90,looseness=1]}%
15980     \else%
15981     \def\n@toapp@opt{[out=45,in=135,looseness=1.5]}%
15982     \fi\fi%
15983     \edef\n@toapp@path{(M.south west) to\n@toapp@opt (M.south east)}
15984     \path[draw] \n@toapp@path;},

```

15985 }



natoapp6c/s/air strip

```
15986 \tikzset{%
15987   natoapp6c/s/air strip/.pic={%
15988     \path[fill=pgfstrokecolor] (-.4,-.1) rectangle(.4,0);
15989     \path[rotate=45,fill=pgfstrokecolor] (-.4,0) rectangle (.4,.1);
15990   }
15991 }
```



natoapp6c/s/air traffic

```
15992 \tikzset{%
15993   natoapp6c/s/air traffic/.pic={
15994     \path[fill=pgfstrokecolor]
15995       (0.33,0.21)--
15996       (0.33, -0.21)--
15997       (-0.33, 0.21)--
15998       (-0.33,-0.21)--
15999       cycle;},
16000 }
```



natoapp6c/s/airship

```
16001 \tikzset{%
16002   natoapp6c/s/airship/.pic={%
16003     % \path (0.45, 0.175) rectangle (-0.45, -0.175);
16004     \path[pic actions] (0, 0) ellipse (0.45 and 0.15);
16005     \begin{scope}
16006       \clip (0, 0) ellipse (0.45 and 0.15) [reverseclip];
16007       \path[pic actions]
16008         (0.2,0)--(0.3,0.175)--(0.4,0.175)--(0.375,0)
16009         --(0.4,-0.175)--(0.3, -0.175)--cycle;
16010     \end{scope}},
16011 }
```



natoapp6c/s/airborne

```
16012 \tikzset{%
16013   natoapp6c/s/airborne/.pic={%
16014     \ifx\n@to@pp@neutral\natoapp@fac%
16015       \draw (0,-0.05) arc(0:180:0.15);
16016       \draw (0,-0.05) arc(180:0:0.15);
16017     \else%
16018       \draw (0,-0.05) arc(0:180:0.2);
```

```

16019     \draw (0,-0.05) arc(180:0:0.2);
16020     \fi},
16021 }

```



natoapp6c/s/ammunition

```

16022 \tikzset{
16023   natoapp6c/s/ammunition/.pic={\path[draw]
16024     (0.175,-0.175)--(-0.175,-0.175)
16025     (0.125,-0.175)--(0.125, 0) to[out=90,in=90,looseness=2.75]
16026     (-0.125, 0)--(-0.125, -0.175)};},
16027 }

```



natoapp6c/s/amphibious

```

16028 \tikzset{
16029   natoapp6c/s/amphibious/.pic={
16030     \def\n@to@pp@tmp{0}
16031     \ifn@to@pp@below\def\n@to@pp@tmp{- .1}\fi
16032     \ifn@to@pp@mod
16033       \path[draw,shift={(0,\n@to@pp@tmp)}](1.21,0)
16034       to[out=-90,in=-90, looseness=2.25] (1.05, 0)
16035       to[out= 90,in= 90, looseness=2.25] (0.89, 0)
16036       to[out=-90,in=-90, looseness=2.25] (0.73, 0)
16037       to[out= 90,in= 90, looseness=2.25] (0.57, 0)
16038       to[out=-90,in=-90, looseness=2.25] (0.41, 0)
16039       to[out= 90,in= 90, looseness=2.25] (0.25, 0)
16040       to[out=-90,in=-90, looseness=2.25] (0.08, 0)
16041       to[out= 90,in= 90, looseness=2.25] (-0.08, 0)
16042       to[out=-90,in=-90, looseness=2.25] (-0.25, 0)
16043       to[out= 90,in= 90, looseness=2.25] (-0.41, 0)
16044       to[out=-90,in=-90, looseness=2.25] (-0.57, 0)
16045       to[out= 90,in= 90, looseness=2.25] (-0.73, 0)
16046       to[out=-90,in=-90, looseness=2.25] (-0.89, 0)
16047       to[out= 90,in= 90, looseness=2.25] (-1.05, 0)
16048       to[out=-90,in=-90, looseness=2.25] (-1.21, 0)
16049     \else
16050       \path[draw,shift={(0,\n@to@pp@tmp)}](0.73, 0)
16051       to[out= 90,in= 90, looseness=2.25] (0.57, 0)
16052       to[out=-90,in=-90, looseness=2.25] (0.41, 0)
16053       to[out= 90,in= 90, looseness=2.25] (0.25, 0)
16054       to[out=-90,in=-90, looseness=2.25] (0.08, 0)
16055       to[out= 90,in= 90, looseness=2.25] (-0.08, 0)
16056       to[out=-90,in=-90, looseness=2.25] (-0.25, 0)
16057       to[out= 90,in= 90, looseness=2.25] (-0.41, 0)
16058       to[out=-90,in=-90, looseness=2.25] (-0.57, 0)
16059       to[out= 90,in= 90, looseness=2.25] (-0.73, 0)
16060     \fi
16061     ;
16062   },

```


16063 }



natoapp6c/s/amphibious warfare ship

```
16064 \tikzset{%
16065   natoapp6c/s/amphibious warfare ship/.pic={
16066     \pic{natoapp6c/s/warfare vessel};
16067     \path[draw,fill=pgfstrokecolor]
16068       (0.15, 0.05) --
16069       (0.15, 0.2) --
16070       (-0.15, 0.2) --
16071       (-0.15, 0.05) -- cycle
16072       (0, -0.2) rectangle (0.25, -0.175);},
16073 }
```



natoapp6c/s/analysis

```
16074 \tikzset{%
16075   natoapp6c/s/analysis/.pic={
16076     \path[pic actions]
16077       (-0.3,-0.2)--(0.3,-0.2)--(0, -0.4)--cycle (0,-0.2)--(0,0.4);},
16078 }
```



natoapp6c/s/arrest

```
16079 \tikzset{%
16080   natoapp6c/s/arrest/.pic={
16081     \path[pic actions] circle(0.2);
16082     \pic[scale=.8]{natoapp6c/s/individual};},
16083 }
```



natoapp6c/s/artillery

```
16084 \tikzset{%
16085   natoapp6c/s/artillery/.pic={
16086     \path[pic actions] circle(0.2);},
16087 }
```



natoapp6c/s/anti tank anti armour

```
16088 \tikzset{%
16089   natoapp6c/s/anti tank anti armour/.pic={%
16090     \ifx\natoapp@fac\n@to@pp@unknown%
16091     \path[draw,pic actions] (225:.5)--(M.north)--(315:.5);
```

```

16092 \else%
16093 \path[draw,pic actions] (M.south west)--(M.north)--(M.south east);%
16094 \fi},
16095 }

```



natoapp6c/s/antenna

```

16096 \tikzset{%
16097 natoapp6c/s/antenna/.pic={\path[draw]
16098 (0, -0.3) -- (0, 0.3) (-0.125, 0.3) -- (0, 0.2) -- (0.125, 0.3)};},
16099 }

```



natoapp6c/s/armoured

```

16100 \tikzset{%
16101 natoapp6c/s/armoured/.pic={\path[draw]
16102 (-0.275,0.2) arc(90:270:0.2)--(0.275, -0.2) arc(270:450:0.2)--cycle};},
16103 }

```



natoapp6c/s/armoured fighting vehicle

```

16104 \tikzset{%
16105 natoapp6c/s/armoured fighting vehicle/.pic={
16106 \path[fill=pgfstrocolor] (-.4,-.2) rectangle (-.3,.2) (.3,-.2) rectangle (.4,.2);
16107 \path[pic actions] (-.3,0) -- (0,.2) -- (.3,0) -- (0,-.2) -- cycle};},
16108 }

```



natoapp6c/s/armoured personnel carrier

```

16109 \tikzset{%
16110 natoapp6c/s/armoured personnel carrier/.pic={
16111 \pic[sub pic actions,draw]{natoapp6c/s/vehicle};
16112 \path[pic actions] (.35,.15)--(0,.3)--(-.35,.15)};},
16113 }

```



natoapp6c/s/arctic

```

16114 \tikzset{%
16115 natoapp6c/s/arctic/.pic={
16116 \draw (-0.325,0.135) arc(180:270:0.075 and 0.15) --
16117 +(0.5, 0) arc(-90:0:0.075 and 0.15)};},
16118 }

```



natoapp6c/s/automobile

```
16119 \tikzset{%
16120   natoapp6c/s/automobile/.pic={
16121     \begin{scope}
16122       \clip (0.2,-0.15) circle(0.05) (-0.2,-0.15) circle(0.05) [reverseclip];
16123       \path[pic actions]
16124         (0.3, -0.15) --
16125         (-0.3, -0.15) --
16126         (-0.3, 0.025) --
16127         (-0.1, 0.025) --
16128         (-0.1, 0.2) --
16129         (0.1, 0.2) --
16130         (0.1, 0.025) --
16131         (0.3, 0.025) -- cycle
16132         (0.075, 0.025) rectangle (-0.075, 0.175);
16133     \end{scope}
16134     \path[pic actions]
16135       (0.2, -0.15) circle (0.05)
16136       (-0.2, -0.15) circle (0.05);
16137   },
16138 }
```



natoapp6c/s/balloon

```
16139 \tikzset{%
16140   natoapp6c/s/balloon/.pic={%
16141     \path[pic actions] (0, 0.025) circle (0.175);
16142     \begin{scope}
16143       \clip (0, 0.025) circle (0.175) [reverseclip];
16144       \path[pic actions] (-0.05,0) rectangle (0.05,-0.2)--(0.05,0);
16145     \end{scope}},
16146 }
```



natoapp6c/s/bar

```
16147 \tikzset{
16148   natoapp6c/s/bar/.pic={
16149     \path[fill=pgfstrokecolor] (-.3,-.1) rectangle (.3,.1);},
16150 }
```



natoapp6c/s/base

```
16151 \tikzset{
16152   natoapp6c/s/base/.pic={
16153     \path[pic actions] circle(.2);
16154     \path[pic actions]
```

```

16155 (-.2,0) -- (.2,0)
16156 ( 0,-.2) -- (0 ,.2)
16157 (225:.2) -- (45:.2)
16158 (135:.2) -- (-45:.2);
16159 }
16160 }

```



natoapp6c/s/bicycle equipped

```

16161 \tikzset{%
16162 natoapp6c/s/bicycle equipped/.pic={\draw(0,0) circle(.1);},
16163 }

```



natoapp6c/s/boat

```

16164 \tikzset{%
16165 natoapp6c/s/boat/.pic={
16166 \path[pic actions]
16167 (-0.2, -0.2) --
16168 ( 0.2, -0.2) --
16169 ( 0.35, 0.05) --
16170 (-0.15, 0.05) --
16171 (-0.075, 0.2) --
16172 (-0.175, 0.2) --
16173 (-0.25, 0.05) --
16174 (-0.35, 0.05) --
16175 cycle;},
16176 }

```



natoapp6c/s/booby trap

```

16177 \tikzset{%
16178 natoapp6c/s/booby trap/.pic={
16179 \path[draw] (0, -0.2) ellipse(0.2 and 0.065);
16180 \begin{scope}
16181 \clip (0, -0.2) ellipse(0.2 and 0.065) [reverseclip];
16182 \path[draw] (-0.2, -0.2) -- (0, 0.2) -- (0.2, -0.2);
16183 \end{scope}},
16184 }

```



natoapp6c/s/bottomed

```

16185 \tikzset{%
16186 natoapp6c/s/bottomed/.pic={
16187 \path[draw,fill=pgfstrokecolor] (-0.33,.1) rectangle(0.33,.2);},
16188 }

```



natoapp6c/s/bridge

```

16189 \tikzset{%
16190   pics/natoapp6c/s/bridge/.is choice,
16191   pics/natoapp6c/s/bridge/none/.style={
16192     code={\path[pic actions]
16193       (0.35,-0.15)--(0.25,-0.05)--(-0.25,-0.05)--(-0.35,-0.15)
16194       (0.35, 0.15)--(0.25, 0.05)--(-0.25, 0.05)--(-0.35, 0.15);}},
16195   pics/natoapp6c/s/bridge/fixed/.style={
16196     code={\pic{natoapp6c/s/bridge};\pic{natoapp6c/s/type=vlight};}},
16197   pics/natoapp6c/s/bridge/folding/.style={
16198     code={\pic{natoapp6c/s/bridge=none};
16199       \path[draw] (.1,-.2) -- (-.1,-.2) -- (-.1,.2) -- (.1,.2);}},
16200   pics/natoapp6c/s/bridge/hollow/.style={
16201     code={\pic{natoapp6c/s/bridge=none};
16202       \path[draw] (.1,-.2) -- (-.1,-.2) -- (-.1,.2) -- (.1,.2) -- cycle;}},
16203   pics/natoapp6c/s/bridge/.default=none,
16204 }

```



natoapp6c/s/capsule

```

16205 \tikzset{%
16206   natoapp6c/s/capsule/.pic={
16207     \path[pic actions]
16208     ($(0.25, -0.2)!0.1!(0, 0.5)$) --
16209     ($(0.25, -0.2)!0.5!(0, 0.5)$) to[in=75, out=105, looseness=0.75]
16210     ($(0, 0.5)!0.5!(-0.25, -0.2)$) --
16211     ($(0, 0.5)!0.9!(-0.25, -0.2)$) to[in=285, out=255, looseness=0.55]
16212     cycle;},
16213 }

```



natoapp6c/s/carrier

```

16214 \tikzset{%
16215   natoapp6c/s/carrier/.pic={
16216     \pic{natoapp6c/s/warfare vessel};
16217     \path[draw,fill=pgfstrokecolor]
16218     (-0.15, 0.05) --
16219     (-0.15, 0.2) --
16220     (-0.3, 0.2) --
16221     (-0.3, 0.05) -- cycle;},
16222 }

```



natoapp6c/s/chemical biological radiological nuclear

```

16223 \tikzset{%
16224   natoapp6c/s/chemical biological radiological nuclear/.pic={
16225     \path[draw,fill=pgfstrokecolor] (-0.29,0.1) circle(0.096) (0.29,0.1) circle(0.096);
16226     \path[pic actions] (0.15,-0.2) arc(0:90:0.45 and 0.375)
16227     (-0.15,-0.2) arc(180:90:0.45 and 0.375);},
16228 }

```



natoapp6c/s/civilian military cooperation

```

16229 \tikzset{%
16230   natoapp6c/s/civilian military cooperation/.pic={%
16231     \path[draw] (.375,.2)--(-.375,.2)--(-.375,-.025)
16232     to[in=270, out=270, looseness=0.75] (.375,-.025)--cycle;},
16233 }

```



natoapp6c/s/civilian police

```

16234 \tikzset{%
16235   natoapp6c/s/civilian police/.pic={%
16236     \path[draw] (0.225, 0.2)
16237     to[in=270, out=270, looseness=3] (-0.225, 0.2)
16238     to [in=270, out=270, looseness=1.5] (0,0.2)
16239     to [in=270, out=270, looseness=1.5] (0.225, 0.2) -- cycle;},
16240 }

```



natoapp6c/s/civilian telecommunications

```

16241 \tikzset{%
16242   natoapp6c/s/civilian telecommunications/.pic={
16243     \path[draw] (0.075, -0.2){[line join=bevel] -- (0, 0.1) -- (-0.075, -0.2)}
16244     (0.065, -0.05) -- (-0.065, -0.05)
16245     (-0.325, 0.2) -- (-0.15, 0.125) -- (-0.15, 0.175) -- (0, 0.1) -- (0.15, 0.175) -- (0.15, 0.125) -- (0.325, 0.2);},
16246   },
16247 }

```



natoapp6c/s/coast guard vessel

```

16248 \tikzset{%
16249   natoapp6c/s/coast guard vessel/.pic={%
16250     \pic[draw] {natoapp6c/s/ship};
16251     \path[pic actions] (0.15, 0.05) -- (0, -0.2) (0.2, 0.05)--(0.05, -0.2);},
16252 }

```



natoapp6c/s/combat support

```

16253 \tikzset{%
16254   natoapp6c/s/combat support/.pic={%
16255     \path[fill=pgfstrokecolor]
16256       (.15,.2)--(-.15,.2)--(-.15,-.05)--(0,-.2)--(.15,-.05) -- cycle;},
16257 }

```



natoapp6c/s/combattant

```

16258 \tikzset{%
16259   natoapp6c/s/combattant/.pic={%
16260     \begin{scope}[xshift=-4.5, yshift=-5]
16261       \path[pic actions]
16262         (0.3213,0.0534) .. controls (0.3186,0.0295) and (0.3072,0.0136) ..
16263         (0.2925,0.0063) .. controls (0.2777,-0.0010) and (0.2605,0.0001) ..
16264         (0.2461,0.0068) .. controls (0.2317,0.0136) and (0.2198,0.0265) ..
16265         (0.2163,0.0433) .. controls (0.2147,0.0513) and (0.2150,0.0601) ..
16266         (0.2179,0.0694) .. controls (0.1304,0.1129) and (0.0223,0.1961) ..
16267         (0.0013,0.3209) .. controls (0.0601,0.1809) and (0.1770,0.0912) ..
16268         (0.3213,0.0534) -- cycle
16269         (0.2304,0.0633) .. controls (0.2287,0.0570) and (0.2287,0.0513) ..
16270         (0.2298,0.0461) .. controls (0.2323,0.0340) and (0.2409,0.0245) ..
16271         (0.2520,0.0193) .. controls (0.2630,0.0141) and (0.2760,0.0135) ..
16272         (0.2864,0.0186) .. controls (0.2932,0.0220) and (0.2992,0.0277) ..
16273         (0.3033,0.0370) .. controls (0.2845,0.0413) and (0.2597,0.0498) ..
16274         (0.2304,0.0633) -- cycle
16275         (0.1785,0.1137) .. controls (0.2446,0.1612) and (0.3061,0.2300) ..
16276         (0.3214,0.3209) .. controls (0.2864,0.2377) and (0.2310,0.1723) ..
16277         (0.1614,0.1249)
16278         (0.1443,0.1138) .. controls (0.1011,0.0871) and (0.0530,0.0670) ..
16279         (0.0014,0.0535) .. controls (0.0041,0.0295) and (0.0154,0.0136) ..
16280         (0.0302,0.0063) .. controls (0.0449,-0.0010) and (0.0621,0.0001) ..
16281         (0.0765,0.0069) .. controls (0.0909,0.0137) and (0.1028,0.0265) ..
16282         (0.1063,0.0433) .. controls (0.1079,0.0513) and (0.1076,0.0602) ..
16283         (0.1047,0.0694) .. controls (0.1230,0.0785) and (0.1422,0.0893) ..
16284         (0.1613,0.1019)
16285         (0.0928,0.0461) .. controls (0.0903,0.0340) and (0.0816,0.0245) ..
16286         (0.0706,0.0193) .. controls (0.0596,0.0141) and (0.0466,0.0135) ..
16287         (0.0362,0.0186) .. controls (0.0294,0.0220) and (0.0234,0.0277) ..
16288         (0.0193,0.0370) .. controls (0.0381,0.0413) and (0.0629,0.0498) ..
16289         (0.0921,0.0633) --
16290         (0.0921,0.0633) .. controls (0.0938,0.0570) and (0.0938,0.0512) ..
16291         (0.0928,0.0461) -- cycle;
16292     \end{scope}
16293   },
16294 }

```



natoapp6c/s/combined arms

```

16295 \tikzset{%
16296   natoapp6c/s/combined arms/.pic={%

```

```

16297 \path[draw] pic {natoapp6c/s/armoured};
16298 \path[draw] (0.275, 0.2) -- (-0.275, -0.2) (0.275, -0.2) -- (-0.275, 0.2);},
16299 }

```



natoapp6c/s/computer system

```

16300 \tikzset{%
16301 natoapp6c/s/computer system/.pic={
16302 \path[draw,fill=pgfstrokecolor,pic actions]
16303 (-.3, .28) rectangle (.3, .3)
16304 (-.3, -.18) rectangle (.3, -.2)
16305 (-.3, -.18) rectangle (-.3, .28)
16306 (.3, -.18) rectangle (.3, .28)
16307 (-.3, -.3) rectangle (.3, -.28)
16308 (-.05,-.28) rectangle (.05,-.18);},
16309 }

```



natoapp6c/s/control

```

16310 \tikzset{%
16311 natoapp6c/s/control/.pic={
16312 \path[pic actions]
16313 [{Stealth[inset=0pt,scale=0.5]}--{Stealth[inset=0pt,scale=0.5]}]
16314 (0, .2) -- (0, -.2);
16315 \path[pic actions]
16316 [{Stealth[inset=0pt,scale=0.5]}--{Stealth[inset=0pt,scale=0.5]}]
16317 (-.2, 0) -- (.2, 0);},
16318 }

```



natoapp6c/s/convoy

```

16319 \tikzset{%
16320 natoapp6c/s/convoy/.pic={
16321 \path[draw,fill=pgfstrokecolor]
16322 (0.35, 0.175) --
16323 (-0.35, 0.175) --
16324 (-0.35, -0.175) --
16325 (-0.2, -0.175) --
16326 (-0.2, 0.025) --
16327 (0.2, 0.025) --
16328 (0.2, -0.175) --
16329 (0.35, -0.175) -- cycle;},
16330 }

```



natoapp6c/s/corps support


```

16331 \tikzset{%
16332   natoapp6c/s/corps support/.pic={%
16333     \edef\n@toapp@path{\n@toapp@corps@support{\natoapp@fac}}
16334     \expandafter\path[draw] \n@toapp@path;},
16335 }

```



natoapp6c/s/crime

