

Creating diagrams for chess problems

Version 1.9

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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.

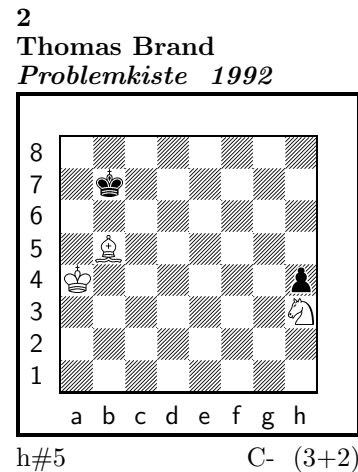
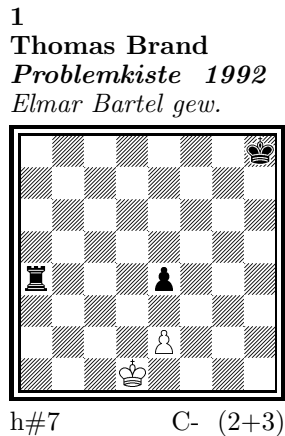
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1 Creating diagrams

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:

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}
\setboolean{legend}{true}
\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**
\Prof
\ProfDr
- 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 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 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>\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 "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.

- `\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.

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 firstname 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 \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 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`.

`legend` • This boolean controls whether a legend is displayed. The default value of this value is `false`. When legends are displayed the distance between inner and outer frame is automatically adjusted.

`\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 fontsizes of a document you may specify sizes of the fonts used in a diagram. The default will be set according to the fontsize specified as the `\documentclass` option.

`\diagramxi`

`\diagramxii`

1.2.3 Other commands

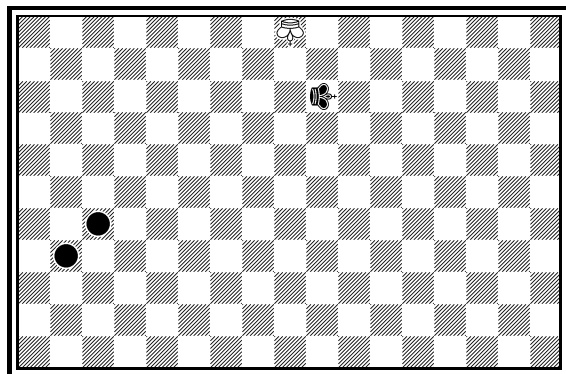
- `\label` • This overrides the normal `\label` definition such that the diagram number is displayed when using `\ref` instead of the page number.
- `\diagnum` • This macro expects a number as a parameter. The number will be used to (re-)initialize the diagram number counter. With this command the output of diagram numbers also is switched on. It must be used outside the `diagram` environment. As an optional parameter you may specify something, which will be used as prefix before the automatically updated diagram numbers. E. g. the command `\diagnum[T-]{4}` will produce the following diagram numbers for the following diagrams: **T-4**, **T-5**, **T-6**, ...

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{wKUi{11}, sKRj9, sCc5b4}
\end{diagram}
```

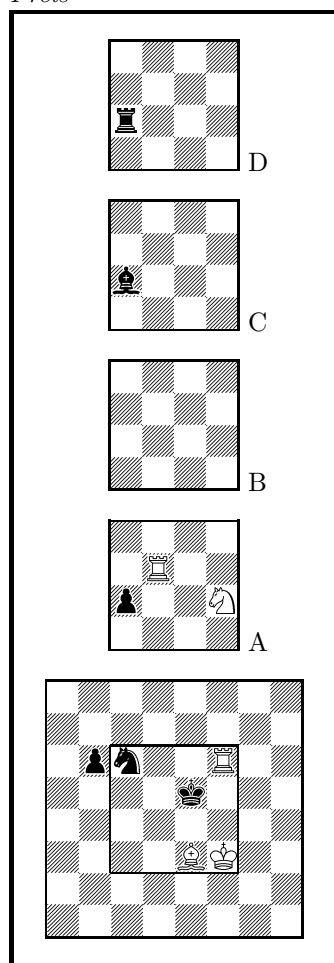
As you can see in the example, pieces are set using the `\pieces` macro. When using boards with more than 8 lines you have to continue with characters **i**, **j**, **k**, ... In a board with more than 9 rows you have to specify the rows in curly braces `{ }` as shown in the example.

1.3.2 Stereo- and Space-Chess-Diagrams

`stereodiagram`
`spacediagram`

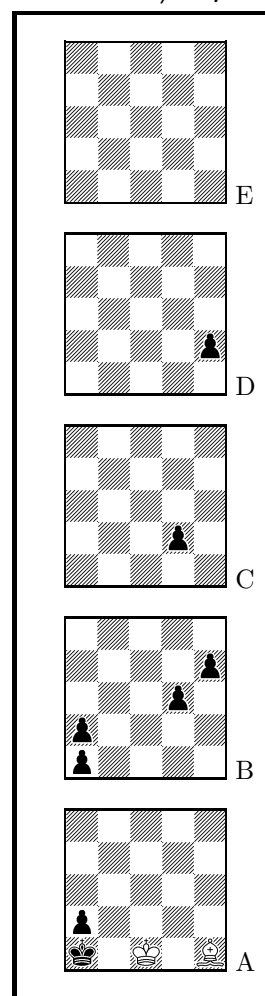
Other boards which are used from time to time are stereo chess or space chess boards (although there are quite few people which really have such boards!). To create these boards you just have to use either the `stereodiagram` or `spacediagram` environment instead of the normal `diagram` environment. 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.}
\sourcenr{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.}
\sourcenr{6595}.
\source{Fairy Chess Review}
\month{12}
\year{1945}
\pieces{wKc1A, wLe1A, sKa1A, sBa2Aa1Ba2Bd3Be4Bd2Ce2D}
\stip{\#2}
\end{spacediagram}

```

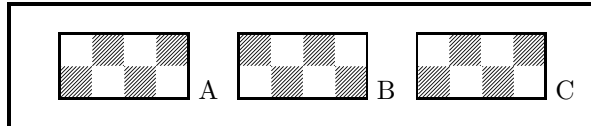
The main change is within the notation of the pieces, but people knowing space- or stereo-chess problems see that the notation is just one would expect.

`\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

6



C- (0+0)

Is produced by

```

\begin{spacediagram}[4x2x3]
\spacelayout{horizontal}
\end{spacediagram}

```

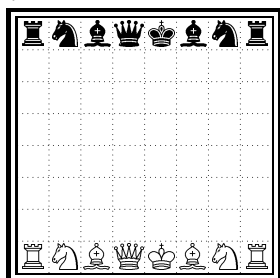
1.3.3 Cylindric boards / suppressing frames

`\horizontalcylinder` 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 spacechess-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



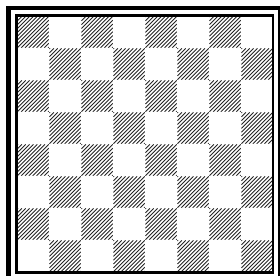
C- (8+8)

This was produced by:

```
\begin{diagram}
\allwhite
\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. 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

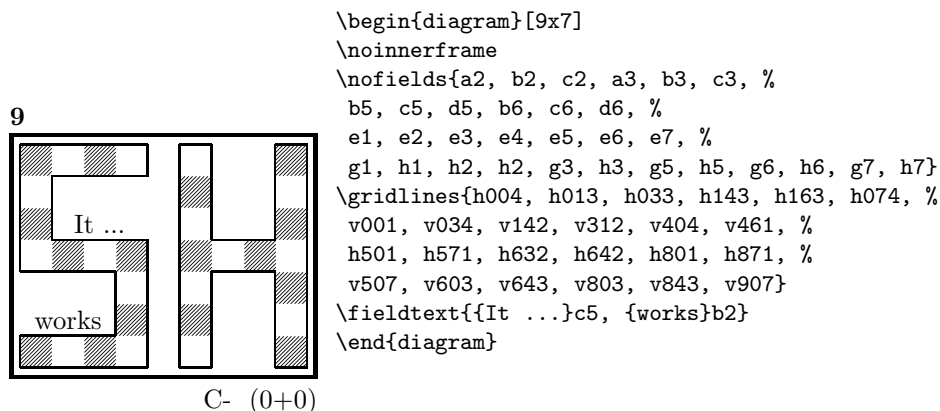
`\nofields` You may remove single fields by using the `\nofields` or `\nosquares` command.
`\nosquares` Using this command does make sense for empty black fields only. This command expects a list of squares separated by `''`, `''`. You may also use this command within a stereo- or space-diagram. In this 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 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
`\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:


`\set` * setplay
`\ra` \rightarrow a left to right arrow
`\lra` \leftrightarrow a double ended arrow
`\OO` **0-0** king side castling
`\OOO` **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 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 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`
`\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 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`
`\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>.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

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

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

