

Creating diagrams for chess problems

Version 1.6.5

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Abstract

It has been more than ten years now, since we last published a documented version of the `diagram.sty`, which is mainly intended to be used for typesetting chess problems. Since 1994 I (Stefan Höning) made a couple of enhancements to the sourcecode of the style, without publishing and putting this into the documentation. We also needed to upgrade to $\text{\LaTeX} 2\epsilon$. The major change is the documentation language, which is english now.

The style itself tries to collect very detailed information about a chess problem by providing a lot of commands, which you may use to specify the necessary information. There are different reasons for this. One idea was to enable people to read \LaTeX -diagrams into databases with information as detailed as possible. Otherwise it should be easy to change the layout of a diagram by applying a changed style - not by changing the source.

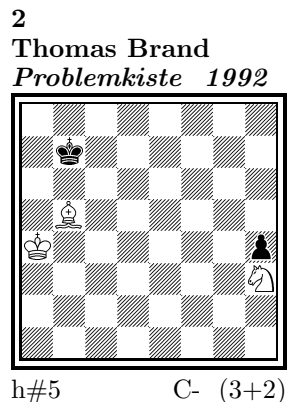
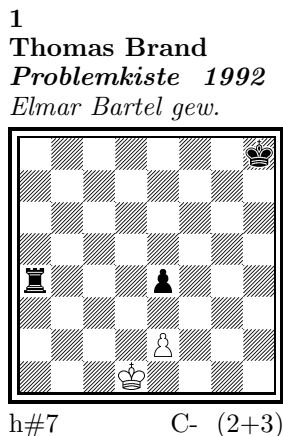
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1 Creating diagrams

1.1 An introductory example

Let us first take a look at a simple example which should only show what you have to type into your L^AT_EX-code to get nice looking diagrams.



1) Thomas Brand:

1.Ta3 Kc2!, 2.Tf3 e×f3, 3.e3 f4, 4.e2 f5, 5.e1T f6, 6.Th1! (Te7?) f7, 7.Th7 f8D#

2) Thomas Brand:

1.Ka8 Sg1, 2.h3 Ka5, 3.h2 Kb6, 4.h×g1L+ Kc7, 5.La7 Lc6#

To use the package you have to make it available to L^AT_EX using `\usepackage{diagram}` inside the preamble of your document.

Then you may use the `diagram` environment to create the diagrams. For the above example I had to type the following:

```
\begin{diagram}
  \author{Brand, Thomas}
  \source{Problemkiste} \year{1992}
  \dedic{Elmar Bartel gew.}
  \pieces[2+3]{wKd1, wBe2, sKh8, sBe4, sTa4}
  \stip{h\#7}
  \sol{1.Ta3 Kc2!, 2.Tf3 e\x f3, 3.e3 f4, 4.e2 f5, 5.e1T f6,
    6.Th1! (Te7?) f7, 7.Th7 f8D\#}
\end{diagram}
%
\hfill
%
\begin{diagram}
  \author{Brand, Thomas}
  \source{Problemkiste} \year{1992}
  \pieces[3+2]{wKa4, wLb5, wSh3, sKb7, sBh4}
  \stip{h\#5}
  \sol{1.Ka8 Sg1, 2.h3 Ka5, 3.h2 Kb6, 4.h\x g1L+ Kc7, 5.La7 Lc6\#}
\end{diagram}

\putsol
```

`diagram` Any information which belongs to a problem should be put between `\begin{diagram}` and `\end{diagram}`. The above examples contains information for *authors*, *source*, *year of publication*, *stipulation*, *solution* and (in diagram 1) a *dedication*.

This information is shown around a chessboard except the solution, which is collected and put into the output using the `\putsol` command.

1.2 Elements of a diagram



This section describes the elements which may be used inside a `diagram` environment. For most of these elements there is no sense using them between `\begin{diagram}` and `\end{diagram}`. Some of them will not work outside of the environment (like `—`). In case you use these switches anywhere outside you will specify the information for all problems in your surrounding environment (which may be the complete document).

1.2.1 Collecting the problem information

The following information is typically given with a problem:

- `\author`
 - With the `\author` tag you specify one author or a list of authors. If you specify more than one author, you must separate them with `;`. Normally an author is given as *"surname, givenname"*. You may change the way, how the name is interpreted by L^AT_EX using `\normalnames` and `\reversednames`. This `\author` command does only overwrite the default behaviour when used inside a diagram environment.
- `\Dr`
 - Within the Authors command you should use the commands `\Dr`, `\Prof` and `\ProfDr` to specify these academic titles. So one may switch off the display of these titles — like it is generally done inside *Die Schwalbe*.
- `\Prof`
- `\ProfDr`
- `\pieces`
 - With `\pieces` you specify the position to be displayed on the board. For each kind of piece you may specify a list of fields. Different lists of fields are separated by `,`. So the general syntax for specifying the position of a specific piece is:
`[color][piece]{rotation of piece}[list of squares];`
 e. g. `wTa1h1` should be clear, `nKa4` is a neutral king on a4
`w s n` may be used to specify the color of the piece.
K D T L S B C E X may be used to specify the piece. A **C** is used for an imitator, **E** for an equihopper and **X** for a rotated equihopper. You may *not* use an optional rotation with **C**, **E** and **X**.
R U L may be used to specify an optional rotation: right, upside-down, left. So you may use `sDUc7` for a grashopper on c7 — displayed as an upsidedown queen.
 The characters used to specify color, piece and rotation may be changed using the `\DefinePieces` command.
 You may also optionally specify the number of pieces in your diagram, which then will be used to control your input automatically.

There is also support for an imitator, which is typically displayed as a black filled circle. So `sCf4` will produce the symbol of an imitator. This is shown in diagram 3.

<code>\stipulation</code> <code>\stip</code>	<ul style="list-style-type: none"> • is used to specify the stipulation of the problem, e.g. <code>\stipulation{\#2}</code> may be used to specify a <i>mate in two</i>. There is also an abbreviation <code>\stip</code> for this macro.
<code>\city</code>	<ul style="list-style-type: none"> • may be used to specify the city and country, where the author or the authors live. I use this inside the original section of <i>Die Schwalbe</i>. You should separate multiple cities (for multiple authors) with <code>”;</code> <code>”</code>. There is also a boolean switch <code>showcity</code>, which controls, whether this information is displayed.
<code>\specialdiagram</code>	<ul style="list-style-type: none"> • May be used to suppress the default diagram numbering (which uses a counter) and instead directly providing a diagram <code>”number”</code> which may be an arbitrary text.
<code>\sourcennr</code>	<ul style="list-style-type: none"> • May be used to specify the number which was used for the problem inside an originals section.
<code>\source</code>	<ul style="list-style-type: none"> • May be used to specify the book or magazine where the problem was issued first.
<code>\issue</code>	<ul style="list-style-type: none"> • May be used to specify e.g. the issue of a magazine where the problem was issued.
<code>\pages</code>	<ul style="list-style-type: none"> • May be used to specify the page (or pages) where the problem was issued.
<code>\day</code> <code>\month</code> <code>\months</code> <code>\year</code>	<ul style="list-style-type: none"> • May be used to specify the different parts of the date of publication of the problem. (E.g. for problems issued in the german magazine <i>Die Schwalbe</i> you will typically only specify the <code>\month</code> and the <code>\year</code>. For problems issued in <i>feenschach</i> you may specify a period of months like <code>\months{7-10}</code>.)
<code>\tournament</code> <code>\award</code>	<ul style="list-style-type: none"> • May be used to specify an award and a tournament for the problem.
<code>\dedication</code> <code>\dedic</code>	<ul style="list-style-type: none"> • May be used to specify a dedication which was given by the author of the problem.
<code>\condition</code> <code>\cond</code>	<ul style="list-style-type: none"> • May be used to specify the fairy conditions of a problem. Different conditions should be separated with <code>”;</code> <code>”</code>.
<code>\twins</code>	<ul style="list-style-type: none"> • May be used to specify the different twins of a problem. Different twins should be separated with <code>”;</code> <code>”</code>.
<code>\remark</code> <code>\rem</code>	<ul style="list-style-type: none"> • May be used to specify remarks to the problem. I typically use this to explain fairy pieces on the board. You may also use the abbreviation <code>\rem</code>.
<code>\piecedefs</code>	<ul style="list-style-type: none"> • May be used to explain rotated pieces. An example: <code>\piecedefs{{ws}{TL}{Turm-L\"aufer-J\"ager}; {wn}{SU}{Nachtreiter}}</code> will create  = Turm-Läufer-Jäger  = Nachtreiter under the diagram.

- `\solution` • `\solution` may be used to specify the solution of the problem. Normally this information is not used while displaying the board but it is only collected and may be put into your text using `\putsol`. There is also an abbreviation `\sol`.
- `\sol`
- `\judgement` • May be used to describe the judgement given for a problem, e. g. when you are working on an award or when you are selecting problems for a "best of ..." book.
- `\comment` • May be used to specify some comment on the problem (e. g. the authors original comment.)
- `\themes` • May be used to specify themes displayed in the problem. Different themes should be separated with "; ". When creating a theme index, the themes will automatically be used to create the register.

There are some commands which not only collect information but normally direct result in a change of the diagram. These are:

- `\verticalcylinder` • does not display the outer vertical lines to symbolize a verticalcylindric board.
- `\horizontalcylinder` • does not display the outer horizontal lines to symbolize a horizontalcylindric board.
- `\noframe` • does completely suppress the outer frame e. g. to symbolize a torus board.
- `\noinnerframe` • sometimes you need to suppress the inner frame instead of the outer frame which is achieved by using `\noinnerframe`. You may not use this together with `\noframe`.
- `\gridchess` • displays lines to separates fieldsections for gridchess.

1.2.2 Modifying the layout of the diagram (and the solution)

There are a couple of switches which control the layout of the diagrams. These are typically used more generally, so you may specify these switches outside the `diagram` environment or use them in your own style, which depends on `cpd.sty`.

There are some switches which control the layout of the information which is displayed above a diagram:

- `\diagleft` • displays the information left aligned
- `\diagcenter` • displays the information centered
- `\diagright` • displays the information right aligned
- `\widedias` • is like `\diagcenter` but the information shown above the diagram may span the whole width of the page. So \LaTeX will not wrap long author names.

- `\dianamestyle` Using `\dianamestyle` (or `\solnamestyle`) you may specify how author-names are written above the boards (or before the solutions). You may use this only if you use `\reversednames` (which is the default). Otherwise it is not possible to distinguish between firstname and surname. You must specify one of the following options as parameter to `\dianamestyle` (or `\solnamestyle`):
- `\solnamestyle`

fullname Writes the authorname as *firstname surname*. This is the default.

surname Writes the *surname* only.

short Writes an abbreviation of the *firstname* and the *surname*. The abbreviation is calculated as follows:

- The first letter of the *firstname* will be used.
`\author{Brand, Thomas}` will be displayed as **T. Brand**
- When there is a combined *firstname* separated with a hyphen, each first letter will be used. (see below)
`\author{Reich, Hans-Peter}` will be displayed as **H.-P. Reich**
- When specifying the author name, you may provide the abbreviation for the first name using the form *surname, firstname/abbreviation*.
`\author{Brand, Thomas/Th.}` will be displayed as **Th. Brand**

noname displays nothing

`\diagnumbering` The same way you may specify `\pagenumbering` you may specify the format the diagrams are numbered using `\diagnumbering` and `\pagenumbering` you may specify `arabic`, `Roman`, `roman`, `Alph` or `alph`. The default used is `arabic`. This command also switches the display for diagram numbers on.

`\setmonthstyle` You may also specify the way a month is displayed using `\setmonthstyle`. There are some boolean switches, which control whether a specific information is displayed. These are as follows:

`piececounter` • This is a \LaTeX boolean, which is used to specify whether the number of pieces is displayed below the board. So you may change its value using `\setboolean{piececounter}{true}` or `\setboolean{piececounter}{false}`.

`showcomputer` • There is a boolean value `computer`, which controls whether the information about a computer proof is displayed or not. This value may be changed using `\setboolean{showcomputer}{true}` or `\setboolean{showcomputer}{false}`
`\nocomputer` For backwards compatibility we support the macros `\nocomputer` and
`\showcomputer` `\showcomputer`.

`showcity` • This is a boolean switch, which controls whether the information gathered using the `\city` command is displayed. The default of this value is `false`.

`showacademictitle` • This is a boolean switch, which controls whether academic titles `\Dr`, `\Prof` or `\ProfDr` — typically used within the `\author` command — are displayed. The default is `true`.

`\notcomputerproofedsymbol` You may specify the text, which is used indicate, whether a problem is
`\computerproofedsymbol` proofed by a computer. To specify the symbol for a problem, which is proofed, is created by `\computerproofedsymbol`. To specify the symbol for a problem, which is not computer proofed, is created by `\notcomputerproofedsymbol`. You may redefine these commands by standard \LaTeX means (`\renewcommand`).

`\selectelchfont` You may specify which font is used for the chesspieces. There are two possible fonts:

pk for the font which was originally used in the german magazine *Problemkiste* 

fs for the font which was first used (and was created for) the magazine *feenschach* ♔♚♛♜♝♞♟♠♡♢♣♤♥♦♧♨♩

`\diagramx` In analogy to the defaults for font sizes of a document you may specify sizes
`\diagramxi` of the fonts used in a diagram. The default will be set according to the font size
`\diagramxii` specified as the `\documentclass` option.

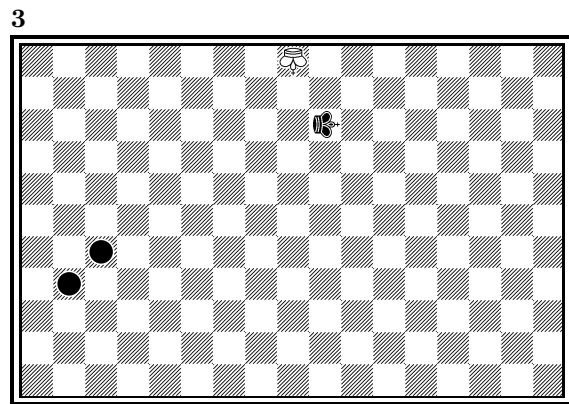
1.2.3 Other commands

- `\label` • This overrides the normal `\label` definition such that the diagram number is displayed when using `\ref` instead of the page number.
- `\diagram` • This macro expects a number as a parameter. The number will be used to (re-)initialize the diagram number counter. With this command the output of diagram numbers also is switched on. It must be used outside the `diagram` environment.