```

16336 \tikzset{%
16337   natoapp6c/s/crime/.pic={\path[draw,dashed] (-.45,.25)--(.45,-.25);},
16338 }

```



natoapp6c/s/decoy

```

16339 \tikzset{%
16340   natoapp6c/s/decoy/.pic={%
16341     \path[fill=pgfstrokecolor,draw,yshift=1.5]
16342       (0.2, 0) -- (0.4, 0.15) -- (0.4, -0.15) -- cycle
16343       (-0.1, 0) -- (0.1, 0.15) -- (0.1, -0.15) -- cycle
16344       (-0.4, 0) -- (-0.2, 0.15) -- (-0.2, -0.15) -- cycle;},
16345 }

```



natoapp6c/s/direct communications

```

16346 \tikzset{%
16347   natoapp6c/s/direct communications/.pic={
16348     \path[draw] (-.35,0) circle(.1) (.35,0) circle(.1);
16349     \pic[fill=pgfstrokecolor]{natoapp6c/s/intermodal};
16350   },
16351 }

```



natoapp6c/s/direction finding

```

16352 \tikzset{%
16353   natoapp6c/s/direction finding/.pic={%
16354     \path[draw] (-.3,.2)--(0,.4)--(.3,.2) (0,.4)--(0,-.4);},
16355 }

```



natoapp6c/s/diving

```

16356 \tikzset{%
16357   pics/natoapp6c/s/diving/.is choice,
16358   pics/natoapp6c/s/diving/none/.style={
16359     code={

```

```

16360 \path[pic actions] (0,0) circle(.1) (0,0) circle(.25);
16361 \begin{scope}
16362 \clip (0,0) circle(.25) [reverseclip];
16363 \path[pic actions] (-.3,-.1) rectangle(.3,.1)
16364 (0,0) -- (-45:.4) -- (-135:.4) -- cycle;
16365 \end{scope}}},
16366 pics/natoapp6c/s/diving/military/.style={
16367 code={
16368 \begin{scope}[even odd rule]
16369 \clip (0,0) circle(0.1)[reverseclip];
16370 \pic[fill=pgfstrokecolor]{natoapp6c/s/diving=none};
16371 \end{scope}
16372 \path[fill=pgfstrokecolor] (0,0) circle(0.08);
16373 }},
16374 pics/natoapp6c/s/diving/.default=none,
16375 }

```



natoapp6c/s/drilling

```

16376 \tikzset{%
16377 natoapp6c/s/drilling/.pic={\path[fill=pgfstrokecolor]
16378 (-0.1,-0.2) -- (0.1,-0.2) -- (0.2, 0.2) -- (-0.2, 0.2) -- cycle;},
16379 }

```



natoapp6c/s/earthmover

```

16380 \tikzset{%
16381 natoapp6c/s/earthmover/.pic={
16382 \pic{natoapp6c/s/tank};
16383 \path[pic actions] (.3,
16384 .3)--(.175,.35)--(-.175,.35)--(-.3,.3)
16385 (0,.2)--(0,.35);
16386 },
16387 }

```



natoapp6c/s/electric power

```

16388 \tikzset{%
16389 natoapp6c/s/electric power/.pic={
16390 \path[pic actions]
16391 (-0.05, 0) .. controls(-0.06, 0.14) ..
16392 ( 0, 0.09) .. controls( 0.03, 0.06) ..
16393 ( 0, 0.06) .. controls(-0.03, 0.06) ..
16394 ( 0, 0.09) .. controls( 0.06, 0.14) ..
16395 (0.05, 0)
16396 ($(-55:0.125) + (0, 0.075)$) arc(-55:235:0.125) arc(415:360:0.05) --
16397 +(0, -0.08) arc(180:360:0.05035) --
16398 +(0, 0.08) arc(180:125:0.05) -- cycle;

```

```
16399 },
16400 }
```



natoapp6c/s/electronic ranging

```
16401 \tikzset{%
16402   natoapp6c/s/electronic ranging/.pic={%
16403     \path[draw] (135:.225) arc (135:315:.225)--cycle (0,0)--(225:-.225)};,
16404 }
```



natoapp6c/s/electronic warfare wide

```
16405 \tikzset{%
16406   natoapp6c/s/electronic warfare wide/.pic={%
16407     % OBS
16408     \node[natoapp6c/text,natoapp6c/normal text] at(-.25,0){E};
16409     \node[natoapp6c/text,natoapp6c/normal text] at(.25,0){W};
16410   },
16411 }
```



natoapp6c/s/engineer

```
16412 \tikzset{%
16413   natoapp6c/s/engineer/.pic={\path[draw]
16414     (.4,-.2)--(.4,.2)--(-.4,.2)--(-.4,-.2) (0,.2)--(0,-.2)};,
16415 }
```



natoapp6c/s/enhanced location reporting system

```
16416 \tikzset{%
16417   natoapp6c/s/enhanced location reporting system/.pic={\path[draw]
16418     (0,-0.3) -- (0,0.3) (-0.2,-.3) -- (0,0.-.1) -- (0.2,-.3)};,
16419 }
```



natoapp6c/s/environmental protection

```
16420 \tikzset{%
16421   natoapp6c/s/environmental protection/.pic={%
16422     \path[draw] (0,0.2)
16423     -- (0.1,0.05)
16424     -- (0.05,0.05)
16425     -- (0.15,-0.05)
16426     -- (0.1,-0.05)
16427     -- (0.2,-0.15)
```

```

16428 -- (0.15, -0.15)
16429 -- (0.05, -0.15)
16430 -- (0.05, -0.2)
16431 -- (-0.05, -0.2)
16432 -- (-0.05, -0.15)
16433 -- (-0.2, -0.15)
16434 -- (-0.1, -0.05)
16435 -- (-0.15, -0.05)
16436 -- (-0.05, 0.05)
16437 -- (-0.1, 0.05)
16438 -- cycle;},
16439 }

```



natoapp6c/s/explosion

```

16440 \tikzset{%
16441   natoapp6c/s/explosion/.pic={%
16442     \node [shape=rectangle,
16443       starburst,
16444       draw,
16445       minimum width=0.9cm,
16446       minimum height=0.9cm,
16447       starburst point height=0.25cm,
16448       starburst points=12] {};},
16449 }

```



natoapp6c/s/finance

```

16450 \tikzset{%
16451   natoapp6c/s/finance/.pic={%
16452     \path[draw] (-.3,-.25) rectangle(.3,0)
16453     (-.3,0) -- ++(60:.28) -- ([shift=(120:.28)].3,0) -- (.3,0);},
16454 }

```



natoapp6c/s/fishing vessel

```

16455 \tikzset{%
16456   natoapp6c/s/fishing vessel/.pic={
16457     \path[pic actions]
16458       (-0.15, -0.2) --
16459       ( 0.15, -0.2) --
16460       ( 0.25, 0.025) --
16461       (-0.05, 0.025) --
16462       (-0.05, 0.125) --
16463       (-0.2,  0.125) --
16464       (-0.2,  0.025) --
16465       (-0.25, 0.025) -- cycle
16466       (0.025, 0.025) -- (0.025, 0.2)

```

```

16467     (0.025, 0.025) -- +(45:0.2);},
16468 }

```



natoapp6c/s/fire protection

```

16469 \tikzset{%
16470   natoapp6c/s/fire protection/.pic={%
16471     \path[fill=pgfstrokecolor] (0,0) circle(.2)
16472     (0,0) -- (60:.3) -- (120:.3) -- cycle
16473     (0,0) -- (-30:.3) -- (30:.3) -- cycle
16474     (0,0) -- (150:.3) -- (210:.3) -- cycle
16475     (0,0) -- (240:.3) -- (300:.3) -- cycle;
16476   },
16477 }

```



natoapp6c/s/fixe d and rotary wing

```

16478 \tikzset{%
16479   natoapp6c/s/fixe d and rotary wing/.pic={%
16480     \path[xscale=.45,yscale=.75,pic actions] pic {natoapp6c/s/fixe d wing};
16481     \path[yscale=.45,xscale=.7,rotate=90, pic actions] pic {
16482       natoapp6c/s/rotary wing};
16483   },
16484 }

```



natoapp6c/s/fixe d wing

```

16485 \tikzset{%
16486   natoapp6c/s/fixe d wing/.pic={
16487     \path[pic actions]
16488     (-0.36,0.125) arc (77:275:0.075 and 0.125) -- (0,0) -- cycle
16489     ( 0.36,0.125) arc (-275:-77:-0.075 and 0.125) -- (0,0)
16490     --cycle;},
16491 }

```



natoapp6c/s/flame thrower

```

16492 \tikzset{%
16493   natoapp6c/s/flame thrower/.pic={
16494     \path[pic actions]
16495     (-0.1, -0.4) -- (-0.1, 0.3) to[out=90,in=90,looseness=2]
16496     (0.1, 0.3) -- (0.1, 0.275);},
16497 }

```



natoapp6c/s/floating

```
16498 \tikzset{%
16499   natoapp6c/s/floating/.pic={
16500     \path[draw]
16501       (-0.5,0.100) --
16502       (-0.417,0.242) --
16503       (-0.333,0.100) --
16504       (-0.250,0.242) --
16505       (-0.167,0.100) --
16506       (-0.083,0.242) --
16507       (0.0,0.100) --
16508       (0.083,0.242) --
16509       (0.167,0.100) --
16510       (0.250,0.242) --
16511       (0.333,0.100) --
16512       (0.417,0.242) --
16513       (0.5,0.100);},
16514   pics/natoapp6c/s/surfaced/.style=natoapp6c/s/floating,
16515 }
```



natoapp6c/s/food

```
16516 \tikzset{%
16517   natoapp6c/s/food/.pic={
16518     \path[pic actions]
16519       (0.075, 0.2) to[out=210, in=150, looseness=1]
16520       (0.075, -0.2) to[out=180, in=180, looseness=1.5]
16521       (0.075, 0.2) -- cycle;},
16522 }
```



natoapp6c/s/fuel

```
16523 \tikzset{%
16524   natoapp6c/s/fuel/.pic={
16525     \path[draw] (0,0) -- (135:.3) -- (45:.3) -- cycle (0,0) -- (0,-.3);},
16526 }
```



natoapp6c/s/grenade launcher

```
16527 \tikzset{%
16528   pics/natoapp6c/s/grenade launcher/.is choice,%
16529   pics/natoapp6c/s/grenade launcher/none/.style={%
16530     code={%
16531       \pic[draw]{natoapp6c/s/rifle};
16532       \pic[draw]{natoapp6c/s/weapon=grenade launcher};}},%
16533   pics/natoapp6c/s/grenade launcher/non lethal/.style={
```

```

16534 code={%
16535 \pic[draw]{natoapp6c/s/non lethal weapon};
16536 \pic[draw]{natoapp6c/s/weapon=grenade launcher};}},
16537 pics/natoapp6c/s/grenade launcher/.default=none,
16538 }

```



natoapp6c/s/graffiti

```

16539 \tikzset{%
16540 natoapp6c/s/graffiti/.pic={
16541 \path[pic actions]
16542 (0.05, 0.2)
16543 arc (90:270:0.05)
16544 arc (450:270:0.05)
16545 arc (90:270:0.05)
16546 arc (450:270:0.05)
16547 (-0.05, 0.2)
16548 arc (90:270:0.05)
16549 arc (450:270:0.05)
16550 arc (90:270:0.05)
16551 arc (450:270:0.05)}},
16552 }

```



natoapp6c/s/group

```

16553 \tikzset{%
16554 natoapp6c/s/group/.pic={
16555 \path(-.23,.05) pic [draw,scale=.8] {natoapp6c/s/individual};
16556 \path(0,-.05) pic [draw,scale=.8] {natoapp6c/s/individual};
16557 \path(.23,.05) pic [draw,scale=.8] {natoapp6c/s/individual}}},
16558 }

```



natoapp6c/s/gun

```

16559 \tikzset{%
16560 pics/natoapp6c/s/gun/.is choice,
16561 pics/natoapp6c/s/gun/base/.style={
16562 code={
16563 \pic[draw]{natoapp6c/s/weapon=base};
16564 \pic[draw]{natoapp6c/s/weapon=top};
16565 \pic[draw]{natoapp6c/s/weapon=multi fire}}},
16566 pics/natoapp6c/s/gun/air defence/.style={
16567 code={
16568 \pic[draw]{natoapp6c/s/gun/base};
16569 \pic[draw]{natoapp6c/s/weapon=air defence}}},
16570 pics/natoapp6c/s/gun/anti tank/.style={
16571 code={
16572 \pic[draw]{natoapp6c/s/gun/base};

```

```

16573     \pic[draw]{natoapp6c/s/weapon/anti tank};}},
16574 pics/natoapp6c/s/gun/direct/.style={
16575     code={
16576     \pic[draw]{natoapp6c/s/gun/base};
16577     \pic[draw]{natoapp6c/s/weapon=bottom};}},
16578 pics/natoapp6c/s/gun/recoilless/.style={
16579     code={
16580     \pic[draw]{natoapp6c/s/rifle};
16581     \pic[yshift=-4,draw]{natoapp6c/s/weapon=multi fire};}},
16582 pics/natoapp6c/s/gun/.default=direct,
16583 }

```



natoapp6c/s/headquarters

```

16584 \tikzset{%
16585   natoapp6c/s/headquarters/.pic={
16586     \path[pic actions] (M.north west) -- ++(0,-.3) --
16587       ([shift=(-90:.3)]M.north east) -- (M.north east) -- cycle;},
16588 }

```



natoapp6c/s/house

```

16589 \tikzset{%
16590   natoapp6c/s/house/.pic={
16591     \path[pic actions]
16592       (-.125,-.175) rectangle (.125,.075)
16593       (-.167,.075) -- (0,.225) -- (.167,.075) -- cycle;},
16594 }

```



natoapp6c/s/howitzer

```

16595 \tikzset{%
16596   natoapp6c/s/howitzer/.pic={
16597     \pic[draw]{natoapp6c/s/weapon=base};
16598     \pic[draw]{natoapp6c/s/weapon=top};
16599     \pic[draw]{natoapp6c/s/weapon=multi fire};
16600     \pic[yshift=-8,draw]{natoapp6c/s/weapon=grenade launcher};
16601   },
16602 }

```



natoapp6c/s/in position

```

16603 \tikzset{%
16604   natoapp6c/s/in position/.pic={
16605     \path[draw,fill=pgfstrokelcolor]
16606       (-.3,-.01) rectangle (-.2,.01) (.2,-.01) rectangle (.3,.01);},

```


16607 }



natoapp6c/s/individual

```
16608 \tikzset{%
16609   natoapp6c/s/individual/.pic={
16610     \path[pic actions]
16611       (0,.08) -- (0,-.3) (-.15,0) -- (.15,0) (0,.18) circle(.1);},
16612 }
```



natoapp6c/s/infantry

```
16613 \tikzset{%
16614   natoapp6c/s/infantry/.pic={
16615     \path[draw] (-.75,.5) -- (.75,-.5) (-.75,-.5) -- (.75,.5);},
16616 }
```



natoapp6c/s/intermodal

```
16617 \tikzset{%
16618   natoapp6c/s/intermodal/.pic={
16619     \path[pic actions]
16620       ( 0.15,  0.025) --
16621       (-0.15,  0.025) --
16622       (-0.15,  0.075) --
16623       (-0.25,  0) --
16624       (-0.15, -0.075) --
16625       (-0.15, -0.025) --
16626       ( 0.15, -0.025) --
16627       ( 0.15, -0.075) --
16628       ( 0.25,  0) --
16629       ( 0.15,  0.075) -- cycle;},
16630 }
```



natoapp6c/s/jagged wave

```
16631 \tikzset{%
16632   natoapp6c/s/jagged wave/.pic={
16633     \draw (0.3, -0.05) --
16634           (0.2,  0.05) --
16635           (0.1, -0.05) --
16636           (0,    0.05) --
16637           (-0.1, -0.05) --
16638           (-0.2,  0.05) --
16639           (-0.3, -0.05);},
16640 }
```



natoapp6c/s/jam

```
16641 \tikzset{%
16642   natoapp6c/s/jam/.pic={%
16643     \path[draw]
16644       (0.75, 0)
16645       to[out=90, in=90, looseness=2.25] ( 0.65, 0)
16646       to[out=-90, in=-90, looseness=2.25] ( 0.55, 0)
16647       to[out=90, in=90, looseness=2.25] ( 0.45, 0)
16648       to[out=-90, in=-90, looseness=2.25] ( 0.35, 0)
16649       to[out=90, in=90, looseness=2.25] ( 0.25, 0)
16650       to[out=-90, in=-90, looseness=2.25] ( 0.15, 0)
16651       to[out=90, in=90, looseness=2.25] ( 0.05, 0)
16652       to[out=-90, in=-90, looseness=2.25] (-0.05, 0)
16653       to[out=90, in=90, looseness=2.25] (-0.15, 0)
16654       to[out=-90, in=-90, looseness=2.25] (-0.25, 0)
16655       to[out=90, in=90, looseness=2.25] (-0.35, 0)
16656       to[out=-90, in=-90, looseness=2.25] (-0.45, 0)
16657       to[out=90, in=90, looseness=2.25] (-0.55, 0)
16658       to[out=-90, in=-90, looseness=2.25] (-0.65, 0)
16659       to[out=90, in=90, looseness=2.25] (-0.75, 0)
16660     };
16661 }
```



natoapp6c/s/jamming

```
16662 \tikzset{%
16663   natoapp6c/s/jamming/.pic={%
16664     \path(0,.4) pic {natoapp6c/s/jam} (0,.26) pic {natoapp6c/s/jam};},
16665 }
```



natoapp6c/s/jetski

```
16666 \tikzset{%
16667   natoapp6c/s/jetski/.pic={
16668     \path[pic actions]
16669       ( 0.3, -0.2) --
16670       (-0.3, -0.2) --
16671       (-0.35, -0.1) --
16672       (-0.1,  0.2) --
16673       ( 0,   0.2) --
16674       ( 0,   0.1) --
16675       (-0.05, 0.1) --
16676       (-0.1, -0.05) --
16677       ( 0.3, -0.05) --
16678       ( 0.3, -0.2) -- cycle;
16679   },
16680 }
```



natoapp6c/s/killing

```

16681 \tikzset{%
16682   natoapp6c/s/killing/.pic={\path[draw] (-.45,.25)--(.45,-.25);},
16683 }

```



natoapp6c/s/labour

```

16684 \tikzset{%
16685   natoapp6c/s/labour/.pic={%
16686     \path[draw] (-.15,.2) -- (.15,.2) (0,.2) -- (0,0)
16687     (-.15,0) -- ++(300:.3) -- ++(60:.3) -- cycle;},
16688 }

```



natoapp6c/s/land mine

```

16689 \tikzset{%
16690   pics/natoapp6c/s/land mine/.is choice,
16691   pics/natoapp6c/s/land mine/personnel/.style={
16692     code={\pic[fill=pgfstrokecolor]{natoapp6c/s/land mine=none};
16693       \path[pic actions] (135:0.35) -- (0, 0) -- (45:0.35);}},
16694   pics/natoapp6c/s/land mine/tank/.style={
16695     code={\pic[fill=pgfstrokecolor]{natoapp6c/s/land mine=none};}},
16696   pics/natoapp6c/s/land mine/none/.style={
16697     code={\path[pic actions] (0,0) circle(0.25);}},
16698   pics/natoapp6c/s/land mine/.default=none,
16699 }

```



natoapp6c/s/land missile

```

16700 \tikzset{%
16701   natoapp6c/s/land missile/.pic={\pic{natoapp6c/s/missile launcher};},
16702 }

```



natoapp6c/s/laser

```

16703 \tikzset{%
16704   natoapp6c/s/laser/.pic={
16705     \path[draw,line join=round,line cap=round,pic actions]
16706     ( 0.1, -0.25) --
16707     (-0.1, -0.225) --
16708     ( 0.1, -0.2) --
16709     (-0.1, -0.175) --
16710     ( 0.1, -0.15) --

```

```

16711 ( 0, -0.1375) --
16712 ( 0, -0.0125) --
16713 (-0.1, 0) --
16714 ( 0.1, 0.025) --
16715 (-0.1, 0.05) --
16716 ( 0.1, 0.075) --
16717 ( 0, 0.0875) --
16718 ( 0, 0.25)
16719 ( 0.1, 0.2) --
16720 ( 0, 0.25) --
16721 (-0.1, 0.2);} ,
16722 }

```



natoapp6c/s/launcher

```

16723 \tikzset{%
16724 natoapp6c/s/launcher/.pic={
16725 \path[draw] (-.3,-.2) -- (.3,.2) -- (.3,-.2);} ,
16726 }

```



natoapp6c/s/laundry

```

16727 \tikzset{%
16728 natoapp6c/s/laundry/.pic={%
16729 \path[draw] (0,-.3) -- (0,.1)
16730 (0,.1) -- ++(150:.25)
16731 (0,.1) -- ++(180:.2)
16732 (0,.1) -- ++(210:.25);} ,
16733 }

```



natoapp6c/s/machine gun

```

16734 \tikzset{%
16735 natoapp6c/s/machine gun/.pic={%
16736 \pic[draw]{natoapp6c/s/rifle};
16737 \pic[draw]{natoapp6c/s/weapon=machine gun};},
16738 }

```



natoapp6c/s/main gun

