

Creating diagrams for chess problems

Version 1.6.3

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Abstract

It have 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 L^AT_EX 2 ϵ . 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 L^AT_EX-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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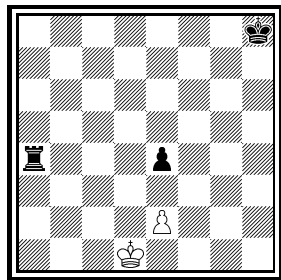
1 Creating diagrams

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 \LaTeX -code to get nice looking diagrams.

1

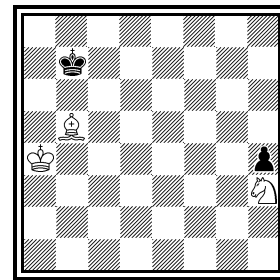
Thomas Brand
Problemkiste 1992
Elmar Bartel gew.



h#7 C- (2+3)

2

Thomas Brand
Problemkiste 1992



h#5 C- (3+2)

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 \LaTeX 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*.
- \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` may be used to specify the piece.
`R U L` may be used to specify an optional rotation: right, upside-down, left. So you may use `sDUc7` for a grasshopper 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 "; ". There is also a boolean switch <code>showcity</code>, which controls, whether this information is displayed.
<code>\specialdiagnum</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 "number" which may be an arbitrary text.
<code>\sourcenr</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>\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>\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.
<code>\solution</code> <code>\sol</code>	<ul style="list-style-type: none"> • <code>\solution</code> 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 <code>\putsol</code>. There is also an abbreviation <code>\sol</code>.

- `\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`):

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

sirname Writes the *sirname* only.

short Writes an abbreviation of the *firstname* and the *sirname*. 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 *sirname* using the form *sirname, 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 L^AT_EX 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 informed 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 L^AT_EX 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 fontsizes of a document you may specify sizes
`\diagramxi` of the fonts used in a diagram. The default will be set according to the fontsize
`\diagramxii` specified as the `\documentclass` option.

1.2.3 Other commands

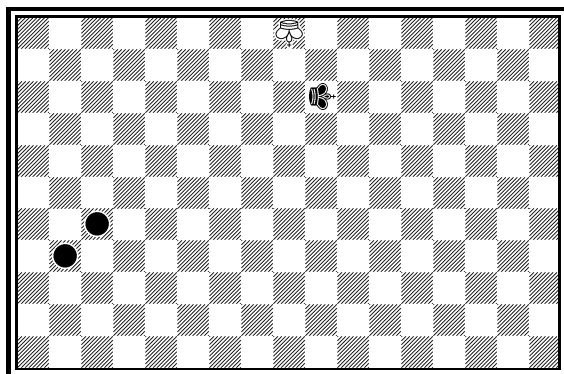
- `\label` • This overrides the normal `\label` definition such that the diagram number is displayed when using `\ref` instead of the page number.
- `\diagramnum` • This macro expects a number as a parameter. The number will be used to (re-)initialize the diagram number counter. With this command the 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 boardsize

`diagram[]` Instead of using a boardsize 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.

3



C- (1+1)

is created by

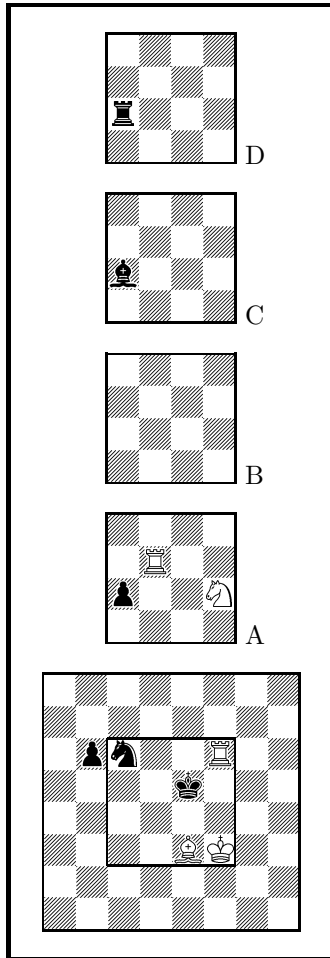
```
\begin{diagram}[17x11]
\label{bigdia}
\pieces{wKU{i11}, sKRj9, sCc5b4}
\end{diagram}
```

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

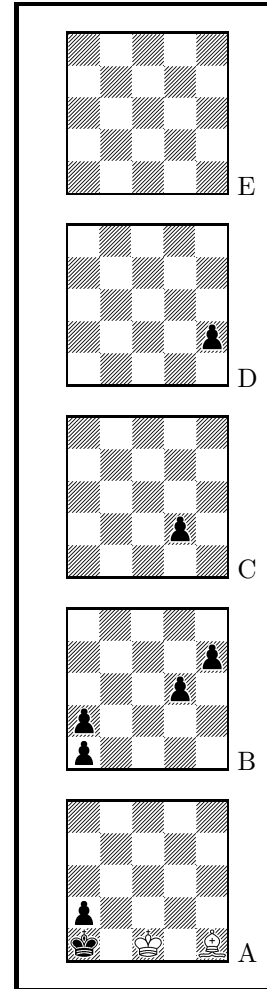
`stereodiagram` Other boards which are used from time to time are stereo chess or space chess
`spacediagram[]` boards (although there are quite few people which really have such boards!). To create these boards you just have to use either the `stereodiagram` or `spacediagram` environment instead of the 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.}
\source{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.}
\source{6595.}
```

```

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

```

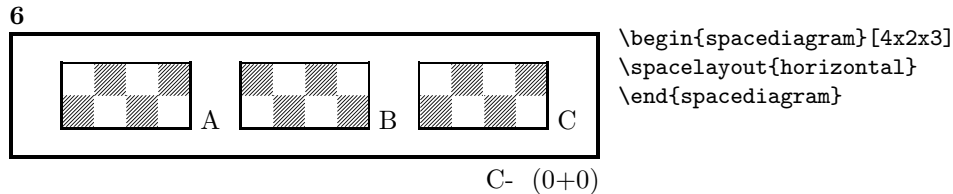
The main change is within the notation of the pieces, but people knowing space- or stereo-chess problems see that the notation is just one would expect.

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

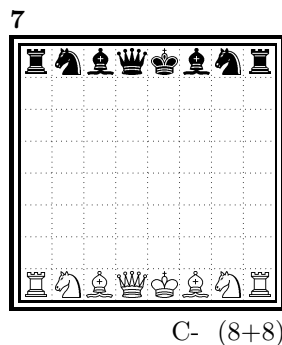


1.3.3 Cylindric boards / suppressing frames

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

The `allwhite` boolean can be used to have all white squares. Therefore dotted lines are produced to separate the squares.



This was produced by:

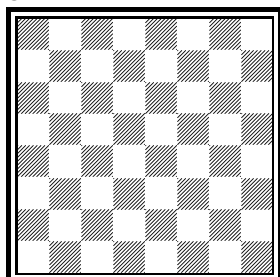
```

\begin{diagram}
\setboolean{allwhite}{true}
\pieces{wKe1, wDd1, wTa1h1, wLf1c1, wSb1g1, %
sKe8, sDd8, sTa8h8, sLf8c8, sSb8g8}
\end{diagram}

```

switchcolors The boolean **switchcolors** may be used to switch the coloring of white and black fields.

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.

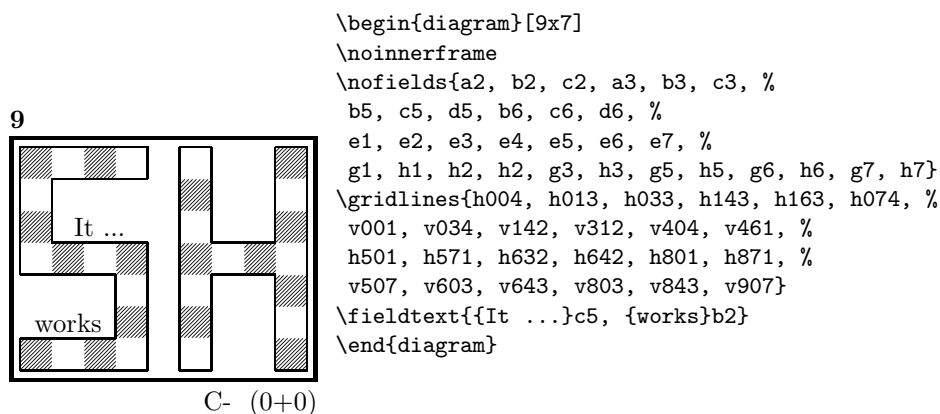
\gridlines A more general form of lines within diagrams is possible by using the **\gridlines** command. You may specify a list of horizontal or vertical lines within the diagram. Different lines should be separated by " , ". A single line must be specified as:

[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 grashopper
- `\nGh` ♟ a neutral grashopper
- `\sGh` ♟ a black grashopper
- `\Imi` ● an imitator, you may also use the **Circle** notation:
- `\wC` ○ a white circle
- `\nC` ◐ a neutral circle
- `\sC` ● a black circle

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:

- `\set` * setplay
- `\ra` → a left to right arrow

`\lra` \leftrightarrow a double ended arrow

`\00` **0-0** king side castling

`\000` **0-0-0** queen side castling

`\x` \times for "takes"

`\any` \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 a capital **C**, because this is used for circles.
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 developement:

- 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` To create a registers of authors you need to put the `\makeaindex` command

`\authorindex`

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

```
makeindex -o <filename>.snd <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 L^AT_EX 2_ε.

```
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}
10 \end{document}
11 \end{driver}
```

3 The implementation of the style

Specifies the preamble of our style file.

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

```

12 (*style)
13 \ProvidesPackage{diagram}[2012/11/12]
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\four=4
23 \chardef\eight=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 \newcounter{field@border}
67 \newcount\@whitefield
68 \newboolean{switchcolors}
69 \setboolean{switchcolors}{false}

    We have counters for each color to count the pieces on the board.
70 \newboolean{cpd@checkPieceCounts}
71 \newcounter{cpd@defWhitePieces}
72 \newcounter{cpd@defBlackPieces}
73 \newcounter{cpd@defNeutralPieces}
74
75 \newcounter{cpd@whitePieces}
76 \newcounter{cpd@blackPieces}
77 \newcounter{cpd@neutralPieces}
78
79 \newcommand{\cpd@stepcounterWhite}{\stepcounter{cpd@whitePieces}}
80 \newcommand{\cpd@stepcounterBlack}{\stepcounter{cpd@blackPieces}}
81 \newcommand{\cpd@stepcounterNeutral}{\stepcounter{cpd@neutralPieces}}
82 \global\let\cpd@stepcounterPieces\relax
83
84 \newcount\help@a
85 \newcount\help@b
86
87 \newbox\dia@box
88 \newbox\@cnt@box
89 \newdimen\@cnt@wd
90 \newbox\@stip@box
91
92 \newdimen\topdist\topdist\z@
93 \newbox\@test@box
94 \newdimen\@test@dimen
95 \newif\if@left
96
97 \newcount\brd@ff
98
99 \newdimen\dia@lineskip
100
101 \newdimen\board@width
102 \newdimen\bd@width
103 \newdimen\head@width
104 \newdimen\sq@width
105
106 \newdimen\grid@width
107 \newdimen\inner@frame
108 \newdimen\outer@frame
109 \newdimen\space@frame
110 \newdimen\v@frame@dist
111 \newdimen\h@frame@dist
112 \newdimen\space@frame@dist
113 \newdimen\v@space@dist
114 \newdimen\h@space@dist
115
116 \newbox\sq@box
117 \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.