1.3 Special boards

1.3.1 Changing the board size

`diagram[]` Instead of using a board size of 8×8 some fairy problems need smaller or larger boards. This can be achieved by specifying the rows and columns as an optional parameter to the `\begin{diagram}` environment. You first have to specify the lines and then the rows as the following examples shows.



is created by

```
\begin{diagram}[17x11]
\label{bigdia}
\pieces{wKUi{11}, sKRj9, sCc5b4}
\end{diagram}
```

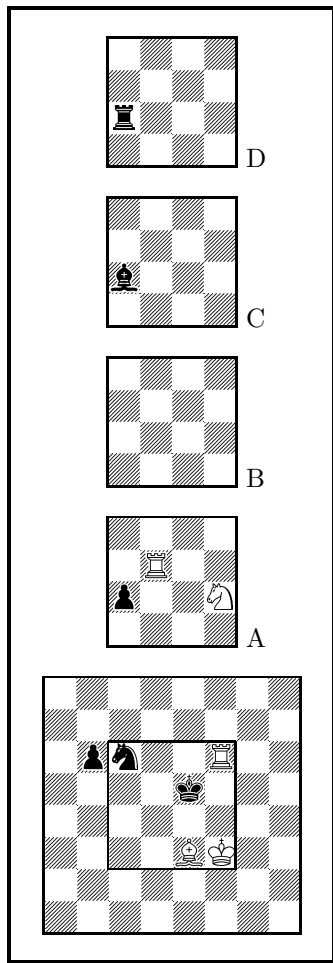
C- (1+1)

As you can see in the example, pieces are set using the `\pieces` macro. When using boards with more than 8 lines you have to continue with characters **i, j, k, ...** In a board with more than 9 rows you have to specify the rows in curly braces `{ }` as shown in the example.

1.3.2 Stereo- and Space-Chess-Diagrams

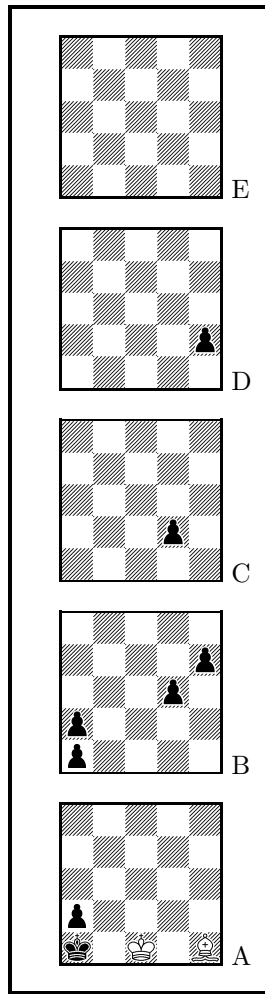
`stereodiagram` Other boards which are used from time to time are stereo chess or space chess
`spacediagram[]` boards (although there are quite few people which really have such boards!). To create these boards you just have to use either the `stereodiagram` or `spacediagram` environment instead of the normal `diagram` environment. Here is an example:

4
 Gerhard W. Jensch
 3104. feenschach 1980
 Preis



#9 C- (5+6)

5
 T. R. Dawson
 6595. Fairy Chess
 Review 12/1945



#2 C- (2+8)

These diagrams have been produced by the following code:

```

\begin{stereodiagram}
\author{Jensch, Gerhard W.}
\sourcetr{3104.}
\source{feenschach}
\year{1980}
\award{Preis}
\pieces{wKf3, wTf6d5A, wLe3, wSf4A, sKe5, sTc4D, sLc4C, sSc6, sBb6c4A}
\stip{\#9}
\end{stereodiagram}
\hfill
\begin{spacediagram}
\author{Dawson, T. R.}
\sourcetr{6595}.

```

```

\source{Fairy Chess Review}
\month{12}
\year{1945}
\pieces{wKc1A, wLe1A, sKa1A, sBa2Aa1Ba2Bd3Be4Bd2Ce2D}
\stip{\#2}
\end{spacediagram}

```

The main change is within the notation of the pieces, but people knowing space- or stereo-chess problems see that the notation is just one would expect.

`\spacelayout`

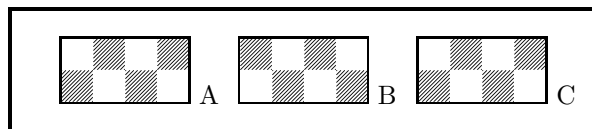
Sometimes one would like show the different planes of a space diagram from left to right. This may be switched using the `\spacelayout` command, which takes one parameter:

vertical for planes organized bottom up

horizontal for planes organized left to right

Is produced by

6



```

\begin{spacediagram}[4x3]
\spacelayout{horizontal}
\end{spacediagram}

```

C- (0+0)

1.3.3 Cylindric boards / suppressing frames

`\horizontalcylinder`
`\verticalcylinder`
`\noframe`
`\noinnerframe`

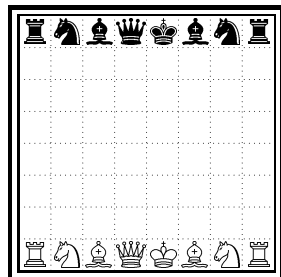
To stylize a cylindric board one typically does not show parts of the frame. When using `\verticalcylinder` the horizontal lines of the outer frame will not be drawn. `\horizontalcylinder` suppresses the drawing of the vertical lines of the outer frame. Using `\noframe` completely suppresses the outer frame. `\noinnerframe` suppresses the innerframe. In case of stereo- or space-chess-diagrams `\verticalcylinder`, `\horizontalcylinder` and `\noframe` suppresses the inner frame.

1.4 Change the coloring of the fields

`\allwhite`

The `allwhite` boolean can be used to have all white squares. Therefore dotted lines are produced to separate the squares. For convenience we provide a command `allwhite` which switches the value of the `allwhite` boolean to true.

7



This was produced by:

```

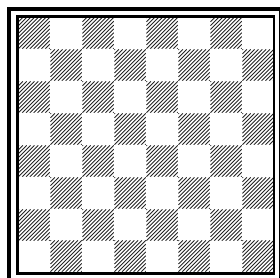
\begin{diagram}
\allwhite
\pieces{wKe1, wDd1, wTah1, wLf1c1, wSb1g1, %
sKe8, sDd8, sTa8h8, sLf8c8, sSb8g8}
\end{diagram}

```

C- (8+8)

`\switchcolors` The boolean `switchcolors` may be used to switch the coloring of white and black fields. For convenience we provide a command `switchcolors` which switches the value of the `switchcolors` boolean to true.

8



C- (0+0)

1.4.1 figurine Notation

`figurine` Instead of using the `diagram`, `stereodiagram` or `spacediagram` environment one may use the `figurine` environment. This suppresses the diagram output and produces a figurine notation inside the current text.

1.4.2 Changes within the board

`\nofields` You may remove single fields by using the `\nofields` or `\nosquares` command.
`\nosquares` Using this command does make sense for empty black fields only. This command expects a list of squares separated by `''`, `''`. You may also use this command within a stereo- or space-diagram. In this case you must specify the fields the same way you do it inside the `\pieces` command.

`\fieldframe` You may specify single fields, which should be surrounded by a frame. This is possible using the `\fieldframe` command. You must specify the list of fields which should have frames the same way you specify fields within the `\nofields` command.

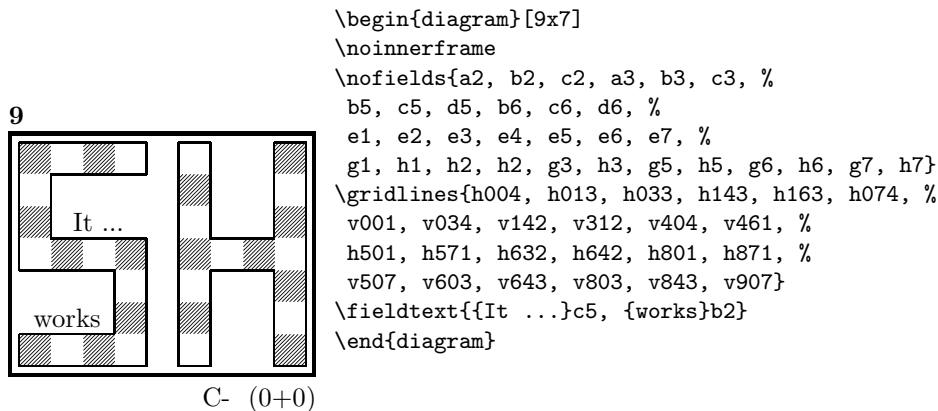
`\gridlines` A more general form of lines within diagrams is possible by using the `\gridlines` command. You may specify a list of horizontal or vertical lines within the diagram. Different lines should be separated by `''`, `''`. A single line must be specified as:

[plane](v or h)(x-coordinate)(y-coordinate)(length in squares)

You must specify a plane in case of stereo- or space-chess only. For a vertical line starting at the lower left corner of `''c2''` ending at the upper left corner of `''c8''` the command to use is: `\gridlines{v217}`. Concerning the coordinates and length specifications you should pay attention to put values greater 9 in curly braces `{ }`.

`\fieldtext` Sometimes you need to show text on some squares. This is done using the `\fieldtext` command. The syntax for a single text is: `{Text}(x-coordinate)(y-coordinate)`

Now an example how to use `\gridlines`, `\nofields` and `\fieldtext` to create some *''Letter-Board''* with text inside.



1.5 Misc

1.5.1 Chess pieces within normal text

Sometimes you may need symbols of chess pieces within your normal text, e. g. to show the *Viele-Väter-Stellung* ♖c8, ♙b6, ♗a8, ♚a7. This is possible by `{\wK}c8`, `{\wB}b6`, `{\sK}a8`, `{\sB}a7`. Additionally you may use some of these symbols:

- `\swL` ♗ a white bishop on a black square
- `\ssL` ♝ a black bishop on a black square
- `\wNr` ♞ a white nightrider
- `\nNr` ♞ a neutral nightrider
- `\sNr` ♞ a black nightrider
- `\wGh` ♟ a white grasshopper
- `\nGh` ♟ a neutral grasshopper
- `\sGh` ♟ a black grasshopper
- `\Imi` ● an imitator, you may also use the **Circle** notation:
- `\wC` ○ a white circle
- `\nC` ◐ a neutral circle
- `\sC` ● a black circle
- `\wE` ♞ a white equihopper
- `\sE` ♞ a black equihopper
- `\nE` ♞ a neutral equihopper
- `\wX` ♞ a white rotated equihopper
- `\sX` ♞ a black rotated equihopper
- `\nX` ♞ a neutral rotated equihopper

1.5.2 Other often used symbols

The style also defines commands for other symbols, which are often used within the declaration of twins or when writing a solution:


<code>\set</code>	<code>*</code> setplay
<code>\ra</code>	\rightarrow a left to right arrow
<code>\lra</code>	\leftrightarrow a double ended arrow
<code>\00</code>	0-0 king side castling
<code>\000</code>	0-0-0 queen side castling
<code>\x</code>	\times for "takes"
<code>\any</code>	\sim for any move (you may not simply use a \sim within your text because \TeX handles this as a protected space)

1.5.3 Internationalization

`\DefinePieces` This part is relevant for people who do not like the german notation for pieces and therefore want to change this within their sources. Using the german notation, you specify the color of a piece as **w**, **s** or **n**, the type of a piece as **K**, **D**, **T**, **L**, **S**, **B** and a possible rotation of a piece as **L**, **R** or **U**. To use another notation you may use the `\DefinePieces` command which takes 3 parameters.

1. the letters used to specify the colors of the pieces using the order white, black, neutral
2. the letters used to specify the type of a piece using the order king, queen, rook, bishop, knight, pawn. You may not use the characters **C**, **E** and **X**, because these are used for Circle, Equihopper and rotated Equihopper.
3. the letters used to specify an optional rotation using the order left-turned, right-turned, upside-down. You must use capital letters for this.

When using a `\DefinePieces` command, the commands are changed to its next usage (or to the end of the document). The command not only changes the pieces you may use within the `\pieces` command but also defines commands to be used within normal text, as the following example shows:

```
\DefinePieces{wbn}{KQRBNP}{LRU}
\wDU\bKR\bwB
creates 
```

1.5.4 When writing books

`\develop` To simplify your writings you may use the macro `\develop`. This will create the following additional information during development:

- when you use `\label` in your diagrams the label will be shown at the left upper corner of the diagram.
- The given label will also be shown inside the solution and also in any register entry.

- when you have specified a `\judgement` this information will be put into the solution.

Most books on chessproblems contain registers for authors, sometimes also on themes and sources. As you already collect all these information very detailed within the `diagram` environment the generation of registers is very simple.

`\makeaindex`
`\authorindex` To create a registers of authors you need to put the `\makeaindex` command inside the preamble of your document. This instructs latex to write an intermediate file containing information about authors and the numbers of the diagrams.¹ After a first \LaTeX run on your document, you need to convert the intermediate file. This may be done with the `makeindex` program, which will typically called like

```
makeindex -o <filename>.and <filename>.adx
```

The resulting register may be put into your document using the `\authorindex` command.

`\makesindex`
`\sourceindex`
`\maketindex`
`\themeindex` Like an index for authors you may also create indices for sources and/or themes. For an source register you need to put `\makesindex` into your document preamble; for a theme register the command is `\maketindex`. The conversion commands for the intermediate files are

```
makeindex -o <filename>.sxd <filename>.sdx
```

for the source register and

```
makeindex -o <filename>.tnd <filename>.tdx
```

for the theme register.

The source register is inserted into the text using `\sourceindex` and the theme register using `\themeindex`.

1.5.5 Other useful stuff

`\solpar` In some environments — like `window` — the use of `\par` leads to unwanted effects. Therefore we use the command `\solpar` inside the definition of `@dia@solution`, which is used to display a single solution when using `\putsol`. You may use `\renewcommand{\solpar}` to provide another definition of `\solpar` in such situations.