```

16739 \tikzset{%
16740 natoapp6c/s/main gun/.pic={
16741 \path[pic actions] (M.north west) -- ++(.25,0) --
16742 ([shift=(0:.25)]M.south west) -- (M.south west) -- cycle;} ,
16743 }

```



natoapp6c/s/maintenance

```
16744 \tikzset{%
16745   natoapp6c/s/maintenance/.pic={
16746     \path[fill=pgfstrokecolor]
16747       (-.38,.25)
16748       to[out=0,in=90,looseness=1.5] (-.2,.05) -- (.2,.05)
16749       to [out=90,in=180,looseness=1.5] (.38,.25) -- ++(0,-.08)
16750       to [out=180,in=90,looseness=1.5] (.28,0)
16751       to [out=-90,in=180,looseness=1.5] (.38,-.17) -- ++(0,-.08)
16752       to [out=180,in=-90,looseness=1.5] (.2,-.05) -- (-.2,-.05)
16753       to [out=-90,in=0,looseness=1.5] (-.38,-.25) -- ++(0,.08)
16754       to [out=0,in=-90,looseness=1.5] (-.28,0)
16755       to [out=90,in=0,looseness=1.5] (-.38,.17) -- cycle;
16756   },
16757 }
```



natoapp6c/s/medic

```
16758 \tikzset{%
16759   natoapp6c/s/medic/.pic={
16760     \path[pic actions]
16761       (-0.075,-0.2)
16762       --(0.075,-.2)
16763       --(.075,-.075)
16764       --(.2,-.075)
16765       --(.2,.075)
16766       --(.075,.075)
16767       --(.075,.2)
16768       --(-0.075,.2)
16769       --(-0.075,.075)
16770       --(-.2,.075)
16771       --(-.2,-.075)
16772       --(-.075,-.075)
16773       --cycle;},
16774 }
```



natoapp6c/s/medical

```
16775 \tikzset{%
16776   natoapp6c/s/medical/.pic={\path[draw] (-1,0) -- (1,0) (0,-1) -- (0,1)};,
16777 }
```



natoapp6c/s/medical treatment

```

16778 \tikzset{%
16779   natoapp6c/s/medical treatment/.pic={
16780     \path[draw] (0,0) pic {natoapp6c/s/medical}
16781     ([xscale=.5,shift={(0,-.2)}]M.west) -- ([xscale=.5,shift={(0,.2)}]M.west)
16782     ([xscale=.5,shift={(0,-.2)}]M.east) -- ([xscale=.5,shift={(0,.2)}]M.east)};},
16783 }

```



natoapp6c/s/mine

```

16784 \tikzset{%
16785   natoapp6c/s/mine/.pic={
16786     \path[fill=pgfstrokecolor,draw] (0,0) ellipse(.2 and .15)
16787     (0,0) -- ++(60:.3)
16788     (0,0) -- ++(90:.3)
16789     (0,0) -- ++(120:.3)
16790     (0,0) -- ++(240:.3)
16791     (0,0) -- ++(270:.3)
16792     (0,0) -- ++(300:.3)
16793     };},
16794 }

```



natoapp6c/s/mine clearing equipment

```

16795 \tikzset{%
16796   natoapp6c/s/mine clearing equipment/.pic={
16797     \path[pic actions]
16798     (0, 0.2) -- (0, 0) -- (0.35, -0.2) -- (-0.35, -0.2) -- (0, 0)};},
16799 }

```



natoapp6c/s/mine warfare vessel

```

16800 \tikzset{%
16801   natoapp6c/s/mine warfare vessel/.pic={%
16802     \pic[scale=.8,fill=pgfstrokecolor,yshift=2.5]{natoapp6c/s/sea mine=top half};
16803     \pic {natoapp6c/s/warfare vessel};
16804   },
16805 }

```



natoapp6c/s/missile

```

16806 \tikzset{%
16807   natoapp6c/s/missile/.pic={%
16808     \path[pic actions,draw]
16809     (0, 0.3)
16810     -- (-0.05, 0.2)
16811     -- (-0.05, -0.2)

```

```

16812    -- (-0.125,-0.3)
16813    -- (-0.125,-0.4)
16814    -- (0, -0.265)
16815    -- (0.125,-0.4)
16816    -- (0.125,-0.3)
16817    -- (0.05,-0.2)
16818    -- (0.05,0.2)
16819    -- cycle;},
16820 }

```



natoapp6c/s/missile launcher

```

16821 \tikzset{%
16822   pics/natoapp6c/s/missile launcher/.is choice,
16823   pics/natoapp6c/s/missile launcher/base/.style={
16824     code={
16825       \pic[draw]{natoapp6c/s/weapon=base};
16826       \pic[draw]{natoapp6c/s/weapon=top};
16827       \pic[draw]{natoapp6c/s/weapon=multi fire};
16828       \pic[draw]{natoapp6c/s/weapon=missile launcher};}},
16829   pics/natoapp6c/s/missile launcher/none/.style={
16830     code={
16831       \pic[draw]{natoapp6c/s/missile launcher=base};
16832       \path[pic actions] (-.2,-.2)--(-.2,-.35) (.2,-.2)--(.2,-.35);}},
16833   pics/natoapp6c/s/missile launcher/air defence/.style={
16834     code={
16835       \pic[draw]{natoapp6c/s/missile launcher=none};
16836       \pic[draw]{natoapp6c/s/weapon=air defence};}},
16837   pics/natoapp6c/s/missile launcher/anti tank/.style={
16838     code={
16839       \pic[draw]{natoapp6c/s/missile launcher=base};
16840       \pic[draw]{natoapp6c/s/weapon=anti tank};}},
16841   pics/natoapp6c/s/missile launcher/surface to surface/.style={
16842     code={%
16843       \pic[draw]{natoapp6c/s/missile launcher=none};
16844       \pic[draw]{natoapp6c/s/weapon=bottom};
16845       \pic[draw]{natoapp6c/s/weapon=machine gun};
16846     }},
16847   pics/natoapp6c/s/missile launcher/.default=none,
16848 }

```



natoapp6c/s/mobile advisor and support

```

16849 \tikzset{%
16850   natoapp6c/s/mobile advisor and support/.pic={
16851     \path[draw] (-.35,0) circle(.1) (.35,0) circle(.1);
16852     \path[draw,fill=pgfstrokecolor,pic actions]
16853     ( 0.15,  0.025) --
16854     (-0.25,  0.025) --
16855     (-0.25, -0.025) --

```

```

16856 ( 0.15, -0.025) --
16857 ( 0.15, -0.075) --
16858 ( 0.25, 0) --
16859 ( 0.15, 0.075) -- cycle;},
16860 }

```



natoapp6c/s/moored

```

16861 \tikzset{%
16862 natoapp6c/s/moored/.pic={
16863 \path[draw] (0,.2) -- (0,-.05) (-.3,-.05) -- (.3,-.05);},
16864 }

```



natoapp6c/s/mortar

```

16865 \tikzset{%
16866 natoapp6c/s/mortar/.pic={
16867 \path[draw] (0,-.15) circle(.05) (0,-.1) -- (0,.2)
16868 ([shift=(225:.1)]0,.2) -- (0,.2) -- ([shift=(-45:.1)]0,.2);},
16869 }

```



natoapp6c/s/motorized

```

16870 \tikzset{%
16871 natoapp6c/s/motorized/.pic={\path[draw] (M.north) -- (M.south);},
16872 pics/natoapp6c/s/motorised/.style={natoapp6c/s/motorized},
16873 }

```



natoapp6c/s/mortuary affairs

```

16874 \tikzset{%
16875 natoapp6c/s/mortuary affairs/.pic={
16876 \path[draw] (-.1,-.2) rectangle (.1,.2)
16877 (0,-.17) -- (0,.17) (-.07,.1) -- (.07,.1);},
16878 }

```



natoapp6c/s/mountain

```

16879 \tikzset{%
16880 natoapp6c/s/mountain/.pic={
16881 \path[draw,fill=pgfstrokecolor] (0,.2) -- ++(-60:.7) -- ++(180:.7) -- cycle;
16882 },
16883 }

```




natoapp6c/s/naval

```
16884 \tikzset{%
16885   natoapp6c/s/naval/.pic={
16886     \def\arrow{(0,0) -- (-.02,0) -- ++(60:.04) -- ++(-60:.04) -- cycle}
16887     \begin{scope}[pic actions]
16888       \path[draw]
16889         (0,.13) circle (.08) (-.2,.04) -- (.2,.04) (0,.04)
16890         -- (0,-.25) (210:.25) arc (210:340:.25);
16891       \path[draw,shift=(210:.25),rotate=30] \arrow;
16892       \path[draw,shift=(340:.25),rotate=-30] \arrow;
16893     \end{scope}},
16894 }
```



natoapp6c/s/navigation

```
16895 \tikzset{%
16896   natoapp6c/s/navigation/.pic={
16897     \path[draw]
16898       (.17,-.2) -- (0,.2) -- (-.17,-.2)
16899       ($(-180:.17)+(0,.05)$) arc[radius=.17,start angle=-180,end angle=0];},
16900 }
```



natoapp6c/s/navy task

```
16901 \tikzset{%
16902   natoapp6c/s/navy task/.pic={
16903     \path[pic actions]
16904       (-0.25, -0.2) -- (-0.25, 0.1) -- (-0.15, 0.2)
16905       ( 0.25, -0.2) -- ( 0.25, 0.1) -- ( 0.15, 0.2);},
16906 }
```



natoapp6c/s/non combatant

```
16907 \tikzset{%
16908   natoapp6c/s/non combatant/.pic={
16909     \path[draw,fill=pgfstrokecolor]
16910       (-0.25, -0.2) --
16911       (-0.25, 0.05) --
16912       (-0.15, 0.05) --
16913       (-0.15, 0.2) --
16914       (0.15, 0.2) --
16915       (0.15, 0.05) --
16916       (0.25, 0.05) --
16917       (0.25, -0.2) -- cycle;},
16918 }
```



natoapp6c/s/non lethal weapon

```

16919 \tikzset{%
16920   natoapp6c/s/non lethal weapon/.pic={%
16921     \pic[draw]{natoapp6c/s/weapon};%
16922     \pic[draw]{natoapp6c/s/weapon=non lethal};},
16923 }

```



natoapp6c/s/nuclear

```

16924 \tikzset{%
16925   natoapp6c/s/nuclear/.pic={
16926     \path[fill=pgfstrokecolor,pic actions] (0,0) circle(.05)
16927     (0: .3) arc(0 : 60:.3) -- ( 60:.1) arc( 60: 0: .1) -- cycle
16928     (180:.3) arc(180: 120:.3) -- ( 120:.1) arc( 120: 180:.1) -- cycle
16929     (-60:.3) arc(-60:-120:.3) -- (-120:.1) arc(-120:-60: .1) -- cycle;
16930   },
16931 }

```



natoapp6c/s/observer

```

16932 \tikzset{%
16933   natoapp6c/s/observer/.pic={
16934     \path[pic actions] (0.25,-.2)--(-.25,-.2)--(0,.2)--cycle;},
16935 }

```



natoapp6c/s/orbiter shuttle

```

16936 \tikzset{%
16937   natoapp6c/s/orbiter shuttle/.pic={
16938     \path[pic actions]
16939     ($(0, 0.3)!0.35!(0.125, -0.15)$) --
16940     (0.125, -0.15) -- (-0.125, -0.15) --
16941     ($(-0.125, -0.15)!0.65!(0, 0.3)$)
16942     to[in=105, out=75] cycle
16943     (0, -0.20) -- (0, -0.15); },
16944 }

```



natoapp6c/s/ordnance

```

16945 \tikzset{%
16946   natoapp6c/s/ordnance/.pic={
16947     \path[draw] (0,0) ellipse(.2 and .15);
16948     \begin{scope}

```

```

16949   \clip (0,0) ellipse(.2 and .15) [reverseclip];
16950   \path[draw] (0,0) -- ++(50:.3)
16951     (0,0) -- ++(70:.3)
16952     (0,0) -- ++(110:.3)
16953     (0,0) -- ++(130:.3)
16954     ;
16955   \end{scope}},
16956 }

```



natoapp6c/s/organisation

```

16957 \tikzset{%
16958   pics/natoapp6c/s/organisation/.style={natoapp6c/s/group},
16959 }

```



natoapp6c/s/over snow

```

16960 \tikzset{%
16961   natoapp6c/s/over snow/.pic={
16962     \ifn@to@pp@below%
16963       \draw ([shift={(-.15,.15)}]M.south west) to[in=180, out=270]
16964         ++(.15,-.15) -- (M.south east);
16965     \else%
16966       \draw ([shift={{(.3,.1)}]M.west) to[in=180, out=-90]
16967         ([shift={{(.5,-.1)}]M.west) --
16968         ([shift={{(-.3,-.1)}]M.east);
16969     \fi},
16970 }

```



natoapp6c/s/pack animal

```

16971 \tikzset{%
16972   natoapp6c/s/pack animal/.pic={
16973     \def\n@to@pp@tmp{0}
16974     \ifn@to@pp@below\def\n@to@pp@tmp{-.15}\fi
16975     \path[draw,shift={{(0,\n@to@pp@tmp)}}]
16976     (-.3,-.15) -- (-.15,.15) -- (0,-.15) -- (.15,.15) -- (.3,-.15);},
16977 }

```



natoapp6c/s/patrol

```

16978 \tikzset{%
16979   natoapp6c/s/patrol/.pic={
16980     \pic{natoapp6c/s/warfare vessel};
16981     \path[draw,fill=pgfstrokecolor] (0.125, 0) -- (0, 0.2) -- (-0.125, 0) -- cycle;},
16982 }

```



natoapp6c/s/patrolling

```
16983 \tikzset{%
16984   natoapp6c/s/patrolling/.pic={
16985     % OBS
16986     \path[draw]
16987       (0.25, 0.05) -- (-0.05, 0.05) -- (0.05, -0.05) -- (-0.4, -0.05)
16988       (-0.3, 0) -- (-0.4, -0.05) -- (-0.3, -0.1)
16989       node [natoapp6c/text,natoapp6c/small text,
16990         scale=.5,anchor=west,inner sep=0] at (0.25, 0.05) {P};
16991   },
16992 }
```



natoapp6c/s/physician

```
16993 \tikzset{%
16994   natoapp6c/s/physician/.pic={
16995     \pic{natoapp6c/s/medical};
16996     \path[draw] (0.1, 0.05) -- (-0.1, 0.05);},
16997 }
```



natoapp6c/s/pipeline

```
16998 \tikzset{%
16999   natoapp6c/s/pipeline/.pic={
17000     \path[draw] (-.15,-.15) rectangle (.15,.15)
17001     (-.3,.1) -- (-.15,.1) (-.3,-.1) -- (-.15,-.1)
17002     (.3,.1) -- (.15,.1) (.3,-.1) -- (.15,-.1)
17003     (-.05,.15) rectangle (.05,.25) (-.1,.25) rectangle (.1,.30);},
17004 }
```



natoapp6c/s/poisoning

```
17005 \tikzset{%
17006   natoapp6c/s/poisoning/.pic={
17007     \path[pic actions] (0, 0.055) circle (0.145)
17008     (0.3, 0) -- (-0.3, -0.2)
17009     (-0.3, 0) -- (0.3, -0.2);},
17010 }
```



natoapp6c/s/postal

```
17011 \tikzset{%
17012   natoapp6c/s/postal/.pic={
```

```

17013 \path[draw] (-.25,.25) -- (.08,.25)
17014 to [out=-90,in=120,looseness=1] (.25,-.25)
17015 to [out=150,in=-90,looseness=1] (-.25,.25);
17016 },
17017 }

```



natoapp6c/s/printed media

```

17018 \tikzset{%
17019 natoapp6c/s/printed media/.pic={
17020 \path[pic actions] (0.2, 0) -- (-0.2, 0)
17021 (0, 0.1) circle (0.085)
17022 (0, -0.1) circle (0.085)};
17023 }

```



natoapp6c/s/psychological

```

17024 \tikzset{%
17025 natoapp6c/s/psychological/.pic={
17026 \path[pic actions] (-.25,.15) -- (-.1,.15) -- (.1,.25)
17027 -- ++(0,-.5) -- (-.1,-.15) -- (-.25,-.15) -- cycle
17028 (.1,.15) -- (.25,.15)
17029 (.1,.05) -- (.25,.05)
17030 (.1,-.05) -- (.25,-.05)
17031 (.1,-.15) -- (.25,-.15)};
17032 }

```



natoapp6c/s/quarry

```

17033 \tikzset{%
17034 natoapp6c/s/quarry/.pic={
17035 \path[draw] (-.2,-.2) -- (.18,.18) (.2,-.2) -- (-.18,.18)
17036 (25:.255) arc(25:65:.255)
17037 (115:.255) arc(115:155:.255);
17038 %([shift={(115:.08)}]-.1,.1) arc (115:155:.08)
17039 %([shift={(70:.08)}].1,.1) arc (70:110:.08);
17040 },
17041 }

```



natoapp6c/s/quartermaster

```

17042 \tikzset{%
17043 natoapp6c/s/quartermaster/.pic={
17044 \path[draw] (-.4,.1) -- (.1,.1) (.25,.1) circle(.15)
17045 (-.3,.1) -- (-.3,-.15) (-.15,.1) -- (-.15,-.15)
17046 (-.3,-.08) -- (-.15,-.08)};

```

17047 }



natoapp6c/s/radar

```
17048 \tikzset{%
17049   natoapp6c/s/radar/.pic={%
17050     \path[draw] (-.2,.2) arc (150:300:.25) (-.24,.01) -- (0,.2) --
17051     (0,0) -- (.2,.2)};
17052 }
```



natoapp6c/s/radio

```
17053 \tikzset{%
17054   natoapp6c/s/radio/.pic={%
17055     \path[draw] (-.2,.2) -- (-.13,.25) -- (-.07,.2) -- (0,.25) --
17056     (.07,.2) -- (.13,.25) -- (.2,.2) (0,.25) -- (0,-.05) (0,-.15) circle(.1)};
17057 }
```



natoapp6c/s/radio relay

```
17058 \tikzset{%
17059   natoapp6c/s/radio relay/.pic={%
17060     \path[draw] (-.2,.25) -- (.2,.25) (0,.25) -- (0,-.05) (0,-.15) circle(.1)};
17061 }
```



natoapp6c/s/radio relay line of sight

```
17062 \tikzset{%
17063   natoapp6c/s/radio relay line of sight/.pic={%
17064     \path[draw] (0,0) circle(.2);
17065     \path[fill=pgfstrokecolor] (0,0) -- (45:.2) arc(45:-45:.2) -- cycle;
17066     \path[fill=pgfstrokecolor] (0,0) -- (135:.2) arc(135:225:.2) -- cycle};
17067 }
```



natoapp6c/s/radio teletype

```
17068 \tikzset{%
17069   natoapp6c/s/radio teletype/.pic={%
17070     \path[draw] (-.2,.25) -- (.2,.25) (-.15,.18) -- (.15,.18)
17071     (0,.25) -- (0,-.25)
17072     ([shift=(30:.1)]0,-.15) arc(30:330:.1)};
17073 }
```



natoapp6c/s/railroad

```
17074 \tikzset{%
17075   natoapp6c/s/railroad/.pic={%
17076     \ifn@to@pp@below%
17077       \path[pic actions] (M.south west) -- (M.south east)
17078         ([shift={(.08,-0.08)}]M.south west) circle(.08)
17079         ([shift={(.24,-0.08)}]M.south west) circle(.08)
17080         ([shift={(-.08,-0.08)}]M.south east) circle(.08)
17081         ([shift={(-.24,-0.08)}]M.south east) circle(.08);
17082     \else
17083       \path[pic actions] (-.45,.08) -- (.45,.08)
17084         (-.37,0) circle(0.08)
17085         (-.21,0) circle(0.08)
17086         (.21,0) circle(0.08)
17087         (.37,0) circle(0.08);
17088     \fi
17089   },
17090 }
```



natoapp6c/s/reconnaissance

```
17091 \tikzset{%
17092   natoapp6c/s/reconnaissance/.pic={%
17093     \path[draw] (M.north east)--(M.south west);},
17094 }
```



natoapp6c/s/recovery unmanned systems

```
17095 \tikzset{%
17096   natoapp6c/s/recovery unmanned systems/.pic={%
17097     \path[draw] (-.5,.15) to [out=-80,in=180] (0,-.15) to
17098       [out=0,in=260] (.5,.15);},
17099 }
```



natoapp6c/s/rifle

```
17100 \tikzset{%
17101   natoapp6c/s/rifle/.pic={%
17102     \pic[draw]{natoapp6c/s/weapon=full};
17103     \pic[draw]{natoapp6c/s/weapon=rifle};},
17104 }
```



natoapp6c/s/rising

```

17105 \tikzset{%
17106   natoapp6c/s/rising/.pic={
17107     \path[draw,fill=pgfstrokecolor] (0, 0.2) -- (0, -0.167)
17108     (0.1, -0.2) -- (-0.1, -0.2) -- (0, 0.0)};},
17109 }

```



natoapp6c/s/riverine

```

17110 \tikzset{%
17111   natoapp6c/s/riverine/.pic={%
17112     \ifn@to@pp@below%
17113       \path[pic actions] (M.south west)
17114       to [out=-90,in=-90,looseness=.5] (M.south east) -- cycle;
17115     \else%
17116       \path[pic actions] (-.5,.15) to [out=-80,in=180] (0,-.15) to
17117       [out=0,in=260] (.5,.15) -- cycle;
17118     \fi},
17119 }

```



natoapp6c/s/rocket launcher