```

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

```

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

```

154 \newif\if@label\@labelfalse
155 \newif\if@number\@numberfalse
156 \newif\if@special\@specialfalse
157 \newif\ifauth@r\auth@rfalse
158 \newif\if@city\@cityfalse
159 \newif\if@sourcenr\@sourcenrfalse
160 \newif\if@source\@sourcefalse
161 \newif\if@date\@datefalse
162 \newif\if@day\@dayfalse
163 \newif\if@year\@yearfalse
164 \newif\if@issue\@issuefalse

```

```

165 \newif\if@pages\@pagesfalse
166 \newif\if@tournament\@tournamentfalse
167 \newif\if@award\@awardfalse
168 \newif\if@after\@afterfalse
169 \newif\if@version\@versionfalse
170 \newif\if@correction\@correctionfalse
171 \newif\if@dedication\@dedicationfalse
172 \newif\if@fidealbum\@fidealbumfalse
173 \newif\if@twins\@twinsfalse
174 \newif\if@theme\@themefalse
175 \newif\if@computer\@computerfalse
176 \newif\if@judgement\@judgementfalse
177 \newif\if@comment\@commentfalse
178 \newif\if@pieces\@piecesfalse
179 \newif\if@fielddtext\@fielddtextfalse
180 \newif\if@nofields\@nofieldsfalse
181 \newif\if@gridlines\@gridlinesfalse
182 \newif\if@fieldframe\@fieldframefalse
183 \newif\if@stdgrid\@stdgridfalse
184 \newboolean{showcomputer}\setboolean{showcomputer}{true}%
185 \newcommand*{\computerproofedsymbol}{C+}
186 \newcommand*{\notcomputerproofedsymbol}{C-}
187 % \newif\if@show@computer\@show@computertrue
188 \newif\if@stipulation\@stipulationfalse
189 \newif\if@condition\@conditionfalse
190 \newif\if@remark\@remarkfalse
191 \newif\if@piecedefs\@piecedefsfalse
192 \newif\if@typis\@typisfalse
193 \newif\if@widedias\@widediasfalse
194 \newif\ifx@twins\x@twinsfalse
195 \newif\ifx@cond\x@condfalse
196 \newif\ifimitator\imitatorfalse
197 \newif\ifnormal@names\normal@namesfalse
198 \newif\ifs@lu
199 \newif\if@develop\@developfalse
200 \newif\if@notfirst
201 \newif\if@first

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

```

The following counters are used when creating the diagram itself.

```

210 \newcounter{cpd@rowsmax}
211 \newcounter{cpd@linesmax}
212 \newcounter{cpd@current@row}
213 \newcounter{cpd@current@line}
214 \newcounter{cpd@maxsquare}
215 \newcounter{cpd@helper}
216 \newcounter{cpd@current@square@index}

```

```
217 \newcounter{cpd@current@square@value}
```

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

```
218 \newif\if@stereo\@stereofalse
```

```
219 \newif\if@space\@spacefalse
```

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

```
220 \newif\if@aindex\@aindexfalse
```

```
221 \newif\if@sindex\@sindexfalse
```

```
222 \newif\if@tindex\@tindexfalse
```

```
223 \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.

```
224 \def\diagram{%
```

```
225   \begingroup%
```

```
226   \@ifnextchar [{\@diagram}{\@diagram[\@ight x\@ight]]}%
```

```
227 }
```

```
228
```

```
229 \def\@diagram[#1x#2]{%
```

```
230   \lines@max=#1%
```

```
231   \rows@max=#2%
```

```
232   \setcounter{cpd@linesmax}{#1}%
```

```
233   \setcounter{cpd@rowsmax}{#2}%
```

```
234   \setcounter{cpd@maxsquare}{\value{cpd@rowsmax}*\value{cpd@linesmax}}%
```

```
235   \pl@ne=\z@%
```

```
236   \current@plane=\z@%
```

```
237   \let\put@sqs=\put@sqs@normal%
```

```
238   \let\read@plane=\read@plane@normal%
```

```
239   \@start@diagram%
```

```
240 }
```

```
241 \def\stereodiagram{%
```

```
242   \begingroup%
```

```
243   \@stereotrue%
```

```
244   \let\put@sqs=\put@sqs@stereo%
```

```
245   \let\read@plane=\read@plane@stereo%
```

```
246   \@start@diagram%
```

```
247 }
```

```
248 \def\spacediagram{%
```

```
249   \begingroup%
```

```
250   \@spacetrue%
```

```
251   \@ifnextchar [{\@spacediagram}{\@spacediagram[5x5x5]]}%
```

```
252 }
```

```
253
```

```
254 \def\@spacediagram[#1x#2x#3]{%
```

```
255   \lines@max=#1%
```

```
256   \rows@max=#2%
```

```
257   \planes@max=#3%
```

```
258   \let\put@sqs=\put@sqs@space%
```

```
259   \let\read@plane=\read@plane@space%
```

```
260   \@start@diagram%
```

```
261 }
```

```
262 \def\@start@diagram{%
```

```
263   \init@vars%
```

```

264 \let\author=\ds@author%
265 \let\day=\ds@day%
266 \let\month=\ds@month%
267 \let\year=\ds@year%
268 \let\label=\ds@label%
269 \ignorespaces%
270 }
271
272 \def\showtypis#1{%
273 \@typistrue%
274 \typis@tk={#1}%
275 \ignorespaces%
276 }
277
278 \def\enddiagram{%
279 \let\author=\orig@author%
280 \let\day=\orig@day%
281 \let\month=\orig@month%
282 \let\year=\orig@year%
283 \let\label=\orig@label%
284 \if@number%
285 \else%
286 \refstepcounter{board@nr}% so \label and \ref work properly
287 \fi%
288 %
289 % Now \label@tk should be set, if wanted, so
290 % we can generate the index entries
291 %
292 \@aindex%
293 \@sindex%
294 \@tindex%
295 %
296 % Now \@currentlabel will be set right, so we can use
297 % the original label
298 \if@label%
299 \expandafter\@set@label\the\label@tk;%
300 \fi%
301 %
302 % Now we know, if we have frames so we can setup our dimensions
303 %
304 \global\squarewidth=\fontdimen\tw@\chessfont%
305 \if@stereo%
306 \bd@width=\@ight\squarewidth%
307 \board@width=\@ight\squarewidth%
308 \ifdim\h@frame@dist<\squarewidth%
309 \h@frame@dist=\squarewidth%
310 \fi%
311 % We do already skip with \v@space@dist
312 % So we use the additional skip \space@frame@dist here
313 \v@frame@dist=\space@frame@dist%
314 \ifdim\space@frame>\outer@frame%
315 \outer@frame=\space@frame%
316 \fi%
317 \advance\bd@width\tw@\inner@frame%

```

```

318     \advance\board@width\tw@\inner@frame%
319     \advance\board@width\tw@\h@frame@dist%
320     \advance\board@width\tw@\outer@frame%
321 \else\if@space%
322     \ifdim\h@frame@dist<1.5\sq@width%
323         \h@frame@dist=1.5\sq@width%
324     \fi%
325     % We do already skip with \v@space@dist
326     % So we use the additional skip \space@frame@dist here
327     \v@frame@dist=\space@frame@dist%
328     \ifdim\space@frame>\outer@frame%
329         \outer@frame=\space@frame%
330     \fi%
331 \ifspace@vertical%
332     \bd@width=\lines@max\sq@width%
333     \board@width\bd@width%
334     \advance\bd@width\tw@\inner@frame%
335     \advance\board@width\tw@\inner@frame%
336     \advance\board@width\tw@\h@frame@dist%
337     \advance\board@width\tw@\outer@frame%
338 \else%
339     \bd@width=\lines@max\sq@width%
340     \advance\bd@width\tw@\inner@frame%
341     \ifdim\h@space@dist<1.5\sq@width%
342         \h@space@dist=1.5\sq@width%
343     \fi%
344     %\h@space@dist=0.7\sq@width%
345     % Now we can compute the width of the complete board
346     \board@width\bd@width%
347     \advance\board@width\h@space@dist%
348     \multiply\board@width\planes@max%
349     \advance\board@width\h@space@dist%
350     \advance\board@width\tw@\outer@frame%
351 \fi%
352 \else%
353     \bd@width=\lines@max\sq@width%
354     \ifnum\lines@max>\@ight%
355         % Make the board wider
356         \board@width=\lines@max\sq@width%
357     \else%
358         % Make a normal width
359         \board@width=\@ight\sq@width%
360     \fi%
361     \advance\bd@width\tw@\inner@frame%
362     \advance\board@width\tw@\inner@frame%
363     \advance\board@width\tw@\h@frame@dist%
364     \advance\board@width\tw@\outer@frame%
365 \fi\fi%
366 \if@widedias%
367     \head@width=\textwidth%
368 \else%
369     \head@width=\board@width%
370 \fi%
371 %

```

```

372 % Now we should build the diagram itself
373 %
374 \if@textproblem%
375 % Put the stipulation into the \sq@box
376 \setbox\sq@box=\hbox{\vbox to \board@width{\hsize\board@width%
377 \stipfont%
378 \raggedright%
379 \sloppy%
380 \the\stipulation@tk%
381 \vfil%
382 }}%
383 \else%
384 \put@sq% This builds up the \sq@box
385 % Check, if the given number of pieces is reached
386 \ifthenelse{\boolean{cpd@checkPieceCounts}}{%
387 \ifthenelse{\value{cpd@defWhitePieces}=\value{cpd@whitePieces}}{%
388 {\errmessage{Wrong number of white pieces}}%
389 \ifthenelse{\value{cpd@defBlackPieces}=\value{cpd@blackPieces}}{%
390 {\errmessage{Wrong number of black pieces}}%
391 \ifthenelse{\value{cpd@defNeutralPieces}=\value{cpd@neutralPieces}}{%
392 {\errmessage{Wrong number of neutral pieces}}%
393 }{}%
394 \fi%
395 %
396 \global\setbox\dia@box=\hbox{\vbox{%
397 \parindent\z@%
398 \parskip\z@%
399 \baselineskip11p@\advance\baselineskip\dia@lineskip%
400 \hsize\head@width%
401 \centering%
402 % diagram header
403 \vskip\topdist%
404 \vbox{\hsize\board@width\hbox{%
405 \if@develop\if@label%
406 \noindent\raggedright\llap{\labelfont\the\label@tk\ }%
407 \fi\fi%
408 \vbox{%
409 \he@dpos\dia@above%
410 }%
411 }}%
412 \vskip\tw@\p@%
413 % diagram itself
414 \vtop{\hsize\board@width%
415 \hbox to \head@width{\hss\vbox{%
416 \hsize\board@width%
417 \if@textproblem%
418 \box\sq@box%
419 \else%
420 \outer@henbox{\box\sq@box}%
421 \fi%
422 }\hss}%
423 % diagram trailer
424 \hbox to \head@width{\hss\vtop{%
425 \hsize\board@width%