2 The documentation driver

The following code will generate the documentation. Since it is the first piece of code in the file, the documentation can be obtained by simply processing the file with $\text{\LaTeX} 2_{\epsilon}$.

```
1 \<driver>
2 \documentclass[a4paper]{article}
3 \usepackage{doc}
4 \usepackage{diagram}
5 \EnableCrossrefs
6 \CodelineIndex
7 \RecordChanges
8 \begin{document}
9 \DocInput{diagram.dtx}
```

¹Normally registers contain page numbers but with chess problems normally people refer to the diagram numbers.

```

10 \end{document}
11 \</driver>

```

3 The implementation of the style

Specifies the preamble of our style file.

```

12 <*style>
13 \ProvidesPackage{diagram}[2012/11/18]
14 \DeclareOption{10pt}{\AtBeginDocument{\diagramx}}
15 \DeclareOption{11pt}{\AtBeginDocument{\diagramxi}}
16 \DeclareOption{12pt}{\AtBeginDocument{\diagramxii}}
17 \ExecuteOptions{10pt}
18 \ProcessOptions
19 \RequirePackage{ifthen}
20 \RequirePackage{calc}
21 \RequirePackage{pstricks}

```

Now we declare some constants to unify its usage within the style file.

```

22 \chardef\f@ur=4
23 \chardef\@ight=8
24 \newcount\elchfont
25
26 \chardef\@pkelch=0
27 \chardef\@fselch=1
28
29 \newcount\dia@type
30
31 \newif\if@textproblem\@textproblemfalse
32 \def\textproblem{\@textproblemtrue\let\@dia\stipulation=\relax}
33
34 \newif\if@solafterdiagram\@solafterdiagramfalse
35 \def\solafterdiagram{\@solafterdiagramtrue\ignorespaces}
36
37 \newif\if@vframe\@vframetrue
38 \newif\if@hframe\@hframetrue
39 \newif\if@leaveOuter\@leaveOutertrue
40
41 \newif\if@shortform
42
43 \newif\ifspace@vertical
44 \def\spacehorizontal{\space@verticalfalse}
45
46 \newif\ifdi@no
47 \newcounter{board@nr}
48 % \newif\iffigcnt
49 \newboolean{piececounter}
50 \newcount\r@w
51 \newcount\lin@
52 \newcount\pl@ne
53 \newcount\current@plane
54
55 \newcount\w@cnt
56 \newcount\b@cnt

```

```

57 \newcount\n@cnt
58 \newboolean{showcity}
59 \setboolean{showcity}{false}
60 \newboolean{showacademictitle}
61 \setboolean{showacademictitle}{true}
62
63 \newcount\@blackfield
64 \newboolean{allwhite}
65 \setboolean{allwhite}{false}
66 \newcommand{\allwhite}{\setboolean{allwhite}{true}}
67 \newcounter{field@border}
68 \newcount\@whitefield
69 \newboolean{switchcolors}
70 \setboolean{switchcolors}{false}
71 \newcommand{\switchcolors}{\setboolean{switchcolors}{true}}
    We have counters for each color to count the pieces on the board.
72 \newboolean{cpd@checkPieceCounts}
73 \newcounter{cpd@defWhitePieces}
74 \newcounter{cpd@defBlackPieces}
75 \newcounter{cpd@defNeutralPieces}
76
77 \newcounter{cpd@whitePieces}
78 \newcounter{cpd@blackPieces}
79 \newcounter{cpd@neutralPieces}
80
81 \newcommand{\cpd@stepcounterWhite}{\stepcounter{cpd@whitePieces}}
82 \newcommand{\cpd@stepcounterBlack}{\stepcounter{cpd@blackPieces}}
83 \newcommand{\cpd@stepcounterNeutral}{\stepcounter{cpd@neutralPieces}}
84 \global\let\cpd@stepcounterPieces\relax
85
86 \newcount\help@a
87 \newcount\help@b
88
89 \newbox\dia@box
90 \newbox\@cnt@box
91 \newdimen\@cnt@wd
92 \newbox\@stip@box
93
94 \newdimen\topdist\topdist@z@
95 \newbox\@test@box
96 \newdimen\@test@dimen
97 \newif\if@left
98
99 \newcount\brd@ff
100
101 \newdimen\dia@lineskip
102
103 \newdimen\board@width
104 \newdimen\bd@width
105 \newdimen\head@width
106 \newdimen\sq@width
107
108 \newdimen\grid@width
109 \newdimen\inner@frame

```



```

110 \newdimen\outer@frame
111 \newdimen\space@frame
112 \newdimen\v@frame@dist
113 \newdimen\h@frame@dist
114 \newdimen\space@frame@dist
115 \newdimen\v@space@dist
116 \newdimen\h@space@dist
117
118 \newbox\square@box
119 \newbox\plane@box

```

We need a lot of token registers to register the information from within the `diagram` environment. These token registers are defined here. Initially each token register is defined to contain `\relax`, which serves as an *end-marker* when parsing lists.

```

120 \newtoks\typis@tk\typis@tk={\relax}
121 \newtoks\label@tk\label@tk={\relax}
122 \newtoks\sol@tk\sol@tk={\relax}
123 \newtoks\number@tk\number@tk={\relax}
124 \newtoks\aut@tk\aut@tk={\relax}
125 \newtoks\city@tk\city@tk={\relax}
126 \newtoks\sourcenr@tk\sourcenr@tk={\relax}
127 \newtoks\source@tk\source@tk={\relax}
128 \newtoks\day@tk\day@tk={\relax}
129 \newcount\from@month\from@month=\z@
130 \newcount\to@month\to@month=\z@
131 \newtoks\year@tk\year@tk={\relax}
132 \newtoks\issue@tk\issue@tk={\relax}
133 \newtoks\pages@tk\pages@tk={\relax}
134 \newtoks\tournament@tk\tournament@tk={\relax}
135 \newtoks\award@tk\award@tk={\relax}
136 \newtoks\after@tk\after@tk={\relax}
137 \newtoks\version@tk\version@tk={\relax}
138 \newtoks\correction@tk\correction@tk={\relax}
139 \newtoks\dedic@tk\dedic@tk={\relax}
140 \newtoks\fidealbum@tk\fidealbum@tk={\relax}
141 \newtoks\theme@tk\theme@tk={\relax}
142 \newtoks\twins@tk\twins@tk={\relax}
143 \newtoks\judgement@tk\judgement@tk={\relax}
144 \newtoks\comment@tk\comment@tk={\relax}
145 \newtoks\computer@tk\computer@tk={-}
146 \newtoks\nofields@tk\nofields@tk={\relax}
147 \newtoks\fieldframe@tk\fieldframe@tk={\relax}
148 \newtoks\gridlines@tk\gridlines@tk={\relax}
149 \newtoks\pieces@tk\pieces@tk={\relax}
150 \newtoks\fieldtext@tk\fieldtext@tk={\relax}
151 \newtoks\text@tk\text@tk={\relax}
152 \newtoks\stipulation@tk\stipulation@tk={\relax}
153 \newtoks\condition@tk\condition@tk={\relax}
154 \newtoks\remark@tk\remark@tk={\relax}
155 \newtoks\piecedefs@tk\piecedefs@tk={\relax}

```

To remember, which information has been specified, we define TeX-boolean for each command.

```

156 \newif\if@label@labelfalse

```

```

157 \newif\if@number\@numberfalse
158 \newif\if@special\@specialfalse
159 \newif\if@auth@r\auth@rfalse
160 \newif\if@city\@cityfalse
161 \newif\if@sourcenr\@sourcenrfalse
162 \newif\if@source\@sourcefalse
163 \newif\if@date\@datefalse
164 \newif\if@day\@dayfalse
165 \newif\if@year\@yearfalse
166 \newif\if@issue\@issuefalse
167 \newif\if@pages\@pagesfalse
168 \newif\if@tournament\@tournamentfalse
169 \newif\if@award\@awardfalse
170 \newif\if@after\@afterfalse
171 \newif\if@version\@versionfalse
172 \newif\if@correction\@correctionfalse
173 \newif\if@dedication\@dedicationfalse
174 \newif\if@fidealbum\@fidealbumfalse
175 \newif\if@twins\@twinsfalse
176 \newif\if@theme\@themefalse
177 \newif\if@computer\@computerfalse
178 \newif\if@judgement\@judgementfalse
179 \newif\if@comment\@commentfalse
180 \newif\if@pieces\@piecesfalse
181 \newif\if@fieldtext\@fieldtextfalse
182 \newif\if@nofields\@nofieldsfalse
183 \newif\if@gridlines\@gridlinesfalse
184 \newif\if@fieldframe\@fieldframefalse
185 \newif\if@stdgrid\@stdgridfalse
186 \newboolean{showcomputer}\setboolean{showcomputer}{true}%
187 \newcommand*{\computerproofedsymbol}{C+}
188 \newcommand*{\notcomputerproofedsymbol}{C-}
189 % \newif\if@show@computer\@show@computertrue
190 \newif\if@stipulation\@stipulationfalse
191 \newif\if@condition\@conditionfalse
192 \newif\if@remark\@remarkfalse
193 \newif\if@piecedefs\@piecedefsfalse
194 \newif\if@typis\@typisfalse
195 \newif\if@widedias\@widediasfalse
196 \newif\ifx@twins\x@twinsfalse
197 \newif\ifx@cond\x@condfalse
198 \newif\ifimitator\imitatorfalse
199 \newif\ifnormal@names\normal@namesfalse
200 \newif\ifs@lu
201 \newif\if@develop\@developfalse
202 \newif\if@notfirst
203 \newif\if@first

204 \newwrite\s@lfd
205 \let\below@newline=\relax
206 % These are used by the "old" board creating mechanism
207 \newcount\@lines
208 \newcount\@rows
209 \newcount\lines@max
210 \newcount\rows@max

```

```
211 \newcount\planes@max
```

The following counters are used when creating the diagram itself.

```
212 \newcounter{cpd@rowsmax}
213 \newcounter{cpd@linesmax}
214 \newcounter{cpd@current@row}
215 \newcounter{cpd@current@line}
216 \newcounter{cpd@maxsquare}
217 \newcounter{cpd@helper}
218 \newcounter{cpd@current@square@index}
219 \newcounter{cpd@current@square@value}
```

Some boolean T_EX-switches used within stereo- or spacechess diagrams.

```
220 \newif\if@stereo\@stereofalse
221 \newif\if@space\@spacefalse
```

These boolean switches are used to control the output of registers.

```
222 \newif\if@aindex\@aindexfalse
223 \newif\if@sindex\@sindexfalse
224 \newif\if@tindex\@tindexfalse
225 \newif\if@label
```

`\diagram` Defines the code executed in `\begin{diagram}`. In case no optional size is given,
`\@diagram` a normal 8×8 board is generated.

```
226 \def\diagram{%
227   \begingroup%
228   \@ifnextchar [{\@diagram}{\@diagram[\@ight x\@ight]}%
229 }
230
231 \def\@diagram[#1x#2]{%
232   \lines@max=#1%
233   \rows@max=#2%
234   \setcounter{cpd@linesmax}{#1}%
235   \setcounter{cpd@rowsmax}{#2}%
236   \setcounter{cpd@maxsquare}{\value{cpd@rowsmax}*\value{cpd@linesmax}}%
237   \plane=\z@%
238   \current@plane=\z@%
239   \let\put@sq=\put@sq@normal%
240   \let\read@plane=\read@plane@normal%
241   \@start@diagram%
242 }
243 \def\stereodiagram{%
244   \begingroup%
245   \@stereotrue%
246   \let\put@sq=\put@sq@stereo%
247   \let\read@plane=\read@plane@stereo%
248   \@start@diagram%
249 }
250 \def\spacediagram{%
251   \begingroup%
252   \@spacetrue%
253   \@ifnextchar [{\@spacediagram}{\@spacediagram[5x5]}%
254 }
255
```

```

256 \def\@spacediagram[#1x#2x#3]{%
257   \lines@max=#1%
258   \rows@max=#2%
259   \planes@max=#3%
260   \let\put@sq=\put@sq@space%
261   \let\read@plane=\read@plane@space%
262   \@start@diagram%
263 }
264 \def\@start@diagram{%
265   \init@vars%
266   \let\author=\ds@author%
267   \let\day=\ds@day%
268   \let\month=\ds@month%
269   \let\year=\ds@year%
270   \let\label=\ds@label%
271   \ignorespaces%
272 }
273
274 \def\showtypis#1{%
275   \@typistrue%
276   \typis@tk={#1}%
277   \ignorespaces%
278 }
279
280 \def\enddiagram{%
281   \let\author=\orig@author%
282   \let\day=\orig@day%
283   \let\month=\orig@month%
284   \let\year=\orig@year%
285   \let\label=\orig@label%
286   \if@number%
287   \else%
288     \refstepcounter{board@nr}% so \label and \ref work properly
289   \fi%
290   %
291   % Now \label@tk should be set, if wanted, so
292   % we can generate the index entries
293   %
294   \@aindex%
295   \@sindex%
296   \@tindex%
297   %
298   % Now \@currentlabel will be set right, so we can use
299   % the original label
300   \if@label%
301     \expandafter\@set@label\the\label@tk;%
302   \fi%
303   %
304   % Now we know, if we have frames so we can setup our dimensions
305   %
306   \global\squarewidth=\fontdimen\tw@\chessfont%
307   \if@stereo%
308     \bd@width=\@ight\squarewidth%
309     \board@width=\@ight\squarewidth%

```

```

310     \ifdim\h@frame@dist<\sq@width%
311         \h@frame@dist=\sq@width%
312     \fi%
313     % We do already skip with \v@space@dist
314     % So we use the additional skip \space@frame@dist here
315     \v@frame@dist=\space@frame@dist%
316     \ifdim\space@frame>\outer@frame%
317         \outer@frame=\space@frame%
318     \fi%
319     \advance\bd@width\tw@inner@frame%
320     \advance\board@width\tw@inner@frame%
321     \advance\board@width\tw@h@frame@dist%
322     \advance\board@width\tw@outer@frame%
323 \else\if@space%
324     \ifdim\h@frame@dist<1.5\square@width%
325         \h@frame@dist=1.5\square@width%
326     \fi%
327     % We do already skip with \v@space@dist
328     % So we use the additional skip \space@frame@dist here
329     \v@frame@dist=\space@frame@dist%
330     \ifdim\space@frame>\outer@frame%
331         \outer@frame=\space@frame%
332     \fi%
333     \ifspace@vertical%
334         \bd@width=\lines@max\square@width%
335         \board@width\bd@width%
336         \advance\bd@width\tw@inner@frame%
337         \advance\board@width\tw@inner@frame%
338         \advance\board@width\tw@h@frame@dist%
339         \advance\board@width\tw@outer@frame%
340     \else%
341         \bd@width=\lines@max\square@width%
342         \advance\bd@width\tw@inner@frame%
343         \ifdim\h@space@dist<1.5\square@width%
344             \h@space@dist=1.5\square@width%
345         \fi%
346         %\h@space@dist=0.7\square@width%
347         % Now we can compute the width of the complete board
348         \board@width\bd@width%
349         \advance\board@width\h@space@dist%
350         \multiply\board@width\planes@max%
351         \advance\board@width\h@space@dist%
352         \advance\board@width\tw@outer@frame%
353     \fi%
354 \else%
355     \bd@width=\lines@max\square@width%
356     \ifnum\lines@max>\@eight%
357         % Make the board wider
358         \board@width=\lines@max\square@width%
359     \else%
360         % Make a normal width
361         \board@width=\@eight\square@width%
362     \fi%
363     \advance\bd@width\tw@inner@frame%