```

17120 \tikzset{%
17121   pics/natoapp6c/s/rocket launcher/.is choice,
17122   pics/natoapp6c/s/rocket launcher/base/.style={
17123     code={
17124       \pic[draw]{natoapp6c/s/weapon=base};
17125       \pic[draw]{natoapp6c/s/weapon=rifle};
17126       \pic[yshift=-4,draw]{natoapp6c/s/weapon=rifle};
17127     }},
17128   pics/natoapp6c/s/rocket launcher/anti tank/.style={
17129     code={
17130       \pic[draw]{natoapp6c/s/rocket launcher=base};
17131       \pic[draw]{natoapp6c/s/weapon=anti tank};
17132     }},
17133   pics/natoapp6c/s/rocket launcher/single/.style={
17134     code={
17135       \pic[draw]{natoapp6c/s/rocket launcher=base};
17136       \pic[draw]{natoapp6c/s/weapon=bottom}}},
17137   pics/natoapp6c/s/rocket launcher/multiple/.style={
17138     code={
17139       \pic[draw]{natoapp6c/s/rocket launcher=single};
17140       \pic[yshift=-6,draw]{natoapp6c/s/weapon=multi fire}}},
17141   pics/natoapp6c/s/rocket launcher/single head/.style={
17142     code={%
17143       \pic[yshift=4,draw]{natoapp6c/s/weapon=rifle}}},
17144   pics/natoapp6c/s/rocket launcher/multiple head/.style={
17145     code={
17146       \pic[yshift=-4,draw]{natoapp6c/s/weapon=rifle};
17147       \pic[yshift=-6,draw]{natoapp6c/s/weapon=rifle};
17148     }},

```



```

17149 pics/natoapp6c/s/rocket launcher/.default=single,
17150 }

```



natoapp6c/s/rotary wing

```

17151 \tikzset{%
17152   natoapp6c/s/rotary wing/.pic={
17153     \path[pic actions]
17154       (0.44, 0.15) -- (0.44, -0.15) -- (-0.44, 0.15) -- (-0.44, -0.15) --
17155       cycle;},
17156 }

```



natoapp6c/s/runway

```

17157 \tikzset{%
17158   natoapp6c/s/runway/.pic={%
17159     \path[draw] (-.3,-.15) -- (.3,-.15) (-.2,-.2) -- (.2,.2);},
17160 }

```



natoapp6c/s/sailing boat

```

17161 \tikzset{%
17162   natoapp6c/s/sailing boat/.pic={%
17163     \path[draw]
17164       (-0.15, -0.2) --
17165       ( 0.15, -0.2) --
17166       ( 0.25, -0.025) --
17167       (-0.25, -0.025) -- cycle
17168       ( 0,   -0.025) -- (0, 0.2)
17169       (0.025, 0)   -- (0.025, 0.19) -- (0.225, 0) -- cycle;},
17170 }

```



natoapp6c/s/satellite

```

17171 \tikzset{%
17172   pics/natoapp6c/s/satellite/.is choice,
17173   pics/natoapp6c/s/satellite/none/.style={
17174     code={
17175       \iftikz@mode@fill
17176       \def\n@to@pp@next{\path[draw,fill=pgfstrokecolor,pic actions]}
17177       \else
17178       \def\n@to@pp@next{\path[pic actions]}
17179       \fi
17180       \n@to@pp@next
17181       ( 0.45, 0.075) rectangle ( 0.15, -0.075)
17182       ( 0.075, 0.075) rectangle (-0.075, -0.075)

```

```

17183     (-0.45, 0.075) rectangle (-0.15, -0.075)
17184     ( 0.15, 0) -- (0.075, 0)
17185     (-0.15, 0) -- (-0.075, 0);
17186   }},
17187   pics/natoapp6c/s/satellite/astronomical/.style={
17188     code={
17189       \beginpgroup\tikz@picmode
17190       \pic{natoapp6c/s/satellite=none};
17191       \endpgroup
17192       \path[pic actions]
17193       (0.04, 0.075) rectangle (-0.04, 0.2)
17194       (0.02, -0.075) rectangle (-0.02, -0.2);}},
17195   pics/natoapp6c/s/satellite/bio/.style={
17196     code={
17197       \beginpgroup\tikz@picmode
17198       \pic[yshift=-1]{natoapp6c/s/satellite=none};
17199       \endpgroup
17200       \path[pic actions]
17201       (-0.075, 0.13) circle (0.07)
17202       ($(-0.075, 0.13) + (60:0.07)$) --
17203       ++(-30:0.22) -- ++(0, -0.025) -- (-0.005, 0.13) -- cycle;
17204   }},
17205   pics/natoapp6c/s/satellite/communications/.style={
17206     code={
17207       \beginpgroup\tikz@picmode
17208       \pic[yshift=-1]{natoapp6c/s/satellite=none};
17209       \endpgroup
17210       \path[pic actions]
17211       (0, 0.075) -- (0, 0.125)
17212       (0, 0.125) arc (270:340:0.25 and 0.1)
17213       (0, 0.125) arc (270:200:0.25 and 0.1);
17214   }},
17215   pics/natoapp6c/s/satellite/navigation/.style={
17216     code={
17217       \beginpgroup\tikz@picmode
17218       \pic[yshift=-3.75,scale=.9]{natoapp6c/s/satellite=none};
17219       \endpgroup
17220       \pic[scale=.5,yshift=3.5]{natoapp6c/s/navigation};
17221   }},
17222   pics/natoapp6c/s/satellite/earth observing/.style={
17223     code={
17224       \beginpgroup\tikz@picmode
17225       \pic[yshift=3.75, scale=0.9]{natoapp6c/s/satellite=none};
17226       \endpgroup
17227       \path[pic actions]
17228       (0, 0.065) -- +(315:0.125)
17229       (0, 0.065) -- +(225:0.125)
17230       (0, -0.12) circle (0.08);
17231   }},
17232   pics/natoapp6c/s/satellite/tether/.style={
17233     code={
17234       \beginpgroup\tikz@picmode
17235       \pic[yshift=-3.75, scale=0.9]{natoapp6c/s/satellite=none};

```

```

17236 \endgroup
17237 \path[pic actions]
17238 (0, -0.066) -- +(30:0.3)
17239 (0, -0.066) +(30:0.375) circle(0.075);
17240 }},
17241 pics/natoapp6c/s/satellite/small/.style={
17242 code={
17243 \beginpgfgroup\tikz@picmode
17244 \pic[scale=0.6]{natoapp6c/s/satellite=none};
17245 \endpgfgroup
17246 \path[pic actions]
17247 (0.05, 0.2) -- ( 0, 0.1) -- (-0.05, 0.2)
17248 (0.05, -0.2) -- ( 0, -0.1) -- (-0.05, -0.2)
17249 (-0.4, 0.05) -- (-0.3, 0) -- (-0.4, -0.05)
17250 ( 0.4, 0.05) -- ( 0.3, 0) -- ( 0.4, -0.05);
17251 }},
17252 pics/natoapp6c/s/satellite/reconnaissance/.style={
17253 code={
17254 \pic[yshift=-1,fill=pgfstrokecolor]{natoapp6c/s/satellite=none};
17255 \path[pic actions]
17256 (-0.075, -0.05) -- +(250:0.1)
17257 (-0.025, -0.05) -- +(260:0.1)
17258 ( 0.025, -0.05) -- +(280:0.1)
17259 ( 0.075, -0.05) -- +(290:0.1);
17260 }},
17261 pics/natoapp6c/s/satellite/.default=none,
17262 }

```



natoapp6c/s/sea mine

```

17263 \tikzset{%
17264 pics/natoapp6c/s/sea mine/.is choice,
17265 pics/natoapp6c/s/sea mine/top half/.style={
17266 code={\path[draw,join=bevel,pic actions]
17267 (.2,0) arc(0:35:.2 and .175) --
17268 (42:.34 and .3) -- (48:.34 and .3) --
17269 % ($(45:.1) + (40:.2)$) -- ($(45:.1)+(50:.2)$) --
17270 (55:.2 and .175) arc(50:75:.2 and .175) --
17271 (80:.26 and .23) -- (100:.26 and .23) --
17272 (105:.2 and .175) arc(100:125:.2 and .175) --
17273 (132:.34 and .3) -- (138:.34 and .3) --
17274 % ($(135:.1)+(130:.2)$) -- ($(135:.1)+(140:.2)$) --
17275 (145:.2 and .175) arc(145:180:.2 and .175);
17276 }},
17277 pics/natoapp6c/s/sea mine/bottom half/.style={
17278 code={
17279 \path[pic actions] (.2,0) arc(0:-180:.2);}},
17280 pics/natoapp6c/s/sea mine/full/.style={
17281 code={
17282 \pic[fill=pgfstrokecolor]{natoapp6c/s/sea mine/top half};
17283 \pic[fill=pgfstrokecolor]{natoapp6c/s/sea mine/bottom half};}},
17284 pics/natoapp6c/s/sea mine/neutralised/.style={

```

```

17285 code={
17286   \begin{scope}[even odd rule]
17287     \clip [rotate=42] (-.4,-.015) rectangle (.4,.015) [reverseclip];
17288     \clip [rotate=-42] (-.4,-.015) rectangle (.4,.015) [reverseclip];
17289     \pic {natoapp6c/s/sea mine=full};
17290   \end{scope}
17291 },
17292 pics/natoapp6c/s/sea mine/neutralized/.style=natoapp6c/s/sea mine/neutralised,
17293 pics/natoapp6c/s/sea mine/.default=full,
17294 }

```



natoapp6c/s/seabed installation

```

17295 \tikzset{%
17296   natoapp6c/s/seabed installation/.pic={%
17297     \path[pic actions]
17298       (-0.25, -0.2) --
17299       ( 0.25, -0.2) --
17300       ( 0.25, -0.075) --
17301       ( 0.05, -0.075) --
17302       ( 0.05,  0.025) --
17303       (-0.125, 0.025) --
17304       (-0.125, 0.2)  --
17305       (-0.25,  0.2)  -- cycle;},
17306 }

```



natoapp6c/s/search

```

17307 \tikzset{%
17308   natoapp6c/s/search/.pic={%
17309     \path[draw] (-.3,-.2)--(0,-.4)--(.3,-.2) (0,.4)--(0,-.4);},
17310 }

```



natoapp6c/s/searching

```

17311 \tikzset{%
17312   natoapp6c/s/searching/.pic={%
17313     \path[pic actions]
17314       (-0.4, 0)
17315       arc (180:0:0.1)
17316       arc (180:360:0.1)
17317       arc (180:0:0.1)
17318       arc (180:270:0.1) -- +(0.1, 0)
17319       (0.3, -0.05) -- (0.4, -0.1) -- (0.3, -0.15);},
17320 }

```



natoapp6c/s/semi trailer truck

```
17321 \tikzset{%
17322   natoapp6c/s/semi trailer truck/.pic={
17323     \pic[scale=.75,xshift=-2,draw]{natoapp6c/s/utility vehicle};
17324     \path[pic actions] (0.21, -0.025) -- (0.35, -0.025)
17325       (0.35, 0.05) -- (0.35, -0.1)};},
17326 }
```



natoapp6c/s/sensor

```
17327 \tikzset{%
17328   natoapp6c/s/sensor/.pic={%
17329     \path[fill=pgfstrokecolor] (-.3,0) arc (270:360:.3) arc (180:270:.3) arc
17330       (90:180:.3) arc (0:90:.3)};},
17331 }
```



natoapp6c/s/ship

```
17332 \tikzset{%
17333   natoapp6c/s/ship/.pic={%
17334     \path[pic actions]
17335       (-0.2, -0.2) --
17336       ( 0.2, -0.2) --
17337       ( 0.35, 0.05) --
17338       ( 0.15, 0.05) --
17339       ( 0.15, 0.2) --
17340       (-0.15, 0.2) --
17341       (-0.15, 0.05) --
17342       (-0.35, 0.05) --
17343     cycle};},
17344 }
```



natoapp6c/s/signal

```
17345 \tikzset{%
17346   natoapp6c/s/signal/.pic={%
17347     \path[draw] (M.north west) -- (0,-.1) -- (0,.1) -- (M.south east)};},
17348 }
```



natoapp6c/s/signals intelligence

```
17349 \tikzset{%
17350   natoapp6c/s/signals intelligence/.pic={%
17351     \path[draw] (-.2,.2) -- (-.13,.25) -- (-.07,.2) -- (0,.25) --
```

```

17352 (.07,.2) -- (.13,.25) -- (.2,.2) (0,.25) -- (0,-.2);},
17353 }

```

	natoapp6c/s/ski
--	-----------------

```

17354 \tikzset{%
17355   natoapp6c/s/ski/.pic={
17356     \path[draw] (-.15,-.15) -- (.1,.2) (.15,-.15) -- (-.1,.2)
17357       (-.1,-.2) -- (-.2,-.1)
17358       (.1,-.2) -- (.2,-.1);
17359   },
17360 }


```

	natoapp6c/s/sled
--	------------------

```

17361 \tikzset{%
17362   natoapp6c/s/sled/.pic={
17363     \ifn@to@pp@below%
17364       \draw ([shift={(-.15,.15)}]M.south west) to[in=180, out=-90]
17365         ++(.15,-.15) -- (M.south east) to[in=-90, out=0]
17366         ([shift={(.15,.15)}]M.south east);
17367     \else%
17368       \draw ([shift={(.3,.1)}]M.west) to[in=180, out=-90]
17369         ([shift={(.5,-.1)}]M.west) --
17370         ([shift={(-.5,-.1)}]M.east) to[in=-90, out=0]
17371         ([shift={(-.3,.1)}]M.east);
17372     \fi
17373   },
17374 }

```

	natoapp6c/s/small squashed text
--	---------------------------------

```

17375 \tikzset{%
17376   pics/natoapp6c/s/small squashed text/.style={
17377     code={\n@to@pp@text@smallsquashed{#1};}},
17378 }

```

	natoapp6c/s/small text
--	------------------------

```

17379 \tikzset{%
17380   pics/natoapp6c/s/small text/.style={code={\n@to@pp@text@small{#1};}},
17381 }

```

	natoapp6c/s/sniper
--	--------------------

```

17382 \tikzset{%
17383   natoapp6c/s/sniper/.pic={%
17384     \path[draw] (-.2,.2)--(-.05,.2) (.05,.2)--(.2,.2) (0,.15)--(0,-.2);},
17385 }

```



natoapp6c/s/space station

```

17386 \tikzset{%
17387   natoapp6c/s/space station/.pic={
17388     \path[join=bevel,pic actions]
17389     (-80:.15 and .06) -- (0.025, 0.175) arc(0:180:0.025) -- (-100:.15 and .06)
17390     ($(80:.25 and 0.1)+(0,-.0125)$) arc(80:-260:.25 and .1) --
17391     (-260:.15 and .06) arc (-260:80:.15 and .06) -- cycle
17392     (-82:.25 and .1) -- (0.025, -0.175) arc(360:180:0.025) -- (-98:.25 and .1);
17393   },
17394 }

```



natoapp6c/s/squashed text

```

17395 \tikzset{%
17396   pics/natoapp6c/s/squashed text/.style={code={\n@to@pp@text@squashed{#1};}},
17397 }

```



natoapp6c/s/submarine

```

17398 \tikzset{%
17399   natoapp6c/s/submarine/.pic={
17400     \path[fill=pgfstrokecolor,pic actions]
17401     (0.4, 0) --
17402     (0.25, 0.15) --
17403     (-0.25, 0.15) --
17404     (-0.4, 0) --
17405     (-0.25, -0.15) --
17406     (0.25, -0.15) -- cycle;},
17407 }

```



natoapp6c/s/submersible

```

17408 \tikzset{%
17409   natoapp6c/s/submersible/.pic={
17410     \path[pic actions]
17411     ($(0, -0.05) + (106.6:0.35 and 0.15)$)
17412     arc (106.6:433.4:0.35 and 0.15) |- (0, 0.2) -| cycle;
17413   },
17414 }

```



natoapp6c/s/supply

```
17415 \tikzset{%
17416   natoapp6c/s/supply/.pic={
17417     \path[pic actions]
17418       ($(M.east)-(0,.25)$)--($(M.west)-(0,.25)$);},
17419 }
```



natoapp6c/s/surface combatant

```
17420 \tikzset{%
17421   natoapp6c/s/surface combatant/.pic={
17422     \pic {natoapp6c/s/warfare vessel};
17423     \path[draw,fill=pgfstrokecolor]
17424       (0.12,0.05) --
17425       (0.12,0.14) --
17426       (0.06,0.14) --
17427       (0.06,0.2) --
17428       (0.24,0.2) --
17429       (0.24,0.272) --
17430       (0.06,0.272) --
17431       (0.06,0.35) --
17432       (-0.06,0.35) --
17433       (-0.06,0.272) --
17434       (-0.24,0.272) --
17435       (-0.24,0.2) --
17436       (-0.06,0.2) --
17437       (-0.06,0.14) --
17438       (-0.12,0.14) --
17439       (-0.12,0.05) -- cycle;},
17440 }
```



natoapp6c/s/survey

```
17441 \tikzset{%
17442   natoapp6c/s/survey/.pic={
17443     \path[draw,fill=pgfstrokecolor,pic actions]
17444       (0, -0.1) -- (0, 0.195) -- (0.25, 0.0475) -- cycle;
17445     \path[pic actions] (0.1, -0.2) -- (0, -0.1) -- (-0.1, -0.2);},
17446 }
```



natoapp6c/s/tactical satellite

```
17447 \tikzset{%
17448   natoapp6c/s/tactical satellite/.pic={
17449     \path[fill=pgfstrokecolor,draw]
```



```

17450 (-.3,-.2) rectangle(-.15,.2)
17451 (.15,-.2) rectangle(.3,.2)
17452 (-.075,-.15) rectangle(.075,.15)
17453 (-.15,0) -- (.15,0)
17454 (0,-.15) -- (0,-.3);
17455 \path[draw] (-.2,-.35) to [out=40,in=140,looseness=1] (.2,-.35);}
17456 }

```



natoapp6c/s/tank

```

17457 \tikzset{%
17458   natoapp6c/s/tank/.pic={%
17459     \pic[draw]{natoapp6c/s/vehicle};
17460     \path[pic actions] ( 0.35, 0.2) -- (-0.35, 0.2);}
17461 }

```



natoapp6c/s/text

```

17462 \tikzset{%
17463   pics/natoapp6c/s/text/.style={code={%
17464     \n@to@pp@dbg{3}{Text: '#1'}%
17465     \n@to@pp@text@normal{#1};}},
17466 }

```



natoapp6c/s/topographic

```

17467 \tikzset{%
17468   natoapp6c/s/topographic/.pic={
17469     \path[draw] (0,.05) -- (0,.2)
17470     (0,.05) -- (-.1,-.2)
17471     (0,.05) -- (.1,-.2)
17472     (-30:.15) arc[radius=.15,start angle=-30,end angle=-150];},
17473 }

```




natoapp6c/s/torpedo

```


17474 \tikzset{%
17475   natoapp6c/s/torpedo/.pic={
17476     \path[draw,fill=pgfstrokecolor,pic actions]
17477     (-0.35, 0) --
17478     (-0.3, 0.075) --
17479     ( 0.25, 0.075) --
17480     ( 0.35, -0.075) --
17481     ( 0.35, 0.075) --
17482     ( 0.25, -0.075) --
17483     (-0.3, -0.075) -- cycle;},

```


17484 }

	natoapp6c/s/towed
---	-------------------


```
17485 \tikzset{%
17486   natoapp6c/s/towed/.pic={
17487     \ifn@to@pp@below%
17488       \path[pic actions] (M.south east) -- (M.south west)
17489       ([shift={(.08,0)}]M.south east) circle(.08)
17490       ([shift={(-.08,0)}]M.south west) circle(.08);
17491     \else%
17492       \path[draw] (-.32,0) -- (.32,0) (-.4,0) circle(.08) (.4,0) circle(.08);%
17493     \fi},
17494 }
```

	natoapp6c/s/tracked
---	---------------------

```
17495 \tikzset{%
17496   natoapp6c/s/tracked/.pic={
17497     \ifn@to@pp@below%
17498       \path[pic actions]
17499       ([shift={(.08,-.16)}]M.south west)
17500       arc [radius=.08,start angle=-90,end angle=-270]
17501       -- ([shift={(-.08,0)}]M.south east)
17502       arc [radius=.08,start angle=90,end angle=-90]
17503       -- cycle;
17504     \else%
17505       \path[pic actions]
17506       (-.3,-.1) arc [radius=.1,start angle=-90,end angle=-270]
17507       -- (.3,.1) arc [radius=.1,start angle=90,end angle=-90]
17508       -- cycle;
17509     \fi},
17510 }
```

	natoapp6c/s/train locomotive
---	------------------------------

```
17511 \tikzset{%
17512   natoapp6c/s/train locomotive/.pic={
17513     \path[pic actions]
17514     (.35,-.3)--(-.35,-.3)--(-.35,.3)--(0,.3)--(0,0)--(0.35,0)--cycle;},
17515 }
```

	natoapp6c/s/transportation
---	----------------------------

```
17516 \tikzset{%
17517   natoapp6c/s/transportation/.pic={
```

```

17518 \path[pic actions] (0,0) circle(.2)
17519 (180:.2) -- (0:.2)
17520 (225:.2) -- (45:.2)
17521 (270:.2) -- (90:.2)
17522 (315:.2) -- (135:.2) ;},
17523 }

```



natoapp6c/s/unexploded ordnance