```

```

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

```

```

480     \refstepcounter{board@nr}% so \label and \ref work properly
481     \fi%
482     %
483     % Now \label@tk should be set, if wanted, so
484     % we can generate the index entries
485     %
486     \@aindex%
487     \@sindex%
488     \@tindex%
489     %
490     % Now \@currentlabel will be set right, so we can use
491     % the original label
492     %
493     \if@label%
494         \expandafter\@set@label\the\label@tk;%
495     \fi%
496     %
497     \@show@figurine%
498     \endgroup%
499 }
500 %
501 \gdef\selectelchfont#1{%
502     \global\elchfont\csname @#1elch\endcsname\defaultelchfont%
503 }

```

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 504 \newcommand*{\authorfont}{\bfseries}
\sourcefont 505 \newcommand*{\cityfont}{\slshape}
\awardfont 506 \newcommand*{\sourcefont}{\bfseries\itshape}
\dedicfont 507 \newcommand*{\awardfont}{\itshape}
\stipfont 508 \newcommand*{\dedicfont}{\itshape}
\remfont 509 \newcommand*{\stipfont}{\rmfamily}
\labelfont 510 \newcommand*{\remfont}{\rmfamily}
\boardfont 511 \newcommand*{\labelfont}{\rmfamily}
512 \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 513 \newcommand*{\diagramx}{
\diagramxii 514     \ifcase\elchfont\relax%
515         \font\chessfont=pkelch12
516         \font\chtextfont=pkelch10
517     \else%
518         \font\chessfont=fselch12
519         \font\chtextfont=fselch10
520     \fi%
521     \dia@lineskip\z@
522     \dia@type\z@
523 }
524

```



```

525 \newcommand*{\diagramxi}{
526   \ifcase\elchfont\relax%
527     \font\chessfont=pkelch14
528     \font\chtextfont=pkelch11
529   \else%
530     \font\chessfont=fsselch14
531     \font\chtextfont=fsselch11
532   \fi%
533   \dia@lineskip\@ne\p@
534   \dia@type\@ne
535 }
536
537 \newcommand*{\diagramxii}{
538   \ifcase\elchfont\relax%
539     \font\chessfont=pkelch16
540     \font\chtextfont=pkelch12
541   \else%
542     \font\chessfont=fsselch16
543     \font\chtextfont=fsselch12
544   \fi%
545   \dia@lineskip\tw\p@
546   \dia@type\tw@
547 }

```

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

```

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

555 \def\dianamestyle#1{\def\@dianame{\csname @#1\endcsname}}
556 \def\solnamestyle#1{\def\@solname{\csname @#1\endcsname}}
557 \def\diagnum#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
`\lra` setting problem chess documents.

```

\rla 558 \def\ra{\mbox{$\rightarrow$}}
\lra 559 \def\lra{\mbox{$\leftrightarrow$}}
\set 560 \let\rla=\lra
\OO 561 \def\x{\mbox{\ifmmode\times\else$\times$\fi}}
\OOO 562 \def\set{\kern -.05em\raise .1ex\hbox{*}}
\any 563 \def\@O{0\raise.25ex\hbox{-}\kern -.1em\relax}
\further 564 \def\OO{\@O}
565 \def\OOO{\@O\@O}
566 \def\any{\ifmmode\sim\else$\sim$\fi}
567 \def\further{\ifmmode\rightarrow\else$\rightarrow$\fi\ignorespaces}

568 \def\spacelayout#1{\csname space@#1\endcsname}
569 \def\nodiagnumbering{\global\di@nofalse}
570 \def\diagnumbering#1{%

```

```

571 \di@notrue\diagnum{\@ne}%
572 \gdef\thediag{\csname @#1\endcsname\c@board@nr}%
573 }

\diagcenter The macros \diagcenter, \diagleft and \diagright simply define the macro
\diagleft \he@dpos to the corresponding paragraph alignment.
\diagright 574 \def\diagcenter{\def\he@dpos{\centering}}
575 \def\diagleft{\def\he@dpos{\raggedright}}
576 \def\diagright{\def\he@dpos{\raggedleft}}

\setmonthstyle The implementation of \setmonthstyle does \diagramnumbering define a com-
mand which uses the given parameter as a part of the command name.
577 \def\setmonthstyle#1{\def\write@month{\csname @#1\endcsname}}

578 \def\specialdiagram#1{%
579 \@specialtrue%
580 \number@tk={#1}\@numbertrue\def\thediag{#1}\def\@currentlabel{#1}%
581 \ignorespaces%
582 }

\ds@label The macros \ds@label and \ds@author are defined internally and are made
\ds@author public within \begin{diagram}. This is because the macros \label and
\author are normal LATEX-macros and I want to avoid to redefine these globally.
583 \def\ds@label{%
584 \@ifstar{\ds@labelfalse\ds@xlabel}{\ds@labeltrue\ds@xlabel}%
585 }
586 \def\ds@author#1{%
587 \aut@tk={#1}\auth@rtrue%
588 \ignorespaces%
589 }

\ds@academictitle
\Dr 590 \def\ds@academictitle#1{\ifthenelse{\boolean{showacademictitle}}{#1~}{\ignorespaces}
\Prof 591 \newcommand{\Dr}{\ds@academictitle{Dr.}}
\ProfDr 592 \newcommand{\Prof}{\ds@academictitle{Prof.}}
593 \newcommand{\ProfDr}{\ds@academictitle{Prof.\,Dr.}}

594 \def\city#1{%
595 \city@tk={#1}\@citytrue%
596 \ignorespaces%
597 }
598 \def\sourcenr#1{%
599 \sourcenr@tk={#1}\@sourcenrtrue%
600 \ignorespaces%
601 }
602 \def\source#1{%
603 \source@tk={#1}\@sourcetrue%
604 \ignorespaces%
605 }
606 \def\ds@day#1{%
607 \day@tk={#1}\@daytrue\@datetrue%
608 \ignorespaces%
609 }
610 \def\ds@month#1{%

```

```

611 \from@month=#1\@datetrue%
612 \ignorespaces%
613 }
614 \def\months#1{%
615 \@months#1;%
616 \ignorespaces%
617 }
618 \def\ds@year#1{%
619 \year@tk={#1}\@yeartrue\@datetrue%
620 \ignorespaces%
621 }
622 \def\issue#1{%
623 \issue@tk={#1}\@issuetrue%
624 \ignorespaces%
625 }
626 \def\pages#1{%
627 \pages@tk={#1}\@pagetrue%
628 \ignorespaces%
629 }
630 \def\tournament#1{%
631 \tournament@tk={#1}\@tournamenttrue%
632 \ignorespaces%
633 }
634 \def\award#1{%
635 \award@tk={#1}\@awardtrue%
636 \ignorespaces%
637 }
638 \def\version#1{%
639 \version@tk={#1}\@versiontrue%
640 \ignorespaces%
641 }
642 \def\after#1{%
643 \after@tk={#1}\@aftertrue%
644 \ignorespaces%
645 }
646 \def\correction#1{%
647 \correction@tk={#1}\@correctiontrue%
648 \ignorespaces%
649 }
650 \def\dedication#1{%
651 \dedic@tk={#1}\@dedicationtrue%
652 \ignorespaces%
653 }
654 \def\fidealbum#1{%
655 \fidealbum@tk={#1}\@fidealbumtrue%
656 \ignorespaces%
657 }
658 \def\pieces{%
659 \@ifnextchar[%
660 {\x@pieces}%
661 {\@pieces}%
662 }
663 \def\x@pieces[#1]{%
664 % We should parse the given piececounts

```

```

665 \setboolean{cpd@checkPieceCounts}{true}%
666 \@parseWhiteAndBlackCount#1+\e@list
667 \@pieces%
668 }
669 \def\@parseWhiteAndBlackCount#1+#2+{%
670 \setcounter{cpd@defWhitePieces}{#1}%
671 \setcounter{cpd@defBlackPieces}{#2}%
672 \futurelet\n@xt\cpd@checkNeutral%
673 }
674 \let\cpd@nextproc=\relax%
675 \def\cpd@checkNeutral{%
676 \if\n@xt\relax%
677 \let\cpd@nextproc=\relax%
678 \else%
679 \let\cpd@nextproc=\@parseNeutralCount%
680 \fi%
681 \cpd@nextproc%
682 }
683 \def\@parseNeutralCount#1+{%
684 \setcounter{cpd@defNeutralPieces}{#1}%
685 }
686 \def\@pieces#1{%
687 \pieces@tk={#1}\@piecestrue%
688 \ignorespaces%
689 }
690 \def\fieldtext#1{%
691 \fieldtext@tk={#1}\@fieldtexttrue%
692 \ignorespaces%
693 }
694 \def\nofields#1{%
695 \nofields@tk={#1}\@nofieldstrue%
696 \ignorespaces%
697 }
698 \let\nosquares\nofields
699 \def\gridlines#1{%
700 \gridlines@tk={#1}\@gridlinestrue%
701 \ignorespaces%
702 }
703 \def\fieldframe#1{%
704 \fieldframe@tk={#1}\@fieldframetrue%
705 \ignorespaces%
706 }
707 \def\stipulation#1{%
708 \stipulation@tk={#1}\@stipulationtrue%
709 \ignorespaces%
710 }
711 \def\condition{%
712 \@ifstar{\x@condtrue\@condition}{\@condition}%
713 }
714 \def\@condition#1{%
715 \condition@tk={#1}\@conditiontrue%
716 \ignorespaces%
717 }
718 \def\twins{%