```

3 The implementation of the style

Specifies the preamble of our style file.

```

12 <*style>
13 \ProvidesPackage{diagram}[2015/01/10]
14 \DeclareOption{10pt}{\AtBeginDocument{}}
15 \DeclareOption{11pt}{\AtBeginDocument{\renewcommand{\DefaultDiagramSize}{\diagramxi}}}
16 \DeclareOption{12pt}{\AtBeginDocument{\renewcommand{\DefaultDiagramSize}{\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 \newboolean{@textproblem}
32 \setboolean{@textproblem}{false}
33 \def\textproblem{\setboolean{@textproblem}{true}\let\dia@stipulation=\relax}
34
35 \newboolean{@solafterdiagram}
36 \setboolean{@solafterdiagram}{false}
37 \def\solafterdiagram{\setboolean{@solafterdiagram}{true}\ignorespaces}
38

```



```

39 \newif\if@vframe\@vframe>true
40 \newif\if@hframe\@hframe>true
41 \newif\if@leaveOuter\@leaveOuter>true
42
43 \newif\if@shortform
44
45 \newif\ifspace@vertical
46 \def\spacehorizontal{\space@verticalfalse}
47
48 \newif\ifdi@no
49 \newcounter{board@nr}
50 % \newif\iffigcnt
51 \newboolean{piececounter}
52 \newcount\r@w
53 \newcount\lin@
54 \newcount\pl@ne
55 \newcount\current@plane
56
57 \newcount\w@cnt
58 \newcount\b@cnt
59 \newcount\n@cnt
60 \newboolean{showcity}
61 \setboolean{showcity}{false}
62 \newboolean{showacademictitle}
63 \setboolean{showacademictitle}{true}
64 \newboolean{legend}
65 \setboolean{legend}{false}
66
67 \newcount\@blackfield
68 \newboolean{allwhite}
69 \setboolean{allwhite}{false}
70 \newcommand{\allwhite}{\setboolean{allwhite}{true}}
71 \newcounter{field@border}
72 \newcount\@whitefield
73 \newboolean{switchcolors}
74 \setboolean{switchcolors}{false}
75 \newcommand{\switchcolors}{\setboolean{switchcolors}{true}}
76
77 We have counters for each color to count the pieces on the board.
78 \newboolean{cpd@checkPieceCounts}
79 \newcounter{cpd@defWhitePieces}
80 \newcounter{cpd@defBlackPieces}
81 \newcounter{cpd@defNeutralPieces}
82
83 \newcounter{cpd@whitePieces}
84 \newcounter{cpd@blackPieces}
85 \newcounter{cpd@neutralPieces}
86
87 \newcommand{\cpd@stepcounterWhite}{\stepcounter{cpd@whitePieces}}
88 \newcommand{\cpd@stepcounterBlack}{\stepcounter{cpd@blackPieces}}
89 \newcommand{\cpd@stepcounterNeutral}{\stepcounter{cpd@neutralPieces}}
90
91 \global\let\cpd@stepcounterPieces\relax
92
93 \newcount\help@a
94 \newcount\help@b

```



```

92
93 \newbox\dia@box
94 \newbox\@cnt@box
95 \newdimen\@cnt@wd
96 \newbox\@stip@box
97
98 \newdimen\topdist\topdist\z@
99 \newbox\@test@box
100 \newdimen\@test@dimen
101 \newif\if@left
102
103 \newcount\brd@ff
104
105 \newdimen\dia@lineskip
106
107 \newdimen\board@width
108 \newdimen\bd@width
109 \newdimen\head@width
110 \newdimen\sq@width
111
112 \newdimen\grid@width
113 \newdimen\inner@frame
114 \newdimen\outer@frame
115 \newdimen\space@frame
116 \newdimen\v@frame@dist
117 \newdimen\h@frame@dist
118 \newdimen\space@frame@dist
119 \newdimen\v@space@dist
120 \newdimen\h@space@dist
121
122 \newbox\sq@box
123 \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.

```

124 \newtoks\typis@tk\typis@tk={\relax}
125 \newtoks\label@tk\label@tk={\relax}
126 \newtoks\sol@tk\sol@tk={\relax}
127 \newtoks\number@tk\number@tk={\relax}
128 \newtoks\aut@tk\aut@tk={\relax}
129 \newtoks\city@tk\city@tk={\relax}
130 \newtoks\sourcenr@tk\sourcenr@tk={\relax}
131 \newtoks\source@tk\source@tk={\relax}
132 \newtoks\day@tk\day@tk={\relax}
133 \newcount\from@month\from@month=\z@
134 \newcount\to@month\to@month=\z@
135 \newtoks\year@tk\year@tk={\relax}
136 \newtoks\issue@tk\issue@tk={\relax}
137 \newtoks\pages@tk\pages@tk={\relax}
138 \newtoks\tournament@tk\tournament@tk={\relax}
139 \newtoks\award@tk\award@tk={\relax}
140 \newtoks\after@tk\after@tk={\relax}

```



```

141 \newtoks\version@tk\version@tk={\relax}
142 \newtoks\correction@tk\correction@tk={\relax}
143 \newtoks\dedic@tk\dedic@tk={\relax}
144 \newtoks\fidealalbum@tk\fidealalbum@tk={\relax}
145 \newtoks\theme@tk\theme@tk={\relax}
146 \newtoks\twins@tk\twins@tk={\relax}
147 \newtoks\judgement@tk\judgement@tk={\relax}
148 \newtoks\comment@tk\comment@tk={\relax}
149 \newtoks\computer@tk\computer@tk={-}
150 \newtoks\nofields@tk\nofields@tk={\relax}
151 \newtoks\fieldframe@tk\fieldframe@tk={\relax}
152 \newtoks\gridlines@tk\gridlines@tk={\relax}
153 \newtoks\pieces@tk\pieces@tk={\relax}
154 \newtoks\fieldtext@tk\fieldtext@tk={\relax}
155 \newtoks\text@tk\text@tk={\relax}
156 \newtoks\stipulation@tk\stipulation@tk={\relax}
157 \newtoks\condition@tk\condition@tk={\relax}
158 \newtoks\remark@tk\remark@tk={\relax}
159 \newtoks\piecedefs@tk\piecedefs@tk={\relax}

```

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

```

160 \newif\if@label\@labelfalse
161 \newif\if@number\@numberfalse
162 \newif\if@special\@specialfalse
163 \newif\if@auth@r\auth@rfalse
164 \newif\if@city\@cityfalse
165 \newif\if@sourcenr\@sourcenrfalse
166 \newif\if@source\@sourcefalse
167 \newif\if@date\@datefalse
168 \newif\if@day\@dayfalse
169 \newif\if@year\@yearfalse
170 \newif\if@issue\@issuefalse
171 \newif\if@pages\@pagesfalse
172 \newif\if@tournament\@tournamentfalse
173 \newif\if@award\@awardfalse
174 \newif\if@after\@afterfalse
175 \newif\if@version\@versionfalse
176 \newif\if@correction\@correctionfalse
177 \newif\if@dedication\@dedicationfalse
178 \newif\if@fidealalbum\@fidealalbumfalse
179 \newif\if@twins\@twinsfalse
180 \newif\if@theme\@themefalse
181 \newif\if@computer\@computerfalse
182 \newif\if@judgement\@judgementfalse
183 \newif\if@comment\@commentfalse
184 \newif\if@pieces\@piecesfalse
185 \newif\if@fieldtext\@fieldtextfalse
186 \newif\if@nofields\@nofieldsfalse
187 \newif\if@gridlines\@gridlinesfalse
188 \newif\if@fieldframe\@fieldframefalse
189 \newif\if@stdgrid\@stdgridfalse
190 \newboolean{showcomputer}\setboolean{showcomputer}{true}%
191 \newcommand*{\computerproofedsymbol}{C+}

```



```

192 \newcommand*{\notcomputerproofedsymbol}{C-}
193 % \newif\if@show@computer\@show@computertrue
194 \newif\if@stipulation\@stipulationfalse
195 \newif\if@condition\@conditionfalse
196 \newif\if@remark\@remarkfalse
197 \newif\if@piecedefs\@piecedefsfalse
198 \newif\if@typis\@typisfalse
199 \newif\if@widedias\@widediasfalse
200 \newif\ifx@twins\x@twinsfalse
201 \newif\ifx@cond\x@condfalse
202 \newif\ifimitator\imitatorfalse
203 \newif\ifnormal@names\normal@namesfalse
204 \newif\ifs@lu
205 \newif\if@develop\@developfalse
206 \newif\if@notfirst
207 \newif\if@first

208 \newwrite\s@lfd
209 \let\below@newline=\relax
210 % These are used by the "old" board creating mechanism
211 \newcount\@lines
212 \newcount\@rows
213 \newcount\lines@max
214 \newcount\rows@max
215 \newcount\planes@max

```

The following counters are used when creating the diagram itself.