```

17524 \tikzset{%
17525   natoapp6c/s/unexploded ordnance/.pic={
17526     \begin{scope}[transparency group=knockout]
17527       \path[draw,fill=pgfstrokecolor,pic actions] (0,0) circle(.2);
17528       \pic[opacity=0]{natoapp6c/s/small squashed text=UX0};
17529     \end{scope}},
17530 }

```



natoapp6c/s/unmanned

```

17531 \tikzset{%
17532   natoapp6c/s/unmanned/.pic={
17533     \path[pic actions]
17534       (0,-0.1)
17535       --(0.45,0.05)
17536       --(0.45,0.1)
17537       --(0,0.025)
17538       --(-0.45,0.1)
17539       --(-0.45,0.05)
17540       --cycle;},
17541 }

```



natoapp6c/s/utility vehicle

```

17542 \tikzset{%
17543   natoapp6c/s/utility vehicle/.pic={%
17544     \pic[draw]{natoapp6c/s/vehicle};
17545     \path[pic actions]
17546       (0.35, 0.3) to[in=-90, out=-90, looseness=1] (-0.35, 0.3); },
17547 }

```



natoapp6c/s/vehicle

```

17548 \tikzset{%
17549   natoapp6c/s/vehicle/.pic={
17550     \path[pic actions]
17551       (-0.35, 0.2) -- (-0.35, -0.2) -- ( 0.35, -0.2) -- ( 0.35, 0.2)

```

```

17552      (-0.35, -0.2) -- (-0.35, -0.3)
17553      (0.35, -0.2) -- ( 0.35, -0.3)
17554      (-0.35, 0.2) -- (-0.35, 0.3)
17555      (0.35, 0.2) -- ( 0.35, 0.3);}
17556 }

```



natoapp6c/s/video imagery

```

17557 \tikzset{%
17558   natoapp6c/s/video imagery/.pic={
17559     \path[pic actions]
17560       (-0.4, 0.2) -- (-0.4, -0.2) -- (0.05, -0.2) -- (0.2, 0.2) -- cycle
17561       (0.075, -0.15) -- (0.4, -0.15)
17562       (0.16, 0.1) -- (0.4, 0.1);
17563     \path[draw,fill=pgfstrokecolor,pic actions](0.38,-.2) rectangle (0.42,.15);},
17564 }

```



natoapp6c/s/warfare vessel

```

17565 \tikzset{%
17566   natoapp6c/s/warfare vessel/.pic={
17567     \path[draw,fill=pgfstrokecolor] (0, -0.2) -- (0.3, 0.05) -- (-0.3, 0.05) -- cycle;},
17568 }

```



natoapp6c/s/water

```

17569 \tikzset{%
17570   natoapp6c/s/water/.pic={
17571     \path[pic actions]
17572       (-0.3, 0.05) -- (0, 0.05) to[in=90, out=0] (0.3, -0.2)
17573       (0, 0.05) -- (0, 0.2)
17574       (0.075, 0.2) -- (-0.075, 0.2);},
17575 }

```



natoapp6c/s/wheeled

```

17576 \tikzset{%
17577   pics/natoapp6c/s/wheeled/.is choice,
17578   pics/natoapp6c/s/wheeled/and tracked/.style={
17579     code={
17580       \ifn@to@pp@below%
17581         \path[pic actions]
17582           ([shift={(.4,-.16)}]M.south west)
17583           arc [radius=.08,start angle=-90,end angle=-270]
17584           -- ([shift={(-.08,0)}]M.south east)
17585           arc [radius=.08,start angle=90,end angle=-90]

```

```

17586     -- cycle
17587     ([shift={(.08,-.08)}]M.south west) circle(.08);
17588 \else%
17589     \path[pic actions]
17590     (-.1,-.08) arc [radius=.08,start angle=-90,end angle=-270]
17591     -- (.32,.08) arc [radius=.08,start angle=90,end angle=-90]
17592     -- cycle
17593     (-.4,0) circle(0.08);
17594 \fi}},
17595 pics/natoapp6c/s/wheeled/limited/.style={
17596 code={
17597     \ifn@to@pp@below%
17598     \path[pic actions] (M.south west) -- (M.south east)
17599     ([shift={(.08,-.08)}]M.south west) circle(.08)
17600     ([shift={(-.08,-.08)}]M.south east) circle(.08);
17601 \else
17602     \path[pic actions] (-.4,.08) -- (.4,.08)
17603     (-.32,0) circle(0.08) (.32,0) circle(0.08);
17604 \fi}},
17605 pics/natoapp6c/s/wheeled/cross country/.style={
17606 code={\pic{natoapp6c/s/wheeled=limited};
17607     \ifn@to@pp@below%
17608     \path[pic actions] ([shift={(.0,-.08)}]M.south) circle(.08);
17609 \else
17610     \path[pic actions] (0,0) circle(0.08);
17611 \fi}},
17612 pics/natoapp6c/s/wheeled/semi/.style={
17613 code={\pic{natoapp6c/s/wheeled=limited};
17614     \ifn@to@pp@below%
17615     \path[pic actions] ([shift={(.24,-.08)}]M.south west) circle(.08);
17616 \else
17617     \path[pic actions] (-.16,0) circle(0.08);
17618 \fi}},
17619 pics/natoapp6c/s/wheeled/.default=limited,
17620 }

```

5.6.21 Some extra MIL-STD symbols

Extra NATO App6(c) symbol (from MIL-STD)

	natoapp6c/s/prison
---	--------------------

```

17621 \tikzset{%
17622 natoapp6c/s/prison/.pic={
17623 \path[pic actions] (-.3,-.3)rectangle(.3,.3)
17624 (-.23,-.30)--(-.23, .3)
17625 (.23,-.30)--(.23, .3)
17626 (-.08,-.30)--(-.08,-.2)
17627 (-.08,-.15) circle (.05)
17628 (-.08,-.1) --(-.08, .3)
17629 (.08,-.30)--(.08,-.2)

```

```

17630    ( .08,-.15) circle (.05)
17631    ( .08,-.1) --( .08, .3)
17632    (0,.15) circle(.07 and .1);
17633  },
17634 }

```

\n@to@pp@s@ll

A list of all defined symbols

```

17635 \def\n@to@pp@s@ll{
17636   weapon=base,
17637   weapon=top,
17638   weapon=bottom,
17639   weapon=rifle,
17640   weapon=machine gun,
17641   weapon=grenade launcher,
17642   weapon=missile launcher,
17643   weapon=non lethal,
17644   weapon=multi fire,
17645   weapon=air defence,
17646   weapon=anti tank,
17647   weapon=full,
17648   weapon,
17649   type=light,
17650   type=medium,
17651   type=heavy,
17652   type=vlight,
17653   type=vmedium,
17654   type=vheavy,
17655   type,
17656   above corps support,
17657   air assault with organic lift,
17658   air decoy,
17659   air assault,
17660   air defence,
17661   air strip,
17662   air traffic,
17663   airship,
17664   airborne,
17665   ammunition,
17666   amphibious,
17667   amphibious warfare ship,
17668   analysis,
17669   arrest,
17670   artillery,
17671   anti tank anti armour,
17672   antenna,
17673   armoured,
17674   armoured fighting vehicle,
17675   armoured personnel carrier,
17676   arctic,
17677   automobile,
17678   balloon,

```

17679 bar,
17680 base,
17681 bicycle equipped,
17682 boat,
17683 booby trap,
17684 bottomed,
17685 bridge=none,
17686 bridge=fixed,
17687 bridge=folding,
17688 bridge=hollow,
17689 bridge,
17690 capsule,
17691 carrier,
17692 chemical biological radiological nuclear,
17693 civilian military cooperation,
17694 civilian police,
17695 civilian telecommunications,
17696 coast guard vessel,
17697 combat support,
17698 combatant,
17699 combined arms,
17700 computer system,
17701 control,
17702 convoy,
17703 corps support,
17704 crime,
17705 decoy,
17706 direct communications,
17707 direction finding,
17708 diving=none,
17709 diving=military,
17710 diving,
17711 drilling,
17712 earthmover,
17713 electric power,
17714 electronic ranging,
17715 electronic warfare wide,
17716 engineer,
17717 enhanced location reporting system,
17718 environmental protection,
17719 explosion,
17720 finance,
17721 fishing vessel,
17722 fire protection,
17723 fixed and rotary wing,
17724 fixed wing,
17725 flame thrower,
17726 floating,
17727 surfaced,
17728 food,
17729 fuel,
17730 grenade launcher=none,
17731 grenade launcher=non lethal,

17732 grenade launcher,
17733 graffiti,
17734 group,
17735 gun=base,
17736 gun=air defence,
17737 gun=anti tank,
17738 gun=direct,
17739 gun=recoilless,
17740 gun,
17741 headquarters,
17742 house,
17743 howitzer,
17744 in position,
17745 individual,
17746 infantry,
17747 intermodal,
17748 jagged wave,
17749 jam,
17750 jamming,
17751 jetski,
17752 killing,
17753 labour,
17754 land mine=personnel,
17755 land mine=tank,
17756 land mine=none,
17757 land mine,
17758 land missile,
17759 laser,
17760 launcher,
17761 laundry,
17762 machine gun,
17763 main gun,
17764 maintenance,
17765 medic,
17766 medical,
17767 medical treatment,
17768 mine,
17769 mine clearing equipment,
17770 mine warfare vessel,
17771 missile,
17772 missile launcher=base,
17773 missile launcher=none,
17774 missile launcher=air defence,
17775 missile launcher=anti tank,
17776 missile launcher=surface to surface,
17777 missile launcher,
17778 mobile advisor and support,
17779 moored,
17780 mortar,
17781 motorized,
17782 mortuary affairs,
17783 mountain,
17784 naval,

17785 navigation,
17786 navy task,
17787 non combatant,
17788 non lethal weapon,
17789 nuclear,
17790 observer,
17791 orbiter shuttle,
17792 ordnance,
17793 organisation,
17794 over snow,
17795 pack animal,
17796 patrol,
17797 patrolling,
17798 physician,
17799 pipeline,
17800 poisoning,
17801 postal,
17802 printed media,
17803 psychological,
17804 quarry,
17805 quartermaster,
17806 radar,
17807 radio,
17808 radio relay,
17809 radio relay line of sight,
17810 radio teletype,
17811 railroad,
17812 reconnaissance,
17813 recovery unmanned systems,
17814 rifle,
17815 rising,
17816 riverine,
17817 rocket launcher=base,
17818 rocket launcher=anti tank,
17819 rocket launcher=single,
17820 rocket launcher=multiple,
17821 rocket launcher=single head,
17822 rocket launcher=multiple head,
17823 rocket launcher,
17824 rotary wing,
17825 runway,
17826 sailing boat,
17827 satellite=none,
17828 satellite=astronomical,
17829 satellite=bio,
17830 satellite=communications,
17831 satellite=navigation,
17832 satellite=earth observing,
17833 satellite=tether,
17834 satellite=small,
17835 satellite=reconnaissance,
17836 satellite,
17837 sea mine=top half,

17838 sea mine=bottom half,
17839 sea mine=full,
17840 sea mine=neutralised,
17841 sea mine=neutralized,
17842 sea mine,
17843 seabed installation,
17844 search,
17845 searching,
17846 semi trailer truck,
17847 sensor,
17848 ship,
17849 signal,
17850 signals intelligence,
17851 ski,
17852 sled,
17853 small squashed text=TXT,
17854 small text=TXT,
17855 sniper,
17856 space station,
17857 squashed text=TXT,
17858 submarine,
17859 submersible,
17860 supply,
17861 surface combatant,
17862 survey,
17863 tactical satellite,
17864 tank,
17865 text=TXT,
17866 topographic,
17867 torpedo,
17868 towed,
17869 tracked,
17870 train locomotive,
17871 transportation,
17872 unexploded ordnance,
17873 unmanned,
17874 utility vehicle,
17875 vehicle,
17876 video imagery,
17877 warfare vessel,
17878 water,
17879 wheeled=and tracked,
17880 wheeled=limited,
17881 wheeled=cross country,
17882 wheeled=semi,
17883 wheeled
17884 }

A Generate draft VASSAL module

We can use the code you wrote for your game pieces (counters, maps, tables), to generate a draft VASSAL module. To that end, use the document class `wgexport`, and some simple macros to export your graphics to a single PDF. A

provided Python script then processes this to generate the draft VASSAL module. The generated VASSAL module is not the final thing, but it is a good start.

A.1 Example

Suppose we have defined counters and markers like

```
allied 1 id      axis 1 ad      out of supply
allied 2 ad      axis 2 ad      game turn
allied 3 abid    axis 3 ic
```

via Tikz styles. Also assume that we have macros

```
\board \oob \charts \front
```

which produces tikzpictures to the board, OOBs, charts, and cover, respectively. All this is defined in our package `mygame`. Of course that we have our rules in the file `game.pdf`.

We prepare a simple L^AT_EX source file

```
\documentclass{wgexport}
\usepackage{mygame}
\begin{document}
\begin{imagelist} %% Records image meta info
  \chitimages{%
    {allied 1 id,allied 2 ad,allied 3 abid}/Allied,%
    {axis 1 ad,axis 2 ad,axis 3 ic}/Axis,%
    {out of supply, game turn}/Markers}}
  \info{Board}{board}{} \board
  \info{OOB}{oob}{} \oob
  \info{Charts}{chart}{} \chart
  \info{Cover}{front}{} \front
\end{imagelist}
\end{document}
```

When we run L^AT_EX on this, we will get a PDF where each page is a separate image and the page is cropped to image. *In addition* we will get a CSV (comma-separated-values) file `export.csv` which contains some meta information about each page. In particular, it identifies the name of each page, the category, and sub category of the image.

For chits, the name of the image is the style name (e.g., `game turn`). For other images, it is the first argument to `\info` above.

The category is for chits is always `counter`. For other images, it is the second argument to the `\info` macro (e.g., `board`).

The category of an image is important later on when we generate the VASSAL module. Recognised categories are

- `counter` for counter images. Such an image will trigger the creation of a VASSAL game piece.
- `board` for board images. Images of this kind will result in VASSAL board (or Map) elements.

- **oob** for Order of Battle tables. This will also result in a VASSAL map being created, but one that is displayed as a pop-up and with a rectangular grid. This is useful for placing units in an Order of Battle chart.
- **chart** for charts. These images will be made VASSAL charts — i.e., pop-up windows which contains some graphics for the players reference.
- **front** for the cover image. This will become the module splash image. Only one such image (the first) will be used.

Other categories may be used, and the corresponding image will be added to the VASSAL module. However, they will no be processed in any specific way.

The *sub-category* is mainly used for counters. Above, we gave the sub-categories **Allied**, **Axis**, and **Markers**. The sub-categories will help to identify the factions of the game, and counter prototypes will be made for each category. The sub-categories of **board**, **charts**, **oob**, and **front** has no or little effect.

One we have processed the file above to generate our PDF (Say **export.pdf**), then we can process it (and the CSV file) with a Python script to make our draft VASSAL module