```

```

364     \advance\board@width\tw@\inner@frame%
365     \advance\board@width\tw@\h@frame@dist%
366     \advance\board@width\tw@\outer@frame%
367 \fi\fi%
368 \if@widedias%
369     \head@width=\textwidth%
370 \else%
371     \head@width=\board@width%
372 \fi%
373 %
374 % Now we should build the diagram itself
375 %
376 \if@textproblem%
377     % Put the stipulation into the \sq@box
378     \setbox\sq@box=\hbox{\vbox to \board@width{\hsize\board@width%
379         \stipfont%
380         \raggedright%
381         \sloppy%
382         \the\stipulation@tk%
383         \vfil%
384     }}%
385 \else%
386     \put@sq% This builds up the \sq@box
387     % Check, if the given number of pieces is reached
388     \ifthenelse{\boolean{cpd@checkPieceCounts}}{%
389         \ifthenelse{\value{cpd@defWhitePieces}=\value{cpd@whitePieces}}{%
390             {\errmessage{Wrong number of white pieces}}%
391         \ifthenelse{\value{cpd@defBlackPieces}=\value{cpd@blackPieces}}{%
392             {\errmessage{Wrong number of black pieces}}%
393         \ifthenelse{\value{cpd@defNeutralPieces}=\value{cpd@neutralPieces}}{%
394             {\errmessage{Wrong number of neutral pieces}}%
395         }{}%
396     \fi%
397 %
398 \global\setbox\dia@box=\hbox{\vbox{%
399     \parindent\z@%
400     \parskip\z@%
401     \baselineskip11\p@\advance\baselineskip\dia@lineskip%
402     \hsize\head@width%
403     \centering%
404     % diagram header
405     \vskip\topdist%
406     \vbox{\hsize\board@width\hbox{%
407         \if@develop\if@label%
408             \noindent\raggedright\llap{\labelfont\the\label@tk\ }%
409         \fi\fi%
410         \vbox{%
411             \he@dpos\dia@above%
412         }%
413     }}%
414     \vskip\tw@\p@%
415     % diagram itself
416     \vtop{\hsize\board@width%
417         \hbox to \head@width{\hss\vbox{%

```

```

418         \hsize\board@width%
419         \if@textproblem%
420             \box\square@box%
421         \else%
422             \outer@henbox{\box\square@box}%
423         \fi%
424     }\hss}%
425     % diagram trailer
426     \hbox to \head@width{\hss\vtop{%
427         \hsize\board@width%
428         \parskip\z@%
429         \raggedright%
430         \put@count%
431         \dia@below%
432     }\hss}%
433     }%
434 }}% End of \dia@box
435 \do@dia@job%
436 \endgroup%
437 }
438
439 \def\put@count{%
440     % First we build the box with the figure count
441     \ifthenelse{\boolean{showcomputer}\OR\boolean{piececounter}}{%
442         \global\setbox\@cnt@box=\hbox{%
443             \stipfont%
444             \ifthenelse{\boolean{showcomputer}}{%
445                 \ \ \if@computer\computerproofedsymbol\else\notcomputerproofedsymbol\fi%
446             }{}%
447             \ifthenelse{\boolean{piececounter}}{%
448                 \ \ (\arabic{cpd@whitePieces}+\arabic{cpd@blackPieces}%
449                 \ifthenelse{\value{cpd@neutralPieces}>0}{+\arabic{cpd@neutralPieces}}{}%
450             }{}%
451         }%
452         \@cnt@wd=\wd\@cnt@box%
453         \hangindent-\@cnt@wd%
454         \hangafter\m@ne%
455         \noindent%
456         \hbox to \z@{%
457             \hbox to \board@width{\hfil\unhbox\@cnt@box}\hskip -\board@width%
458         }%
459     }{}%
460 }
461
462 \let\endstereodiagram=\enddiagram
463 \let\endspacediagram=\enddiagram
464 \def\figurine{%
465     \begingroup%
466     \init@vars%
467     \let\author=\ds@author%
468     \let\day=\ds@day%
469     \let\month=\ds@month%
470     \let\year=\ds@year%
471     \let\label=\ds@label%

```

```

472 }
473
474 \def\endfigurine{%
475   \let\author=\orig@author%
476   \let\day=\orig@day%
477   \let\month=\orig@month%
478   \let\year=\orig@year%
479   \let\label=\orig@label%
480   \if@number%
481   \else%
482     \refstepcounter{board@nr}% so \label and \ref work properly
483   \fi%
484   %
485   % Now \label@tk should be set, if wanted, so
486   % we can generate the index entries
487   %
488   \@aindex%
489   \@sindex%
490   \@tindex%
491   %
492   % Now \@currentlabel will be set right, so we can use
493   % the original label
494   %
495   \if@label%
496     \expandafter\@set@label\the\label@tk;%
497   \fi%
498   %
499   \@show@figurine%
500 \endgroup%
501 }
502 %
503 \gdef\selectelchfont#1{%
504   \global\elchfont\csname @#1elch\endcsname\defaultelchfont%
505 }

```

Here we define commands to change fonts used for text above and below the diagram. You may redefine to adjust the fonts to your needs.

```

\authorfont
  \cityfont 506 \newcommand*{\authorfont}{\bfseries}
\sourcefont 507 \newcommand*{\cityfont}{\slshape}
\awardfont 508 \newcommand*{\sourcefont}{\bfseries\itshape}
\dedicfont 509 \newcommand*{\awardfont}{\itshape}
\stipfont 510 \newcommand*{\dedicfont}{\itshape}
\remfont 511 \newcommand*{\stipfont}{\rmfamily}
\labelfont 512 \newcommand*{\remfont}{\rmfamily}
\boardfont 513 \newcommand*{\labelfont}{\rmfamily}
514 \newcommand*{\boardfont}{\rmfamily}

```

We have three different default sizes for diagrams. The following commands switch fontsizes used for the chessfonts to typeset the diagrams.

```

\diagramx
\diagramxi 515 \newcommand*{\diagramx}{
\diagramxii 516   \ifcase\elchfont\relax%

```



```

517     \font\chessfont=pkelch12
518     \font\chtextfont=pkelch10
519 \else%
520     \font\chessfont=fselch12
521     \font\chtextfont=fselch10
522 \fi%
523 \dia@lineskip\z@
524 \dia@type\z@
525 }
526
527 \newcommand*\diagramxi{
528 \ifcase\elchfont\relax%
529     \font\chessfont=pkelch14
530     \font\chtextfont=pkelch11
531 \else%
532     \font\chessfont=fselch14
533     \font\chtextfont=fselch11
534 \fi%
535 \dia@lineskip\@ne\p@
536 \dia@type\@ne
537 }
538
539 \newcommand*\diagramxii{
540 \ifcase\elchfont\relax%
541     \font\chessfont=pkelch16
542     \font\chtextfont=pkelch12
543 \else%
544     \font\chessfont=fselch16
545     \font\chtextfont=fselch12
546 \fi%
547 \dia@lineskip\tw@\p@
548 \dia@type\tw@
549 }

```

`\defaultelchfont` `\defaultelchfont` is used to define the fontsize used to typeset the diagrams depending on the documentsize.

```

550 \def\defaultelchfont{%
551 \ifcase\@ptsize\relax%
552     \diagramx\or%
553     \diagramxi\or%
554     \diagramxii%
555 \fi%
556 }

557 \def\dianamestyle#1{\def\@dianame{\csname @#1\endcsname}}
558 \def\solnamestyle#1{\def\@solname{\csname @#1\endcsname}}
559 \def\diagram#1{\c@board@nr=#1\advance\c@board@nr\m@ne}

```

`\ra` Now we define a couple of abbreviations and special symbols often used when setting problem chess documents.

```

\rla 560 \def\ra{\mbox{\$ \rightarrow\$}}
\lx 561 \def\lra{\mbox{\$ \leftrightharpoonup\$}}
\set 562 \let\rla=\lra
\OO 563 \def\lx{\mbox{\ifmmode\times\else$\times$\fi}}

```

`\OOO`
`\any`

`\further`

```

564 \def\set{\kern -.05em\raise .1ex\hbox{*}}
565 \def\@0{\raise.25ex\hbox{-}\kern -.1em\relax}
566 \def\@00{\@00}
567 \def\@000{\@0\@00}
568 \def\any{\ifmmode\sim\else$\sim$\fi}
569 \def\further{\ifmmode\Rightarrow\else$\Rightarrow$\fi\ \ignorespaces}

570 \def\spacelayout#1{\csname space@#1\endcsname}
571 \def\nodiagnumbering{\global\di@nofalse}
572 \def\diagnumbering#1{%
573   \di@notrue\diagnum{\@ne}%
574   \gdef\thediag{\csname @#1\endcsname\c@board@nr}%
575 }

```

`\diagcenter` The macros `\diagcenter`, `\diagleft` and `\diagright` simply define the macro `\he@dpos` to the corresponding paragraph alignment.

```

\diagleft \he@dpos to the corresponding paragraph alignment.
\diagright 576 \def\diagcenter{\def\he@dpos{centering}}
577 \def\diagleft{\def\he@dpos{raggedright}}
578 \def\diagright{\def\he@dpos{raggedleft}}

```

`\setmonthstyle` The implementation of `\setmonthstyle` does `\diagnumbering` define a command which uses the given parameter as a part of the command name.

```

579 \def\setmonthstyle#1{\def\write@month{\csname @#1\endcsname}}

580 \def\specialdiagnum#1{%
581   \@specialtrue%
582   \number@tk={#1}\@numbertrue\def\thediag{#1}\def\@currentlabel{#1}%
583   \ignorespaces%
584 }

```

`\ds@label` The macros `\ds@label` and `\ds@author` are defined internally and are made public within `\begin{diagram}`. This is because the macros `\label` and `\author` are normal L^AT_EX-macros and I want to avoid to redefine these globally.

```

585 \def\ds@label{%
586   \ifstar{\ds@labelfalse\ds@xlabel}{\ds@labeltrue\ds@xlabel}%
587 }
588 \def\ds@author#1{%
589   \aut@tk={#1}\auth@rtrue%
590   \ignorespaces%
591 }

```

`\ds@academictitle`

```

\Dr 592 \def\ds@academictitle#1{\ifthenelse{\boolean{showacademictitle}}{#1~}{}\ignorespaces}
\Prof 593 \newcommand{\Dr}{\ds@academictitle{Dr.}}
\ProfDr 594 \newcommand{\Prof}{\ds@academictitle{Prof.}}
595 \newcommand{\ProfDr}{\ds@academictitle{Prof.\,Dr.}}

596 \def\city#1{%
597   \city@tk={#1}\@citytrue%
598   \ignorespaces%
599 }
600 \def\sourcenr#1{%
601   \sourcenr@tk={#1}\@sourcenrtrue%
602   \ignorespaces%

```

```

603 }
604 \def\source#1{%
605   \source@tk={#1}\@sourcetrue%
606   \ignorespaces%
607 }
608 \def\ds@day#1{%
609   \day@tk={#1}\@daytrue\@datetrue%
610   \ignorespaces%
611 }
612 \def\ds@month#1{%
613   \from@month=#1\@datetrue%
614   \ignorespaces%
615 }
616 \def\months#1{%
617   \@months#1;%
618   \ignorespaces%
619 }
620 \def\ds@year#1{%
621   \year@tk={#1}\@yeartrue\@datetrue%
622   \ignorespaces%
623 }
624 \def\issue#1{%
625   \issue@tk={#1}\@issuetrue%
626   \ignorespaces%
627 }
628 \def\pages#1{%
629   \pages@tk={#1}\@pagetrue%
630   \ignorespaces%
631 }
632 \def\tournament#1{%
633   \tournament@tk={#1}\@tournamenttrue%
634   \ignorespaces%
635 }
636 \def\award#1{%
637   \award@tk={#1}\@awardtrue%
638   \ignorespaces%
639 }
640 \def\version#1{%
641   \version@tk={#1}\@versiontrue%
642   \ignorespaces%
643 }
644 \def\after#1{%
645   \after@tk={#1}\@aftertrue%
646   \ignorespaces%
647 }
648 \def\correction#1{%
649   \correction@tk={#1}\@correctiontrue%
650   \ignorespaces%
651 }
652 \def\dedication#1{%
653   \dedic@tk={#1}\@dedicationtrue%
654   \ignorespaces%
655 }
656 \def\fidealbum#1{%

```

```

657 \fidealalbum@tk={#1}\@fidealalbumtrue%
658 \ignorespaces%
659 }
660 \def\pieces{%
661 \@ifnextchar[%
662 {\x@pieces}%
663 {\@pieces}%
664 }
665 \def\x@pieces[#1]{%
666 % We should parse the given piececounts
667 \setboolean{cpd@checkPieceCounts}{true}%
668 \@parseWhiteAndBlackCount#1+\e@list
669 \@pieces%
670 }
671 \def\@parseWhiteAndBlackCount#1+#2+{%
672 \setcounter{cpd@defWhitePieces}{#1}%
673 \setcounter{cpd@defBlackPieces}{#2}%
674 \futurelet\n@xt\cpd@checkNeutral%
675 }
676 \let\cpd@nextproc=\relax%
677 \def\cpd@checkNeutral{%
678 \if\n@xt\relax%
679 \let\cpd@nextproc=\relax%
680 \else%
681 \let\cpd@nextproc=\@parseNeutralCount%
682 \fi%
683 \cpd@nextproc%
684 }
685 \def\@parseNeutralCount#1+{%
686 \setcounter{cpd@defNeutralPieces}{#1}%
687 }
688 \def\@pieces#1{%
689 \pieces@tk={#1}\@piecestrue%
690 \ignorespaces%
691 }
692 \def\fieldtext#1{%
693 \fieldtext@tk={#1}\@fieldtexttrue%
694 \ignorespaces%
695 }
696 \def\nofields#1{%
697 \nofields@tk={#1}\@nofieldstrue%
698 \ignorespaces%
699 }
700 \let\nosquares\nofields
701 \def\gridlines#1{%
702 \gridlines@tk={#1}\@gridlinestrue%
703 \ignorespaces%
704 }
705 \def\fieldframe#1{%
706 \fieldframe@tk={#1}\@fieldframetrue%
707 \ignorespaces%
708 }
709 \def\stipulation#1{%
710 \stipulation@tk={#1}\@stipulationtrue%