```

```

719 \@ifstar{\x@twinstrue\@twins}\@twins}%
720 }
721 \def\@twins#1{%
722 \twins@tk={#1}\@twinstrue%
723 \ignorespaces%
724 }
725 \def\remark#1{%
726 \remark@tk={#1}\@remarktrue%
727 \ignorespaces%
728 }
729 \def\piecedefs#1{%
730 \piecedefs@tk={#1}\@piecedeftrue%
731 \ignorespaces%
732 }
733 % \def\@piecedef#1{\csname#1\x@piecedef\endcsname\l@klist}
734 % \newcommand{\piecedef}[3][ws]{%
735 % \def\x@piecedef{#2}%
736 % \let\@action=\@piecedef%
737 % \hbox{\l@klist#1\@list%
738 % \ = #3}%
739 % }
740 \def\Co#1{%
741 \ifx#1+\@computertrue\computer@tk={+}\fi%
742 \ignorespaces%
743 }
744 \long\def\solution#1{%
745 \sol@tk={#1}\global\s@luttrue%
746 \ignorespaces%
747 }
748 \def\themes#1{%
749 \theme@tk={#1}\@themetrue%
750 \ignorespaces%
751 }
752 \long\def\comment#1{%
753 \comment@tk={#1}\@commenttrue%
754 \ignorespaces%
755 }
756 \long\def\judgement#1{%
757 \judgement@tk={#1}\@judgementtrue%
758 \ignorespaces%
759 }
760 \def\noframe{%
761 \@vframefalse\@hframefalse%
762 \ignorespaces%
763 }
764 \def\noinnerframe{%
765 \@leaveOuterfalse\@vframefalse\@hframefalse%
766 \ignorespaces%
767 }
768 \def\verticalcylinder{%
769 \@vframefalse%
770 \ignorespaces%
771 }
772 \def\horizontalcylinder{%

```

```

773 \@hframefalse%
774 \ignorespaces%
775 }
776 \def\stdgrid{%
777 \@stdgridtrue%
778 \ignorespaces%
779 }

```

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

```

\magic 780 \let\gridchess=\stdgrid
\tourn 781 \let\magic=\fieldframe
\dedic 782 \let\tourn=\tournament
\stip 783 \let\dedic=\dedication
\cond 784 \let\stip=\stipulation
\rem 785 \let\cond=\condition
\rem 786 \let\rem=\remark
\sol 787 \let\sol=\solution

788 \def\develop{%
789 \@developtrue%
790 \ignorespaces%
791 }
792 \def\showcomputer{%
793 \setboolean{showcomputer}{true}%
794 \ignorespaces%
795 }
796 \def\nocomputer{%
797 \setboolean{showcomputer}{false}%
798 \ignorespaces%
799 }
800 \def\putsol{\immediate\closeout\s@lfd\input\jobname.sol\cl@arsol}
801 \def\widedias{\@widediastrue\diagcenter}
802 \def\nowidedias{\@widediasfalse}
803 \def\normalnames{\normal@namestrue}
804 \def\reversednames{\normal@namesfalse}
805 \def\makeaindex{%
806 \@dia@index%
807 \newindex[thediag]{author}{adx}{and}{Autorenverzeichnis}%
808 \@aindextrue\reversednames%
809 }
810
811 \def\makesindex{%
812 \@dia@index%
813 \newindex[thediag]{source}{sdx}{snd}{Quellenregister}%
814 \@sindextrue%
815 }
816
817 \def\maketindex{%
818 \@dia@index%
819 \newindex[thediag]{theme}{tdx}{tnd}{Themenregister}%
820 \@tindextrue%
821 }
822
823 \def\authorindex{\let\@idxitem\@aidxitem\printindex[author]}

```

```

824 \def\sourceindex{\printindex[source]}
825 \def\themeindex{\printindex[theme]}
826 \def\DefinePieces#1#2#3{%
827   \@setPieceColor#1\@setPieceSpec#2\@setPieceRotation#3%
828   \loop@rotation%
829   \expandafter\xdef\csname\ds@black\ds@white\ds@bishop\endcsname{%
830     \noexpand\ch@fig{120}%
831   }%
832   \expandafter\xdef\csname\ds@black\ds@black\ds@bishop\endcsname{%
833     \noexpand\ch@fig{32}%
834   }%
835   \expandafter\xdef\csname\ds@white F\endcsname{\chessfont\ }%
836   \expandafter\xdef\csname\ds@black F\endcsname{\chessfont\char144}%
837   \expandafter\xdef\csname\ds@white Nr\endcsname{%
838     \noexpand\ch@fig{109}%
839   }%
840   \expandafter\xdef\csname\ds@neutral Nr\endcsname{%
841     \noexpand\ch@fig{115}%
842   }%
843   \expandafter\xdef\csname\ds@black Nr\endcsname{%
844     \noexpand\ch@fig{121}%
845   }%
846   \expandafter\xdef\csname\ds@white Gh\endcsname{%
847     \noexpand\ch@fig{112}%
848   }%
849   \expandafter\xdef\csname\ds@neutral Gh\endcsname{%
850     \noexpand\ch@fig{118}%
851   }%
852   \expandafter\xdef\csname\ds@black Gh\endcsname{%
853     \noexpand\ch@fig{124}%
854   }%
855   \expandafter\xdef\csname\ds@white C\endcsname{%
856     \noexpand\ch@fig{145}%
857   }%
858   \expandafter\xdef\csname\ds@neutral C\endcsname{%
859     \noexpand\ch@fig{151}%
860   }%
861   \expandafter\xdef\csname\ds@black C\endcsname{%
862     \noexpand\ch@fig{157}%
863   }%
864 }
865 \def\Imi{\ch@fig{157}}

```

`\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.

```

866 \def\dia@above{%
867   \@dia@number%
868   \@dia@authors%
869   \@dia@city%
870   \@dia@after%
871   \@dia@version%
872   \@dia@source%
873   \@dia@correction%

```

```

874 \dia@tournament%
875 \dia@award%
876 \dia@dedic%
877 \dia@fidealbum%
878 }

```

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

```

879 \def\dia@below{%
880 \bgroup%
881 \if@stipulation%
882 \dia@stipulation%
883 \fi%
884 \ifx@cond\else%
885 \dia@condition%
886 \fi%
887 \ifx@twins\else%
888 \dia@twins%
889 \fi%
890 \dia@remark%
891 \if@solafterdiagram%
892 \below@newline%
893 \the\sol@tk%
894 \fi%
895 \noindent\hbox{}\newline\hbox{}%
896 \egroup%
897 }

```

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

```

898 \def\dia@number{%
899 {\authorfont\thediag\par}%
900 }

```

`\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.

```

901 \def\dia@authors{%
902 \ifauth@r%
903 \bgroup%
904 \authorfont%
905 \ifnormal@names%
906 \the\aut@tk%
907 \else%
908 {\def\name@sep{\par}%
909 \notfirstfalse%
910 \let\@action=\dia@writename% Parse the list of authors
911 \@parseTokenlist\aut@tk;}
912 \fi%
913 \egroup%
914 \fi%
915 }

```



```

916 \def\@show@city#1;{\if@notfirst\ \slash\ \else\@notfirsttrue\fi#1}
917
918 \def\p@rsecity#1; {\@show@city#1;\l@@klist}
919
920 \def\@dia@city{%
921   \ifthenelse{\boolean{showcity}}{%
922     \if@city%
923       \bgroup%
924       \cityfont\@notfirstfalse%
925       \let\@action=\p@rsecity\@parseTokenlist\city@tk;%
926       \par%
927       \egroup%
928     \fi%
929   }{}%
930 }
931
932 \def\@dia@after{%
933   \if@after%
934     \bgroup%
935     \dedicfont\the\after@tk\par%
936     \egroup%
937   \fi%
938 }
939
940 \def\@dia@version{%
941   \if@version%
942     \bgroup%
943     \dedicfont\the\version@tk\par%
944     \egroup%
945   \fi%
946 }
947
948 \def\@dia@date{%
949   \ifnum\from@month>\z@%
950     \if@day%
951       \the\day@tk.\write@month\from@month%
952     \else%
953       \write@month\from@month%
954     \fi%
955   \ifnum\to@month>\z@--\write@month\to@month\fi%
956   \if@day.\else/\fi%
957 \fi%
958 \if@year\the\year@tk\fi%
959 }
960
961 \def\@dia@source{%
962   \if@source%
963     \bgroup%
964     \sourcefont%
965     \if@sourcenr\the\sourcenr@tk\ \fi
966     \the\source@tk%
967     \if@date\ \ \fi\@dia@date%
968     \if@issue\ \ \the\issue@tk\fi%
969     \if@pages ,\ \the\pages@tk\fi%

```

```

970     \par%
971     \egroup%
972 \else%
973     \if@tournament\else\if@date%
974         \bgroup%
975         \sourcefont%
976         \@dia@date%
977         \par%
978         \egroup%
979     \fi\fi%
980 \fi%
981 }
982
983 \def\@dia@correction{%
984     \if@correction%
985         \bgroup%
986         \dedicfont\the\correction@tk%
987         \par%
988         \egroup%
989     \fi%
990 }
991
992 \def\@dia@tournament{%
993     \if@tournament
994         \bgroup%
995         \awardfont%
996         \the\tournament@tk
997         \if@source\else\if@date%
998             \ \ \@dia@date%
999         \fi\fi%
1000     \par%
1001     \egroup%
1002 \fi%
1003 }
1004
1005 \def\@dia@award{%
1006     \if@award%
1007         \bgroup%
1008         \awardfont\the\award@tk%
1009         \par%
1010         \egroup%
1011     \fi%
1012 }
1013
1014 \def\@dia@dedic{%
1015     \if@dedication%
1016         \bgroup%
1017         \dedicfont\the\dedic@tk%
1018         \par%
1019         \egroup%
1020     \fi%
1021 }
1022
1023 \def\@show@album#1/#2;{#1 FIDE-Album #2}

```

```

1024
1025 \def\@dia@fidealalbum{%
1026   \if@fidealalbum{%
1027     \expandafter\@show@album\the\fidealalbum@tk;%
1028     \par%
1029   }\fi%
1030 }
1031
1032 \def\@twinskip{\ \ }
1033
1034 \def\@dia@stipulation{%
1035   \if@stipulation%
1036     \bgroup%
1037     \stipfont%
1038     \the\stipulation@tk%
1039     \ifx@twins%
1040       \let\below@newline\@twinskip%
1041       \@dia@twins%
1042     \else\ifx@cond%
1043       \let\below@newline\@twinskip%
1044       \@dia@condition%
1045     \fi\fi%
1046     \egroup%
1047     \let\below@newline\newline%
1048   \else%
1049     \x@twinsfalse%
1050     \x@condfalse%
1051     \let\below@newline\relax%
1052   \fi%
1053 }
1054
1055 \def\x@write@twin#1; {%
1056   \hskip1em#1%
1057   \@lefttrue\let\below@newline\newline%
1058   \let\@action\write@twins%
1059   \l@@klist%
1060 }
1061
1062 \def\write@twins#1; {%
1063   \setbox\@test@box=\hbox{#1\if@left~~\fi}%
1064   \ifdim\wd\@test@box>4\sq@width%
1065     \below@newline%
1066     \@lefttrue%
1067     #1%
1068   \else%
1069     \if@left%
1070       \below@newline%
1071     \fi%
1072     \noindent\hbox to 4\sq@width{#1\hfil}%
1073     \if@left%
1074       \@leftfalse%
1075     \else%
1076       \@lefttrue%
1077     \fi%