```
export.py export.pdf export.csv -o Game.vmod -t Game -v 0.1 \
  -d "My game" -r rules.pdf
```

This will generate the draft module **Game.vmod**. Note that we add the rules (**-r rules.pdf**) to the module so that the module is complete.

Once the module has been generated, one can open it in the VASSAL editor and further customise it. For example, the grids used in the boards needs to be adjusted, and one may want to make initial set-ups or add all counters to the OOB.

Of course, running the Python script will overwrite all changes, so perhaps it is a good idea to work on a copy of the output file.

Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

Symbols			
/chit/factors (key)	<u>13428</u>	/hex/label (key)	<u>951</u>
/chit/full (key)	<u>13428</u>	/hex/ridges (key)	<u>951</u>
/chit/id (key)	<u>13428</u>	/hex/terrain (key)	<u>951</u>
/chit/left (key)	<u>13428</u>	/hex/town (key)	<u>951</u>
/chit/lower left (key)	<u>13428</u>	/natoapp6c (key)	<u>15558</u>
/chit/lower right (key)	<u>13428</u>	/tikz/chit (key)	<u>13459</u>
/chit/right (key)	<u>13428</u>	/tikz/chit/1 factor (key) ..	<u>13742</u>
/chit/setup (key)	<u>13428</u>	/tikz/chit/2 factors (key) ..	<u>13742</u>
/chit/symbol (key)	<u>13428</u>	/tikz/chit/3 factors (key) ..	<u>13742</u>
/chit/upper left (key)	<u>13428</u>	/tikz/chit/4 factors (key) ..	<u>13742</u>
/chit/upper right (key)	<u>13428</u>	/tikz/chit/factor (key)	<u>13742</u>
/hex/extra (key)	<u>951</u>	/tikz/chit/factors (key)	<u>13446</u>
/hex/extra clipped (key)	<u>951</u>	/tikz/chit/full (key)	<u>13446</u>
		/tikz/chit/identifier (key)	<u>13742</u>
		/tikz/chit/left (key)	<u>13446</u>
		/tikz/chit/lower left (key)	<u>13446</u>
		/tikz/chit/lower right (key)	<u>13446</u>
		/tikz/chit/right (key)	<u>13446</u>
		/tikz/chit/setup (key)	<u>13446</u>
		/tikz/chit/small identifier (key)	<u>13742</u>
		/tikz/chit/symbol (key)	<u>13446</u>
		/tikz/chit/upper left (key)	<u>13446</u>
		/tikz/chit/upper right (key)	<u>13446</u>
		/tikz/natoapp6c (key)	<u>15643</u>
		/tikz/natoapp6c/below (key)	<u>15632</u>
		/tikz/natoapp6c/echelon (key)	<u>15632</u>

/tikz/natoapp6c/left (key) ..	15632		
/tikz/natoapp6c/lower (key) ..	15632		
/tikz/natoapp6c/main (key) ..	15632		
/tikz/natoapp6c/modifiers (key)			
.....	15632		
/tikz/natoapp6c/normal text			
(key) ..	15536		
/tikz/natoapp6c/right (key) ..	15632		
/tikz/natoapp6c/small squashed			
text (key) ..	15536		
/tikz/natoapp6c/small text (key)			
.....	15536		
/tikz/natoapp6c/squashed text			
(key) ..	15536		
/tikz/natoapp6c/upper (key) ..	15632		
/tikz/pics/chit/1 factor (key)	13708		
/tikz/pics/chit/2 factors (key)			
.....	13708		
/tikz/pics/chit/2 factors			
artillery (key) ..	13708		
/tikz/pics/chit/3 factors (key)			
.....	13708		
/tikz/pics/chit/4 factors (key)			
.....	13708		
/tikz/pics/chit/identifier (key)			
.....	13708		
/tikz/pics/chit/identifier			
macro (key) ..	13708		
/tikz/pics/chit/small			
identifier (key) ..	13708		
\@@chit@n@to ...	13464 , 13484 , 13486		
\@@info ..	276 , 277		
\@chit@n@to ...	13464 , 13470 , 13482		
\@chit@n@to@ ...	13464 , 13472 , 13474		
\@chits ..	13929 , 13938 , 13939		
\@doublechits ..	13967 , 13979 , 13980		
\@end@chit@n@to	13474 , 13486 , 13612		
\@endwg@node ..	81 , 107 , 1087		
\@endwg@pic ..	40 , 75 , 1061 , 15799		
\@gobble ..	1006 , 13707 , 15847		
\@ifempty ..	647 , 648		
\@ifstar ..	276 , 13853 , 13938 , 13979		
\@ifundefinedcolor ..	227		
\@lbchar ..	260 , 270 , 279 ,		
477 , 493 , 499 , 500 , 503 , 513 ,			
524 , 532 , 557 , 574 , 581 , 603 , 622			
\@rbchar ..			
261 , 271 , 276 , 288 , 478 , 502 ,			
507 , 508 , 518 , 527 , 536 , 543 ,			
558 , 575 , 582 , 595 , 616 , 618 , 634			
\@tabchar ..	257		
\@ ..	14021		
\~ ..	256		
		A	
\addriver ..	15		911 , 13567 , 14158 , 14210 ,
\airassaultmark ..	15869		14243 , 14329 , 14472 , 14527 ,
\airbornemark ..	15866		14560 , 14801 , 14836 , 14867 ,
\AlphaAlpha ..	12847 , 12853		15091 , 15159 , 15203 , 15460
\amphibiousmark ..	15868		\bd@n ..
\anchor ..	858 ,		482 , 593
859 , 860 , 861 , 862 , 863 , 864 ,			\bd@w ..
865 , 866 , 867 , 868 , 869 , 870 ,			536
871 , 872 , 873 , 874 , 875 , 876 ,			\beachhex ..
877 , 878 , 879 , 880 , 881 , 882 ,			12940
893 , 894 , 895 , 896 , 897 , 898 ,			\beginngroup 17 , 229 , 255 , 290 , 330 ,
899 , 900 , 902 , 903 , 904 , 905 ,			425 , 458 , 465 , 472 , 670 , 675 ,
906 , 907 , 908 , 909 , 13527 ,			13062 , 17189 , 17197 , 17207 ,
13528 , 13529 , 13530 , 13531 ,			17217 , 17224 , 17234 , 17243
13532 , 13533 , 13534 , 13535 ,			\behindbackgroundpath ..
13536 , 13537 , 13538 , 13539 ,			15700
13540 , 13541 , 13542 , 13543 ,			\behindforegroundpath ..
13544 , 13545 , 13546 , 13547 ,			912 ,
13548 , 13549 , 13550 , 13551 ,			13578 , 14161 , 14213 , 14246 ,
13552 , 13553 , 13554 , 13557 ,			14272 , 14333 , 14360 , 14415 ,
13560 , 13563 , 14127 , 14128 ,			14475 , 14530 , 14563 , 14589 ,
14129 , 14130 , 14131 , 14132 ,			14672 , 14740 , 14804 , 14843 ,
14133 , 14134 , 14135 , 14136 ,			14875 , 14906 , 14994 , 15054 ,
14137 , 14138 , 14139 , 14183 ,			15098 , 15168 , 15215 , 15245 ,
14184 , 14185 , 14186 , 14187 ,			15336 , 15413 , 15472 , 15780
14188 , 14196 , 14204 , 14230 ,			\bo@rd@frame ..
14231 , 14232 , 14233 , 14234 ,			510 , 511 , 13226 , 13228
14235 , 14236 , 14237 , 14316 ,			\board@odd ..
14317 , 14318 , 14319 , 14320 ,			13307
14321 , 14322 , 14323 , 14445 ,			\board@range ...
14446 , 14447 , 14448 , 14449 ,			13368 , 13369 , 13395
14450 , 14458 , 14466 , 14500 ,			\boardclip ..
14501 , 14502 , 14503 , 14504 ,			15 , 13296 , 13367 , 13399
14505 , 14513 , 14521 , 14547 ,			\boardframe ..
14548 , 14549 , 14550 , 14551 ,			17 , 13221 , 13225
14552 , 14553 , 14554 , 14774 ,			\boardH ..
14775 , 14776 , 14777 , 14778 ,			13057 , 13413
14779 , 14787 , 14795 , 14823 ,			\boardpath ..
14824 , 14825 , 14826 , 14827 ,			13297 , 13400
14828 , 14829 , 14830 , 15142 ,			\boardW ..
15143 , 15144 , 15145 , 15146 ,			13056 , 13407
15147 , 15148 , 15149 , 15150 ,			\boardXmax ..
15151 , 15152 , 15153 , 15194 ,			13293 , 13416
15195 , 15199 , 15451 , 15452 ,			\boardXmin ..
15456 , 15676 , 15677 , 15678 ,			13056 ,
15679 , 15680 , 15681 , 15682 ,			13291 , 13407 , 13415 , 13417
15683 , 15684 , 15685 , 15686 ,			\boardYmax ..
15687 , 15688 , 15689 , 15695			13294 , 13410
\@armouredmark ..	15852		\boardYmin ..
\@artillerymark ..	15854		13057 ,
			13292 , 13409 , 13411 , 13413
			\border ..
			13 , 13032 , 13048
			\border@ ..
			13050 , 13052
			\bottomline ..
			14154 , 14167
			\brigademark ..
			15861
			C
			\c@friendly ..
			14064
			\c@hex@l@c ..
			12843 , 12851 , 12882 , 12884
			\c@hex@l@r ..
			12844 , 12883 , 12884
			\c@hostile ..
			14064
			\c@neutral ..
			14064
			\c@unknown ..
			14064
			\catcode ..
			256 , 258 , 259
			\center ..
			13505 , 13527 , 13605 ,
			14125 , 14135 , 15652 , 15676
			\chit ..
			19 , 308 , 317 ,
			349 , 354 , 363 , 13681 , 13682 ,
			13878 , 13959 , 14000 , 14003 ,
			14029 , 14037 , 14038 , 14039
			\chit@ ..
			13681 , 13684 , 13686
			B
			\backgroundpath ..

12948, 14046, 14047, 14048,
 14049, 14050, 14051, 14052
 hex (key) [961](#)
 Hex keys:
 coords/column [744](#)
 coords/edge [744](#)
 coords/offset [744](#)
 coords/row [744](#)
 coords/vertex [744](#)
 fortress [12909](#)
 fortress 2 [12920](#)
 hex/extra [951](#)
 hex/extra clipped [951](#)
 hex/label [951](#)
 hex/ridges [951](#)
 hex/terrain [951](#)
 hex/town [951](#)
 terrain/clip [1007](#)
 terrain/code [1007](#)
 terrain/image [1007](#)
 terrain/pic [1007](#)
 hex/coords/column (key) [744](#)
 hex/coords/edge (key) [744](#)
 hex/coords/offset (key) [744](#)
 hex/coords/row (key) [744](#)
 hex/coords/vertex (key) [744](#)
 hex/fortress (key) [12909](#)
 hex/fortress 2 (key) [12920](#)
 hex/terrain/beach (key) . [1140](#), [1146](#)
 hex/terrain/city (key) [7508](#)
 hex/terrain/clip (key) [1007](#)
 hex/terrain/code (key) [1007](#)
 hex/terrain/image (key) [1007](#)
 hex/terrain/light woods (key) .
 [1810](#), [1816](#)
 hex/terrain/mountain (key) .. [12631](#)
 hex/terrain/mountains (key) ...
 [5468](#), [5474](#)
 hex/terrain/pic (key) [1007](#)
 hex/terrain/rough (key) . [3921](#), [3927](#)
 hex/terrain/swamp (key) . [3625](#), [3631](#)
 hex/terrain/town (key) [6462](#)
 hex/terrain/town/house (key) . [6138](#)
 hex/terrain/town/road (key) .. [6138](#)
 hex/terrain/town/small road
 (key) [6138](#)
 hex/terrain/tree (key) [12642](#)
 hex/terrain/village (key) ... [6160](#)
 hex/terrain/woods (key) . [2636](#), [2642](#)
 \hex@ [973](#), [975](#), [977](#)
 \hex@@ [973](#), [978](#), [979](#), [981](#)
 \hex@@@ [982](#), [985](#)
 \hex@board@path
 13317, 13323, 13338, 13344,
 13348, 13361, 13364, 13365
 \hex@bot@short@col
 507, 714, 716, 718, 720, 722,
 724, 13262, 13263, 13327, 13350
 \hex@c@name 12778, 12806, 12807, 12810
 \hex@c@namep@rse 12791, 12793
 \hex@c@nameparse 12790, 12807
 \hex@c@node 12794, 12813, 12815
 \hex@c@pic 942, 12774,
 12775, 12804, 12811, 12815
 \hex@c@pos 12776, 12777,
 12805, 12808, 12812, 12815
 \hex@c@tmp 12797, 12803
 \hex@col 747, 748, 797, 799,
 808, 818, 827, 922, 12847,
 12860, 12868, 12880, 12884,
 13232, 13240, 13300, 13305
 \hex@coords@col@fac
 ... 505, 704, 705, 744, 797, 799
 \hex@coords@col@off
 504, 685, 686, 744, 797, 800, 808
 \hex@coords@conv
 794, 830, 13229, 13237
 \hex@coords@reset
 ... [785](#), [786](#), [795](#), [13298](#), [13303](#)
 \hex@coords@row@fac .. 502, 696,
 697, 743, 804, 806, 13259,
 13269, 13279, 13281, 13312
 \hex@coords@row@off
 ... 501, 681, 682, 743, 804, 807
 \hex@dbg 450,
 453, [648](#), 650, 716, 720, 724,
 731, 735, 739, 799, 806, 817,
 831, 832, 913, 934, 946, 971,
 987, 990, 994, 996, 998, 1003,
 1048, 1051, 1060, 1074, 1077,
 1082, 1085, 12709, 12724,
 12754, 12809, 12856, 12866,
 12884, 12890, 12899, 13034,
 13039, 13044, 13049, 13247,
 13266, 13277, 13289, 13308
 \hex@do@label 939, [12888](#), [12889](#)
 \hex@do@ridges ... 931, [12701](#), [12702](#)
 \hex@do@terrain ... 929, [1046](#), [1047](#)
 \hex@do@town 943, [12789](#), [12796](#)
 \hex@dx 661, 837, 838, 839, 840
 \hex@dy 662, 837, 838,
 839, 840, 841, 842, 13086,
 13092, 13103, 13109, 13121,
 13122, 13128, 13130, 13147,
 13153, 13181, 13182, 13186,
 13187, 13200, 13201, 13207
 \hex@e@dx ... 663, 843, 844, 845, 846
 \hex@e@dy ... 664, 843, 844, 845, 846
 \hex@e@xx 658, 663, 832
 \hex@e@yy 659, 664, 832
 \hex@edg 770, 771, 772,
 773, 774, 775, 776, 777, 778,
 779, 780, 781, 782, 814, 816, 821
 \hex@eff@col
 ... 798, 800, 801, 13234, 13242
 \hex@eff@row
 ... 805, 807, 808, 13235, 13243
 \hex@extra
 919, 934, 944, 945, 946, 948, 958
 \hex@extra@clip 917, 932, 933, 936, 960
 \hex@getscale .. [13060](#), [13061](#), [13077](#)
 \hex@got@bot@short
 715, 719, 723, 13261
 \hex@got@short 668
 \hex@got@top@short
 730, 734, 738, 13272
 \hex@l@abs 12841, 12850, [12878](#), 12879
 \hex@l@col 12860, 12862, 12868, 12870
 \hex@l@n@pad 12843,
 12844, 12854, 12862, 12863,
 12870, 12871, [12885](#), 12886
 \hex@l@pos 12875, 12901, 12906
 \hex@l@rot 12877, 12902, 12906
 \hex@l@row 12859, 12863, 12867, 12871
 \hex@l@text 987, 991, 995,
 996, 998, 999, 12837, 12839,
 12842, 12846, 12852, 12857,
 12861, 12869, 12873, 12874,
 12900, 12904, 12905, 12906
 \hex@l@tmp 12891, 12898
 \hex@label 491,
 918, 938, 939, 959, 12890, 12897
 \hex@label@is@namefalse 666
 \hex@make@sextants
 ... [1096](#), 1098, 1138, 1139, 1140
 \hex@max@row
 ... 12821, 12823, 12858, 12859
 \hex@off 751, 752, 813, 816
 \hex@r@p ... 12718, 12721, 12724,
 12726, 12728, 12732, 12734,
 12738, 12740, 12744, 12746,
 12750, 12752, 12754, 12755
 \hex@r@r 12693, 12700,
 12716, 12721, 12726, 12728,
 12732, 12734, 12738, 12740,
 12744, 12746, 12750, 12752
 \hex@r@tmp 12703, 12708, 12709

<code>\hex@radius</code>	660, 834, 835, 836	15679, 15680, 15681, 15682,	14354, 14355, 14356, 14357,
<code>\hex@ridges</code>	915, 930, 931, 956, 12707, 12709	15683, 15684, 15685, 15686,	14358, 14379, 14380, 14381,
<code>\hex@row</code>	749, 750, 804, 806, 819, 826, 921, 12848, 12854, 12859, 12867, 12881, 12884, 13233, 13241, 13301, 13306	15687, 15688, 15691, 15697, 15701, 15793, 15794, 15815	14382, 14383, 14384, 14385, 14386, 14387, 14388, 14389, 14390, 14391, 14392, 14393, 14394, 14395, 14401, 14402, 14403, 14404, 14405, 14406, 14407, 14408, 14409, 14410, 14411, 14412, 14413, 14467, 14468, 14469, 14470, 14471, 14522, 14523, 14524, 14525, 14526, 14555, 14556, 14557, 14558, 14559, 14570, 14571, 14572, 14573, 14574, 14575, 14576, 14577, 14578, 14579, 14580, 14581, 14582, 14583, 14584, 14585, 14586, 14587, 14631, 14632, 14633, 14634, 14635, 14636, 14637, 14638, 14639, 14640, 14641, 14642, 14643, 14644, 14645, 14646, 14647, 14653, 14654, 14655, 14656, 14657, 14658, 14659, 14660, 14661, 14662, 14663, 14664, 14665, 14666, 14667, 14668, 14669, 14670, 14704, 14705, 14706, 14707, 14708, 14709, 14710, 14711, 14712, 14713, 14714, 14715, 14716, 14717, 14718, 14719, 14720, 14726, 14727, 14728, 14729, 14730, 14731, 14732, 14733, 14734, 14735, 14736, 14737, 14738, 14796, 14797, 14798, 14799, 14800, 14831, 14832, 14833, 14834, 14835, 14854, 14855, 14856, 14857, 14858, 14859, 14860, 14861, 14862, 14863, 14864, 14865, 14866, 14887, 14888, 14889, 14890, 14891, 14892, 14893, 14894, 14895, 14896, 14897, 14898, 14899, 14900, 14901, 14902, 14903, 14904, 14952, 14953, 14954, 14955, 14956, 14957, 14958, 14959, 14960, 14961, 14962, 14963, 14964, 14965, 14966, 14967, 14968, 14969, 14975, 14976, 14977, 14978, 14979, 14980, 14981, 14982, 14983, 14984, 14985, 14986, 14987, 14988, 14989, 14990, 14991, 14992, 15018, 15019,
<code>\hex@scale</code>	13077, 13086, 13090, 13091, 13092, 13103, 13107, 13108, 13109, 13121, 13122, 13127, 13128, 13129, 13130, 13144, 13147, 13149, 13151, 13152, 13153, 13181, 13182, 13184, 13186, 13187, 13200, 13201, 13207	<code>\ifchits@reset</code> 13928, 13929, 13940, 13982	
<code>\hex@short@col</code>	667	<code>\ifdim</code> 125, 126, 127, 128	
<code>\hex@t@c</code>	1058, 1063, 1065	<code>\iffalse</code> 1020	
<code>\hex@t@clip</code>	1014, 1055, 1056, 1057, 1059	<code>\ifhex@label@is@name</code> 666, 993	
<code>\hex@t@code</code>	1013, 1054	<code>\ifhex@r@n</code> 12679, 12711, 12723, 12731	
<code>\hex@t@image</code>	1012, 1053, 1071, 1073, 1084	<code>\ifhex@r@e</code> 12678, 12710, 12720, 12725	
<code>\hex@t@pic</code>	1011, 1052, 1070, 1075, 1079	<code>\ifhex@r@nw</code> 12680, 12712, 12730, 12737	
<code>\hex@t@tmp</code>	1049, 1050, 1062, 1063	<code>\ifhex@r@s</code> 12682, 12714, 12742, 12749	
<code>\hex@terrain</code>	914, 928, 929, 955, 1048, 1049	<code>\ifhex@r@se</code> 12683, 12715, 12748	
<code>\hex@terrain@picfalse</code>	6, 8	<code>\ifhex@r@sw</code> 12681, 12713, 12736, 12743	
<code>\hex@terrain@pictrue</code>	10, 654	<code>\ifhex@terrain@pic</code> 5, 653, 1147, 1817, 2643, 3632, 3928, 5475, 6139, 6463, 7509	
<code>\hex@top@short@col</code>	506, 729, 731, 733, 735, 737, 739, 13273, 13274	<code>\ifn@to@pp@below</code> . 15648, 15649, 16031, 16962, 16974, 17076, 17112, 17363, 17487, 17497, 17580, 17597, 17607, 17614	
<code>\hex@town</code>	916, 941, 943, 957, 12802	<code>\ifn@to@pp@isclip</code> 14082, 15210, 15467	
<code>\hex@vtx</code>	754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 811, 813, 820	<code>\ifn@to@pp@mod</code> . 15648, 15650, 16032	
<code>\hex@x</code>	802, 803, 811, 812, 815, 822, 824, 13230, 13238	<code>\ifnatoapp@decoy</code> 15619, 15812	
<code>\hex@x@r</code>	1097	<code>\ifnum</code> 15, 651, 12847, 12858, 12882, 12883, 12887, 13251, 13259, 13269, 13312, 13329, 13352, 13428, 13893, 13903, 13906, 14064	
<code>\hex@xx</code>	655, 656, 661, 831	<code>\iftikz@mode@draw</code> 217, 233	
<code>\hex@y</code>	809, 810, 811, 812, 815, 823, 825, 13231, 13239	<code>\iftikz@mode@fill</code> . 218, 234, 17175	
<code>\hex@yy</code>	655, 657, 658, 659, 662, 808, 816, 831, 13279, 13281	<code>\ifwg@notrelevantforpathsize</code> 114, 124	
<code>\hexboardpath</code>	13365, 13402	<code>\ifwg@oob@inv</code> . . 13823, 13849, 13865	
<code>\hexdbglvl</code>	648, 649, 651, 13251	<code>\ifwg@s@ve</code> 55, 179	
<code>\hexpath</code>	848, 911, 926	<code>\immediate</code> 266, 267, 273	
		<code>\includegraphics</code> 1087	
		<code>\infantrymark</code> 15853	
		<code>\info</code> 275, 306, 315, 347, 352, 361, 487, 492	
		<code>\inheritanchor</code> . . . 14205, 14206, 14207, 14208, 14209, 14238, 14239, 14240, 14241, 14242, 14253, 14254, 14255, 14256, 14257, 14258, 14259, 14260, 14261, 14262, 14263, 14264, 14265, 14266, 14267, 14268, 14269, 14270, 14324, 14325, 14326, 14327, 14328, 14341, 14342, 14343, 14344, 14345, 14346, 14347, 14348, 14349, 14350, 14351, 14352, 14353,	
I			
<code>\id</code>	604, 623, 13510, 13515, 13517, 13536, 13537, 13538, 13539, 13540, 13541, 13542, 13543, 13544, 13545, 13546, 13547, 13548, 13549, 13552, 13553, 13580, 13608, 15653, 15658, 15660, 15662, 15677, 15678,		

15020, 15021, 15022, 15023,	14491, 14543, 14569, 14630,	13511, 13519, 13525, 13580,
15024, 15025, 15026, 15027,	14652, 14703, 14725, 14768,	13581, 13582, 13583, 13584,
15028, 15029, 15030, 15031,	14821, 14853, 14886, 14951,	13585, 13586, 13587, 13588,
15032, 15033, 15034, 15040,	14974, 15017, 15039, 15077,	13589, 13590, 13611, 13739,