```

216 \newcounter{cpd@rowsmax}
217 \newcounter{cpd@linesmax}
218 \newcounter{cpd@current@row}
219 \newcounter{cpd@current@line}
220 \newcounter{cpd@maxsquare}
221 \newcounter{cpd@helper}
222 \newcounter{cpd@current@square@index}
223 \newcounter{cpd@current@square@value}

```

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

```

224 \newif\if@stereo\@stereofalse
225 \newif\if@space\@spacefalse

```

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

```

226 \newif\if@aindex\@aindexfalse
227 \newif\if@sindex\@sindexfalse
228 \newif\if@tindex\@tindexfalse
229 \newif\ifds@label

```

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

```

230 \def\diagram{%
231   \begingroup%
232   \@ifnextchar [{\@diagram[\@ight x\@ight]]{%
233 }
234
235 \def\@diagram[#1x#2]{%
236   \lines@max=#1%

```



```

237 \rows@max=#2%
238 \setcounter{cpd@linesmax}{#1}%
239 \setcounter{cpd@rowsmax}{#2}%
240 \setcounter{cpd@maxsquare}{\value{cpd@rowsmax}*\value{cpd@linesmax}}%
241 \pl@ne=\z@%
242 \current@plane=\z@%
243 \let\put@sqs=\put@sqs@normal%
244 \let\read@plane=\read@plane@normal%
245 \@start@diagram%
246 }

247 \def\stereodiagram{%
248 \begingroup%
249 \@stereottrue%
250 \let\put@sqs=\put@sqs@stereo%
251 \let\read@plane=\read@plane@stereo%
252 \@start@diagram%
253 }

254 \def\spacediagram{%
255 \begingroup%
256 \@spacetrue%
257 \@ifnextchar [{\@spacediagram}{\@spacediagram[5x5x5]}%
258 }
259
260 \def\@spacediagram[#1x#2x#3]{%
261 \lines@max=#1%
262 \rows@max=#2%
263 \planes@max=#3%
264 \let\put@sqs=\put@sqs@space%
265 \let\read@plane=\read@plane@space%
266 \@start@diagram%
267 }

268 \def\@start@diagram{%
269 \init@vars%
270 \let\author=\ds@author%
271 \let\day=\ds@day%
272 \let\month=\ds@month%
273 \let\year=\ds@year%
274 \let\label=\ds@label%
275 \ignorespaces%
276 }
277
278 \def\showtypis#1{%
279 \@typistrue%
280 \typis@tk={#1}%
281 \ignorespaces%
282 }
283
284 \def\enddiagram{%
285 \let\author=\orig@author%
286 \let\day=\orig@day%
287 \let\month=\orig@month%
288 \let\year=\orig@year%
289 \let\label=\orig@label%

```



```

290 \if@number%
291 \else%
292 \refstepcounter{board@nr}% so \label and \ref work properly
293 \fi%
294 %
295 % Now \label@tk should be set, if wanted, so
296 % we can generate the index entries
297 %
298 \@aindex%
299 \@sindex%
300 \@tindex%
301 %
302 % Now \@currentlabel will be set right, so we can use
303 % the original label
304 \if@label%
305 \expandafter\@set@label\the\label@tk;%
306 \fi%
307 %
308 % Now we know, if we have frames so we can setup our dimensions
309 %
310 \global\squarewidth=\fontdimen\tw@\chessfont%
311 \if@stereo%
312 \bd@width=\@ight\squarewidth%
313 \board@width=\@ight\squarewidth%
314 \ifdim\h@frame@dist<\squarewidth%
315 \h@frame@dist=\squarewidth%
316 \fi%
317 % We do already skip with \v@space@dist
318 % So we use the additional skip \space@frame@dist here
319 \v@frame@dist=\space@frame@dist%
320 \ifdim\space@frame>\outer@frame%
321 \outer@frame=\space@frame%
322 \fi%
323 \advance\bd@width\tw@\inner@frame%
324 \advance\board@width\tw@\inner@frame%
325 \advance\board@width\tw@\h@frame@dist%
326 \advance\board@width\tw@\outer@frame%
327 \else\if@space%
328 \ifdim\h@frame@dist<1.5\squarewidth%
329 \h@frame@dist=1.5\squarewidth%
330 \fi%
331 % We do already skip with \v@space@dist
332 % So we use the additional skip \space@frame@dist here
333 \v@frame@dist=\space@frame@dist%
334 \ifdim\space@frame>\outer@frame%
335 \outer@frame=\space@frame%
336 \fi%
337 \ifspace@vertical%
338 \bd@width=\lines@max\squarewidth%
339 \board@width\bd@width%
340 \advance\bd@width\tw@\inner@frame%
341 \advance\board@width\tw@\inner@frame%
342 \advance\board@width\tw@\h@frame@dist%
343 \advance\board@width\tw@\outer@frame%

```



```

344 \else%
345 \bd@width=\lines@max\square@width%
346 \advance\bd@width\tw@inner@frame%
347 \ifdim\h@space@dist<1.5\square@width%
348 \h@space@dist=1.5\square@width%
349 \fi%
350 %\h@space@dist=0.7\square@width%
351 % Now we can compute the width of the complete board
352 \board@width\bd@width%
353 \advance\board@width\h@space@dist%
354 \multiply\board@width\planes@max%
355 \advance\board@width\h@space@dist%
356 \advance\board@width\tw@outer@frame%
357 \fi%
358 \else%
359 \ifthenelse{\boolean{legend}}{\v@frame@dist=1.5em\h@frame@dist=1.5em}{}%
360 \bd@width=\lines@max\square@width%
361 \ifnum\lines@max>\@eight%
362 % Make the board wider
363 \board@width=\lines@max\square@width%
364 \else%
365 % Make a normal width
366 \board@width=\@eight\square@width%
367 \fi%
368 \advance\bd@width\tw@inner@frame%
369 \advance\board@width\tw@inner@frame%
370 \advance\board@width\tw@h@frame@dist%
371 \advance\board@width\tw@outer@frame%
372 \fi\fi%
373 \if@widedias%
374 \head@width=\textwidth%
375 \else%
376 \head@width=\board@width%
377 \fi%
378 %
379 % Now we should build the diagram itself
380 %
381 \ifthenelse{\boolean{@textproblem}}{%
382 % Put the stipulation into the \square@box
383 \setbox\square@box=\hbox{\vbox to \board@width{\hsize\board@width%
384 \stipfont%
385 \raggedright%
386 \sloppy%
387 \the\stipulation@tk%
388 \vfil%
389 }}}%
390 }{%
391 \put@sq% This builds up the \square@box
392 % Check, if the given number of pieces is reached
393 \ifthenelse{\boolean{cpd@checkPieceCounts}}{%
394 \ifthenelse{\value{cpd@defWhitePieces}=\value{cpd@whitePieces}}{%
395 {\errmessage{Wrong number of white pieces}}%
396 \ifthenelse{\value{cpd@defBlackPieces}=\value{cpd@blackPieces}}{%
397 {\errmessage{Wrong number of black pieces}}%

```



```

398         \ifthenelse{\value{cpd@defNeutralPieces}=\value{cpd@neutralPieces}}{ }{
399             {\errmessage{Wrong number of neutral pieces}}}%
400     }{ }%
401 }%
402 %
403 \global\setbox\dia@box=\hbox{\vbox{%
404     \parindent\z@%
405     \parskip\z@%
406     \baselineskip11\p@\advance\baselineskip\dia@lineskip%
407     \hsize\head@width%
408     \centering%
409     % diagram header
410     \vskip\topdist%
411     \vbox{\hsize\board@width\hbox{%
412         \if@develop\if@label%
413             \noindent\raggedright\llap{\labelfont\the\label@tk\ }%
414             \fi\fi%
415             \vbox{%
416                 \he@dpos\dia@above%
417             }%
418         } }%
419         \vskip\tw@\p@%
420         % diagram itself
421         \vtop{\hsize\board@width%
422             \hbox to \head@width{\hss\vbox{%
423                 \hsize\board@width%
424                 \ifthenelse{\boolean{@textproblem}}{ }{%
425                     \box\square@box%
426                 }{ }%
427                 \outer@hbox{\box\square@box}%
428             }%
429             }\hss}%
430         % diagram trailer
431         \hbox to \head@width{\hss\vtop{%
432             \hsize\board@width%
433             \parskip\z@%
434             \raggedright%
435             \put@count%
436             \dia@below%
437         } }\hss}%
438     }%
439 } }% End of \dia@box
440 \do@dia@job%
441 \endgroup%
442 }
443
444 \def\do@put@count{%
445     \ \ (\arabic{cpd@whitePieces}+\arabic{cpd@blackPieces})%
446     \ifthenelse{\value{cpd@neutralPieces}>0}{+\arabic{cpd@neutralPieces}}{ }%
447 }
448
449 \def\put@count{%
450     % First we build the box with the figure count
451     \ifthenelse{\boolean{showcomputer}\OR\boolean{piececounter}}{ }{

```