```

```

711 \ignorespaces%
712 }
713 \def\condition{%
714 \ifstar{x@condtrue\@condition}{\@condition}%
715 }
716 \def\@condition#1{%
717 \condition@tk={#1}\@conditiontrue%
718 \ignorespaces%
719 }
720 \def\twins{%
721 \ifstar{x@twinstrue\@twins}{\@twins}%
722 }
723 \def\@twins#1{%
724 \twins@tk={#1}\@twinstrue%
725 \ignorespaces%
726 }
727 \def\remark#1{%
728 \remark@tk={#1}\@remarktrue%
729 \ignorespaces%
730 }
731 \def\piecedefs#1{%
732 \piecedefs@tk={#1}\@piecedefstrue%
733 \ignorespaces%
734 }
735 % \def\@piecedef#1{\csname#1\@piecedef\endcsname\l@@klist}
736 % \newcommand{\piecedef}[3][ws]{%
737 % \def\x@piecedef{#2}%
738 % \let\@action=\@piecedef%
739 % \hbox{\l@@klist#1\@e@list%
740 % \ = #3}%
741 % }
742 \def\Co#1{%
743 \ifx#1+\@computertrue\computer@tk={+}\fi%
744 \ignorespaces%
745 }
746 \long\def\solution#1{%
747 \sol@tk={#1}\global\s@luttrue%
748 \ignorespaces%
749 }
750 \def\themes#1{%
751 \theme@tk={#1}\@themetrue%
752 \ignorespaces%
753 }
754 \long\def\comment#1{%
755 \comment@tk={#1}\@commenttrue%
756 \ignorespaces%
757 }
758 \long\def\judgement#1{%
759 \judgement@tk={#1}\@judgementtrue%
760 \ignorespaces%
761 }
762 \def\noframe{%
763 \@vframefalse\@hframefalse%
764 \ignorespaces%

```

```

765 }
766 \def\noinnerframe{%
767   \@leaveOuterfalse\@vframefalse\@hframefalse%
768   \ignorespaces%
769 }
770 \def\verticalcylinder{%
771   \@vframefalse%
772   \ignorespaces%
773 }
774 \def\horizontalcylinder{%
775   \@hframefalse%
776   \ignorespaces%
777 }
778 \def\stdgrid{%
779   \@stdgridtrue%
780   \ignorespaces%
781 }

```

`\gridchess` Here we define some abbreviations and synonyms for other macros.

```

\magic 782 \let\gridchess=\stdgrid
\tourn 783 \let\magic=\fieldframe
\dedic 784 \let\tourn=\tournament
\stip 785 \let\dedic=\dedication
\cond 786 \let\stip=\stipulation
\rem 787 \let\cond=\condition
\sol 788 \let\rem=\remark
789 \let\sol=\solution

790 \def\develop{%
791   \@developtrue%
792   \ignorespaces%
793 }
794 \def\showcomputer{%
795   \setboolean{showcomputer}{true}%
796   \ignorespaces%
797 }
798 \def\nocomputer{%
799   \setboolean{showcomputer}{false}%
800   \ignorespaces%
801 }
802 \def\putsol{\immediate\closeout\s@lfd\input\jobname.sol\cl@arsol}
803 \def\widedias{\@widediastrue\diagcenter}
804 \def\nowidedias{\@widediasfalse}
805 \def\normalnames{\normal@namestrue}
806 \def\reversednames{\normal@namesfalse}
807 \def\makeaindex{%
808   \@dia@index%
809   \newindex[thediag]{author}{adx}{and}{Autorenverzeichnis}%
810   \@aindextrue\reversednames%
811 }
812
813 \def\makesindex{%
814   \@dia@index%
815   \newindex[thediag]{source}{sdx}{snd}{Quellenregister}%

```

```

816 \@sindextrue%
817 }
818
819 \def\maketindex{%
820 \@dia@index%
821 \newindex[thediag]{theme}{tdx}{tnd}{Themenregister}%
822 \@tindextrue%
823 }
824
825 \def\authorindex{\let\@idxtitem\@aidxtitem\printindex[author]}
826 \def\sourceindex{\printindex[source]}
827 \def\themeindex{\printindex[theme]}
828 \def\DefinePieces#1#2#3{%
829 \@setPieceColor#1\@setPieceSpec#2\@setPieceRotation#3%
830 \loop@rotation%
831 \expandafter\xdef\csname\ds@black\ds@white\ds@bishop\endcsname{%
832 \noexpand\ch@fig{20}}%
833 }%
834 \expandafter\xdef\csname\ds@black\ds@black\ds@bishop\endcsname{%
835 \noexpand\ch@fig{32}}%
836 }%
837 \expandafter\xdef\csname\ds@white F\endcsname{\chessfont }
838 \expandafter\xdef\csname\ds@black F\endcsname{\chessfont char144}}
839 \expandafter\xdef\csname\ds@white Nr\endcsname{%
840 \noexpand\ch@fig{109}}%
841 }%
842 \expandafter\xdef\csname\ds@neutral Nr\endcsname{%
843 \noexpand\ch@fig{115}}%
844 }%
845 \expandafter\xdef\csname\ds@black Nr\endcsname{%
846 \noexpand\ch@fig{121}}%
847 }%
848 \expandafter\xdef\csname\ds@white Gh\endcsname{%
849 \noexpand\ch@fig{112}}%
850 }%
851 \expandafter\xdef\csname\ds@neutral Gh\endcsname{%
852 \noexpand\ch@fig{118}}%
853 }%
854 \expandafter\xdef\csname\ds@black Gh\endcsname{%
855 \noexpand\ch@fig{124}}%
856 }%
857 \expandafter\xdef\csname\ds@white C\endcsname{%
858 \noexpand\ch@fig{145}}%
859 }%
860 \expandafter\xdef\csname\ds@neutral C\endcsname{%
861 \noexpand\ch@fig{151}}%
862 }%
863 \expandafter\xdef\csname\ds@black C\endcsname{%
864 \noexpand\ch@fig{157}}%
865 }%
866 }
867 \def\Imi{\ch@fig{157}}
868 \def\wE{\ch@fig{216}}
869 \def\NE{\ch@fig{222}}

```

```

870 \def\sE{\ch@fig{228}}
871 \def\wX{\ch@fig{180}}
872 \def\nX{\ch@fig{186}}
873 \def\sX{\ch@fig{192}}
874

```

`\dia@above` The content of the box above a diagram is controlled by the macro `\dia@above`. It just delegates the information to a couple of other macros, which then generate the displayed information above the diagram.

```

875 \def\dia@above{%
876   \@dia@number%
877   \@dia@authors%
878   \@dia@city%
879   \@dia@after%
880   \@dia@version%
881   \@dia@source%
882   \@dia@correction%
883   \@dia@tournament%
884   \@dia@award%
885   \@dia@dedic%
886   \@dia@fidealbum%
887 }

```

`\dia@below` As before, the macro `\dia@below` creates the displayed information below the chessboard - forwarding to a couple of other macros.

```

888 \def\dia@below{%
889   \bgroup%
890   \if@stipulation%
891     \@dia@stipulation%
892   \fi%
893   \ifx@cond\else%
894     \@dia@condition%
895   \fi%
896   \ifx@twins\else%
897     \@dia@twins%
898   \fi%
899   \@dia@remark%
900   \if@solafterdiagram%
901     \below@newline%
902     \the\sol@tk%
903   \fi%
904   \noindent\hbox{ }\newline\hbox{ }%
905   \egroup%
906 }

```

`\@dia@number` The `\@dia@number` macro simply creates the diagram number in a single paragraph.

```

907 \def\@dia@number{%
908   {\authorfont\thediag\par}%
909 }

```

`\@dia@authors` This macro is used to create the list of authors specified within the `\author` macro inside the `diagram` environment. Depending on the `TEX-boolean`

normal@names we either simply display the registered author or parse the list of authors by using the generic \@parseTokenList macro.

```

910 \def\@dia@authors{%
911   \ifauth@r%
912     \bgroup%
913     \authorfont%
914     \ifnormal@names%
915       \the\aut@tk%
916     \else%
917       {\def\name@sep{\par}%
918        \@notfirstfalse%
919        \let\@action=\@dia@writename% Parse the list of authors
920        \@parseTokenlist\aut@tk;}
921       \fi%
922     \egroup%
923   \fi%
924 }

925 \def\@show@city#1;{\if@notfirst\ \slash\ \else\@notfirsttrue\fi#1}
926
927 \def\p@rsecity#1; {\@show@city#1;\l@klist}
928
929 \def\@dia@city{%
930   \ifthenelse{\boolean{showcity}}{%
931     \if@city%
932       \bgroup%
933       \cityfont\@notfirstfalse%
934       \let\@action=\p@rsecity\@parseTokenlist\city@tk;%
935       \par%
936       \egroup%
937     \fi%
938   }{}%
939 }
940
941 \def\@dia@after{%
942   \if@after%
943     \bgroup%
944     \dedicfont\the\after@tk\par%
945     \egroup%
946   \fi%
947 }
948
949 \def\@dia@version{%
950   \if@version%
951     \bgroup%
952     \dedicfont\the\version@tk\par%
953     \egroup%
954   \fi%
955 }
956
957 \def\@dia@date{%
958   \ifnum\from@month>\z0%
959     \if@day%
960       \the\day@tk.\write@month\from@month%

```

```

961     \else%
962         \write@month\from@month%
963     \fi%
964     \ifnum\to@month>\z@--\write@month\to@month\fi%
965     \if@day.\else/\fi%
966 \fi%
967 \if@year\the\year@tk\fi%
968 }
969
970 \def\@dia@source{%
971     \if@source%
972         \bgroup%
973         \sourcefont%
974         \if@sourcenr\the\sourcenr@tk\ \fi
975         \the\source@tk%
976         \if@date\ \ \fi\@dia@date%
977         \if@issue\ \ \the\issue@tk\fi%
978         \if@pages ,\ \the\pages@tk\fi%
979         \par%
980     \egroup%
981 \else%
982     \if@tournament\else\if@date%
983         \bgroup%
984         \sourcefont%
985         \@dia@date%
986         \par%
987     \egroup%
988     \fi\fi%
989 \fi%
990 }
991
992 \def\@dia@correction{%
993     \if@correction%
994         \bgroup%
995         \dedicfont\the\correction@tk%
996         \par%
997     \egroup%
998     \fi%
999 }
1000
1001 \def\@dia@tournament{%
1002     \if@tournament
1003         \bgroup%
1004         \awardfont%
1005         \the\tournament@tk
1006         \if@source\else\if@date%
1007             \ \ \@dia@date%
1008         \fi\fi%
1009         \par%
1010     \egroup%
1011     \fi%
1012 }
1013
1014 \def\@dia@award{%

```

```

1015 \if@award%
1016 \bgroup%
1017 \awardfont\the\award@tk%
1018 \par%
1019 \egroup%
1020 \fi%
1021 }
1022
1023 \def\@dia@dedic{%
1024 \if@dedication%
1025 \bgroup%
1026 \dedicfont\the\dedic@tk%
1027 \par%
1028 \egroup%
1029 \fi%
1030 }
1031
1032 \def\@show@album#1/#2;{#1 FIDE-Album #2}
1033
1034 \def\@dia@fidealbum{%
1035 \if@fidealbum{%
1036 \expandafter\@show@album\the\fidealbum@tk;%
1037 \par%
1038 }\fi%
1039 }
1040
1041 \def\@twinskip{\ \ }
1042
1043 \def\@dia@stipulation{%
1044 \if@stipulation%
1045 \bgroup%
1046 \stipfont%
1047 \the\stipulation@tk%
1048 \ifx@twins%
1049 \let\below@newline\@twinskip%
1050 \@dia@twins%
1051 \else\ifx@cond%
1052 \let\below@newline\@twinskip%
1053 \@dia@condition%
1054 \fi\fi%
1055 \egroup%
1056 \let\below@newline\newline%
1057 \else%
1058 \x@twinsfalse%
1059 \x@condfalse%
1060 \let\below@newline\relax%
1061 \fi%
1062 }
1063
1064 \def\x@write@twin#1; {%
1065 \hskipem#1%
1066 \@lefttrue\let\below@newline\newline%
1067 \let\@action\write@twins%
1068 \l@@klist%

```

```

1069 }
1070
1071 \def\write@twins#1; {%
1072   \setbox\@test@box=\hbox{#1\if@left~~\fi}%
1073   \ifdim\wd\@test@box>4\sq@width%
1074     \below@newline%
1075     \@lefttrue%
1076     #1%
1077   \else%
1078     \if@left%
1079       \below@newline%
1080     \fi%
1081     \noindent\hbox to 4\sq@width{#1\hfil}%
1082     \if@left%
1083       \@leftfalse%
1084     \else%
1085       \@lefttrue%
1086     \fi%
1087   \fi%
1088   \let\below@newline\newline%
1089   \l@klist%
1090 }
1091
1092 \def\@dia@twins{%
1093   \if@twins%
1094     \bgroup%
1095     \@lefttrue%
1096     \remfont%
1097     \ifx@twins%
1098       \let\@action=\x@write@twin%
1099     \else%
1100       \let\@action=\write@twins%
1101     \fi%
1102     \@parseTokenlist\twins@tk;%
1103     \egroup%
1104     \let\below@newline\newline%
1105   \fi%
1106 }
1107
1108 \def\@dia@condition{%
1109   \if@condition%
1110     \bgroup%
1111     \@lefttrue%
1112     \remfont%
1113     \ifx@cond%
1114       \let\@action=\x@write@twin%
1115     \else%
1116       \let\@action=\write@twins%
1117     \fi%
1118     \@parseTokenlist\condition@tk;%
1119     \egroup%
1120     \let\below@newline\newline%
1121   \fi%
1122 }