15041, 15042, 15043, 15044,	15138, 15179, 15226, 15294,	13804, 14080, 14096, 14097,
15045, 15046, 15047, 15048,	15316, 15372, 15394, 15436	14101, 14102, 15654, 15662,
15049, 15050, 15051, 15052,	<code>\init</code> 847, 911, 924, 14140, 14159, 14162	15669, 15674, 15701, 15702,
15078, 15079, 15080, 15081,	<code>\innernortheast</code>	15703, 15704, 15705, 15706,
15082, 15083, 15084, 15085,	15109, 15116, 15123, 15130,	15707, 15708, 15709, 15710,
15086, 15087, 15088, 15089,	15139, 15142, 15143, 15144,	15711, 15712, 15713, 15743,
15090, 15154, 15155, 15156,	15145, 15161, 15170, 15194,	15782, 15783, 15784, 15785
15157, 15158, 15180, 15181,	15197, 15201, 15205, 15217,	<code>\mk@bb</code>
15182, 15183, 15184, 15185,	15247, 15338, 15415, 15451,	421, 526, 541
15186, 15187, 15188, 15189,	15454, 15458, 15462, 15474	<code>\mk@get@anchor</code> ..
15190, 15191, 15192, 15193,		379, 403, 406, 452
15227, 15228, 15229, 15230,		<code>\mk@get@global@anchor</code> 385, 443, 445
15231, 15232, 15233, 15234,		<code>\mk@i</code>
15235, 15236, 15237, 15238,		265, 270, 284, 285, 287,
15239, 15240, 15241, 15242,		414, 415, 416, 417, 418, 419,
15243, 15295, 15296, 15297,		423, 424, 444, 446, 477, 478,
15298, 15299, 15300, 15301,		485, 493, 494, 496, 497, 499,
15302, 15303, 15304, 15305,		500, 501, 502, 503, 504, 505,
15306, 15307, 15308, 15309,		506, 507, 508, 513, 514, 515,
15310, 15311, 15317, 15318,		516, 517, 518, 524, 527, 532,
15319, 15320, 15321, 15322,		533, 534, 542, 543, 557, 574,
15323, 15324, 15325, 15326,		581, 593, 594, 595, 603, 604,
15327, 15328, 15329, 15330,		605, 606, 607, 608, 609, 610,
15331, 15332, 15333, 15334,		611, 612, 613, 614, 616, 618,
15373, 15374, 15375, 15376,		622, 623, 624, 625, 626, 627,
15377, 15378, 15379, 15380,		628, 629, 630, 631, 632, 633, 634
15381, 15382, 15383, 15384,		<code>\mk@label</code>
15385, 15386, 15387, 15388,		491, 497
15389, 15395, 15396, 15397,		<code>\mk@out</code>
15398, 15399, 15400, 15401,		264, 266, 267, 273
15402, 15403, 15404, 15405,		<code>\mk@point</code>
15406, 15407, 15408, 15409,		483, 484, 555, 556, 557, 559,
15410, 15411, 15437, 15438,		572, 573, 574, 576, 579, 580, 581
15439, 15440, 15441, 15442,		<code>\mk@pos</code>
15443, 15444, 15445, 15446,		449, 486
15447, 15448, 15449, 15450		<code>\mk@transform</code>
		410, 525, 535
<code>\inheritbackgroundpath</code>		<code>\mk@w</code>
..... 14271, 14359, 14396,		266, 268, 270, 272,
14414, 14588, 14648, 14671,		279, 280, 281, 282, 283, 288,
14721, 14739, 14905, 14970,		414, 415, 416, 417, 418, 419,
14993, 15035, 15053, 15244,		423, 424, 444, 446, 477, 478,
15312, 15335, 15390, 15412		493, 496, 497, 499, 500, 501,
<code>\inheritbehindbackgroundpath</code> 14971		502, 503, 504, 505, 506, 507,
<code>\inheritbehindforegroundpath</code> .		508, 513, 514, 515, 516, 517,
..... 14397, 14649,		518, 524, 527, 532, 543, 557,
14722, 15036, 15313, 15391		574, 581, 593, 595, 603, 604,
<code>\inheritssavedanchors</code>		605, 606, 607, 608, 609, 610,
14177, 14226, 14252, 14312,		611, 612, 613, 614, 616, 618,
14340, 14378, 14400, 14439,		622, 623, 624, 625, 626, 627,
		628, 629, 630, 631, 632, 633, 634
		<code>\mountaineermark</code>
		15864
		<code>\mountainhex</code>
		12938
		<code>\multiply</code>
		12882, 12883
		<code>\mxx</code>
		411, 414
		<code>\mxy</code>
		411, 415
		<code>\myx</code>
		411, 416

`\my` 411, 417

N
`\n@to@friendly@cir`
... 14171, 14211, 14214, 14417
`\n@to@friendly@l@nd` 14218,
14244, 14247, 14274, 14362
`\n@to@friendly@sub`
..... 14433, 14473, 14476
`\n@to@hostile@cir`
... 14480, 14528, 14531, 14742
`\n@to@hostile@l@nd` 14535,
14561, 14564, 14591, 14674
`\n@to@hostile@sub` 14757, 14802, 14805
`\n@to@pp` 15838, 15839, 15840
`\n@to@pp@act@w` 14075,
14278, 14279, 14595, 14596,
14917, 14918, 15259, 15260
`\n@to@pp@belowfalse`
..... 15649, 15716, 15811
`\n@to@pp@belowtrue` 15805
`\n@to@pp@cliptoken` ... 14078, 14081
`\n@to@pp@dbg` 13525, 14056, 14063,
15654, 15662, 15669, 15674,
15690, 15696, 15701, 15718,
15725, 15736, 15743, 15749,
15781, 15788, 15793, 15814,
15832, 15837, 15843, 17464
`\n@to@pp@e@b`
... 15484, 15504, 15507, 15510
`\n@to@pp@e@d`
... 15483, 15495, 15498, 15501
`\n@to@pp@e@x` 15486, 15513, 15516,
15519, 15522, 15525, 15528
`\n@to@pp@e@y` 15481, 15483, 15485,
15487, 15489, 15692, 15800
`\n@to@pp@e@yy` 15482, 15488, 15490,
15698, 15808, 15819, 15820
`\n@to@pp@friendly` 14117, 15878, 15976
`\n@to@pp@hostile` 14118, 15879, 15958
`\n@to@pp@inst@h`
14074, 14366, 14679, 14691,
15005, 15352, 15354, 15355
`\n@to@pp@inst@x` 14073,
14368, 14369, 14370, 14371,
14693, 14694, 14695, 14696,
15007, 15008, 15009, 15010,
15362, 15363, 15364, 15365
`\n@to@pp@isclip` 14077, 14079
`\n@to@pp@isclipfalse` . 14082, 15727
`\n@to@pp@iscliptrue` 15724
`\n@to@pp@modfalse` 15650, 15715, 15775
`\n@to@pp@modtrue` 15748

`\n@to@pp@neutr@l@bottom`
..... 14814, 14872, 14880,
14912, 15000, 15095, 15102
`\n@to@pp@neutr@l@init`
..... 14809, 14837,
14844, 14868, 14876, 14908,
14996, 15056, 15092, 15099
`\n@to@pp@neutr@l@left`
..... 14811, 14841,
14848, 14871, 14879, 14911,
14999, 15060, 15094, 15101
`\n@to@pp@neutr@l@one` 14816, 14869,
14877, 14909, 14997, 15063
`\n@to@pp@neutr@l@nw`
..... 14815, 15093, 15100
`\n@to@pp@neutr@l@right`
..... 14812, 14839,
14846, 15058, 15096, 15103
`\n@to@pp@neutr@l@se`
... 14817, 14838, 14845, 15057
`\n@to@pp@neutr@l@sw` 14818
`\n@to@pp@neutr@l@top` ... 14813,
14840, 14847, 14870, 14878,
14910, 14998, 15059, 15064
`\n@to@pp@neutral`
... 14119, 15880, 15978, 16014
`\n@to@pp@next` .. 17176, 17178, 17180
`\n@to@pp@r` 14077,
14122, 14179, 14180, 14181,
14182, 14228, 14229, 14314,
14315, 14424, 14425, 14426,
14427, 14441, 14442, 14443,
14444, 14493, 14494, 14496,
14497, 14499, 14545, 14546,
14748, 14749, 14750, 14751,
14770, 14771, 14772, 14773,
14822, 15139, 15140, 15141
`\n@to@pp@restore@fill`
..... 14084, 14099, 14114
`\n@to@pp@s@ll` 17634, 17635
`\n@to@pp@s@ved@fill@color`
14082, 14084, 14090, 14096,
14101, 14104, 14105, 14107
`\n@to@pp@s@ved@stroke@color` ..
..... 14082, 14083, 14087,
14093, 14097, 14102, 14108
`\n@to@pp@s@pace@h` 14076,
14422, 14746, 15066, 15424
`\n@to@pp@s@troke@to@fill`
..... 14084, 14085, 14112
`\n@to@pp@text@normal`
... 15550, 15551, 15884, 17465

`\n@to@pp@text@small`
..... 15550, 15555, 17380
`\n@to@pp@text@smallsquashed` ..
..... 15550, 15557, 17377
`\n@to@pp@text@squashed`
..... 15550, 15553, 17396
`\n@to@pp@tmp` 16030, 16031, 16033,
16050, 16973, 16974, 16975
`\n@to@pp@unknown` 14120, 15881, 16090
`\n@to@pp@unknown@bottom`
..... 15122, 15166, 15175,
15253, 15344, 15465, 15477
`\n@to@pp@unknown@init`
..... 15107, 15160,
15169, 15204, 15216, 15246,
15337, 15414, 15461, 15473
`\n@to@pp@unknown@left`
..... 15115, 15165,
15174, 15209, 15221, 15252,
15343, 15420, 15464, 15476
`\n@to@pp@unknown@right`
..... 15129, 15163,
15172, 15207, 15219, 15250,
15341, 15418, 15466, 15478
`\n@to@pp@unknown@top` ... 15108,
15164, 15173, 15208, 15220,
15251, 15342, 15349, 15419
`\n@to@pp@font` 15537,
15546, 15547, 15548, 15549
`\n@toapp` 15834, 15835, 15836
`\n@toapp@corps@sup@friendly` ..
..... 15871, 15872, 15878
`\n@toapp@corps@sup@hostile` ...
..... 15871, 15874, 15879
`\n@toapp@corps@sup@neutral` ...
..... 15871, 15875, 15880
`\n@toapp@corps@sup@unknown` ...
..... 15871, 15876, 15881
`\n@toapp@corps@support`
... 15876, 15877, 15952, 16333
`\n@toapp@opt`
... 15977, 15979, 15981, 15983
`\n@toapp@path` 15952, 15953,
15954, 15959, 15961, 15963,
15983, 15984, 16333, 16334
`\name` 13698, 15841, 15842, 15844
NATO App6(c) frame:
natoapp6c 15650
natoapp6c base 14120
natoapp6c friendly activity
..... 14250
natoapp6c friendly air .. 14170

natoapp6c friendly equipment	14310	command	15583	civilian telecommunications	16240
natoapp6c friendly installation	14338	ech	15563	coast guard vessel	16247
natoapp6c friendly land ..	14217	echolon	15598	combat support	16252
natoapp6c friendly sea surface	14376	fac	15563	combatant	16257
natoapp6c friendly space ..	14398	faction	15570	combined arms	16294
natoapp6c friendly sub surface	14432	frame	15618	computer system	16299
natoapp6c hostile activity	14567	id	15563	control	16309
natoapp6c hostile air ..	14479	left	15618	convoy	16318
natoapp6c hostile equipment	14628	main	15618	corps support	16330
natoapp6c hostile installation	14650	natoapp6c	15558	crime	16335
natoapp6c hostile land ..	14534	right	15618	decoy	16338
natoapp6c hostile sea surface	14701	top	15618	direct communications ..	16345
natoapp6c hostile space ..	14723	NATO App6(c) symbols:		direction finding	16351
natoapp6c hostile sub surface	14756	above corps support	15949	diving	16355
natoapp6c neutral activity	14884	air assault	15969	drilling	16375
natoapp6c neutral air ..	14819	air assault with organic lift	15955	earthmover	16379
natoapp6c neutral equipment	14949	air decoy	15964	electric power	16387
natoapp6c neutral installation	14972	air defence	15973	electronic ranging	16400
natoapp6c neutral land ..	14851	air strip	15985	electronic warfare wide ..	16404
natoapp6c neutral sea surface	15015	air traffic	15991	engineer	16411
natoapp6c neutral space ..	15037	airborne	16011	enhanced location reporting system	16415
natoapp6c neutral sub surface	15075	airship	16000	environmental protection ..	16419
natoapp6c unknown activity	15224	ammunition	16021	explosion	16439
natoapp6c unknown air ..	15177	amphibious	16027	finance	16449
natoapp6c unknown equipment	15292	amphibious warfare ship ..	16063	fire protection	16468
natoapp6c unknown installation	15314	analysis	16073	fishing vessel	16454
natoapp6c unknown land ..	15136	antenna	16095	fixed and rotary wing ..	16477
natoapp6c unknown sea surface	15370	anti tank anti armour ..	16087	fixed wing	16484
natoapp6c unknown space ..	15392	arctic	16113	flame thrower	16491
natoapp6c unknown sub surface	15434	armoured	16099	floating	16497
NATO App6(c) keys:		armoured fighting vehicle ..	16103	food	16515
below	15618	armoured personnel carrier	16108	fuel	16522
bottom	15618	arrest	16078	graffiti	16538
cmd	15563	artillery	16083	grenade launcher	16526
		automobile	16118	group	16552
		balloon	16138	gun	16558
		bar	16146	headquarters	16583
		base	16150	house	16588
		bicycle equipped	16160	howitzer	16594
		boat	16163	in position	16602
		booby trap	16176	individual	16607
		bottomed	16184	infantry	16612
		bridge	16188	intermodal	16616
		capsule	16204	jagged wave	16630
		carrier	16213	jam	16640
		chemical biological radiological nuclear ..	16222	jamming	16661
		civilian military cooperation	16228	jetski	16665
		civilian police	16233	killing	16680
				labour	16683
				land mine	16688
				land missile	16699

laser	16702	rising	17104	natoapp6c friendly air (frame)	14170
launcher	16722	riverine	17109	natoapp6c friendly equipment	
laundry	16726	rocket launcher	17119	(frame)	14310
machine gun	16733	rotary wing	17150	natoapp6c friendly installation	
main gun	16738	runway	17156	(frame)	14338
maintenance	16743	sailing boat	17160	natoapp6c friendly land (frame)	
medic	16757	satellite	17170		14217
medical	16774	sea mine	17262	natoapp6c friendly sea surface	
medical treatment	16777	seabed installation	17294	(frame)	14376
mine	16783	search	17306	natoapp6c friendly space (frame)	
mine clearing equipment	16794	searching	17310		14398
mine warfare vessel	16799	semi trailer truck	17320	natoapp6c friendly sub surface	
missile	16805	sensor	17326	(frame)	14432
missile launcher	16820	ship	17331	natoapp6c hostile activity	
mobile advisor and support		signal	17344	(frame)	14567
	16848	signals intelligence	17348	natoapp6c hostile air (frame)	14479
moored	16860	ski	17353	natoapp6c hostile equipment	
mortar	16864	sled	17360	(frame)	14628
mortuary affairs	16873	small squashed text	17374	natoapp6c hostile installation	
motorized	16869	small text	17378	(frame)	14650
mountain	16878	sniper	17381	natoapp6c hostile land (frame)	14534
naval	16883	space station	17385	natoapp6c hostile sea surface	
navigation	16894	squashed text	17394	(frame)	14701
navy task	16900	submarine	17397	natoapp6c hostile space (frame)	
non combatant	16906	submersible	17407		14723
non lethal weapon	16918	supply	17414	natoapp6c hostile sub surface	
nuclear	16923	surface combatant	17419	(frame)	14756
observer	16931	survey	17440	natoapp6c neutral activity	
orbiter shuttle	16935	tactical satellite	17446	(frame)	14884
ordnance	16944	tank	17456	natoapp6c neutral air (frame)	14819
organisation	16956	TBD	15882	natoapp6c neutral equipment	
over snow	16959	text	17461	(frame)	14949
pack animal	16970	topographic	17466	natoapp6c neutral installation	
patrol	16977	torpedo	17473	(frame)	14972
patrolling	16982	towed	17484	natoapp6c neutral land (frame)	14851
physician	16992	tracked	17494	natoapp6c neutral sea surface	
pipeline	16997	train locomotive	17510	(frame)	15015
poisoning	17004	transportation	17515	natoapp6c neutral space (frame)	
postal	17010	type	15920		15037
printed media	17017	unexploded ordnance	17523	natoapp6c neutral sub surface	
prison	17020	unmanned	17530	(frame)	15075
psychological	17023	utility vehicle	17541	natoapp6c unknown activity	
quarry	17032	vehicle	17547	(frame)	15224
quartermaster	17041	video imagery	17556	natoapp6c unknown air (frame)	15177
radar	17047	warfare vessel	17564	natoapp6c unknown equipment	
radio	17052	water	17568	(frame)	15292
radio relay	17057	weapon	15885	natoapp6c unknown installation	
radio relay line of sight	17061	wheeled	17575	(frame)	15314
radio teletype	17067	\natoapp ... 22, 15830, 15831,	15849	natoapp6c unknown land (frame)	15136
railroad	17073	natoapp6c (frame)	15650	natoapp6c unknown sea surface	
reconnaissance	17090	natoapp6c base (frame)	14120	(frame)	15370
recovery unmanned systems	17094	natoapp6c friendly activity		natoapp6c unknown space (frame)	
rifle	17099	(frame)	14250		15392

natoapp6c unknown sub surface (frame)	15434	natoapp6c/s/bar (symbol) ...	16146	natoapp6c/s/enhanced location reporting system (symbol)	16415
natoapp6c/below (key)	15618	natoapp6c/s/base (symbol) ..	16150	natoapp6c/s/environmental protection (symbol) ..	16419
natoapp6c/bottom (key)	15618	natoapp6c/s/bicycle equipped (symbol)	16160	natoapp6c/s/explosion (symbol)	16439
natoapp6c/cmd (key)	15563	natoapp6c/s/boat (symbol) ..	16163	natoapp6c/s/finance (symbol) ..	16449
natoapp6c/command (key)	15583	natoapp6c/s/booby trap (symbol)	16176	natoapp6c/s/fire protection (symbol)	16468
natoapp6c/ech (key)	15563	natoapp6c/s/bottomed (symbol) ..	16184	natoapp6c/s/fishing vessel (symbol)	16454
natoapp6c/echolon (key)	15598	natoapp6c/s/bridge (symbol) .	16188	natoapp6c/s/fixed and rotary wing (symbol)	16477
natoapp6c/fac (key)	15563	natoapp6c/s/capsule (symbol) ..	16204	natoapp6c/s/fixed wing (symbol)	16484
natoapp6c/faction (key)	15570	natoapp6c/s/carrier (symbol) ..	16213	natoapp6c/s/flame thrower (symbol)	16491
natoapp6c/frame (key)	15618	natoapp6c/s/chemical biological radiological nuclear (symbol)	16222	natoapp6c/s/floating (symbol) ..	16497
natoapp6c/id (key)	15563	natoapp6c/s/civilian military cooperation (symbol) ..	16228	natoapp6c/s/food (symbol) ..	16515
natoapp6c/left (key)	15618	natoapp6c/s/civilian police (symbol)	16233	natoapp6c/s/fuel (symbol) ..	16522
natoapp6c/main (key)	15618	natoapp6c/s/civilian telecommunications (symbol)	16240	natoapp6c/s/graffiti (symbol) ..	16538
natoapp6c/right (key)	15618	natoapp6c/s/coast guard vessel (symbol)	16247	natoapp6c/s/grenade launcher (symbol)	16526
natoapp6c/s/above corps support (symbol)	15949	natoapp6c/s/combat support (symbol)	16252	natoapp6c/s/group (symbol) .	16552
natoapp6c/s/air assault (symbol)	15969	natoapp6c/s/combatant (symbol)	16257	natoapp6c/s/gun (symbol) ...	16558
natoapp6c/s/air assault with organic lift (symbol) .	15955	natoapp6c/s/combined arms (symbol)	16294	natoapp6c/s/headquarters (symbol)	16583
natoapp6c/s/air decoy (symbol)	15964	natoapp6c/s/computer system (symbol)	16299	natoapp6c/s/house (symbol) .	16588
natoapp6c/s/air defence (symbol)	15973	natoapp6c/s/control (symbol) ..	16309	natoapp6c/s/howitzer (symbol) ..	16594
natoapp6c/s/air strip (symbol)	15985	natoapp6c/s/convoy (symbol) .	16318	natoapp6c/s/in position (symbol)	16602
natoapp6c/s/air traffic (symbol)	15991	natoapp6c/s/corps support (symbol)	16330	natoapp6c/s/individual (symbol)	16607
natoapp6c/s/airborne (symbol) ..	16011	natoapp6c/s/crime (symbol) .	16335	natoapp6c/s/infantry (symbol) ..	16612
natoapp6c/s/airship (symbol) ..	16000	natoapp6c/s/decoy (symbol) .	16338	natoapp6c/s/intermodal (symbol)	16616
natoapp6c/s/ammunition (symbol)	16021	natoapp6c/s/direct communications (symbol)	16345	natoapp6c/s/jagged wave (symbol)	16630
natoapp6c/s/amphibious (symbol)	16027	natoapp6c/s/direction finding (symbol)	16351	natoapp6c/s/jam (symbol) ...	16640
natoapp6c/s/amphibious warfare ship (symbol)	16063	natoapp6c/s/diving (symbol) .	16355	natoapp6c/s/jamming (symbol) ..	16661
natoapp6c/s/analysis (symbol) ..	16073	natoapp6c/s/drilling (symbol) ..	16375	natoapp6c/s/jetski (symbol) .	16665
natoapp6c/s/antenna (symbol) ..	16095	natoapp6c/s/earthmover (symbol)	16379	natoapp6c/s/killing (symbol) ..	16680
natoapp6c/s/anti tank anti armour (symbol)	16087	natoapp6c/s/electric power (symbol)	16387	natoapp6c/s/labour (symbol) .	16683