```

452 \global\setbox\@cnt@box=\hbox{%
453 \stipfont%
454 \ifthenelse{\boolean{showcomputer}}{%
455 \ \ \if@computer\computerproofedsymbol\else\notcomputerproofedsymbol\fi%
456 }{}%
457 \ifthenelse{\boolean{piececounter}}{%
458 \do@put@count%
459 }{}%
460 }%
461 \@cnt@wd=\wd\@cnt@box%
462 \hangindent-\@cnt@wd%
463 \hangafter\m@ne%
464 \noindent%
465 \hbox to \z@{%
466 \hbox to \board@width{\hfil\unhbox\@cnt@box}\hskip -\board@width%
467 }%
468 }{}%
469 }
470
471 \let\endstereodiagram=\enddiagram
472 \let\endspacediagram=\enddiagram
473 \def\figurine{%
474 \begingroup%
475 \init@vars%
476 \let\author=\ds@author%
477 \let\day=\ds@day%
478 \let\month=\ds@month%
479 \let\year=\ds@year%
480 \let\label=\ds@label%
481 }
482
483 \def\endfigurine{%
484 \let\author=\orig@author%
485 \let\day=\orig@day%
486 \let\month=\orig@month%
487 \let\year=\orig@year%
488 \let\label=\orig@label%
489 \if@number%
490 \else%
491 \refstepcounter{board@nr}% so \label and \ref work properly
492 \fi%
493 %
494 % Now \label@tk should be set, if wanted, so
495 % we can generate the index entries
496 %
497 \@aindex%
498 \@sindex%
499 \@tindex%
500 %
501 % Now \@currentlabel will be set right, so we can use
502 % the original label
503 %
504 \if@label%
505 \expandafter\@set@label\the\label@tk;%

```



```

506 \fi%
507 %
508 \@show@figurine%
509 \endgroup%
510 }
511 %
512 \gdef\selectelchfont#1{%
513 \global\elchfont\csname @#1elch\endcsname\defaultelchfont%
514 }

```

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 515 \newcommand*{\authorfont}{\bfseries}
\sourcefont 516 \newcommand*{\cityfont}{\slshape}
\awardfont 517 \newcommand*{\sourcefont}{\bfseries\itshape}
\dedicfont 518 \newcommand*{\awardfont}{\itshape}
\stipfont 519 \newcommand*{\dedicfont}{\itshape}
\remfont 520 \newcommand*{\stipfont}{\rmfamily}
\labelfont 521 \newcommand*{\remfont}{\rmfamily}
\cpd@boardfont 522 \newcommand*{\labelfont}{\rmfamily}
\legendfont 523 \newcommand*{\cpd@boardfont}{\rmfamily}
524 \newcommand*{\legendfont}{\sfamily}

```

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

```

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

```



```

551     \font\chessfont=pkclch16
552     \font\chtextfont=pkclch12
553 \else%
554     \font\chessfont=fscclch16
555     \font\chtextfont=fscclch12
556 \fi%
557 \dia@lineskip\tw@p@
558 \dia@type\tw@
559 }

```

To switch to the default diagram size we have the following command. This macro is executed in `\begin{document}` and is redefined when using document options 11pt or 12pt.

`\DefaultDiagramSize`

```

560 \newcommand{\DefaultDiagramSize}{\diagramx}

```

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

```

561 \def\defaultelchfont{%
562   \ifcase\@ptsize\relax%
563     \diagramx\or%
564     \diagramxi\or%
565     \diagramxii%
566 \fi%
567 }

568 \def\dianamestyle#1{\def\@dianame{\csname @#1\endcsname}}
569 \def\solnamestyle#1{\def\@solname{\csname @#1\endcsname}}
570 \newcommand*{\diagnum}[2][{}]{%
571   \renewcommand*{\@dianumber@prefix}{\#1}%
572   \setcounter{board@nr}{\#2}%
573   \addtocounter{board@nr}{\m@ne}}

```

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

```

\lra \def\lra{\mbox{$\leftarrow$}}
\ra \def\ra{\mbox{$\rightarrow$}}
\set \let\lra=\lra
\00 \def\x{\mbox{\ifmmode\times\else$\times$\fi}}
\000 \def\set{\kern -.05em\raise .1ex\hbox{*}}
\any \def\@0{0\raise.25ex\hbox{-}\kern -.1em\relax}
\further \def\@00{\@0}
581 \def\@000{\@0\@00}
582 \def\any{\ifmmode\sim\else$\sim$\fi}
583 \def\further{\ifmmode\rightarrow\else$\rightarrow$\fi\ \ignorespaces}

584 \def\spacelayout#1{\csname space@#1\endcsname}
585 \def\nodiagramnumbering{\global\di@nofalse}
586 \newcommand*{\@dianumber@prefix}{\#1}
587 \def\diagramnumbering#1{%
588   \di@notrue\diagnum{\@ne}%
589   \gdef\thediag{\@dianumber@prefix\csname @#1\endcsname\c@board@nr}%
590 }

```



```

\diagcenter The macros \diagcenter, \diagleft and \diagright simply define the macro
\diagleft   \he@dpos to the corresponding paragraph alignment.
\diagright  591 \def\diagcenter{\def\he@dpos{\centering}}
              592 \def\diagleft{\def\he@dpos{\raggedright}}
              593 \def\diagright{\def\he@dpos{\raggedleft}}

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

               595 \def\specialdiagnum#1{%
               596   \@specialtrue%
               597   \number@tk={#1}\@numbertrue\def\thediag{#1}\def\@currentlabel{#1}%
               598   \ignorespaces%
               599 }

\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.

               600 \def\ds@label{%
               601   \@ifstar{\ds@labelfalse\ds@xlabel}{\ds@labeltrue\ds@xlabel}%
               602 }
               603 \def\ds@author#1{%
               604   \aut@tk={#1}\auth@rtrue%
               605   \ignorespaces%
               606 }

\ds@academictitle
\Dr 607 \def\ds@academictitle#1{\ifthenelse{\boolean{showacademictitle}}{#1~}{\ignorespaces}
\Prof 608 \newcommand{\Dr}{\ds@academictitle{Dr.}}
\ProfDr 609 \newcommand{\Prof}{\ds@academictitle{Prof.}}
        610 \newcommand{\ProfDr}{\ds@academictitle{Prof.\,Dr.}}

        611 \def\city#1{%
        612   \city@tk={#1}\@citytrue%
        613   \ignorespaces%
        614 }
        615 \def\sourcenr#1{%
        616   \sourcenr@tk={#1}\@sourcenrtrue%
        617   \ignorespaces%
        618 }
        619 \def\source#1{%
        620   \source@tk={#1}\@sourcetrue%
        621   \ignorespaces%
        622 }
        623 \def\ds@day#1{%
        624   \day@tk={#1}\@daytrue\@datetrue%
        625   \ignorespaces%
        626 }
        627 \def\ds@month#1{%
        628   \from@month=#1\@datetrue%
        629   \ignorespaces%
        630 }
        631 \def\months#1{%

```



```

632 \months#1;%
633 \ignorespaces%
634 }
635 \def\ds@year#1{%
636 \year@tk={#1}\@yeartrue\@datetrue%
637 \ignorespaces%
638 }
639 \def\issue#1{%
640 \issue@tk={#1}\@issuetrue%
641 \ignorespaces%
642 }
643 \def\pages#1{%
644 \pages@tk={#1}\@pagetrue%
645 \ignorespaces%
646 }
647 \def\tournament#1{%
648 \tournament@tk={#1}\@tournamenttrue%
649 \ignorespaces%
650 }
651 \def\award#1{%
652 \award@tk={#1}\@awardtrue%
653 \ignorespaces%
654 }
655 \def\version#1{%
656 \version@tk={#1}\@versiontrue%
657 \ignorespaces%
658 }
659 \def\after#1{%
660 \after@tk={#1}\@aftertrue%
661 \ignorespaces%
662 }
663 \def\correction#1{%
664 \correction@tk={#1}\@correctiontrue%
665 \ignorespaces%
666 }
667 \def\dedication#1{%
668 \dedic@tk={#1}\@dedicationtrue%
669 \ignorespaces%
670 }
671 \def\fidealbum#1{%
672 \fidealbum@tk={#1}\@fidealbumtrue%
673 \ignorespaces%
674 }
675 \def\pieces{%
676 \@ifnextchar[%
677 {\x@pieces}%
678 {\@pieces}%
679 }
680 \def\x@pieces[#1]{%
681 % We should parse the given piececounts
682 \setboolean{cpd@checkPieceCounts}{true}%
683 \@parseWhiteAndBlackCount#1+\e@list
684 \@pieces%
685 }