```

```

1123
1124 \def\check@piecedef{%
1125     \ifx\next@piecedef\relax%
1126         \let\col@action=\relax%
1127     \else%
1128         \let\col@action=\@@piecedef%
1129     \fi%
1130     \col@action%
1131 }
1132 \def\@@piecedef#1{\csname#1\endcsname\parse@piecedef}
1133
1134 \def\parse@piecedef{\futurelet\next@piecedef\check@piecedef}
1135
1136 \def\@piecedef#1#2#3{%
1137     \def\x@piecedef{#2}%
1138     \below@newline%
1139     \hbox{%
1140         \parse@piecedef#1\relax%
1141         \ = #3}%
1142 }
1143
1144 \def\write@piecedefs#1; {%
1145     \@piecedef#1%
1146     \l@klist%
1147 }
1148
1149 \def\@dia@remark{%
1150     \if@remark%
1151         \bgroup%
1152         \@lefttrue%
1153         \remfont\let\@action=\write@twins%
1154         \@parseTokenlist\remark@tk;%
1155         \egroup%
1156         \let\below@newline\newline%
1157     \fi%
1158     \if@piecedefs%
1159         \bgroup%
1160         \@lefttrue%
1161         \let\below@newline\newline%
1162         \remfont\let\@action=\write@piecedefs%
1163         \@parseTokenlist\piecedefs@tk;%
1164         \egroup%
1165     \fi%
1166 }
1167
1168 \def\parse@params#1{%
1169     \ifcase\help@a\relax
1170         \label@tk={#1}\ifx\relax#1\else\@labeltrue\fi\or%
1171         \number@tk={#1}\ifx\relax#1\else\@numbertrue\fi\or%
1172         \aut@tk={#1}\ifx\relax#1\else\@auth@rtrue\fi\or%
1173         \city@tk={#1}\ifx\relax#1\else\@citytrue\fi\or%
1174         \sourcetr@tk={#1}\ifx\relax#1\else\@sourcetrtrue\fi\or%
1175         \source@tk={#1}\ifx\relax#1\else\@sourcetrtrue\fi\or%
1176         \day@tk={#1}\ifx\relax#1\else\@daytrue\fi\or%

```

```

1177 \from@month=#1\or%
1178 \to@month=#1\or%
1179 \year@tk={#1}\ifx\relax#1\else\@yeartrue\fi\or%
1180 \issue@tk={#1}\ifx\relax#1\else\@issuetrue\fi\or%
1181 \pages@tk={#1}\ifx\relax#1\else\@pagestrue\fi\or%
1182 \tournament@tk={#1}\ifx\relax#1\else\@tournamenttrue\fi\or%
1183 \award@tk={#1}\ifx\relax#1\else\@awardtrue\fi\or%
1184 \after@tk={#1}\ifx\relax#1\else\@aftertrue\fi\or%
1185 \version@tk={#1}\ifx\relax#1\else\@versiontrue\fi\or%
1186 \correction@tk={#1}\ifx\relax#1\else\@correctiontrue\fi\or%
1187 \dedic@tk={#1}\ifx\relax#1\else\@dedicationtrue\fi\or%
1188 \theme@tk={#1}\ifx\relax#1\else\@themetrue\fi\or%
1189 \twins@tk={#1}\ifx\relax#1\else\@twinstrue\fi\or%
1190 \computer@tk={#1}\or%
1191 \comment@tk={#1}\ifx\relax#1\else\@commenttrue\fi\or%
1192 \judgement@tk={#1}\ifx\relax#1\else\@judgementtrue\fi\or%
1193 \sol@tk={#1}%
1194 \fi%
1195 \advance\help@a \@ne%
1196 \l@@klist%
1197 }
1198
1199 \def\split@param#1{%
1200 \@labelfalse\@numberfalse\auth@rfalse\@cityfalse%
1201 \@sourcetrue\@sourcefalse\@dayfalse\@yearfalse%
1202 \@issuefalse\@pagesfalse\@tournamentfalse\@awardfalse%
1203 \@afterfalse\@versionfalse\@correctionfalse\@dedicationfalse%
1204 \@themefalse\@twinsfalse\@commentfalse\@judgementfalse%
1205 \help@a=\z@%
1206 \let\@action=\parse@params\l@@klist#1\@e@list%
1207 }
1208 \newcommand{\solpar}{\par}
1209 \def\@dia@solution{%
1210 \bgroup%
1211 \parindent\z@%
1212 \parskip\tw@\p@%
1213 {\bfseries%
1214 \noindent\if@label\showlabel{\the\label@tk}\fi%
1215 \the\number@tk} %
1216 \ifauth@r%
1217 \ifnormal@names%
1218 \the\aut@tk%
1219 \else%
1220 {\@notfirstfalse% We are the first one
1221 \def\name@sepf, }%
1222 \let\@action=\@sol@writename%
1223 \@parseTokenlist\aut@tk;}%
1224 \fi%
1225 \newline%
1226 \fi%
1227 }%
1228 \if@develop\if@judgement\the\judgement@tk\solpar\fi\fi%
1229 \the\sol@tk\solpar%
1230 \if@comment\the\comment@tk\solpar\fi%

```

```

1231 \egroup%
1232 }
1233 \grid@width=0.6\p@
1234 \inner@frame=0.6\p@
1235 \outer@frame=1.2\p@
1236 \space@frame=\outer@frame
1237 \v@frame@dist=\tw@\p@%
1238 \h@frame@dist=\tw@\p@%
1239 \space@frame@dist=\z@
1240 \v@space@dist=1em
1241 \def\@show@figurine{%
1242 \noindent%
1243 \@figurine@number%
1244 \@figurine@author%
1245 \@figurine@city%
1246 \@figurine@after%
1247 \@figurine@correction%
1248 \@figurine@version%
1249 \@figurine@source%
1250 \@figurine@tournament%
1251 \@figurine@award%
1252 \@figurine@dedic%
1253 \@figurine@pieces%
1254 \@figurine@stip%
1255 \@figurine@twins%
1256 \@figurine@conditions%
1257 \@figurine@remarks%
1258 \@figurine@computer%
1259 }
1260 \def\@figurine@number{\authorfont\thediag}}
1261
1262 \def\p@rseauthor@figurine#1,#2; {%
1263 \if@notfirst, \else\@notfirsttrue\fi#2 #1%
1264 \l@klist%
1265 }
1266
1267 \def\@figurine@author{%
1268 {\ifauth@r%
1269 \authorfont\@notfirstfalse%
1270 \let\@action=\p@rseauthor@figurine%
1271 \@parseTokenlist\aut@tk;%
1272 \ \ %
1273 \fi}%
1274 }
1275
1276 \def\@figurine@city{%
1277 {\if@city%
1278 \cityfont\@notfirstfalse%
1279 \let\@action=\p@rsecity\@parseTokenlist\city@tk;%
1280 \ \ \ %
1281 \fi}%
1282 }
1283
1284 \def\@figurine@after{\if@after{\dedicfont\ \ \the\after@tk}\fi}

```

```

1285
1286 \def\@figurine@correction{%
1287   \if@correction{\dedicfont\ \ \the\correction@tk}\fi%
1288 }
1289
1290 \def\@figurine@version{%
1291   \if@version{\dedicfont\ \ \the\version@tk}\fi%
1292 }
1293
1294 \def\@figurine@source{%
1295   {\if@source%
1296     \sourcefont%
1297     \if@sourcenr\the\sourcenr@tk\ \fi%
1298     \the\source@tk%
1299     \if@year%
1300       \ \ %
1301       \if@day%
1302         \ifnum\from@month>\z@%
1303           \the\day@tk.%
1304           \write@month\from@month%
1305           \ifnum\to@month>\z@%
1306             -\write@month\to@month%
1307           \fi%
1308           .%
1309         \fi%
1310       \else%
1311         \write@month\the\from@month%
1312         \ifnum\to@month>\z@%
1313           -\write@month\the\to@month%
1314         \fi%
1315         /%
1316       \fi%
1317       \the\year@tk%
1318     \fi%
1319     \if@issue , \the\issue@tk\fi%
1320     \if@pages , \the\pages@tk\fi%
1321   \fi}%
1322 }
1323
1324 \def\@figurine@tournament{%
1325   \if@tournament{\awardfont\ \ \the\tournament@tk}\fi%
1326 }
1327
1328 \def\@figurine@award{%
1329   \if@award{\awardfont\ \ \the\award@tk}\fi%
1330 }
1331
1332 \def\@figurine@dedic{%
1333   \if@dedication{\awardfont\ \ \the\dedic@tk}\fi%
1334 }
1335 \def\show@squares#1\@list{\ch@fig{\the\help@a}#1, }
1336
1337 \def\@figurine@pieces{%
1338   {\if@pieces%

```



```

1339     \let\@action=\p@rsepieces%
1340     \let\piece@job\show@squares%
1341     \@parseTokenlist\pieces@tk,%
1342     \fi}%
1343 }
1344 \def\@figurine@stip{%
1345     \if@stipulation{\stipfont\ \ \the\stipulation@tk}\fi%
1346 }
1347
1348 \def\@figurine@conditions{%
1349     \if@condition{\remfont\ \ \the\condition@tk}\fi%
1350 }
1351
1352 \def\@figurine@twins{%
1353     \if@twins{\remfont\ \ \the\twins@tk}\fi%
1354 }
1355
1356 \def\@figurine@computer{%
1357     \ifthenelse{\boolean{showcomputer}}{%
1358         \if@computer\ \computerproofedsymbol\fi%
1359     }-}%
1360 }
1361
1362 \def\@figurine@remarks{%
1363     \if@remark{\stipfont\ \ \the\remark@tk}\fi%
1364 }
1365 \def\do@dia@job{\@write@sol@ifvmode\noindent\fi\unhbox\dia@box}
1366 \def\solhead#1{\split@param{#1}\dia@solution}}
1367 \def\@write@sol{%
1368     \ifs@lu%
1369         \immediate\write\s@lfd{%
1370             \noexpand\solhead{%
1371                 {\the\label@tk}%
1372                 {\thediag}%
1373                 {\the\aut@tk}%
1374                 {\the\city@tk}%
1375                 {\the\sourcen@tk}%
1376                 {\the\source@tk}%
1377                 {\the\day@tk}%
1378                 {\the\from@month}%
1379                 {\the\to@month}%
1380                 {\the\year@tk}%
1381                 {\the\issue@tk}%
1382                 {\the\pages@tk}%
1383                 {\the\tournament@tk}%
1384                 {\the\award@tk}%
1385                 {\the\after@tk}%
1386                 {\the\version@tk}%
1387                 {\the\correction@tk}%
1388                 {\the\dedic@tk}%
1389                 {\the\theme@tk}%
1390                 {\the\twins@tk}%
1391                 {\the\computer@tk}%
1392                 {\the\comment@tk}%

```

```

1393         {\the\judgement@tk}%
1394         {\the\sol@tk}%
1395     } %end of \solhead
1396     }%
1397 \fi
1398 }
1399 \def \@months#1-#2;{\from@month=#1\to@month=#2\@datetrue}
1400 \def \@dia@writename#1; {\sep@names@dianame#1; \l@klist}
1401 \def \@sol@writename#1; {\sep@names@dianame#1; \l@klist}
1402 \def \name@sep{, \ }
1403 \def \sep@names{\if@notfirst\name@sep\else\@notfirsttrue\fi}
1404 \def \@checkshort#1/#2#3;{%
1405     \@shortformtrue%
1406     \ifx#2\@e@list\relax%
1407         \@shortformfalse%
1408     \fi%
1409 }
1410 \def \short@christian#1#2-{\%
1411     \if@notfirst -\else\@notfirsttrue\fi%
1412     #1.%
1413     \l@klist%
1414 }
1415
1416 \def \@write@christian#1/#2;{#1}
1417
1418 \def \write@christian#1;{\%
1419     \@checkshort#1/\@e@list;%
1420     \if@shortform\@write@christian#1;\else#1\fi%
1421 }
1422
1423 \def \@write@short#1/#2;{#2}
1424
1425 \def \write@short#1;{\%
1426     \@checkshort#1/\@e@list;%
1427     \if@shortform%
1428         \@write@short#1;%
1429     \else%
1430         {\@notfirstfalse\let\@action\short@christian\l@klist#1-\@e@list}%
1431     \fi%
1432 }
1433 \def \@fullname#1, #2; {\hbox{\write@christian#2; #1}}
1434 \def \@surname#1, #2; {#1}
1435 \def \@short#1, #2; {\write@short#2;\ #1}
1436 \def \@noname#1, #2; {}
1437 \def \@normalname#1; {#1}
1438 \def \space@vertical{\space@verticaltrue}
1439 \def \space@horizontal{\space@verticalfalse}
1440 \def \cl@arsol{\immediate\openout\s@lfd=\jobname.sol}
1441 \def \getc@lor#1{\%
1442     \if#1\ds@white%
1443         \help@a\z@global%
1444         \let\cpd@stepcounterPieces\cpd@stepcounterWhite%
1445     \else\if#1\ds@neutral%
1446         \help@a=6\global%

```

```

1447     \let\cpd@stepcounterPieces\cpd@stepcounterNeutral%
1448 \else\if#1\ds@black%
1449     \help@a=12\global%
1450     \let\cpd@stepcounterPieces\cpd@stepcounterBlack%
1451 \else\errmessage{invalid color!}%
1452 \fi\fi\fi%
1453 \getpi@ce%
1454 }
1455
1456 \def\get@text#1{\text@tk={#1}\read@square}
1457
1458 \def\getpi@ce#1{\if#1B\relax\else
1459     \if#1\ds@knight\advance\help@a\@ne%
1460 \else\if#1\ds@bishop\advance\help@a\tw@%
1461 \else\if#1\ds@rook\advance\help@a\thr@@%
1462 \else\if#1\ds@queen\advance\help@a\four%
1463 \else\if#1\ds@king\advance\help@a 5%
1464 \else\if#1C%
1465     % An imitator should not count for any color.
1466     \let\cpd@stepcounterPieces\relax
1467     \advance\help@a 145%
1468 \else\if#1E% Equihopper
1469     \advance\help@a 216%
1470 \else\if#1X% Equihopper senkrecht
1471     \advance\help@a 180%
1472 \else%
1473     \errmessage{invalid piece!}%
1474 \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi%
1475 \futurelet\r@tate\chkr@tate%
1476 }
1477
1478 \def\chkr@tate{%
1479     \if\r@tate \ds@upside\advance\help@a 108\let\nextpr@c=\skipr@t\else%
1480 \if\r@tate \ds@left\advance\help@a 36\let\nextpr@c=\skipr@t\else%
1481 \if\r@tate \ds@right\advance\help@a 72\let\nextpr@c=\skipr@t\else%
1482 \let\nextpr@c\piece@job\fi\fi\fi\nextpr@c%
1483 }
1484 \def\skipr@t#1{\piece@job}
1485 \def\l@k{\futurelet\whatsnext\parsefi@lds}
1486 \def\parsefi@lds{%
1487     \if\whatsnext\@list%
1488         \let\nextpr@c\relax%
1489     \else
1490         \let\nextpr@c\read@square%
1491     \fi%
1492     \nextpr@c%
1493 }
1494
1495 \def\set@current@square@index#1#2{%
1496     \setcounter{cpd@current@square@index}{#1+\value{cpd@linesmax}*#2}%
1497 }
1498 \def\set@current@square@value#1{%
1499     \expandafter%
1500     \xdef\csname cpd@square@\roman{cpd@current@square@index}\endcsname{#1}%