natoapp6c/s/arctic (symbol) .	16113	natoapp6c/s/electronic ranging (symbol)	16400	natoapp6c/s/land mine (symbol)	16688
natoapp6c/s/armoured (symbol) ..	16099	natoapp6c/s/electronic warfare wide (symbol)	16404	natoapp6c/s/land missile (symbol)	16699
natoapp6c/s/armoured fighting vehicle (symbol)	16103	natoapp6c/s/engineer (symbol) ..	16411	natoapp6c/s/laser (symbol) .	16702
natoapp6c/s/armoured personnel carrier (symbol)	16108			natoapp6c/s/launcher (symbol) ..	16722
natoapp6c/s/arrest (symbol) .	16078			natoapp6c/s/laundry (symbol) ..	16726
natoapp6c/s/artillery (symbol)	16083			natoapp6c/s/machine gun (symbol)	16733
natoapp6c/s/automobile (symbol)	16118				
natoapp6c/s/balloon (symbol) ..	16138				

natoapp6c/s/main gun (symbol)	16738	natoapp6c/s/printed media (symbol)	17017	natoapp6c/s/space station (symbol)	17385
natoapp6c/s/maintenance (symbol)	16743	natoapp6c/s/prison (symbol)	17620	natoapp6c/s/squashed text (symbol)	17394
natoapp6c/s/medic (symbol)	16757	natoapp6c/s/psychological (symbol)	17023	natoapp6c/s/submarine (symbol)	17397
natoapp6c/s/medical (symbol)	16774	natoapp6c/s/quarry (symbol)	17032	natoapp6c/s/submersible (symbol)	17407
natoapp6c/s/medical treatment (symbol)	16777	natoapp6c/s/quartermaster (symbol)	17041	natoapp6c/s/supply (symbol)	17414
natoapp6c/s/mine (symbol)	16783	natoapp6c/s/radar (symbol)	17047	natoapp6c/s/surface combatant (symbol)	17419
natoapp6c/s/mine clearing equipment (symbol)	16794	natoapp6c/s/radio (symbol)	17052	natoapp6c/s/survey (symbol)	17440
natoapp6c/s/mine warfare vessel (symbol)	16799	natoapp6c/s/radio relay (symbol)	17057	natoapp6c/s/tactical satellite (symbol)	17446
natoapp6c/s/missile (symbol)	16805	natoapp6c/s/radio relay line of sight (symbol)	17061	natoapp6c/s/tank (symbol)	17456
natoapp6c/s/missile launcher (symbol)	16820	natoapp6c/s/radio teletype (symbol)	17067	natoapp6c/s/TBD (symbol)	15882
natoapp6c/s/mobile advisor and support (symbol)	16848	natoapp6c/s/railroad (symbol)	17073	natoapp6c/s/text (symbol)	17461
natoapp6c/s/moored (symbol)	16860	natoapp6c/s/reconnaissance (symbol)	17090	natoapp6c/s/topographic (symbol)	17466
natoapp6c/s/mortar (symbol)	16864	natoapp6c/s/recovery unmanned systems (symbol)	17094	natoapp6c/s/torpedo (symbol)	17473
natoapp6c/s/mortuary affairs (symbol)	16873	natoapp6c/s/rifle (symbol)	17099	natoapp6c/s/towed (symbol)	17484
natoapp6c/s/motorized (symbol)	16869	natoapp6c/s/rising (symbol)	17104	natoapp6c/s/tracked (symbol)	17494
natoapp6c/s/mountain (symbol)	16878	natoapp6c/s/riverine (symbol)	17109	natoapp6c/s/train locomotive (symbol)	17510
natoapp6c/s/naval (symbol)	16883	natoapp6c/s/rocket launcher (symbol)	17119	natoapp6c/s/transportation (symbol)	17515
natoapp6c/s/navigation (symbol)	16894	natoapp6c/s/rotary wing (symbol)	17150	natoapp6c/s/type (symbol)	15920
natoapp6c/s/navy task (symbol)	16900	natoapp6c/s/runway (symbol)	17156	natoapp6c/s/unexploded ordnance (symbol)	17523
natoapp6c/s/non combatant (symbol)	16906	natoapp6c/s/sailing boat (symbol)	17160	natoapp6c/s/unmanned (symbol)	17530
natoapp6c/s/non lethal weapon (symbol)	16918	natoapp6c/s/satellite (symbol)	17170	natoapp6c/s/utility vehicle (symbol)	17541
natoapp6c/s/nuclear (symbol)	16923	natoapp6c/s/sea mine (symbol)	17262	natoapp6c/s/vehicle (symbol)	17547
natoapp6c/s/observer (symbol)	16931	natoapp6c/s/seabed installation (symbol)	17294	natoapp6c/s/video imagery (symbol)	17556
natoapp6c/s/orbiter shuttle (symbol)	16935	natoapp6c/s/search (symbol)	17306	natoapp6c/s/warfare vessel (symbol)	17564
natoapp6c/s/ordnance (symbol)	16944	natoapp6c/s/searching (symbol)	17310	natoapp6c/s/water (symbol)	17568
natoapp6c/s/organisation (symbol)	16956	natoapp6c/s/semi trailer truck (symbol)	17320	natoapp6c/s/weapon (symbol)	15885
natoapp6c/s/over snow (symbol)	16959	natoapp6c/s/sensor (symbol)	17326	natoapp6c/s/wheeled (symbol)	17575
natoapp6c/s/pack animal (symbol)	16970	natoapp6c/s/ship (symbol)	17331	natoapp6c/s/top (key)	15618
natoapp6c/s/patrol (symbol)	16977	natoapp6c/s/signal (symbol)	17344	\natoapp@below	632 , 15618 , 15629 , 15711 , 15784 , 15807
natoapp6c/s/patrolling (symbol)	16982	natoapp6c/s/signals intelligence (symbol)	17348	\natoapp@cmd	625 , 15568 , 15666 , 15704
natoapp6c/s/physician (symbol)	16992	natoapp6c/s/ski (symbol)	17353	\natoapp@decoyfalse	15619
natoapp6c/s/pipeline (symbol)	16997	natoapp6c/s/sled (symbol)	17360	\natoapp@ech	626 , 15569 , 15705 , 15782 , 15797 , 15798
natoapp6c/s/poisoning (symbol)	17004	natoapp6c/s/small squashed text (symbol)	17374	\natoapp@fac	624 , 14072 , 15567 , 15574 , 15668 , 15703 , 15952 , 15958 , 15976 , 15978 , 16014 , 16090 , 16333
natoapp6c/s/postal (symbol)	17010	natoapp6c/s/small text (symbol)	17378	\natoapp@frame	15630 , 15673
		natoapp6c/s/sniper (symbol)	17381		

14133, 14134, 14142, 14143, 14144, 14145, 14146, 14147, 14148, 14149, 15211, 15426, 15427, 15428, 15429, 15468	14460, 14760, 14773, 14776, 14777, 14778, 14781, 14789	/chit/left 13428
\railroad 13032 , 13038	\southeast 840 , 854 , 864 , 876 , 14172 , 14178 , 14183 , 14184 , 14185 , 14186 , 14190 , 14198 , 14204 , 14481 , 14492 , 14500 , 14501 , 14502 , 14503 , 14507 , 14515 , 14521	/chit/lower left 13428
\railroad@ 13040 , 13042	\southeastedge 846 , 870 , 882	/chit/lower right 13428
\reconnaissancemark 15858	\southedge 842 , 866 , 878	/chit/right 13428
\regimentmark 15862	\southwest 137 , 150 , 839 , 853 , 863 , 875	/chit/setup 13428
\river 13 , 12945 , 13032 , 13043	\southwestedge 845 , 869 , 881	/chit/symbol 13428
\river@ 13045 , 13047	\space ... 233 , 235 , 280 , 281 , 282 , 283 , 285 , 288 , 344 , 478 , 494 , 501 , 502 , 504 , 505 , 506 , 507 , 514 , 515 , 516 , 517 , 518 , 534 , 559 , 576 , 604 , 605 , 606 , 607 , 608 , 609 , 610 , 611 , 612 , 613 , 614 , 623 , 624 , 625 , 626 , 627 , 628 , 629 , 630 , 631 , 632 , 633 , 12884 , 13317 , 13322 , 13331 , 13332 , 13335 , 13336 , 13343 , 13347 , 13354 , 13355 , 13358 , 13359 , 13804 , 13824 , 13831 , 13839 , 13847 , 13864 , 13886 , 13907 , 13917 , 14003 , 15668	/chit/upper left 13428
\riverhex 12942	\st@ckchits 13795 , 13797	/chit/upper right 13428
\road 12949 , 13032 , 13033	\stackchits 13794 , 14036	/tikz/chit 13459
\road@ 13035 , 13037	\stackmark 14034	/tikz/chit/1 factor ... 13742
\roadhex 12946	\state 457 , 464 , 471 , 12953 , 12955 , 12973	/tikz/chit/2 factors ... 13742
\rr 13905 , 13906 , 13907	\string 53 , 94 , 13831 , 13839 , 13847 , 14088 , 14091 , 15733	/tikz/chit/3 factors ... 13742
S	sub pic actions (key) 212	/tikz/chit/4 factors ... 13742
\s 344 , 352 , 354	\sv 13311 , 13314 , 13322 , 13331 , 13332 , 13354 , 13355	/tikz/chit/factor 13742
save clip (key) 178	\symbol 13507 , 13550 , 13609	/tikz/chit/factors 13446
\savedanchor 835 , 836 , 837 , 838 , 839 , 840 , 841 , 842 , 843 , 844 , 845 , 846 , 884 , 885 , 886 , 887 , 888 , 889 , 890 , 891 , 13505 , 13506 , 13507 , 13508 , 14125 , 14126 , 14178 , 14181 , 14182 , 14227 , 14313 , 14440 , 14443 , 14444 , 14492 , 14495 , 14499 , 14544 , 14769 , 14772 , 14773 , 14822 , 15139 , 15140 , 15141 , 15652	\symid ... 13608 , 13610 , 13617 , 13625	/tikz/chit/full 13446
\saveddimen 834 , 13509 , 14122 , 14123 , 14124	T	/tikz/chit/id 13446
\savedmacro .. 847 , 13510 , 13521 , 14140 , 15653 , 15663 , 15670	\terrainmark 12934 , 12937 , 12938 , 12939 , 12940	/tikz/chit/identifier .. 13742
scale line widths (key) 186	\testpath 15870 , 15871	/tikz/chit/left 13446
\scaleA 13064 , 13070	\text 13721	/tikz/chit/lower left .. 13446
\scaleB 13065 , 13070	\thepage 278 , 283	/tikz/chit/lower right .. 13446
\scaleC 13066 , 13070	\ti 294 , 308 , 317 , 333 , 349 , 354 , 363 , 13860 , 13864 , 13866 , 13868 , 13878 , 13886 , 13917 , 13945 , 13959 , 13988 , 14000 , 14003	/tikz/chit/right 13446
\scaleD 13067 , 13070	TikZ keys:	/tikz/chit/setup 13446
\scope 925 , 1050 , 12708 , 12803 , 12898 , 13670 , 15730 , 15792 , 15813	/chit/factors 13428	/tikz/chit/small identifier 13742
\scoped 489	/chit/full 13428	/tikz/chit/symbol 13446
\scriptsize 12831 , 13721 , 13759	/chit/id 13428	/tikz/chit/upper left .. 13446
\seahex 12941		/tikz/chit/upper right .. 13446
\setcounter 12880 , 12881 , 13464 , 15648		/tikz/natoapp6c 15643
\settosave 35		/tikz/natoapp6c/below .. 15632
\shadechit 13784		/tikz/natoapp6c/echelon .. 15632
\shiftScalePath 13052 , 13053		/tikz/natoapp6c/left ... 15632
\small 13756		/tikz/natoapp6c/lower .. 15632
\sofmark 15863		/tikz/natoapp6c/main ... 15632
\south 14444 , 14447 , 14448 , 14449 , 14452 ,		/tikz/natoapp6c/modifiers 15632
		/tikz/natoapp6c/normal text 15536
		/tikz/natoapp6c/right .. 15632
		/tikz/natoapp6c/small squashed text 15536
		/tikz/natoapp6c/small text 15536
		/tikz/natoapp6c/squashed text 15536
		/tikz/natoapp6c/upper .. 15632
		/tikz/pics/chit/1 factor 13708
		/tikz/pics/chit/2 factors 13708
		/tikz/pics/chit/2 factors artillery 13708
		/tikz/pics/chit/3 factors 13708
		/tikz/pics/chit/4 factors 13708
		/tikz/pics/chit/identifier 13708

/tikz/pics/chit/identifier macro	13708		
/tikz/pics/chit/small identifier	13708		
hex	961		
hex/terrain/beach ...	1140 , 1146		
hex/terrain/city	7508		
hex/terrain/light woods	1810 , 1816		
hex/terrain/mountain ...	12631		
hex/terrain/mountains	5468 , 5474		
hex/terrain/rough ...	3921 , 3927		
hex/terrain/swamp ...	3625 , 3631		
hex/terrain/town	6462		
hex/terrain/town/house ...	6138		
hex/terrain/town/road ...	6138		
hex/terrain/town/small road	6138		
hex/terrain/tree	12642		
hex/terrain/village	6160		
hex/terrain/woods ...	2636 , 2642		
save clip	178		
scale line widths	186		
sub pic actions	212		
tikz/clip even odd rule ...	167		
tikz/invclip	170		
tikz/reverseclip	162		
wg/debug show	222		
tikz/clip even odd rule (key) .	167		
tikz/invclip (key)	170		
tikz/reverseclip (key)	162		
\tikz@adoption	201 , 210		
\tikz@fillcolor	234		
\tikz@mode	230		
\tikz@picmode	215 , 219 , 17189 , 17197 , 17207 , 17217 , 17224 , 17234 , 17243		
\tikz@semiaddlinewidth ..	189 , 207		
\tikz@strokecolor	233		
\tikz@lastnode	920		
\tikz@math	13813		
\tmp	13328 , 13329 , 13351 , 13352		
\tmp@fill	15732 , 15735		
\tmp@llx	396 , 399 , 428 , 429 , 435		
\tmp@lly	396 , 400 , 428 , 429 , 435		
\tmp@opt	13669 , 13670 , 15729 , 15730 , 15791 , 15792		
\tmp@path	13054 , 13058 , 13059 , 13060		
\tmp@urx	398 , 401 , 434 , 436		
\tmp@ury	398 , 402 , 434 , 436		
\toks@	18 , 19		
\topline	14151 , 14165		
		U	
\u	298 , 299 , 300 , 302 , 303 , 306 , 308 , 312 , 313 , 315 , 317 , 337 , 338 , 339 , 341 , 342 , 344 , 347 , 349 , 358 , 359 , 361 , 363 , 13871 , 13872 , 13873 , 13875 , 13877 , 13878 , 13948 , 13949 , 13950 , 13952 , 13953 , 13955 , 13956 , 13959 , 13990 , 13991 , 13993 , 13994 , 13996 , 13997 , 14000 , 14003		
\upper	14126 , 14136 , 14137 , 14138 , 14139		
\urc	13240 , 13248 , 13252 , 13272 , 13273 , 13274 , 13289		
\urr	13241 , 13248 , 13252 , 13289		
\urx	401 , 407 , 424 , 441 , 515 , 13238 , 13250 , 13253 , 13285 , 13287 , 13289 , 13290 , 13293 , 13305 , 13308 , 13325 , 13342 , 13343 , 13347 , 13349		
\ury	402 , 408 , 424 , 442 , 515 , 13239 , 13250 , 13253 , 13281 , 13282 , 13288 , 13289 , 13290 , 13294 , 13306 , 13308 , 13319 , 13331 , 13332 , 13335 , 13336 , 13340		
		V	
\value	12853 , 12882 , 12883		
		W	
\w	517 , 13287 , 13289		
\wargamedbglvl	13 , 15 , 231 , 649 , 13426 , 14062		
\west	836 , 852 , 860 , 872		
wg/debug show (key)	222		
\wg@@@node	83 , 85		
\wg@@@pic	42 , 44		
\wg@@@node	79 , 81		
\wg@@@pic	38 , 40		
\wg@addto@macro	15 , 16 , 1063 , 13323 , 13338 , 13344 , 13348 , 13361 , 13364		
\wg@bb@maxx ..	112 , 118 , 126 , 138 , 151		
\wg@bb@maxy ..	113 , 119 , 128 , 138 , 151		
\wg@bb@minx ..	110 , 116 , 125 , 137 , 150		
\wg@bb@miny ..	111 , 117 , 127 , 137 , 150		
\wg@dbg	12 , 14 , 22 , 29 , 41 , 45 , 47 , 53 , 60 , 65 , 68 , 74 , 82 , 86 , 88 , 94 , 97 , 100 , 106 , 198 , 200 , 202 , 204 , 208 , 219 , 232		
\wg@export@box	537		
\wg@jac	197 , 198 , 199		
\wg@jaca	191 , 197		
\wg@jacob	192 , 197		
\wg@jacc	193 , 197		
\wg@jacd	194 , 197		
\wg@lv	209		
\wg@lw	199 , 200 , 201 , 202 , 203 , 204 , 210 , 211		
\wg@node	77 , 78 , 107 , 1086		
\wg@node@all	98 , 99		
\wg@nostar@oob	13851 , 13854		
\wg@notrelevantforpathsizefalse	114 , 133 , 146		
\wg@oob	13850 , 13851 , 13857		
\wg@oob@invfalse	13849 , 13851		
\wg@oob@invtrue	13850		
\wg@path	461 , 468 , 475 , 478		
\wg@pic	36 , 37 , 75 , 1061 , 15799		
\wg@pic@all	66 , 67 , 936 , 948 , 1079 , 13606 , 13620 , 13628 , 13639 , 13645 , 13651 , 13657 , 13664 , 15745 , 15753 , 15759 , 15765 , 15771 , 15807		
\wg@protocolsizes	121 , 122 , 134 , 147		
\wg@r@ndom@id	239 , 13514 , 15657		
\wg@record@path@name	477 , 584		
\wg@resetbb	114 , 115 , 132 , 145		
\wg@s@v@efalse	62 , 179 , 183		
\wg@s@v@etrue	182		
\wg@star@oob	13850 , 13853		
\wg@sub@nchor	20 , 21 , 13497 , 15677 , 15678 , 15679 , 15680 , 15681 , 15682 , 15683 , 15684 , 15685 , 15686 , 15687 , 15688 , 15691 , 15697 , 15815		
\wg@tmp	195 , 196		
\wg@tmp@a	156 , 158		
\wg@tmp@b	156 , 158		
\wg@tmp@bg	226 , 228 , 234		
\wg@tmp@c	156 , 158		
\wg@tmp@d	156 , 158		
\wg@tmp@fg	225 , 232		
\wg@tmpa	31 , 935 , 936 , 947 , 948 , 1061 , 1078 , 1079 , 1083 , 1088 , 13571 , 13572 , 13573 , 13574 , 13575 , 13595 , 13596 , 13597 , 13598 , 13599 , 13605 , 13606 , 13618 , 13620 , 13626 , 13628 , 13632 , 13634 , 13639 , 13645 , 13651 , 13657 , 13672 , 13673 , 13674 , 13675 , 13676 , 14172 , 14173 , 14175 , 14185 , 14186 , 14190 , 14194 , 14198 , 14202 , 14219 , 14220 , 14221 , 14222 , 14223 , 14277 , 14278 ,		

14281, 14284, 14288, 14291,	13596, 13597, 13598, 13599,	
14296, 14297, 14303, 14304,	13605, 13606, 13619, 13620,	<code>\wg@tmpc</code> 33,
14330, 14331, 14334, 14335,	13627, 13628, 13633, 13635,	14190, 14191, 14193, 14198,
14365, 14366, 14370, 14371,	13639, 13645, 13651, 13657,	14199, 14201, 14278, 14282,
14420, 14424, 14425, 14434,	13662, 13664, 13672, 13673,	14283, 14289, 14290, 14295,
14435, 14437, 14447, 14448,	13674, 13675, 13676, 14172,	14298, 14302, 14305, 14452,
14451, 14456, 14459, 14464,	14173, 14174, 14175, 14189,	14453, 14455, 14460, 14461,
14481, 14484, 14485, 14487,	14191, 14192, 14193, 14195,	14463, 14482, 14485, 14487,
14488, 14502, 14503, 14507,	14197, 14199, 14200, 14201,	14507, 14508, 14510, 14515,
14511, 14515, 14519, 14536,	14203, 14219, 14220, 14221,	14516, 14518, 14596, 14602,
14537, 14539, 14595, 14597,	14222, 14223, 14277, 14279,	14606, 14614, 14622, 14678,
14599, 14601, 14607, 14609,	14281, 14282, 14290, 14291,	14679, 14680, 14683, 14684,
14613, 14615, 14621, 14623,	14295, 14296, 14304, 14305,	14693, 14694, 14759, 14762,
14677, 14682, 14683, 14684,	14366, 14368, 14369, 14421,	14764, 14781, 14782, 14784,
14685, 14745, 14748, 14749,	14422, 14426, 14427, 14434,	14789, 14790, 14792, 14917,
14758, 14761, 14762, 14764,	14435, 14436, 14437, 14451,	14921, 14922, 14928, 14929,
14765, 14776, 14777, 14780,	14453, 14454, 14455, 14457,	14934, 14937, 14941, 14944,
14785, 14788, 14793, 14810,	14459, 14461, 14462, 14463,	15068, 15260, 15261, 15263,
14811, 14812, 14813, 14814,	14465, 14481, 14484, 14488,	15264, 15265, 15266, 15270,
14815, 14816, 14817, 14818,	14506, 14508, 14509, 14510,	15271, 15272, 15273, 15277,
14916, 14917, 14920, 14923,	14512, 14514, 14516, 14517,	15278, 15279, 15280, 15284,
14927, 14930, 14935, 14936,	14518, 14520, 14536, 14538,	15285, 15286, 15287, 15351,
14942, 14943, 15004, 15005,	14540, 14594, 14596, 14597,	15354, 15355, 15364, 15365,
15009, 15010, 15065, 15068,	14600, 14608, 14616, 14620,	15819, 15820, 15821, 15822
15069, 15070, 15109, 15112,	14677, 14678, 14686, 14690,	<code>\wg@tmpd</code> 34, 14279, 14283, 14284,
15113, 15114, 15116, 15119,	14745, 14746, 14750, 14751,	14288, 14289, 14297, 14298,
15120, 15121, 15123, 15126,	14758, 14761, 14765, 14780,	14302, 14303, 14483, 14486,
15127, 15128, 15130, 15133,	14782, 14783, 14784, 14786,	14597, 14599, 14601, 14607,
15134, 15135, 15161, 15162,	14788, 14790, 14791, 14792,	14609, 14613, 14615, 14621,
15170, 15171, 15196, 15198,	14794, 14810, 14811, 14812,	14623, 14690, 14691, 14695,
15200, 15202, 15205, 15206,	14813, 14814, 14815, 14816,	14696, 14760, 14763, 14918,
15217, 15218, 15247, 15249,	14817, 14818, 14916, 14918,	14922, 14923, 14927, 14928,
15256, 15257, 15258, 15263,	14920, 14921, 14929, 14930,	14936, 14937, 14941, 14942
15264, 15272, 15273, 15277,	14934, 14935, 14943, 14944,	<code>\wg@uuid</code> 240, 243, 13515, 15658
15280, 15285, 15286, 15338,	15005, 15007, 15008, 15065,	<code>\whatevs</code> 13068, 13069
15340, 15348, 15357, 15358,	15066, 15069, 15070, 15110,	<code>\woodshex</code> 12937
15415, 15417, 15423, 15426,	15112, 15113, 15117, 15119,	<code>\write</code> 266
15427, 15453, 15455, 15457,	15120, 15124, 15126, 15127,	
15459, 15462, 15463, 15474,	15131, 15133, 15134, 15258,	X
15475, 15692, 15693, 15698,	15259, 15265, 15266, 15270,	<code>\xy</code> .. 13799, 13800, 13804, 13805,
15699, 15816, 15818, 15823	15271, 15278, 15279, 15284,	13810, 13812, 13815, 13816
<code>\wg@tmpb</code> 32, 935, 936,	15287, 15351, 15352, 15353,	
947, 948, 1061, 1078, 1079,	15357, 15358, 15362, 15363,	Z
1083, 1088, 13571, 13572,	15423, 15424, 15428, 15429,	<code>\zocmark</code> 14040
13573, 13574, 13575, 13595,	15817, 15818, 15821, 15823	<code>\zone@mult</code> 600
		<code>\zone@turn</code> 599