```

```

1078 \fi%
1079 \let\below@newline\newline%
1080 \l@@klist%
1081 }
1082
1083 \def\@dia@twins{%
1084 \if@twins%
1085 \bgroup%
1086 \@lefttrue%
1087 \remfont%
1088 \ifx@twins%
1089 \let\@action=\x@write@twin%
1090 \else%
1091 \let\@action=\write@twins%
1092 \fi%
1093 \@parseTokenlist\twins@tk;%
1094 \egroup%
1095 \let\below@newline\newline%
1096 \fi%
1097 }
1098
1099 \def\@dia@condition{%
1100 \if@condition%
1101 \bgroup%
1102 \@lefttrue%
1103 \remfont%
1104 \ifx@cond%
1105 \let\@action=\x@write@twin%
1106 \else%
1107 \let\@action=\write@twins%
1108 \fi%
1109 \@parseTokenlist\condition@tk;%
1110 \egroup%
1111 \let\below@newline\newline%
1112 \fi%
1113 }
1114
1115 \def\check@piecedef{%
1116 \ifx\next@piecedef\relax%
1117 \let\col@action=\relax%
1118 \else%
1119 \let\col@action=\@@piecedef%
1120 \fi%
1121 \col@action%
1122 }
1123 \def\@@piecedef#1{\csname#1\x@piecedef\endcsname\parse@piecedef}
1124
1125 \def\parse@piecedef{\futurelet\next@piecedef\check@piecedef}
1126
1127 \def\@piecedef#1#2#3{%
1128 \def\x@piecedef{#2}%
1129 \below@newline%
1130 \hbox{%
1131 \parse@piecedef#1\relax%

```

```

1132 \ = #3}%
1133 }
1134
1135 \def\write@piecedefs#1; {%
1136 \@piecedef#1%
1137 \l@@klist%
1138 }
1139
1140 \def\@dia@remark{%
1141 \if@remark%
1142 \bgroup%
1143 \@lefttrue%
1144 \remfont\let\@action=\write@twins%
1145 \@parseTokenlist\remark@tk;%
1146 \egroup%
1147 \let\below@newline\newline%
1148 \fi%
1149 \if@piecedefs%
1150 \bgroup%
1151 \@lefttrue%
1152 \let\below@newline\newline%
1153 \remfont\let\@action=\write@piecedefs%
1154 \@parseTokenlist\piecedefs@tk;%
1155 \egroup%
1156 \fi%
1157 }
1158
1159 \def\parse@params#1{%
1160 \ifcase\help@a\relax
1161 \label@tk={#1}\ifx\relax#1\else\@labeltrue\fi\or%
1162 \number@tk={#1}\ifx\relax#1\else\@numbertrue\fi\or%
1163 \aut@tk={#1}\ifx\relax#1\else\@auth@rtrue\fi\or%
1164 \city@tk={#1}\ifx\relax#1\else\@citytrue\fi\or%
1165 \sourcenr@tk={#1}\ifx\relax#1\else\@sourcenrtrue\fi\or%
1166 \source@tk={#1}\ifx\relax#1\else\@sourcetrue\fi\or%
1167 \day@tk={#1}\ifx\relax#1\else\@daytrue\fi\or%
1168 \from@month=#1\or%
1169 \to@month=#1\or%
1170 \year@tk={#1}\ifx\relax#1\else\@yeartrue\fi\or%
1171 \issue@tk={#1}\ifx\relax#1\else\@issuetrue\fi\or%
1172 \pages@tk={#1}\ifx\relax#1\else\@pagetrue\fi\or%
1173 \tournament@tk={#1}\ifx\relax#1\else\@tournamenttrue\fi\or%
1174 \award@tk={#1}\ifx\relax#1\else\@awardtrue\fi\or%
1175 \after@tk={#1}\ifx\relax#1\else\@aftertrue\fi\or%
1176 \version@tk={#1}\ifx\relax#1\else\@versiontrue\fi\or%
1177 \correction@tk={#1}\ifx\relax#1\else\@correctiontrue\fi\or%
1178 \dedic@tk={#1}\ifx\relax#1\else\@dedicationtrue\fi\or%
1179 \theme@tk={#1}\ifx\relax#1\else\@themetrue\fi\or%
1180 \twins@tk={#1}\ifx\relax#1\else\@twinstrue\fi\or%
1181 \computer@tk={#1}\or%
1182 \comment@tk={#1}\ifx\relax#1\else\@commenttrue\fi\or%
1183 \judgement@tk={#1}\ifx\relax#1\else\@judgementtrue\fi\or%
1184 \sol@tk={#1}%
1185 \fi%

```

```

1186 \advance\help@a \@ne%
1187 \l@@klist%
1188 }
1189
1190 \def\split@param#1{%
1191 \@labelfalse\@numberfalse\auth@rfalse\@cityfalse%
1192 \@sourcenrfalse\@sourcefalse\@dayfalse\@yearfalse%
1193 \@issuefalse\@pagesfalse\@tournamentfalse\@awardfalse%
1194 \@afterfalse\@versionfalse\@correctionfalse\@dedicationfalse%
1195 \@themefalse\@twinsfalse\@commentfalse\@judgementfalse%
1196 \help@a=\z@%
1197 \let\@action=\parse@params\l@@klist#1\@list%
1198 }
1199 \newcommand{\solpar}{\par}
1200 \def\@dia@solution{%
1201 \bgroup%
1202 \parindent\z@%
1203 \parskip\tw@\p@%
1204 {\bfseries%
1205 \noindent\if@label\showlabel{\the\label@tk}\fi%
1206 \the\number@tk) %
1207 \ifauth@r%
1208 \ifnormal@names%
1209 \the\aut@tk%
1210 \else%
1211 {\@notfirstfalse% We are the first one
1212 \def\name@sep{,}%
1213 \let\@action=\@sol@writename%
1214 \@parseTokenlist\aut@tk;}:%
1215 \fi%
1216 \newline%
1217 \fi%
1218 }%
1219 \if@develop\if@judgement\the\judgement@tk\solpar\fi\fi%
1220 \the\sol@tk\solpar%
1221 \if@comment\the\comment@tk\solpar\fi%
1222 \egroup%
1223 }
1224 \grid@width=0.6\p@
1225 \inner@frame=0.6\p@
1226 \outer@frame=1.2\p@
1227 \space@frame=\outer@frame
1228 \v@frame@dist=\tw@\p@%
1229 \h@frame@dist=\tw@\p@%
1230 \space@frame@dist=\z@
1231 \v@space@dist=1em
1232 \def\@show@figurine{%
1233 \noindent%
1234 \@figurine@number%
1235 \@figurine@author%
1236 \@figurine@city%
1237 \@figurine@after%
1238 \@figurine@correction%
1239 \@figurine@version%

```

```

1240 \@figurine@source%
1241 \@figurine@tournament%
1242 \@figurine@award%
1243 \@figurine@dedic%
1244 \@figurine@pieces%
1245 \@figurine@stip%
1246 \@figurine@twins%
1247 \@figurine@conditions%
1248 \@figurine@remarks%
1249 \@figurine@computer%
1250 }
1251 \def\@figurine@number{\@authorfont\thediag)}
1252
1253 \def\p@rseauthor@figurine#1,#2; {%
1254 \if@notfirst, \else\@notfirsttrue\fi#2 #1%
1255 \l@klist%
1256 }
1257
1258 \def\@figurine@author{%
1259 {\ifauth@r%
1260 \authorfont\@notfirstfalse%
1261 \let\@action=\p@rseauthor@figurine%
1262 \@parseTokenlist\aut@tk;%
1263 \ \ %
1264 \fi}%
1265 }
1266
1267 \def\@figurine@city{%
1268 {\if@city%
1269 \cityfont\@notfirstfalse%
1270 \let\@action=\p@rsecity\@parseTokenlist\city@tk;%
1271 \ \ \ %
1272 \fi}%
1273 }
1274
1275 \def\@figurine@after{\if@after{\dedicfont\ \ \the\after@tk}\fi}
1276
1277 \def\@figurine@correction{%
1278 \if@correction{\dedicfont\ \ \the\correction@tk}\fi%
1279 }
1280
1281 \def\@figurine@version{%
1282 \if@version{\dedicfont\ \ \the\version@tk}\fi%
1283 }
1284
1285 \def\@figurine@source{%
1286 {\if@source%
1287 \sourcefont%
1288 \if@sourcenr\the\sourcenr@tk\ \fi%
1289 \the\source@tk%
1290 \if@year%
1291 \ \ %
1292 \if@day%
1293 \ifnum\from@month>\z@%

```

```

1294         \the\day@tk.%
1295         \write@month\from@month%
1296         \ifnum\to@month>\z@%
1297             -\write@month\to@month%
1298         \fi%
1299         .%
1300     \fi%
1301 \else%
1302     \write@month\the\from@month%
1303     \ifnum\to@month>\z@%
1304         -\write@month\the\to@month%
1305     \fi%
1306     /%
1307 \fi%
1308 \the\year@tk%
1309 \fi%
1310 \if@issue , \the\issue@tk\fi%
1311 \if@pages , \the\pages@tk\fi%
1312 \fi}%
1313 }
1314
1315 \def\@figurine@tournament{%
1316     \if@tournament{\awardfont\ \the\tournament@tk}\fi%
1317 }
1318
1319 \def\@figurine@award{%
1320     \if@award{\awardfont\ \the\award@tk}\fi%
1321 }
1322
1323 \def\@figurine@dedic{%
1324     \if@dedication{\awardfont\ \the\dedic@tk}\fi%
1325 }
1326 \def\show@squares#1\@list{\ch@fig{\the\help@a}#1, }
1327
1328 \def\@figurine@pieces{%
1329     {\if@pieces%
1330         \let\@action=\p@rsepieces%
1331         \let\piece@job\show@squares%
1332         \@parseTokenlist\pieces@tk,%
1333     \fi}%
1334 }
1335 \def\@figurine@stip{%
1336     \if@stipulation{\stipfont\ \the\stipulation@tk}\fi%
1337 }
1338
1339 \def\@figurine@conditions{%
1340     \if@condition{\remfont\ \the\condition@tk}\fi%
1341 }
1342
1343 \def\@figurine@twins{%
1344     \if@twins{\remfont\ \the\twins@tk}\fi%
1345 }
1346
1347 \def\@figurine@computer{%