```

```

1501 }
1502 \def\get@current@square@value{%
1503   \setcounter{cpd@current@square@value}%
1504   {\csname cpd@square@\roman{cpd@current@square@index}\endcsname}%
1505 }
1506 \def\set@piece{%
1507   \ifnum\pl@ne=\current@plane%
1508     \cpd@stepcounterPieces%
1509     \set@current@square@index\lin@\r@w%
1510     \get@current@square@value%
1511     \ifthenelse{\value{cpd@current@square@value}=\m@ne}
1512       {\set@current@square@value{\the\help@a}}%
1513       {\ifthenelse{\value{cpd@current@square@value}=144}%
1514         {\set@current@square@value{\the\help@a+18}}%
1515         {\errmessage{Trying to set a piece to an occupied square}}}%
1516   \fi%
1517   \l@@k%
1518 }
1519 \def\set@nofield, {%
1520   \ifnum\pl@ne=\current@plane%
1521     \set@current@square@index\lin@\r@w%
1522     \get@current@square@value%
1523     \ifthenelse{\value{cpd@current@square@value}=\m@ne}%
1524       {}% This is an empty white square, nothing to do
1525       {\ifthenelse{\value{cpd@current@square@value}=144}%
1526         {\set@current@square@value{\m@ne}}%
1527         {\errmessage{Trying to set a piece to an occupied square}}}%
1528   \fi%
1529   \l@@klist%
1530 }
1531 \def\set@frame, {%
1532   \ifnum\pl@ne=\current@plane%
1533     \@vGrid{\the\lin@}{\the\r@w}\@ne%
1534     \@hGrid{\the\lin@}{\the\r@w}\@ne%
1535     \advance\lin@\@ne%
1536     \@vGrid{\the\lin@}{\the\r@w}\@ne%
1537     \advance\lin@\@ne\advance\r@w\@ne%
1538     \@hGrid{\the\lin@}{\the\r@w}\@ne%
1539   \fi%
1540   \l@@klist%
1541 }
1542 \def\e@list{\relax}
1543 \def\l@@klist{\futurelet\nextlist\ch@ccklst}
1544 \def\ch@ccklst{%
1545   \ifx\nextlist\e@list%
1546     \let\nextpr@c=\relax%
1547   \else%
1548     \let\nextpr@c=\@action%
1549   \fi%
1550   \nextpr@c%
1551 }
1552 \def\p@rsepieces#1, {\getc@lor#1\e@list\l@@klist}
1553 \def\p@rsetext#1, {\get@text#1\e@list\l@@klist}
1554 \def\set@text{%

```

```

1555 \ifnum\pl@ne=\current@plane%
1556 \raise\rw\sq@width\hbox to \z@{%
1557 \hskip\lin@\sq@width%
1558 \vbox to \sq@width{\vss%
1559 \hbox to \sq@width{%
1560 \hss%
1561 {\the\text@tk}%
1562 \hss%
1563 }\vss}%
1564 \hss%
1565 }%
1566 \fi%
1567 \l@klist%
1568 }
1569 \def\p@rseauthor#1; {\sh@wauthor#1;\l@klist}
1570 \def\read@square#1#2{%
1571 \lin@=#1\advance\lin@ by -'a\relax%
1572 \r@w=#2\advance\r@w by \m@ne%
1573 \read@plane%
1574 }
1575 \def\read@plane@normal{\plane@job}
1576
1577 \def\read@plane@stereo{\futurelet\plane@char\get@plane@stereo}
1578
1579 \def\get@plane@stereo{%
1580 \if\plane@char A%
1581 \pl@ne=\@ne\advance\r@w-\tw@\advance\lin@-\tw@%
1582 \let\@plane@job=\skip@plane%
1583 \else\if\plane@char B%
1584 \pl@ne=\tw@\advance\r@w-\tw@\advance\lin@-\tw@%
1585 \let\@plane@job=\skip@plane%
1586 \else\if\plane@char C%
1587 \pl@ne=\thr@@\advance\r@w-\tw@\advance\lin@-\tw@%
1588 \let\@plane@job=\skip@plane%
1589 \else\if\plane@char D%
1590 \pl@ne=\four\advance\r@w-\tw@\advance\lin@-\tw@%
1591 \let\@plane@job=\skip@plane%
1592 \else%
1593 \pl@ne=\z@\let\@plane@job=\plane@job%
1594 \fi\fi\fi\fi%
1595 \@plane@job%
1596 }
1597
1598 \def\skip@plane#1{\plane@job}
1599
1600 \def\read@plane@space#1{\pl@ne=#1\advance\pl@ne by -'A\relax\plane@job}
1601 \def\@vGrid#1#2#3{%
1602 \raise#2\sq@width\hbox to \z@{%
1603 \hskip#1\sq@width\hskip-.5\grid@width%
1604 \vrule height#3\sq@width width\grid@width\hss%
1605 }%
1606 }
1607
1608 \def\@hGrid#1#2#3{%

```

```

1609 \raise#2\sq@width\hbox to \z@{%
1610 \hskip#1\sq@width%
1611 \vrule width#3\sq@width height .5\grid@width depth%
1612 .5\grid@width\hss%
1613 }%
1614 }
1615 \def\@selGrid#1#2, {%
1616 \ifnum\plane=\current@plane%
1617 \if#1h%
1618 \@hGrid#2%
1619 \else\if#1v%
1620 \@vGrid#2%
1621 \else%
1622 \errmessage{Wrong GridSelector #1}%
1623 \fi\fi%
1624 \fi%
1625 \l@klist%
1626 }
1627 \def\@stdgrid{%
1628 \setbox\plane@box=\vbox{\hbox{%
1629 \help@a=\tw@%
1630 \loop%
1631 \ifnum\help@a<\lines@max%
1632 \@vGrid{\the\help@a}{\the\rows@max}%
1633 \advance\help@a\tw@%
1634 \repeat%
1635 \help@a=\tw@%
1636 \loop%
1637 \ifnum\help@a<\rows@max%
1638 \@hGrid{0}{\the\help@a}{\the\lines@max}%
1639 \advance\help@a\tw@%
1640 \repeat%
1641 \box\plane@box
1642 }}%
1643 }
1644 \def\ds@xlabel#1{%
1645 \label@tk={#1}\@labeltrue%
1646 }
1647
1648 \def\@set@label#1;{\ifds@label\label{#1}\fi}
1649 \def\init@vars{%
1650 \global\s@lufalse
1651 \setboolean{cpd@checkPieceCounts}{false}%
1652 \setcounter{cpd@defWhitePieces}{\z@}%
1653 \setcounter{cpd@defBlackPieces}{\z@}%
1654 \setcounter{cpd@defNeutralPieces}{\z@}%
1655 \setcounter{cpd@whitePieces}{\z@}%
1656 \setcounter{cpd@blackPieces}{\z@}%
1657 \setcounter{cpd@neutralPieces}{\z@}%
1658 \lin@z@
1659 }
1660
1661 \def\clear@board{%
1662 \ifthenelse{\boolean{allwhite}\and\boolean{switchcolors}}%

```

```

1663     {\errmessage{'allwhite' and 'switchcolors' do not make sense used together.}}%
1664     {\@whitefield=\m@ne\@blackfield=144}%
1665 \ifthenelse{\boolean{allwhite}}{\@blackfield=\m@ne}{}%
1666 \ifthenelse{\boolean{switchcolors}}{\@whitefield=144\@blackfield=\m@ne}{}%
1667 \setcounter{cpd@current@row}{0}%
1668 \whiledo{\value{cpd@current@row}<\value{cpd@rowsmax}}{%
1669     \setcounter{cpd@current@line}{0}%
1670     \whiledo{\value{cpd@current@line}<\value{cpd@linesmax}}{%
1671         \set@current@square@index{\value{cpd@current@line}}{\value{cpd@current@row}}%
1672         \setcounter{cpd@helper}{\the current@plane+\value{cpd@current@line}+\value{cpd@current@row}}%
1673         \ifthenelse{\isodd{\value{cpd@helper}}}%
1674             {\set@current@square@value{\@whitefield}}%
1675             {\set@current@square@value{\@blackfield}}%
1676         \addtocounter{cpd@current@line}{\@ne}%
1677     }%
1678     \addtocounter{cpd@current@row}{\@ne}%
1679 }%
1680 }
1681
1682 \def\put@row#1{%
1683     \lin@z@%
1684     \help@b=#1%
1685     \advance\help@b\brd@ff%
1686     \hbox{%
1687         \if@stereo%
1688             \ifnum\current@plane>z@%
1689                 \ifnum\@rows=12%
1690                     \llap{\raise .5\sq@width\hbox{\boardfont c6\ }}%
1691                     \fi%
1692                 \fi%
1693             \fi%
1694             \hbox to \z@{\vbox to \sq@width{}}%
1695             \set@current@square@index{\lin@}{#1}%
1696         \loop%
1697             \get@current@square@value%
1698             \ifthenelse{\value{cpd@current@square@value}=\m@ne}%
1699                 {\wF}%
1700                 {\char\value{cpd@current@square@value}}%
1701             % \ifnum\count\help@b=\m@ne\wF%
1702             % \else\char\count\help@b\fi%
1703             \advance\lin@\@ne%
1704             \addtocounter{cpd@current@square@index}{1}%
1705             % \advance\help@b\@ne%
1706         \ifnum\lin@<\lines@max\repeat%
1707     }%
1708 }
1709 \def\put@line#1{%
1710     \lin@z@%
1711     \help@b=#1%
1712     \advance\help@b\brd@ff%
1713     \hbox{%
1714         \if@stereo%
1715             \ifnum\current@plane>z@%
1716                 \ifnum\@rows=12%

```

```

1717         \llap{\raise .5\sq@width\hbox{\boardfont c6\ }}%
1718         \fi%
1719     \fi%
1720 \fi%
1721 \hbox to \z@\vbox to \sq@width{}}%
1722 \loop%
1723     \ifnum\count\help@b=\m@ne\wF%
1724     \else\char\count\help@b\fi%
1725     \advance\lin@\@ne\advance\help@b\@ne%
1726     \ifnum\lin@<\lines@max\repeat%
1727 }%
1728 }
1729 \def\@parseTokenlist#1#2{\expandafter\l@klist\the#1#2 \e@list}
1730 \def\@addToPlane#1{%
1731     \setbox\plane@box=\vbox{\hbox{%
1732         \@parseTokenlist#1,%
1733         \box\plane@box%
1734     }}%
1735 }
1736 \def\put@plane{%
1737     % We might want gridchess
1738     \if@stdgrid%
1739         \@stdgrid%
1740     \fi%
1741     % Let us first set the fieldframes
1742     \if@fieldframe%
1743         \let\@action\read@square%
1744         \let\plane@job\set@frame%
1745         \@addToPlane\fieldframe@tk%
1746     \fi%
1747     % Now we set text to all squares which are given using \fieldtext
1748     \if@fieldtext%
1749         \let\@action\p@rsetext%
1750         \let\plane@job\set@text%
1751         \@addToPlane\fieldtext@tk%
1752     \fi%
1753     % Then we should add the gridlines
1754     \if@gridlines%
1755         \let\@action\read@plane%
1756         \let\plane@job\@selGrid%
1757         \@addToPlane\gridlines@tk%
1758     \else%
1759         \if@stereo%
1760             \stereo@center%
1761         \fi%
1762     \fi%
1763     % In an 'allwhite' diagram we display dotted lines
1764     \ifthenelse{\boolean{allwhite}}{%
1765         \setbox\plane@box=\vbox{\hbox{%
1766             \psset{unit=\sq@width,linewidth=.4pt,linestyle=dotted,dotsep=.125}%
1767             \setcounter{field@border}{1}%
1768             \whiledo{\value{field@border}<\lines@max}{%
1769                 \psline(0,\value{field@border})(\rows@max,\value{field@border})%
1770                 \addtocounter{field@border}{\@ne}%

```



```

1771     }%
1772     \setcounter{field@border}{1}%
1773     \whiledo{\value{field@border}<\rows@max}{%
1774         \psline(\value{field@border},0)(\value{field@border},\lines@max)%
1775         \addtocounter{field@border}{\@ne}%
1776     }%
1777     \box\plane@box%
1778 }}%
1779 }-%
1780 % Now we should clear the board
1781 \clear@board%
1782 % Let us now parse the list of pieces
1783 \if@pieces%
1784     \let\@action\p@rsepieces%
1785     \let\piece@job\l@k\let\plane@job\set@piece%
1786     \@parseTokenlist\pieces@tk,%
1787 \fi%
1788 % Now we clear all fields, which are given using \nofields
1789 \if@nofields%
1790     \let\@action\read@square%
1791     \let\plane@job\set@nofield%
1792     \@parseTokenlist\nofields@tk,%
1793 \fi%
1794 % Now we can put the pieces to the board
1795 \global\setbox\plane@box=\hbox{%
1796     \vbox{\rlap{\box\plane@box}}%
1797     \vbox{%
1798         \chessfont%
1799         \baselineskip=\z@\lineskip=\z@%
1800         \@rows=\rows@max%
1801         % \multiply\@rows by \lines@max%
1802         \loop%
1803             % \advance\@rows -\lines@max%
1804             % \put@line\@rows%
1805             % Remove \put@line in future versions
1806             \advance\@rows \m@ne%
1807             \put@row\@rows%
1808             \ifnum\@rows>\z@\repeat%
1809     }%
1810 }%
1811 }
1812 \def\put@sqs@normal{%
1813     \put@plane%
1814     \setbox\sq@box=\hbox{%
1815         \inner@hbox{\box\plane@box}%
1816     }%
1817 }
1818 \def\put@sqs@stereo{%
1819     \setbox\sq@box=\hbox{\hfil\vbox{%
1820         \current@plane=5%
1821         \vskip\v@space@dist%
1822         \loop%
1823             \advance\current@plane\m@ne%
1824             \ifnum\current@plane=\z@%