```



```

686 \def\@parseWhiteAndBlackCount#1+#2+{%
687   \setcounter{cpd@defWhitePieces}{#1}%
688   \setcounter{cpd@defBlackPieces}{#2}%
689   \futurelet\n@xt\cpd@checkNeutral%
690 }
691 \let\cpd@nextproc=\relax%
692 \def\cpd@checkNeutral{%
693   \if\n@xt\relax%
694     \let\cpd@nextproc=\relax%
695   \else%
696     \let\cpd@nextproc=\@parseNeutralCount%
697   \fi%
698   \cpd@nextproc%
699 }
700 \def\@parseNeutralCount#1+{%
701   \setcounter{cpd@defNeutralPieces}{#1}%
702 }
703 \def\@pieces#1{%
704   \pieces@tk={#1}\@piecestrue%
705   \ignorespaces%
706 }
707 \def\fieldtext#1{%
708   \fieldtext@tk={#1}\@fieldtexttrue%
709   \ignorespaces%
710 }
711 \def\nofields#1{%
712   \nofields@tk={#1}\@nofieldstrue%
713   \ignorespaces%
714 }
715 \let\nosquares\nofields
716 \def\gridlines#1{%
717   \gridlines@tk={#1}\@gridlinestrue%
718   \ignorespaces%
719 }
720 \def\fieldframe#1{%
721   \fieldframe@tk={#1}\@fieldframetrue%
722   \ignorespaces%
723 }
724 \def\stipulation#1{%
725   \stipulation@tk={#1}\@stipulationtrue%
726   \ignorespaces%
727 }
728 \def\condition{%
729   \@ifstar{\x@condtrue\@condition}{\@condition}%
730 }
731 \def\@condition#1{%
732   \condition@tk={#1}\@conditiontrue%
733   \ignorespaces%
734 }
735 \def\twins{%
736   \@ifstar{\x@twinstrue\@twins}{\@twins}%
737 }
738 \def\@twins#1{%
739   \twins@tk={#1}\@twinstrue%

```



```

740 \ignorespaces%
741 }
742 \def\remark#1{%
743 \remark@tk={#1}\@remarktrue%
744 \ignorespaces%
745 }
746 \def\piecedefs#1{%
747 \piecedefs@tk={#1}\@piecedefstrue%
748 \ignorespaces%
749 }
750 % \def\@piecedef#1{\csname#1\@x@piecedef\endcsname\l@klist}
751 % \newcommand{\piecedef}[3][ws]{%
752 % \def\@x@piecedef{#2}%
753 % \let\@action=\@piecedef%
754 % \hbox{\l@klist#1\@e@list%
755 % \ = #3}%
756 % }
757 \def\Co#1{%
758 \ifx#1+\@computertrue\computer@tk={+}\fi%
759 \ignorespaces%
760 }
761 \long\def\solution#1{%
762 \sol@tk={#1}\global\s@luttrue%
763 \ignorespaces%
764 }
765 \def\themes#1{%
766 \theme@tk={#1}\@themetrue%
767 \ignorespaces%
768 }
769 \long\def\comment#1{%
770 \comment@tk={#1}\@commenttrue%
771 \ignorespaces%
772 }
773 \long\def\judgement#1{%
774 \judgement@tk={#1}\@judgementtrue%
775 \ignorespaces%
776 }
777 \def\noframe{%
778 \@vframefalse\@hframefalse%
779 \ignorespaces%
780 }
781 \def\noinnerframe{%
782 \@leaveOuterfalse\@vframefalse\@hframefalse%
783 \ignorespaces%
784 }
785 \def\verticalcylinder{%
786 \@vframefalse%
787 \ignorespaces%
788 }
789 \def\horizontalcylinder{%
790 \@hframefalse%
791 \ignorespaces%
792 }
793 \def\stdgrid{%

```



```

794 \@stdgridtrue%
795 \ignorespaces%
796 }

```

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

```

\magic 797 \let\gridchess=\stdgrid
\tourn 798 \let\magic=\fieldframe
\dedic 799 \let\tourn=\tournament
\stip 800 \let\dedic=\dedication
\cond 801 \let\stip=\stipulation
\rem 802 \let\cond=\condition
\sol 803 \let\rem=\remark
      804 \let\sol=\solution

      805 \def\develop{%
      806   \@developtrue%
      807   \ignorespaces%
      808 }
      809 \def\showcomputer{%
      810   \setboolean{showcomputer}{true}%
      811   \ignorespaces%
      812 }
      813 \def\nocomputer{%
      814   \setboolean{showcomputer}{false}%
      815   \ignorespaces%
      816 }
      817 \def\putsol{\immediate\closeout\s@lfd\input\jobname.sol\cl@arsol}
      818 \def\widedias{\@widediastrue\diagcenter}
      819 \def\nowidedias{\@widediasfalse}
      820 \def\normalnames{\normal@namestrue}
      821 \def\reversednames{\normal@namesfalse}
      822 \def\makeaindex{%
      823   \@dia@index%
      824   \newindex[thediag]{author}{adx}{and}{Autorenverzeichnis}%
      825   \@aindextrue\reversednames%
      826 }
      827
      828 \def\makesindex{%
      829   \@dia@index%
      830   \newindex[thediag]{source}{sdx}{snd}{Quellenregister}%
      831   \@sindextrue%
      832 }
      833
      834 \def\maketindex{%
      835   \@dia@index%
      836   \newindex[thediag]{theme}{tdx}{tnd}{Themenregister}%
      837   \@tindextrue%
      838 }
      839
      840 \def\authorindex{\let\@idxitem\@aidxitem\printindex[author]}
      841 \def\sourceindex{\printindex[source]}
      842 \def\themeindex{\printindex[theme]}
      843 \def\DefinePieces#1#2#3{%
      844   \@setPieceColor#1\@setPieceSpec#2\@setPieceRotation#3%

```



```

845 \loop@rotation%
846 \expandafter\xdef\csname\ds@black\ds@white\ds@bishop\endcsname{%
847 \noexpand\ch@fig{20}%
848 }%
849 \expandafter\xdef\csname\ds@black\ds@black\ds@bishop\endcsname{%
850 \noexpand\ch@fig{32}%
851 }%
852 \expandafter\xdef\csname\ds@white F\endcsname{\chessfont\ }%
853 \expandafter\xdef\csname\ds@black F\endcsname{\chessfont\char144}%
854 \expandafter\xdef\csname\ds@white Nr\endcsname{%
855 \noexpand\ch@fig{109}%
856 }%
857 \expandafter\xdef\csname\ds@neutral Nr\endcsname{%
858 \noexpand\ch@fig{115}%
859 }%
860 \expandafter\xdef\csname\ds@black Nr\endcsname{%
861 \noexpand\ch@fig{121}%
862 }%
863 \expandafter\xdef\csname\ds@white Gh\endcsname{%
864 \noexpand\ch@fig{112}%
865 }%
866 \expandafter\xdef\csname\ds@neutral Gh\endcsname{%
867 \noexpand\ch@fig{118}%
868 }%
869 \expandafter\xdef\csname\ds@black Gh\endcsname{%
870 \noexpand\ch@fig{124}%
871 }%
872 \expandafter\xdef\csname\ds@white C\endcsname{%
873 \noexpand\ch@fig{145}%
874 }%
875 \expandafter\xdef\csname\ds@neutral C\endcsname{%
876 \noexpand\ch@fig{151}%
877 }%
878 \expandafter\xdef\csname\ds@black C\endcsname{%
879 \noexpand\ch@fig{157}%
880 }%
881 }
882 \def\Imi{\ch@fig{157}}
883 \def\wE{\ch@fig{216}}
884 \def\NE{\ch@fig{222}}
885 \def\SE{\ch@fig{228}}
886 \def\wX{\ch@fig{180}}
887 \def\NX{\ch@fig{186}}
888 \def\sX{\ch@fig{192}}
889

```

\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.

```

890 \newboolean{above@newline}
891 \newcommand{\above@newline}{\ifthenelse{\boolean{above@newline}}{\linebreak}{\setboolean{above@new
892 \def\dia@above{%
893 \setboolean{above@newline}{false}%
894 \@dia@number%

```



```

895 \dia@authors%
896 \dia@city%
897 \dia@after%
898 \dia@version%
899 \dia@source%
900 \dia@correction%
901 \dia@tournament%
902 \dia@award%
903 \dia@dedic%
904 \dia@fidealbum%
905 }

```

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

```

906 \def\dia@below{%
907   \bgroup%
908   \if@stipulation%
909     \dia@stipulation%
910   \fi%
911   \ifx@cond\else%
912     \dia@condition%
913   \fi%
914   \ifx@twins\else%
915     \dia@twins%
916   \fi%
917   \dia@remark%
918   \ifthenelse{\boolean{@solafterdiagram}}{%
919     \below@newline%
920     \the\sol@tk%
921   }{}%
922   \noindent\hbox{}\newline\hbox{}%
923   \egroup%
924 }

```

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

```

925 \def\dia@number{%
926   \ifdi@no\above@newline\authorfont\thediag\fi%
927 }

```

`\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.

```

928 \def\dia@authors{%
929   \ifauth@r%
930     \ifnormal@names%
931       \above@newline
932       {\authorfont\the\aut@tk}%
933     \else%
934       \let\@action=\dia@writename% Parse the list of authors
935       \@parseTokenlist\aut@tk;
936     \fi%