```



```

1348 \ifthenelse{\boolean{showcomputer}}{\fi%
1349 \if@computer\ \computerproofedsymbol\fi%
1350 }{\}%
1351 }
1352
1353 \def\@figurine@remarks{%
1354 \if@remark{\stipfont\ \ \the\remark@tk}\fi%
1355 }
1356 \def\do@dia@job{\@write@sol\ifvmode\noindent\fi\unhbox\dia@box}
1357 \def\solhead#1{\split@param{#1}\@dia@solution}}
1358 \def\@write@sol{%
1359 \ifs@lu%
1360 \immediate\write\s@lfd{%
1361 \noexpand\solhead{%
1362 {\the\label@tk}%
1363 {\thediag}%
1364 {\the\aut@tk}%
1365 {\the\city@tk}%
1366 {\the\sourcenr@tk}%
1367 {\the\source@tk}%
1368 {\the\day@tk}%
1369 {\the\from@month}%
1370 {\the\to@month}%
1371 {\the\year@tk}%
1372 {\the\issue@tk}%
1373 {\the\pages@tk}%
1374 {\the\tournament@tk}%
1375 {\the\award@tk}%
1376 {\the\after@tk}%
1377 {\the\version@tk}%
1378 {\the\correction@tk}%
1379 {\the\dedic@tk}%
1380 {\the\theme@tk}%
1381 {\the\twins@tk}%
1382 {\the\computer@tk}%
1383 {\the\comment@tk}%
1384 {\the\judgement@tk}%
1385 {\the\sol@tk}%
1386 } %end of \solhead
1387 }%
1388 \fi
1389 }
1390 \def\@months#1-#2;{\from@month=#1\to@month=#2\@datetrue}
1391 \def\@dia@writename#1; {\sep@names\@dianame#1; \l@@klist}
1392 \def\@sol@writename#1; {\sep@names\@dianame#1; \l@@klist}
1393 \def\name@sep{,\ }
1394 \def\sep@names{\if@notfirst\name@sep\else\@notfirsttrue\fi}
1395 \def\@checkshort#1/#2#3;{%
1396 \@shortformtrue%
1397 \ifx#2\@list\relax%
1398 \@shortformfalse%
1399 \fi%
1400 }
1401 \def\short@christian#1#2-{%

```

```

1402 \if@notfirst -\else\@notfirsttrue\fi%
1403 #1.%
1404 \l@@klist%
1405 }
1406
1407 \def\@write@christian#1/#2;{#1}
1408
1409 \def\write@christian#1;{%
1410 \@checkshort#1/\e@list;%
1411 \if@shortform\@write@christian#1;else#1\fi%
1412 }
1413
1414 \def\@write@short#1/#2;{#2}
1415
1416 \def\write@short#1;{%
1417 \@checkshort#1/\e@list;%
1418 \if@shortform%
1419 \@write@short#1;%
1420 \else%
1421 {\@notfirstfalse\let\@action\short@christian\l@@klist#1-\e@list}%
1422 \fi%
1423 }
1424 \def\@fullname#1, #2; {\hbox{\write@christian#2; #1}}
1425 \def\@surname#1, #2; {#1}
1426 \def\@short#1, #2; {\write@short#2;\ #1}
1427 \def\@noname#1, #2; {}
1428 \def\@normalname#1; {#1}
1429 \def\space@vertical{\space@verticaltrue}
1430 \def\space@horizontal{\space@verticalfalse}
1431 \def\cl@arsol{\immediate\openout\s@lfd=\jobname.sol}
1432 \def\getc@lor#1{%
1433 \if#1\ds@white%
1434 \help@a\z@global%
1435 \let\cpd@stepcounterPieces\cpd@stepcounterWhite%
1436 \else\if#1\ds@neutral%
1437 \help@a=6\global%
1438 \let\cpd@stepcounterPieces\cpd@stepcounterNeutral%
1439 \else\if#1\ds@black%
1440 \help@a=12\global%
1441 \let\cpd@stepcounterPieces\cpd@stepcounterBlack%
1442 \else\errmessage{invalid color!}%
1443 \fi\fi\fi%
1444 \getpi@ce%
1445 }
1446
1447 \def\get@text#1{\text@tk={#1}\read@square}
1448
1449 \def\getpi@ce#1{\if#1B\relax\else
1450 \if#1\ds@knight\advance\help@a\@ne%
1451 \else\if#1\ds@bishop\advance\help@a\tw@%
1452 \else\if#1\ds@rook\advance\help@a\thr@@%
1453 \else\if#1\ds@queen\advance\help@a\four%
1454 \else\if#1\ds@king\advance\help@a 5%
1455 \else\if#1C%

```

```

1456      % An imitator should not count for any color.
1457      \let\cpd@stepcounterPieces\relax
1458      \advance\help@a 145%
1459      \else%
1460          \errmessage{invalid piece!}%
1461      \fi\fi\fi\fi\fi\fi\fi%
1462      \futurelet\r@tate\chkr@tate%
1463  }
1464
1465  \def\chkr@tate{%
1466      \if\r@tate \ds@upsideup\advance\help@a 108\let\nextpr@c=\skipr@t\else%
1467      \if\r@tate \ds@left\advance\help@a 36\let\nextpr@c=\skipr@t\else%
1468      \if\r@tate \ds@right\advance\help@a 72\let\nextpr@c=\skipr@t\else%
1469      \let\nextpr@c\piece@job\fi\fi\fi\fi\nextpr@c%
1470  }
1471  \def\skipr@t#1{\piece@job}
1472  \def\l@k{\futurelet\whatsnext\parsefi@lds}
1473  \def\parsefi@lds{%
1474      \if\whatsnext\@list%
1475          \let\nextpr@c\relax%
1476      \else
1477          \let\nextpr@c\read@square%
1478      \fi%
1479      \nextpr@c%
1480  }
1481
1482  \def\set@current@square@index#1#2{%
1483      \setcounter{cpd@current@square@index}{#1+\value{cpd@linesmax}*#2}%
1484  }
1485  \def\set@current@square@value#1{%
1486      \expandafter%
1487      \xdef\csname cpd@square@\roman{cpd@current@square@index}\endcsname{#1}%
1488  }
1489  \def\get@current@square@value{%
1490      \setcounter{cpd@current@square@value}%
1491      {\csname cpd@square@\roman{cpd@current@square@index}\endcsname}%
1492  }
1493  \def\set@piece{%
1494      \ifnum\pl@ne=\current@plane%
1495          \cpd@stepcounterPieces%
1496          \set@current@square@index\lin@\r@w%
1497          \get@current@square@value%
1498          \ifthenelse{\value{cpd@current@square@value}=\m@ne}
1499              {\set@current@square@value{\the\help@a}}%
1500              {\ifthenelse{\value{cpd@current@square@value}=144}%
1501                  {\set@current@square@value{\the\help@a+18}}%
1502                  {\errmessage{Trying to set a piece to an occupied square}}}%
1503      \fi%
1504      \l@k%
1505  }
1506  \def\set@nofield, {%
1507      \ifnum\pl@ne=\current@plane%
1508          \set@current@square@index\lin@\r@w%
1509          \get@current@square@value%

```

```

1510     \ifthenelse{\value{cpd@current@square@value}=\m@ne}%
1511     {}% This is an empty white square, nothing to do
1512     {\ifthenelse{\value{cpd@current@square@value}=144}%
1513     {\set@current@square@value{\m@ne}}%
1514     {\errmessage{Trying to set a piece to an occupied square}}}%
1515 \fi%
1516 \l@@klist%
1517 }
1518 \def\set@frame, {%
1519     \ifnum\pl@ne=\current@plane%
1520         \@vGrid{\the\lin@}{\the\r@w}\@ne%
1521         \@hGrid{\the\lin@}{\the\r@w}\@ne%
1522         \advance\lin@\@ne%
1523         \@vGrid{\the\lin@}{\the\r@w}\@ne%
1524         \advance\lin@\m@ne\advance\r@w\@ne%
1525         \@hGrid{\the\lin@}{\the\r@w}\@ne%
1526     \fi%
1527     \l@@klist%
1528 }
1529 \def\e@list{\relax}
1530 \def\l@@klist{\futurelet\nextlist\ch@ccklst}
1531 \def\ch@ccklst{%
1532     \ifx\nextlist\e@list%
1533         \let\nextpr@c=\relax%
1534     \else%
1535         \let\nextpr@c=\@action%
1536     \fi%
1537     \nextpr@c%
1538 }
1539 \def\p@rsepieces#1, {\getc@lor#1\e@list\l@@klist}
1540 \def\p@rsetext#1, {\get@text#1\e@list\l@@klist}
1541 \def\set@text{%
1542     \ifnum\pl@ne=\current@plane%
1543         \raise\r@w\squarewidth\hbox to \z@{%
1544             \hskip\lin@\squarewidth%
1545             \vbox to \squarewidth{\vss%
1546                 \hbox to \squarewidth{%
1547                     \hss%
1548                     {\the\text@tk}%
1549                     \hss%
1550                 }\vss}%
1551                 \hss%
1552             }%
1553         \fi%
1554         \l@@klist%
1555     }
1556 \def\p@rseauthor#1; {\sh@wauthor#1;\l@@klist}
1557 \def\read@square#1#2{%
1558     \lin@=#1\advance\lin@ by -'a\relax%
1559     \r@w=#2\advance\r@w by \m@ne%
1560     \read@plane%
1561 }
1562 \def\read@plane@normal{\plane@job}
1563

```

```

1564 \def\read@plane@stereo{\futurelet\plane@char\get@plane@stereo}
1565
1566 \def\get@plane@stereo{%
1567   \if\plane@char A%
1568     \pl@ne=\@ne\advance\r@w-\tw@\advance\lin@-\tw@%
1569     \let\@plane@job=\skip@plane%
1570   \else\if\plane@char B%
1571     \pl@ne=\tw@\advance\r@w-\tw@\advance\lin@-\tw@%
1572     \let\@plane@job=\skip@plane%
1573   \else\if\plane@char C%
1574     \pl@ne=\thr@@\advance\r@w-\tw@\advance\lin@-\tw@%
1575     \let\@plane@job=\skip@plane%
1576   \else\if\plane@char D%
1577     \pl@ne=\four\advance\r@w-\tw@\advance\lin@-\tw@%
1578     \let\@plane@job=\skip@plane%
1579   \else%
1580     \pl@ne=\z@\let\@plane@job=\plane@job%
1581   \fi\fi\fi\fi%
1582   \@plane@job%
1583 }
1584
1585 \def\skip@plane#1{\plane@job}
1586
1587 \def\read@plane@space#1{\pl@ne=' #1\advance\pl@ne by -'A\relax\plane@job}
1588 \def\@vGrid#1#2#3{%
1589   \raise#2\sq@width\hbox to \z@{%
1590     \hskip#1\sq@width\hskip-.5\grid@width%
1591     \vrule height#3\sq@width width\grid@width\hss%
1592   }%
1593 }
1594
1595 \def\@hGrid#1#2#3{%
1596   \raise#2\sq@width\hbox to \z@{%
1597     \hskip#1\sq@width%
1598     \vrule width#3\sq@width height .5\grid@width depth%
1599     .5\grid@width\hss%
1600   }%
1601 }
1602 \def\@selGrid#1#2, {%
1603   \ifnum\pl@ne=\current@plane%
1604     \if#1h%
1605       \@hGrid#2%
1606     \else\if#1v%
1607       \@vGrid#2%
1608     \else%
1609       \errmessage{Wrong GridSelector #1}%
1610     \fi\fi%
1611   \fi%
1612   \l@@@klist%
1613 }
1614 \def\@stdgrid{%
1615   \setbox\plane@box=\vbox{\hbox{%
1616     \help@a=\tw@%
1617     \loop%