```

```

1825         \lines@max=\@ight%
1826         \rows@max=\@ight%
1827     \else%
1828         \lines@max=\f@ur%
1829         \rows@max=\f@ur%
1830     \fi%
1831     % Now we should clear the board
1832     \begingroup% We need this for inner loops!
1833         \clear@board%
1834         \put@plane%
1835     \endgroup%
1836     \hbox to \bd@width{%
1837         \hfil%
1838         \inner@henbox{\box\plane@box}%
1839         \ifcase\current@plane\or%
1840             \rlap{\boardfont\ A}\or%
1841             \rlap{\boardfont\ B}\or%
1842             \rlap{\boardfont\ C}\or%
1843             \rlap{\boardfont\ D}\or%
1844         \fi%
1845         \hfil%
1846     }%
1847     \vskip\v@space@dist%
1848     \ifnum\z@<\current@plane\repeat%
1849 } \hfil}%
1850 }
1851
1852 \def\stereo@center{%
1853     \ifnum\current@plane=\z@%
1854         \setbox\plane@box=\vbox{\hbox{%
1855             \@hGrid\tw@ \tw@\f@ur\@hGrid\tw@ 6 \f@ur%
1856             \@vGrid\tw@ \tw@\f@ur\@vGrid6\tw@\f@ur%
1857             \box\plane@box%
1858         }}%
1859     \fi%
1860 }
1861 \def\put@sqs@space@vertical{%
1862     \setbox\sq@box=\hbox{\hfil\vbox{%
1863         \current@plane=\planes@max%
1864         \vskip\v@space@dist%
1865         \loop%
1866             \advance\current@plane@m@ne%
1867             % Now we should clear the board
1868             \begingroup% We use inner loops!
1869             \clear@board%
1870             \put@plane%
1871             \hbox to \bd@width{%
1872                 \inner@henbox{\box\plane@box}%
1873                 \advance\current@plane'A%
1874                 \rlap{\boardfont\ \char\current@plane}}%
1875             }%
1876         \endgroup%
1877         \vskip\v@space@dist%
1878     \ifnum\z@<\current@plane\repeat%

```

```

1879 } \hfil}%
1880 }
1881
1882 \def\put@sqs@space@horizontal{%
1883   \setbox\sq@box=\hbox{%
1884     \current@plane=\z@%
1885     \hskip\h@space@dist%
1886     \loop%
1887       % Now we should clear the board
1888       \begingroup% We use inner loops!
1889       \clear@board%
1890       \put@plane%
1891       \hbox to \bd@width{%
1892         \inner@hbox{\box\plane@box}%
1893         \advance\current@plane'A%
1894         \rlap{\boardfont\ \char\current@plane}}%
1895       }%
1896       \endgroup%
1897       \hskip\h@space@dist%
1898       \advance\current@plane@one%
1899       \ifnum\planes@max>\current@plane%
1900         \repeat%
1901     }%
1902 }
1903
1904 \def\put@sqs@space{%
1905   \ifspace@vertical%
1906     \put@sqs@space@vertical%
1907   \else%
1908     \put@sqs@space@horizontal%
1909   \fi%
1910 }
1911 \def\@inner@vframe{%
1912   \ifvframe%
1913     \vrule width \inner@frame%
1914   \else%
1915     \hskip\inner@frame%
1916   \fi%
1917 }
1918
1919 \def\@inner@hframe{%
1920   \ifhframe%
1921     \hrule height \inner@frame%
1922   \else%
1923     \vskip\inner@frame%
1924   \fi%
1925 }
1926 \def\inner@v@frame@rule{%
1927   \if@stereo%
1928     \@inner@vframe%
1929   \else\if@space%
1930     \@inner@vframe%
1931   \else\if@leaveOuter%
1932     \vrule width \inner@frame%

```

```

1933 \else%
1934 \@inner@vframe%
1935 \fi\fi\fi%
1936 }
1937
1938 \def\inner@h@frame@rule{%
1939 \if@stereo%
1940 \@inner@hframe%
1941 \else\if@space%
1942 \@inner@hframe%
1943 \else\if@leaveOuter%
1944 \hrule height \inner@frame%
1945 \else%
1946 \@inner@hframe%
1947 \fi\fi\fi%
1948 }
1949
1950 \def\inner@h@enbox#1{%
1951 \hbox{%
1952 \inner@v@frame@rule%
1953 \vbox{\inner@h@frame@rule#1\inner@h@frame@rule}%
1954 \inner@v@frame@rule%
1955 }%
1956 }
1957 \def\@outer@vrule{\vrule width \outer@frame}
1958
1959 \def\@outer@hrule{\hrule height \outer@frame}
1960 \def\outer@v@frame@rule{%
1961 \if@stereo%
1962 \@outer@vrule%
1963 \else\if@space%
1964 \@outer@vrule%
1965 \else\if@leaveOuter%
1966 \if@vframe\@outer@vrule\else\hskip\outer@frame\fi%
1967 \else%
1968 \@outer@vrule%
1969 \fi\fi\fi%
1970 }
1971
1972 \def\outer@h@frame@rule{%
1973 \if@stereo%
1974 \@outer@hrule%
1975 \else\if@space%
1976 \@outer@hrule%
1977 \else\if@leaveOuter%
1978 \if@hframe\@outer@hrule\else\vskip\outer@frame\fi%
1979 \else%
1980 \@outer@hrule%
1981 \fi\fi\fi%
1982 }
1983
1984 \def\outer@h@enbox#1{%
1985 \outer@h@frame@rule%
1986 \hbox{%

```

```

1987     \outer@v@frame@rule%
1988     \ifspace@vertical%
1989         \hskip\h@frame@dist%
1990     \fi%
1991     \vbox{%
1992         \ifspace@vertical%
1993             \vskip\v@frame@dist%
1994         \else%
1995             \vskip\v@space@dist%
1996         \fi%
1997         #1%
1998         \ifspace@vertical%
1999             \vskip\v@frame@dist%
2000         \else%
2001             \vskip\v@space@dist%
2002         \fi%
2003     }%
2004     \ifspace@vertical%
2005         \hskip\h@frame@dist%
2006     \fi%
2007     \outer@v@frame@rule%
2008 }%
2009 \outer@h@frame@rule%
2010 }
2011 \def\ch@fig#1{%
2012     \ifvmode\noindent\fi%
2013     \hbox{\c@textfont\lower.1\fontdimen\tw@\c@textfont\hbox{\char#1}}%
2014 }
2015 \def\@dia@index{%
2016     \@ifundefined{newindex}%
2017     {\errmessage{You should add documentstyle-option 'index'}}{}%
2018 }
2019
2020 \def\showlabel#1{%
2021     \if@develop%
2022         \raise1ex\hbox{\labelfont#1}\penalty\exhyphenpenalty%
2023     \fi%
2024 }
2025
2026 \def\@aidxitem#1, #2, #3{%
2027     \par\medskip#1, \write@christian#2; \dotfill #3%
2028 }
2029
2030 \def\dia@index#1\@sep2[#3]{\index[#3]{#2|showlabel{#1}}}
2031
2032 \def\parse@aindex#1; {%
2033     \expandafter\dia@index\the\label@tk\@sep#1[author]\l@klist%
2034 }
2035
2036 \def\@aindex{%
2037     \if@aindex%
2038         \ifnormal@names%
2039             \errmessage{Cannot create index entries with normalnames}%
2040         \else\ifauth@r%

```

```

2041     \let\@action=\parse@aindex\@parseTokenlist\aut@tk;%
2042     \fi\fi%
2043 \fi%
2044 }
2045
2046 \def\x@sindex#1\@sep{\expandafter\dia@index\the\label@tk\@sep#1[source]}
2047
2048 \def\@sindex{%
2049     \if@sindex\if@source%
2050         \expandafter\x@sindex\the\source@tk\@sep%
2051     \fi\fi%
2052 }
2053
2054 \def\parse@tindex#1, {%
2055     \expandafter\dia@index\the\label@tk\@sep#1[theme]\l@oklist%
2056 }
2057
2058 \def\@tindex{%
2059     \if@tindex\if@theme%
2060         \let\@action=\parse@tindex\@parseTokenlist\theme@tk,%
2061     \fi\fi%
2062 }
2063 \def\@setPieceColor#1#2#3{%
2064     \gdef\ds@white{#1}\gdef\ds@black{#2}\gdef\ds@neutral{#3}%
2065 }
2066
2067 \def\@setPieceSpec#1#2#3#4#5#6{%
2068     \gdef\ds@king{#1}\gdef\ds@queen{#2}\gdef\ds@rook{#3}%
2069     \gdef\ds@bishop{#4}\gdef\ds@knight{#5}\gdef\ds@pawn{#6}%
2070 }
2071
2072 \def\@setPieceRotation#1#2#3{%
2073     \gdef\ds@left{#1}\gdef\ds@right{#2}\gdef\ds@upsideup{#3}%
2074 }
2075 \def\loop@rotation{%
2076     \bgroup%
2077     \n@cnt\z@%
2078     \help@a\z@%
2079     \loop%
2080         \ifcase\n@cnt%
2081             \def\@theRotation{}%
2082         \or%
2083             \def\@theRotation{\ds@left}%
2084         \or%
2085             \def\@theRotation{\ds@right}%
2086         \or%
2087             \def\@theRotation{\ds@upsideup}%
2088     \fi%
2089     \loop@color%
2090     \advance\n@cnt\@ne%
2091     \advance\help@a by 36\relax%
2092     \ifnum\n@cnt<\f@ur\repeat%
2093 \egroup%
2094 }

```

```

2095
2096 \def\loop@color{%
2097   \bgroup%
2098     \w@cnt\z@%
2099     \loop%
2100       \ifcase\w@cnt%
2101         \def\@theColor{\ds@white}%
2102       \or%
2103         \def\@theColor{\ds@neutral}%
2104       \or%
2105         \def\@theColor{\ds@black}%
2106       \fi%
2107     \loop@piece%
2108     \advance\w@cnt\@ne%
2109     \advance\help@a by 6%
2110     \ifnum\w@cnt<\thr@@\repeat%
2111   \egroup%
2112 }
2113
2114 \def\loop@piece{%
2115   \bgroup%
2116     \b@cnt\z@%
2117     \loop%
2118       \ifcase\b@cnt%
2119         \def\@thePiece{\ds@pawn}%
2120       \or%
2121         \def\@thePiece{\ds@knight}%
2122       \or%
2123         \def\@thePiece{\ds@bishop}%
2124       \or%
2125         \def\@thePiece{\ds@rook}%
2126       \or%
2127         \def\@thePiece{\ds@queen}%
2128       \or%
2129         \def\@thePiece{\ds@king}%
2130       \fi%
2131     \expandafter\xdef\csname%
2132     \@theColor\@thePiece\@theRotation\endcsname{%
2133       \noexpand\ch@fig{\the\help@a}%
2134     }
2135     \advance\b@cnt\@ne%
2136     \advance\help@a by \@ne%
2137     \ifnum\b@cnt<6\repeat%
2138   \egroup%
2139 }
2140 \elchfont\@fselch
2141
2142 \defaultelchfont%
2143 \diagnum{\@ne}
2144 %% \figcnttrue
2145 \setboolean{piececounter}{true}
2146 \def\@dianame{\@fullname}
2147 \def\@solname{\@fullname}
2148 \space@verticaltrue

```

```

2149 \diagnumbering{arabic}
2150 \def\write@month{\@arabic}%
2151 \diagleft
2152 \cl@arsol
2153 \let\orig@author=\author
2154 \let\orig@day=\day
2155 \let\orig@month=\month
2156 \let\orig@year=\year
2157 \let\orig@label=\label
2158 \DefinePieces{wsn}{KDTLSB}{LRU}
2159 \newdimen\normalboardwidth
2160 \def\setboardwidth{%
2161   \normalboardwidth=\@ight\fontdimen\tw@\chessfont%
2162   \advance\normalboardwidth\tw@\inner@frame%
2163   \advance\normalboardwidth\tw@\h@frame@dist%
2164   \advance\normalboardwidth\tw@\outer@frame%
2165 }
2166
2167 \setboardwidth
2168
2169 \end{style}

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Change History

v0.1	General: First Version	1	when writing producing piececounter in small diagrams. . . .	1
v0.2	General: Added the documentation for the <i>information collecting</i> macros which may be used inside a environment. . . .	1	v1.5.2	General: Added some percent signs at line ends in <code>@start@diagram</code> and <code>enddiagram</code> to avoid accidentally added spaces.
v0.3	General: Added list of commands which should not be indexed. . .	1	v1.5.3	General: Changed switch, which is used to decide, whether information about computer proof is displayed to use standard boolean syntax. Symbols about computer proof are now created by standard commands and may therefore be changed by users.
v0.4	General: Added most missing user documentation.	1	v1.5.4	General: Defined 2 different versions of <code>@writename</code> command, to be able to change it in other stylefiles for the part over the diagram without influencing the one used for the solution. Added commands to
v0.5	General: Fixed wrong piece count when using imitators	1		
v0.6	General: Changed erroneous code to parse given piececount. . . .	1		
v1.5	General: Added license meta-comment to publish package on ctan.	1		
v1.5.1	General: Fixed font problem			

set white, black and neutral Circles within text.	1	piecedefs specify names of fairy pieces for rotated pieces.	1
v1.5.5		v1.6.2	
General: Changed amount of low- ering figurine pieces.	1	General: Added boolean for all- white problems.	1
v1.5.6		v1.6.3	
General: Added new command 'solpar' to allow use of 'putsol' inside a window environment.	1	General: Added boolean for board with switched field colors.	1
v1.6		v1.6.4	
General: Added boolean showc- ity and code to suppress dis- play of city, when showcity is false. Added commands for academic titles, which allow to suppress their display.	1	General: Added convenience command for 'allwhite' and 'switchcolors' booleans.	1
v1.6.1		v1.6.5	
General: Added new command		General: As suggested by Torsten Linß and Thomas Brand added support for Equihopper and turned Equihopper (X) . . .	1