```



```

937   \fi%
938 }

939 \def\@show@city#1;{\if@notfirst\ \slash\ \else\@notfirsttrue\fi#1}
940
941 \def\p@rsecity#1; {\@show@city#1;\l@klist}
942
943 \def\@dia@city{%
944   \ifthenelse{\boolean{showcity}}{%
945     \if@city%
946       \above@newline%
947       \bgroup%
948       \cityfont\@notfirstfalse%
949       \let\@action=\p@rsecity\@parseTokenlist\city@tk;%
950       \egroup%
951     \fi%
952   }{}%
953 }
954
955 \def\@dia@after{%
956   \if@after%
957     \bgroup%
958     \above@newline%
959     \dedicfont\the\after@tk%
960     \egroup%
961   \fi%
962 }
963
964 \def\@dia@version{%
965   \if@version%
966     \above@newline%
967     \bgroup%
968     \dedicfont\the\version@tk%
969     \egroup%
970   \fi%
971 }
972
973 \def\@dia@date{%
974   \ifnum\from@month>\z@%
975     \if@day%
976       \the\day@tk.\write@month\from@month%
977     \else%
978       \write@month\from@month%
979     \fi%
980   \ifnum\to@month>\z@--\write@month\to@month\fi%
981   \if@day.\else/\fi%
982 \fi%
983 \if@year\the\year@tk\fi%
984 }
985
986 \def\@dia@source{%
987   \if@source%
988     \above@newline%
989     \bgroup%

```



```

990     \sourcefont%
991     \if@sourcenr\the\sourcenr@tk\ \fi
992     \the\source@tk%
993     \if@date\ \ \fi\@dia@date%
994     \if@issue\ \ \the\issue@tk\fi%
995     \if@pages ,\ \the\pages@tk\fi%
996     \egroup%
997 \else%
998     \if@tournament\else\if@date%
999         \above@newline%
1000     \bgroup%
1001     \sourcefont%
1002     \@dia@date%
1003     \egroup%
1004     \fi\fi%
1005 \fi%
1006 }
1007
1008 \def\@dia@correction{%
1009     \if@correction%
1010         \above@newline%
1011         \bgroup%
1012         \dedicfont\the\correction@tk%
1013         \egroup%
1014     \fi%
1015 }
1016
1017 \def\@dia@tournament{%
1018     \if@tournament
1019         \above@newline%
1020         \bgroup%
1021         \awardfont%
1022         \the\tournament@tk
1023         \if@source\else\if@date%
1024             \ \ \@dia@date%
1025         \fi\fi%
1026         \egroup%
1027     \fi%
1028 }
1029
1030 \def\@dia@award{%
1031     \if@award%
1032         \above@newline%
1033         \bgroup%
1034         \awardfont\the\award@tk%
1035         \egroup%
1036     \fi%
1037 }
1038
1039 \def\@dia@dedic{%
1040     \if@dedication%
1041         \above@newline%
1042         \bgroup%
1043         \dedicfont\the\dedic@tk%

```



```

1044     \egroup%
1045     \fi%
1046 }
1047
1048 \def\@show@album#1/#2;{#1 FIDE-Album #2}
1049
1050 \def\@dia@fidealalbum{%
1051     \if@fidealalbum%
1052         \above@newlne%
1053         {\expandafter\@show@album\the\fidealalbum@tk;}%
1054     \fi%
1055 }
1056
1057 \def\@twinskip{\ \ }
1058
1059 \def\@dia@stipulation{%
1060     \if@stipulation%
1061         \bgroup%
1062         \stipfont%
1063         \the\stipulation@tk%
1064         \ifx@twins%
1065             \let\below@newline\@twinskip%
1066             \@dia@twins%
1067         \else\ifx@cond%
1068             \let\below@newline\@twinskip%
1069             \@dia@condition%
1070         \fi\fi%
1071         \egroup%
1072         \let\below@newline\newline%
1073     \else%
1074         \x@twinsfalse%
1075         \x@condfalse%
1076         \let\below@newline\relax%
1077     \fi%
1078 }
1079
1080 \def\x@write@twin#1; {%
1081     \hskip1em#1%
1082     \@lefttrue\let\below@newline\newline%
1083     \let\@action\write@twins%
1084     \l@klist%
1085 }
1086
1087 \def\write@twins#1; {%
1088     \setbox\@test@box=\hbox{#1\if@left~~\fi}%
1089     \ifdim\wd\@test@box>4\sq@width%
1090         \below@newline%
1091         \@lefttrue%
1092         #1%
1093     \else%
1094         \if@left%
1095             \below@newline%
1096         \fi%
1097         \noindent\hbox to 4\sq@width{#1\hfil}%

```



```

1098     \if@left%
1099         \@leftfalse%
1100     \else%
1101         \@lefttrue%
1102     \fi%
1103 \fi%
1104 \let\below@newline\newline%
1105 \l@@klist%
1106 }
1107
1108 \def\@dia@twins{%
1109     \if@twins%
1110         \bgroup%
1111         \@lefttrue%
1112         \remfont%
1113         \ifx@twins%
1114             \let\@action=\x@write@twin%
1115         \else%
1116             \let\@action=\write@twins%
1117         \fi%
1118         \@parseTokenlist\twins@tk;%
1119         \egroup%
1120         \let\below@newline\newline%
1121     \fi%
1122 }
1123
1124 \def\@dia@condition{%
1125     \if@condition%
1126         \bgroup%
1127         \@lefttrue%
1128         \remfont%
1129         \ifx@cond%
1130             \let\@action=\x@write@twin%
1131         \else%
1132             \let\@action=\write@twins%
1133         \fi%
1134         \@parseTokenlist\condition@tk;%
1135         \egroup%
1136         \let\below@newline\newline%
1137     \fi%
1138 }
1139
1140 \def\check@piecedef{%
1141     \ifx\next@piecedef\relax%
1142         \let\col@action=\relax%
1143     \else%
1144         \let\col@action=\@@piecedef%
1145     \fi%
1146     \col@action%
1147 }
1148 \def\@@piecedef#1{\csname#1\x@piecedef\endcsname\parse@piecedef}
1149
1150 \def\parse@piecedef{\futurelet\next@piecedef\check@piecedef}
1151

```



```

1152 \def\@piecedef#1#2#3{%
1153   \def\x@piecedef{#2}%
1154   \below@newline%
1155   \hbox{%
1156     \parse@piecedef#1\relax%
1157     \ = #3}%
1158 }
1159
1160 \def\write@piecedefs#1; {%
1161   \@piecedef#1%
1162   \l@@klist%
1163 }
1164
1165 \def\@dia@remark{%
1166   \if@remark%
1167     \bgroup%
1168     \@lefttrue%
1169     \remfont\let\@action=\write@twins%
1170     \@parseTokenlist\remark@tk;%
1171     \egroup%
1172     \let\below@newline\newline%
1173   \fi%
1174   \if@piecedefs%
1175     \bgroup%
1176     \@lefttrue%
1177     \let\below@newline\newline%
1178     \remfont\let\@action=\write@piecedefs%
1179     \@parseTokenlist\piecedefs@tk;%
1180     \egroup%
1181   \fi%
1182 }
1183
1184 \def\parse@params#1{%
1185   \ifcase\help@a\relax
1186     \label@tk={#1}\ifx\relax#1\else\@labeltrue\fi\or%
1187     \number@tk={#1}\ifx\relax#1\else\@numbertrue\fi\or%
1188     \aut@tk={#1}\ifx\relax#1\else\@authrtrue\fi\or%
1189     \city@tk={#1}\ifx\relax#1\else\@citytrue\fi\or%
1190     \sourcenr@tk={#1}\ifx\relax#1\else\@sourcenrtrue\fi\or%
1191     \source@tk={#1}\ifx\relax#1\else\@sourcetrue\fi\or%
1192     \day@tk={#1}\ifx\relax#1\else\@daytrue\fi\or%
1193     \from@month=#1\or%
1194     \to@month=#1\or%
1195     \year@tk={#1}\ifx\relax#1\else\@yeartrue\fi\or%
1196     \issue@tk={#1}\ifx\relax#1\else\@issuetrue\fi\or%
1197     \pages@tk={#1}\ifx\relax#1\else\@pagetrue\fi\or%
1198     \tournament@tk={#1}\ifx\relax#1\else\@tournamenttrue\fi\or%
1199     \award@tk={#1}\ifx\relax#1\else\@awardtrue\fi\or%
1200     \after@tk={#1}\ifx\relax#1\else\@aftertrue\fi\or%
1201     \version@tk={#1}\ifx\relax#1\else\@versiontrue\fi\or%
1202     \correction@tk={#1}\ifx\relax#1\else\@correctiontrue\fi\or%
1203     \dedic@tk={#1}\ifx\relax#1\else\@dedicationtrue\fi\or%
1204     \theme@tk={#1}\ifx\relax#1\else\@themetrue\fi\or%
1205     \twins@tk={#1}\ifx\relax#1\else\@twinstrue\fi\or%