```

```

1618         \ifnum\help@a<\lines@max%
1619         \@vGrid{\the\help@a}{0}{\the\rows@max}%
1620         \advance\help@a\tw@%
1621     \repeat%
1622     \help@a=\tw@%
1623     \loop%
1624         \ifnum\help@a<\rows@max%
1625             \@hGrid{0}{\the\help@a}{\the\lines@max}%
1626             \advance\help@a\tw@%
1627         \repeat%
1628     \box\plane@box
1629 }}%
1630 }
1631 \def\ds@xlabel#1{%
1632     \label@tk={#1}\@labeltrue%
1633 }
1634
1635 \def\@set@label#1;{\ifds@label\label{#1}\fi}
1636 \def\init@vars{%
1637     \global\s@lufalse
1638     \setboolean{cpd@checkPieceCounts}{false}%
1639     \setcounter{cpd@defWhitePieces}{\z@}%
1640     \setcounter{cpd@defBlackPieces}{\z@}%
1641     \setcounter{cpd@defNeutralPieces}{\z@}%
1642     \setcounter{cpd@whitePieces}{\z@}%
1643     \setcounter{cpd@blackPieces}{\z@}%
1644     \setcounter{cpd@neutralPieces}{\z@}%
1645     \lin@\z@
1646 }
1647
1648 \def\clear@board{%
1649     \ifthenelse{\boolean{allwhite}\and\boolean{switchcolors}}{%
1650         {\errmessage{'allwhite' and 'switchcolors' do not make sense used together.}}%
1651         {\@whitefield=\m@ne\@blackfield=144}%
1652     \ifthenelse{\boolean{allwhite}}{\@blackfield=\m@ne}{}%
1653     \ifthenelse{\boolean{switchcolors}}{\@whitefield=144\@blackfield=\m@ne}{}%
1654     \setcounter{cpd@current@row}{0}%
1655     \whiledo{\value{cpd@current@row}<\value{cpd@rowsmax}}{%
1656         \setcounter{cpd@current@line}{0}%
1657         \whiledo{\value{cpd@current@line}<\value{cpd@linesmax}}{%
1658             \set@current@square@index{\value{cpd@current@line}}{\value{cpd@current@row}}%
1659             \setcounter{cpd@helper}{\the\current@plane+\value{cpd@current@line}+\value{cpd@current@row}}%
1660             \ifthenelse{\isodd{\value{cpd@helper}}}%
1661                 {\set@current@square@value{\@whitefield}}%
1662                 {\set@current@square@value{\@blackfield}}%
1663             \addtocounter{cpd@current@line}{\@ne}%
1664         }%
1665         \addtocounter{cpd@current@row}{\@ne}%
1666     }%
1667 }
1668
1669 \def\put@row#1{%
1670     \lin@\z@%
1671     \help@b=#1%

```

```

1672 \advance\help@b\brd@ff%
1673 \hbox{%
1674   \if@stereo%
1675     \ifnum\current@plane>\z@%
1676       \ifnum\@rows=12%
1677         \llap{\raise .5\sq@width\hbox{\boardfont c6\ }}%
1678       \fi%
1679     \fi%
1680   \fi%
1681   \hbox to \z@{\vbox to \sq@width{}}%
1682   \set@current@square@index{\lin@}{#1}%
1683   \loop%
1684     \get@current@square@value%
1685     \ifthenelse{\value{cpd@current@square@value}=\m@ne}%
1686       {\wF}%
1687       {\char\value{cpd@current@square@value}}%
1688     % \ifnum\count\help@b=\m@ne\wF%
1689     % \else\char\count\help@b\fi%
1690     \advance\lin@\@ne%
1691     \addtocounter{cpd@current@square@index}{1}%
1692     % \advance\help@b\@ne%
1693     \ifnum\lin@<\lines@max\repeat%
1694   }%
1695 }
1696 \def\put@line#1{%
1697   \lin@\z@%
1698   \help@b=#1%
1699   \advance\help@b\brd@ff%
1700   \hbox{%
1701     \if@stereo%
1702       \ifnum\current@plane>\z@%
1703         \ifnum\@rows=12%
1704           \llap{\raise .5\sq@width\hbox{\boardfont c6\ }}%
1705         \fi%
1706       \fi%
1707     \fi%
1708     \hbox to \z@{\vbox to \sq@width{}}%
1709     \loop%
1710       \ifnum\count\help@b=\m@ne\wF%
1711       \else\char\count\help@b\fi%
1712       \advance\lin@\@ne\advance\help@b\@ne%
1713     \ifnum\lin@<\lines@max\repeat%
1714   }%
1715 }
1716 \def\@parseTokenlist#1#2{\expandafter\l@tklist\the#1#2 \e@list}
1717 \def\@addToPlane#1{%
1718   \setbox\plane@box=\vbox{\hbox{%
1719     \@parseTokenlist#1,%
1720     \box\plane@box%
1721   }}%
1722 }
1723 \def\put@plane{%
1724   % We might want gridchess
1725   \if@stdgrid%

```

```

1726         \@stdgrid%
1727     \fi%
1728 % Let us first set the fieldframes
1729 \if@fieldframe%
1730     \let\@action\read@square%
1731     \let\plane@job\set@frame%
1732     \@addToPlane\fieldframe@tk%
1733 \fi%
1734 % Now we set text to all squares which are given using \fieldtext
1735 \if@fieldtext%
1736     \let\@action\p@rsettext%
1737     \let\plane@job\set@text%
1738     \@addToPlane\fieldtext@tk%
1739 \fi%
1740 % Then we should add the gridlines
1741 \if@gridlines%
1742     \let\@action\read@plane%
1743     \let\plane@job\@selGrid%
1744     \@addToPlane\gridlines@tk%
1745 \else%
1746     \if@stereo%
1747         \stereo@center%
1748     \fi%
1749 \fi%
1750 % In an 'allwhite' diagram we display dotted lines
1751 \ifthenelse{\boolean{allwhite}}{%
1752     \setbox\plane@box=\vbox{\hbox{%
1753         \psset{unit=\sq@width,linewidth=.4pt,linestyle=dotted,dotsep=.125}%
1754         \setcounter{field@border}{1}%
1755         \whiledo{\value{field@border}<\lines@max}{%
1756             \psline(0,\value{field@border})(\rows@max,\value{field@border})%
1757             \addtocounter{field@border}{\@ne}%
1758         }%
1759         \setcounter{field@border}{1}%
1760         \whiledo{\value{field@border}<\rows@max}{%
1761             \psline(\value{field@border},0)(\value{field@border},\lines@max)%
1762             \addtocounter{field@border}{\@ne}%
1763         }%
1764         \box\plane@box%
1765     }}%
1766 }{}%
1767 % Now we should clear the board
1768 \clear@board%
1769 % Let us now parse the list of pieces
1770 \if@pieces%
1771     \let\@action\p@rsepieces%
1772     \let\piece@job\l@k\let\plane@job\set@piece%
1773     \@parseTokenlist\pieces@tk,%
1774 \fi%
1775 % Now we clear all fields, which are given using \nofields
1776 \if@nofields%
1777     \let\@action\read@square%
1778     \let\plane@job\set@nofield%
1779     \@parseTokenlist\nofields@tk,%

```



```

1780 \fi%
1781 % Now we can put the pieces to the board
1782 \global\setbox\plane@box=\hbox{%
1783 \vbox{\rlap{\box\plane@box}}%
1784 \vbox{%
1785 \chessfont%
1786 \baselineskip=\z@\lineskip=\z@%
1787 \@rows=\rows@max%
1788 % \multiply\@rows by \lines@max%
1789 \loop%
1790 % \advance\@rows -\lines@max%
1791 % \put@line\@rows%
1792 % Remove \put@line in future versions
1793 \advance\@rows \m@ne%
1794 \put@row\@rows%
1795 \ifnum\@rows>\z@\repeat%
1796 }%
1797 }%
1798 }
1799 \def\put@sqs@normal{%
1800 \put@plane%
1801 \setbox\sq@box=\hbox{%
1802 \inner@henbox{\box\plane@box}%
1803 }%
1804 }
1805 \def\put@sqs@stereo{%
1806 \setbox\sq@box=\hbox{\hfil\vbox{%
1807 \current@plane=5%
1808 \vskip\v@space@dist%
1809 \loop%
1810 \advance\current@plane\m@ne%
1811 \ifnum\current@plane=\z@%
1812 \lines@max=\@ight%
1813 \rows@max=\@ight%
1814 \else%
1815 \lines@max=f@ur%
1816 \rows@max=f@ur%
1817 \fi%
1818 % Now we should clear the board
1819 \begingroup% We need this for inner loops!
1820 \clear@board%
1821 \put@plane%
1822 \endgroup%
1823 \hbox to \bd@width{%
1824 \hfil%
1825 \inner@henbox{\box\plane@box}%
1826 \ifcase\current@plane\or%
1827 \rlap{\boardfont\ A}\or%
1828 \rlap{\boardfont\ B}\or%
1829 \rlap{\boardfont\ C}\or%
1830 \rlap{\boardfont\ D}}%
1831 \fi%
1832 \hfil%
1833 }%

```

```

1834         \vskip\v@space@dist%
1835         \ifnum\z@<\current@plane\repeat%
1836     }\hfil}%
1837 }
1838
1839 \def\stereo@center{%
1840     \ifnum\current@plane=\z@%
1841         \setbox\plane@box=\vbox{\hbox{%
1842             \@hGrid\tw@\tw@\f@ur\@hGrid\tw@ 6\f@ur%
1843             \@vGrid\tw@\tw@\f@ur\@vGrid6\tw@\f@ur%
1844             \box\plane@box%
1845         }}%
1846     \fi%
1847 }
1848 \def\put@sqs@space@vertical{%
1849     \setbox\sq@box=\hbox{\hfil\vbox{%
1850         \current@plane=\planes@max%
1851         \vskip\v@space@dist%
1852         \loop%
1853             \advance\current@plane@m@ne%
1854             % Now we should clear the board
1855             \begingroup% We use inner loops!
1856             \clear@board%
1857             \put@plane%
1858             \hbox to \bd@width{%
1859                 \inner@hbox{\box\plane@box}%
1860                 \advance\current@plane'A%
1861                 \rlap{\boardfont\ \char\current@plane}}%
1862             }%
1863             \endgroup%
1864             \vskip\v@space@dist%
1865         \ifnum\z@<\current@plane\repeat%
1866     }\hfil}%
1867 }
1868
1869 \def\put@sqs@space@horizontal{%
1870     \setbox\sq@box=\hbox{%
1871         \current@plane=\z@%
1872         \hskip\h@space@dist%
1873         \loop%
1874             % Now we should clear the board
1875             \begingroup% We use inner loops!
1876             \clear@board%
1877             \put@plane%
1878             \hbox to \bd@width{%
1879                 \inner@hbox{\box\plane@box}%
1880                 \advance\current@plane'A%
1881                 \rlap{\boardfont\ \char\current@plane}}%
1882             }%
1883             \endgroup%
1884             \hskip\h@space@dist%
1885             \advance\current@plane@ne%
1886         \ifnum\planes@max>\current@plane%
1887             \repeat%

```

```

1888 }%
1889 }
1890
1891 \def\put@sqs@space{%
1892   \ifspace@vertical%
1893     \put@sqs@space@vertical%
1894   \else%
1895     \put@sqs@space@horizontal%
1896   \fi%
1897 }
1898 \def\@inner@vframe{%
1899   \if@vframe%
1900     \vrule width \inner@frame%
1901   \else%
1902     \hskip\inner@frame%
1903   \fi%
1904 }
1905
1906 \def\@inner@hframe{%
1907   \if@hframe%
1908     \hrule height \inner@frame%
1909   \else%
1910     \vskip\inner@frame%
1911   \fi%
1912 }
1913 \def\inner@v@frame@rule{%
1914   \if@stereo%
1915     \@inner@vframe%
1916   \else\if@space%
1917     \@inner@vframe%
1918   \else\if@leaveOuter%
1919     \vrule width \inner@frame%
1920   \else%
1921     \@inner@vframe%
1922   \fi\fi\fi%
1923 }
1924
1925 \def\inner@h@frame@rule{%
1926   \if@stereo%
1927     \@inner@hframe%
1928   \else\if@space%
1929     \@inner@hframe%
1930   \else\if@leaveOuter%
1931     \hrule height \inner@frame%
1932   \else%
1933     \@inner@hframe%
1934   \fi\fi\fi%
1935 }
1936
1937 \def\inner@henbox#1{%
1938   \hbox{%
1939     \inner@v@frame@rule%
1940     \vbox{\inner@h@frame@rule#1\inner@h@frame@rule}%
1941     \inner@v@frame@rule%

```

```

1942 }%
1943 }
1944 \def\@outer@vrule{\vrule width \outer@frame}
1945
1946 \def\@outer@hrule{\hrule height \outer@frame}
1947 \def\outer@v@frame@rule{%
1948   \if@stereo%
1949     \@outer@vrule%
1950   \else\if@space%
1951     \@outer@vrule%
1952   \else\if@leaveOuter%
1953     \if@vframe\@outer@vrule\else\hskip\outer@frame\fi%
1954   \else%
1955     \@outer@vrule%
1956   \fi\fi\fi%
1957 }
1958
1959 \def\outer@h@frame@rule{%
1960   \if@stereo%
1961     \@outer@hrule%
1962   \else\if@space%
1963     \@outer@hrule%
1964   \else\if@leaveOuter%
1965     \if@hframe\@outer@hrule\else\vskip\outer@frame\fi%
1966   \else%
1967     \@outer@hrule%
1968   \fi\fi\fi%
1969 }
1970
1971 \def\outer@henbox#1{%
1972   \outer@h@frame@rule%
1973   \hbox{%
1974     \outer@v@frame@rule%
1975     \ifspace@vertical%
1976       \hskip\h@frame@dist%
1977     \fi%
1978     \vbox{%
1979       \ifspace@vertical%
1980         \vskip\v@frame@dist%
1981       \else%
1982         \vskip\v@space@dist%
1983       \fi%
1984       #1%
1985       \ifspace@vertical%
1986         \vskip\v@frame@dist%
1987       \else%
1988         \vskip\v@space@dist%
1989       \fi%
1990     }%
1991     \ifspace@vertical%
1992       \hskip\h@frame@dist%
1993     \fi%
1994     \outer@v@frame@rule%
1995   }%

```

```

1996 \outer@h@frame@rule%
1997 }
1998 \def\ch@fig#1{%
1999 \ifvmode\noindent\fi%
2000 \hbox{\chtextfont\lower.1\fontdimen\tw@\chtextfont\hbox{\char#1}}%
2001 }
2002 \def\@dia@index{%
2003 \@ifundefined{newindex}%
2004 {\errmessage{You should add documentstyle-option 'index'}}{}%
2005 }
2006
2007 \def\showlabel#1{%
2008 \if@develop%
2009 \raise1ex\hbox{\labelfont#1}\penalty\exhyphenpenalty%
2010 \fi%
2011 }
2012
2013 \def\@aidxitem#1, #2, #3{%
2014 \par\medskip#1, \write@christian#2; \dotfill #3%
2015 }
2016
2017 \def\dia@index#1\@sep#2[#3]{\index[#3]{#2/showlabel{#1}}}%
2018
2019 \def\parse@aindex#1; {%
2020 \expandafter\dia@index\the\label@tk\@sep#1[author]\l@klist%
2021 }
2022
2023 \def\@aindex{%
2024 \if@aindex%
2025 \ifnormal@names%
2026 \errmessage{Cannot create index entries with normalnames}%
2027 \else\ifauth@r%
2028 \let\@action=\parse@aindex\@parseTokenlist\aut@tk;%
2029 \fi\fi%
2030 \fi%
2031 }
2032
2033 \def\x@sindex#1\@sep{\expandafter\dia@index\the\label@tk\@sep#1[source]}
2034
2035 \def\@sindex{%
2036 \if@sindex\if@source%
2037 \expandafter\x@sindex\the\source@tk\@sep%
2038 \fi\fi%
2039 }
2040
2041 \def\parse@tindex#1, {%
2042 \expandafter\dia@index\the\label@tk\@sep#1[theme]\l@klist%
2043 }
2044
2045 \def\@tindex{%
2046 \if@tindex\if@theme%
2047 \let\@action=\parse@tindex\@parseTokenlist\theme@tk,%
2048 \fi\fi%
2049 }

```

```

2050 \def\@setPieceColor#1#2#3{%
2051     \gdef\ds@white{#1}\gdef\ds@black{#2}\gdef\ds@neutral{#3}%
2052 }
2053
2054 \def\@setPieceSpec#1#2#3#4#5#6{%
2055     \gdef\ds@king{#1}\gdef\ds@queen{#2}\gdef\ds@rook{#3}%
2056     \gdef\ds@bishop{#4}\gdef\ds@knight{#5}\gdef\ds@pawn{#6}%
2057 }
2058
2059 \def\@setPieceRotation#1#2#3{%
2060     \gdef\ds@left{#1}\gdef\ds@right{#2}\gdef\ds@upside-down{#3}%
2061 }
2062 \def\loop@rotation{%
2063     \bgroup%
2064         \n@cnt\z@%
2065         \help@a\z@%
2066         \loop%
2067             \ifcase\n@cnt%
2068                 \def\@theRotation{}%
2069             \or%
2070                 \def\@theRotation{\ds@left}%
2071             \or%
2072                 \def\@theRotation{\ds@right}%
2073             \or%
2074                 \def\@theRotation{\ds@upside-down}%
2075             \fi%
2076             \loop@color%
2077             \advance\n@cnt\@ne%
2078             \advance\help@a by 36\relax%
2079             \ifnum\n@cnt<\f@ur\repeat%
2080         \egroup%
2081 }
2082
2083 \def\loop@color{%
2084     \bgroup%
2085         \w@cnt\z@%
2086         \loop%
2087             \ifcase\w@cnt%
2088                 \def\@theColor{\ds@white}%
2089             \or%
2090                 \def\@theColor{\ds@neutral}%
2091             \or%
2092                 \def\@theColor{\ds@black}%
2093             \fi%
2094             \loop@piece%
2095             \advance\w@cnt\@ne%
2096             \advance\help@a by 6%
2097             \ifnum\w@cnt<\thr@@\repeat%
2098         \egroup%
2099 }
2100
2101 \def\loop@piece{%
2102     \bgroup%
2103         \b@cnt\z@%

```

```

2104 \loop%
2105 \ifcase\b@cnt%
2106 \def\@thePiece{\ds@pawn}%
2107 \or%
2108 \def\@thePiece{\ds@knight}%
2109 \or%
2110 \def\@thePiece{\ds@bishop}%
2111 \or%
2112 \def\@thePiece{\ds@rook}%
2113 \or%
2114 \def\@thePiece{\ds@queen}%
2115 \or%
2116 \def\@thePiece{\ds@king}%
2117 \fi%
2118 \expandafter\xdef\csname%
2119 \@theColor\@thePiece\@theRotation\endcsname{%
2120 \noexpand\ch@fig{\the\help@a}%
2121 }
2122 \advance\b@cnt\@ne%
2123 \advance\help@a by \@ne%
2124 \ifnum\b@cnt<6\repeat%
2125 \egroup%
2126 }
2127 \elchfont\@fselch
2128
2129 \defaultelchfont%
2130 \diagnum{\@ne}
2131 %% \figcnttrue
2132 \setboolean{piececounter}{true}
2133 \def\@dianame{\@fullname}
2134 \def\@solname{\@fullname}
2135 \space@verticaltrue
2136 \diagnumbering{arabic}
2137 \def\write@month{\@arabic}%
2138 \diagleft
2139 \cl@arsol
2140 \let\orig@author=\author
2141 \let\orig@day=\day
2142 \let\orig@month=\month
2143 \let\orig@year=\year
2144 \let\orig@label=\label
2145 \DefinePieces{wsn}{KDTLSB}{LRU}
2146 \newdimen\normalboardwidth
2147 \def\setboardwidth{%
2148 \normalboardwidth=\@ight\fontdimen\tw@\chessfont%
2149 \advance\normalboardwidth\tw@\inner@frame%
2150 \advance\normalboardwidth\tw@\h@frame@dist%
2151 \advance\normalboardwidth\tw@\outer@frame%
2152 }
2153
2154 \setboardwidth
2155
2156 \end{style}

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Change History

v0.1		
	General: First Version	1
v0.2		
	General: Added the documenta- tion for the <i>information col- lecting</i> macros which may be used inside a environment. . . .	1
v0.3		
	General: Added list of commands which should not be indexed. .	1
v0.4		
	General: Added most missing user documentation.	1
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 when writing producing piece- counter in small diagrams. . . .	1
v1.5.2		
	General: Added some per- cent signs at line ends in @start@diagram and end- diagram to avoid accidently added spaces.	1
v1.5.3		
	General: Changed switch, which is used to decide, whether infomration about computer proof is displayed to use stan- dard boolean syntax. Sym-	
	bols about computer proof are now created by standard com- mands and may therefore be changed by users.	1
v1.5.4		
	General: Defined 2 different ver- sions of @writename com- mand, to be able to change it in other stylefiles for the part over the diagram without in- fluencing the one used for the solution. Added commands to set white, black and neutral Circles within text.	1
v1.5.5		
	General: Changed amount of low- ering figurine pieces.	1
v1.5.6		
	General: Added new command 'solpar' to allow use of 'putsol' inside a window environment. .	1
v1.6		
	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
v1.6.1		
	General: Added new command piecedefs specify names of fairy pieces for rotated pieces. .	1
v1.6.2		
	General: Added boolean for all- white problems.	1
v1.6.3		
	General: Added boolean for board with switched field colors. . . .	1