```



```

1206 \computer@tk={#1}\or%
1207 \comment@tk={#1}\ifx\relax#1\else\@commenttrue\fi\or%
1208 \judgement@tk={#1}\ifx\relax#1\else\@judgementtrue\fi\or%
1209 \sol@tk={#1}%
1210 \fi%
1211 \advance\help@a \@ne%
1212 \l@@klist%
1213 }
1214
1215 \def\split@param#1{%
1216 \@labelfalse\@numberfalse\auth@rfalse\@cityfalse%
1217 \@sourcetruefalse\@sourcefalse\@dayfalse\@yearfalse%
1218 \@issuefalse\@pagesfalse\@tournamentfalse\@awardfalse%
1219 \@afterfalse\@versionfalse\@correctionfalse\@dedicationfalse%
1220 \@themefalse\@twinsfalse\@commentfalse\@judgementfalse%
1221 \help@a=\z@%
1222 \let\@action=\parse@params\l@@klist#1\@e@list%
1223 }
1224 \newcommand{\solpar}{\par}
1225 \def\@dia@solution{%
1226 \bgroup%
1227 \parindent\z@%
1228 \parskip\tw@p@%
1229 {\bfseries%
1230 \noindent\if@label\showlabel{\the\label@tk}\fi%
1231 \the\number@tk) %
1232 \ifauth@r%
1233 \ifnormal@names%
1234 \the\aut@tk%
1235 \else%
1236 {\@notfirstfalse% We are the first one
1237 \def\name@sep{, }%
1238 \let\@action=\@sol@writename%
1239 \@parseTokenlist\aut@tk;}:%
1240 \fi%
1241 \newline%
1242 \fi%
1243 }%
1244 \if@develop\if@judgement\the\judgement@tk\solpar\fi\fi%
1245 \the\sol@tk\solpar%
1246 \if@comment\the\comment@tk\solpar\fi%
1247 \egroup%
1248 }
1249 \grid@width=0.6\p@
1250 \inner@frame=0.6\p@
1251 \outer@frame=1.2\p@
1252 \space@frame=\outer@frame
1253 \v@frame@dist=\tw@p@%
1254 \h@frame@dist=\tw@p@%
1255 \space@frame@dist=\z@
1256 \v@space@dist=1em
1257 \def\@show@figurine{%
1258 \noindent%
1259 \@figurine@number%

```



```

1260 \@figurine@author%
1261 \@figurine@city%
1262 \@figurine@after%
1263 \@figurine@correction%
1264 \@figurine@version%
1265 \@figurine@source%
1266 \@figurine@tournament%
1267 \@figurine@award%
1268 \@figurine@dedic%
1269 \@figurine@pieces%
1270 \@figurine@stip%
1271 \@figurine@twins%
1272 \@figurine@conditions%
1273 \@figurine@remarks%
1274 \@figurine@computer%
1275 }
1276 \def\@figurine@number{\authorfont\thediag}}
1277
1278 \def\p@rseauthor@figurine#1,#2; {%
1279 \if@notfirst, \else\@notfirsttrue\fi#2 #1%
1280 \l@oklist%
1281 }
1282
1283 \def\@figurine@author{%
1284 {\ifauth@r%
1285 \authorfont\@notfirstfalse%
1286 \let\@action=\p@rseauthor@figurine%
1287 \@parseTokenlist\aut@tk;%
1288 \ \ %
1289 \fi}%
1290 }
1291
1292 \def\@figurine@city{%
1293 {\if@city%
1294 \cityfont\@notfirstfalse%
1295 \let\@action=\p@rsecity\@parseTokenlist\city@tk;%
1296 \ \ \ %
1297 \fi}%
1298 }
1299
1300 \def\@figurine@after{\if@after{\dedicfont\ \ \the\after@tk}\fi}
1301
1302 \def\@figurine@correction{%
1303 \if@correction{\dedicfont\ \ \the\correction@tk}\fi%
1304 }
1305
1306 \def\@figurine@version{%
1307 \if@version{\dedicfont\ \ \the\version@tk}\fi%
1308 }
1309
1310 \def\@figurine@source{%
1311 {\if@source%
1312 \sourcefont%
1313 \if@sourcenr\the\sourcenr@tk\ \fi%

```



```

1314 \the\source@tk%
1315 \if@year%
1316 \ \ %
1317 \if@day%
1318 \ifnum\from@month>\z@%
1319 \the\day@tk.%
1320 \write@month\from@month%
1321 \ifnum\to@month>\z@%
1322 -\write@month\to@month%
1323 \fi%
1324 .%
1325 \fi%
1326 \else%
1327 \write@month\the\from@month%
1328 \ifnum\to@month>\z@%
1329 -\write@month\the\to@month%
1330 \fi%
1331 /%
1332 \fi%
1333 \the\year@tk%
1334 \fi%
1335 \if@issue , \the\issue@tk\fi%
1336 \if@pages , \the\pages@tk\fi%
1337 \fi}%
1338 }
1339
1340 \def\@figurine@tournament{%
1341 \if@tournament{\awardfont\ \ \the\tournament@tk}\fi%
1342 }
1343
1344 \def\@figurine@award{%
1345 \if@award{\awardfont\ \ \the\award@tk}\fi%
1346 }
1347
1348 \def\@figurine@dedic{%
1349 \if@dedication{\awardfont\ \ \the\dedic@tk}\fi%
1350 }
1351 \def\show@squares#1\@elist{\ch@fig{\the\help@a}#1, }
1352
1353 \def\@figurine@pieces{%
1354 {\if@pieces%
1355 \let\@action=\p@rsepieces%
1356 \let\piece@job\show@squares%
1357 \@parseTokenlist\pieces@tk,%
1358 \fi}%
1359 }
1360 \def\@figurine@stip{%
1361 \if@stipulation{\stipfont\ \ \the\stipulation@tk}\fi%
1362 }
1363
1364 \def\@figurine@conditions{%
1365 \if@condition{\remfont\ \ \the\condition@tk}\fi%
1366 }
1367

```



```

1368 \def\@figurine@twins{%
1369     \if@twins{\remfont\ \ \the\twins@tk}\fi%
1370 }
1371
1372 \def\@figurine@computer{%
1373     \ifthenelse{\boolean{showcomputer}}{%
1374         \if@computer\ \computerproofedsymbol\fi%
1375     }{}%
1376 }
1377
1378 \def\@figurine@remarks{%
1379     \if@remark{\stipfont\ \ \the\remark@tk}\fi%
1380 }
1381 \def\do@dia@job{\@write@sol\ifvmode\noindent\fi\unhbox\dia@box}
1382 \def\solhead#1{\split@param{#1}\@dia@solution}}
1383 \def\@write@sol{%
1384     \ifs@lu%
1385         \immediate\write\s@lfd{%
1386             \noexpand\solhead{%
1387                 {\the\label@tk}%
1388                 {\thediag}%
1389                 {\the\aut@tk}%
1390                 {\the\city@tk}%
1391                 {\the\sourcenr@tk}%
1392                 {\the\source@tk}%
1393                 {\the\day@tk}%
1394                 {\the\from@month}%
1395                 {\the\to@month}%
1396                 {\the\year@tk}%
1397                 {\the\issue@tk}%
1398                 {\the\pages@tk}%
1399                 {\the\tournament@tk}%
1400                 {\the\award@tk}%
1401                 {\the\after@tk}%
1402                 {\the\version@tk}%
1403                 {\the\correction@tk}%
1404                 {\the\dedic@tk}%
1405                 {\the\theme@tk}%
1406                 {\the\twins@tk}%
1407                 {\the\computer@tk}%
1408                 {\the\comment@tk}%
1409                 {\the\judgement@tk}%
1410                 {\the\sol@tk}%
1411             } %end of \solhead
1412         }%
1413     \fi
1414 }
1415 \def\@months#1-#2;{\from@month=#1\to@month=#2\@datetrue}
1416 \def\@dia@writename#1; {\above@newline{\authorfont\@dianame#1; }\l@klist}
1417 \def\@sol@writename#1; {\sep@names\@dianame#1; \l@klist}
1418 \def\name@sep{, \ }
1419 \def\sep@names{\if@notfirst\name@sep\else\@notfirsttrue\fi}
1420 \def\@checkshort#1/#2#3;{%
1421     \@shortformtrue%

```



```

1422 \ifx#2\e@list\relax%
1423 \@shortformfalse%
1424 \fi%
1425 }
1426 \def\short@christian#1#2-{%
1427 \if@notfirst -\else\@notfirsttrue\fi%
1428 #1.%
1429 \l@@klist%
1430 }
1431
1432 \def\@write@christian#1/#2;{#1}
1433
1434 \def\write@christian#1;{%
1435 \@checkshort#1/\e@list;%
1436 \if@shortform\@write@christian#1;\else#1\fi%
1437 }
1438
1439 \def\@write@short#1/#2;{#2}
1440
1441 \def\write@short#1;{%
1442 \@checkshort#1/\e@list;%
1443 \if@shortform%
1444 \@write@short#1;%
1445 \else%
1446 {\@notfirstfalse\let\@action\short@christian\l@@klist#1-\e@list}%
1447 \fi%
1448 }
1449 \def\@fullname#1, #2; {\write@christian#2; #1}
1450 \def\@surname#1, #2; {#1}
1451 \def\@short#1, #2; {\write@short#2;\ #1}
1452 \def\@noname#1, #2; {}
1453 \def\@normalname#1; {#1}
1454 \def\space@vertical{\space@verticaltrue}
1455 \def\space@horizontal{\space@verticalfalse}
1456 \def\cl@arsol{\immediate\openout\s@lfd=jobname.sol}
1457 \def\getc@lor#1{%
1458 \if#1\ds@white%
1459 \help@a\z@global%
1460 \let\cpd@stepcounterPieces\cpd@stepcounterWhite%
1461 \else\if#1\ds@neutral%
1462 \help@a=6global%
1463 \let\cpd@stepcounterPieces\cpd@stepcounterNeutral%
1464 \else\if#1\ds@black%
1465 \help@a=12global%
1466 \let\cpd@stepcounterPieces\cpd@stepcounterBlack%
1467 \else\errmessage{invalid color!}%
1468 \fi\fi\fi%
1469 \getpi@ce%
1470 }
1471
1472 \def\get@text#1{\text@tk={#1}\read@square}
1473
1474 \def\getpi@ce#1{\if#1B\relax\else
1475 \if#1\ds@knight\advance\help@a\@ne%

```



```

1476 \else\if#1\ds@bishop\advance\help@a\tw%
1477 \else\if#1\ds@rook\advance\help@a\thr@@%
1478 \else\if#1\ds@queen\advance\help@a\four%
1479 \else\if#1\ds@king\advance\help@a 5%
1480 \else\if#1C%
1481 % An imitator should not count for any color.
1482 \let\cpd@stepcounterPieces\relax
1483 \advance\help@a 145%
1484 \else\if#1E% Equihopper
1485 \advance\help@a 216%
1486 \else\if#1X% Equihopper senkrecht
1487 \advance\help@a 180%
1488 \else%
1489 \errmessage{invalid piece!}%
1490 \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi%
1491 \futurelet\r@tate\chkr@tate%
1492 }
1493
1494 \def\chkr@tate{%
1495 \if\r@tate \ds@upside\advance\help@a 108\let\nextpr@c=\skipr@t\else%
1496 \if\r@tate \ds@left\advance\help@a 36\let\nextpr@c=\skipr@t\else%
1497 \if\r@tate \ds@right\advance\help@a 72\let\nextpr@c=\skipr@t\else%
1498 \let\nextpr@c\piece@job\fi\fi\fi\fi\nextpr@c%
1499 }
1500 \def\skipr@t#1{\piece@job}
1501 \def\l@k{\futurelet\whatsnext\parsefi@lds}
1502 \def\parsefi@lds{%
1503 \if\whatsnext\@list%
1504 \let\nextpr@c\relax%
1505 \else
1506 \let\nextpr@c\read@square%
1507 \fi%
1508 \nextpr@c%
1509 }
1510
1511 \def\set@current@square@index#1#2{%
1512 \setcounter{cpd@current@square@index}{#1+\value{cpd@linesmax}*#2}%
1513 }
1514 \def\set@current@square@value#1{%
1515 \expandafter%
1516 \xdef\csname cpd@square@\roman{cpd@current@square@index}\endcsname{#1}%
1517 }
1518 \def\get@current@square@value{%
1519 \setcounter{cpd@current@square@value}%
1520 {\csname cpd@square@\roman{cpd@current@square@index}\endcsname}%
1521 }
1522 \def\set@piece{%
1523 \ifnum\plane=\current@plane%
1524 \cpd@stepcounterPieces%
1525 \set@current@square@index\lin@\r@w%
1526 \get@current@square@value%
1527 \ifthenelse{\value{cpd@current@square@value}=\m@ne}
1528 {\set@current@square@value{\the\help@a}}%
1529 {\ifthenelse{\value{cpd@current@square@value}=144}%

```



```

1530         {\set@current@square@value{\the\help@a+18}}%
1531         {\errmessage{Trying to set a piece to an occupied square}}}%
1532     \fi%
1533     \l@@k%
1534 }
1535 \def\set@nofield, {%
1536     \ifnum\pl@ne=\current@plane%
1537         \set@current@square@index\lin@\r@w%
1538         \get@current@square@value%
1539         \ifthenelse{\value{cpd@current@square@value}=\m@ne}%
1540             {}% This is an empty white square, nothing to do
1541             {\ifthenelse{\value{cpd@current@square@value}=144}%
1542                 {\set@current@square@value{\m@ne}}%
1543                 {\errmessage{Trying to set a piece to an occupied square}}}%
1544     \fi%
1545     \l@@klist%
1546 }
1547 \def\set@frame, {%
1548     \ifnum\pl@ne=\current@plane%
1549         \@vGrid{\the\lin@}{\the\r@w}\@ne%
1550         \@hGrid{\the\lin@}{\the\r@w}\@ne%
1551         \advance\lin@\@ne%
1552         \@vGrid{\the\lin@}{\the\r@w}\@ne%
1553         \advance\lin@\m@ne\advance\r@w\@ne%
1554         \@hGrid{\the\lin@}{\the\r@w}\@ne%
1555     \fi%
1556     \l@@klist%
1557 }
1558 \def\e@list{\relax}
1559 \def\l@@klist{\futurelet\nextlist\ch@cklist}
1560 \def\ch@cklist{%
1561     \ifx\nextlist\e@list%
1562         \let\nextpr@c=\relax%
1563     \else%
1564         \let\nextpr@c=@action%
1565     \fi%
1566     \nextpr@c%
1567 }
1568 \def\p@rsepieces#1, {\getc@lor#1\e@list\l@@klist}
1569 \def\p@rsetext#1, {\get@text#1\e@list\l@@klist}
1570 \def\set@text{%
1571     \ifnum\pl@ne=\current@plane%
1572         \raise\r@w\squarewidth\hbox to \z@{%
1573             \hskip\lin@\squarewidth%
1574             \vbox to \squarewidth{\vss%
1575                 \hbox to \squarewidth{%
1576                     \hss%
1577                     {\the\text@tk}%
1578                     \hss%
1579                 }\vss}%
1580             \hss%
1581         }%
1582     \fi%
1583     \l@@klist%

```



```

1584 }
1585 \def\p@rseauthor#1; {\sh@wauthor#1;\l@klist}
1586 \def\read@square#1#2{%
1587   \lin@=#1\advance\lin@ by -'a\relax%
1588   \r@w=#2\advance\r@w by \m@ne%
1589   \read@plane%
1590 }
1591 \def\read@plane@normal{\plane@job}
1592
1593 \def\read@plane@stereo{\futurelet\plane@char\get@plane@stereo}
1594
1595 \def\get@plane@stereo{%
1596   \if\plane@char A%
1597     \pl@ne=\@ne\advance\r@w-\tw@\advance\lin@-\tw@%
1598     \let\@plane@job=\skip@plane%
1599   \else\if\plane@char B%
1600     \pl@ne=\tw@\advance\r@w-\tw@\advance\lin@-\tw@%
1601     \let\@plane@job=\skip@plane%
1602   \else\if\plane@char C%
1603     \pl@ne=\thr@@\advance\r@w-\tw@\advance\lin@-\tw@%
1604     \let\@plane@job=\skip@plane%
1605   \else\if\plane@char D%
1606     \pl@ne=\f@ur\advance\r@w-\tw@\advance\lin@-\tw@%
1607     \let\@plane@job=\skip@plane%
1608   \else%
1609     \pl@ne=\z@\let\@plane@job=\plane@job%
1610   \fi\fi\fi\fi%
1611   \@plane@job%
1612 }
1613
1614 \def\skip@plane#1{\plane@job}
1615
1616 \def\read@plane@space#1{\pl@ne=#1\advance\pl@ne by -'A\relax\plane@job}
1617 \def\@vGrid#1#2#3{%
1618   \raise#2\sq@width\hbox to \z@{%
1619     \hskip#1\sq@width\hskip-.5\grid@width%
1620     \vrule height#3\sq@width width\grid@width\hss%
1621   }%
1622 }
1623
1624 \def\@hGrid#1#2#3{%
1625   \raise#2\sq@width\hbox to \z@{%
1626     \hskip#1\sq@width%
1627     \vrule width#3\sq@width height .5\grid@width depth%
1628     .5\grid@width\hss%
1629   }%
1630 }
1631 \def\@selGrid#1#2, {%
1632   \ifnum\pl@ne=\current@plane%
1633     \if#1h%
1634       \@hGrid#2%
1635     \else\if#1v%
1636       \@vGrid#2%
1637     \else%

```



```

1638         \errmessage{Wrong GridSelector #1}%
1639         \fi\fi%
1640     \fi%
1641     \l@tklist%
1642 }
1643 \def\@stdgrid{%
1644     \setbox\plane@box=\vbox{\hbox{%
1645         \help@a=\tw@%
1646         \loop%
1647             \ifnum\help@a<\lines@max%
1648                 \@vGrid{\the\help@a}{\the\rows@max}%
1649                 \advance\help@a\tw@%
1650             \repeat%
1651             \help@a=\tw@%
1652             \loop%
1653                 \ifnum\help@a<\rows@max%
1654                     \@hGrid{0}{\the\help@a}{\the\lines@max}%
1655                     \advance\help@a\tw@%
1656                 \repeat%
1657             \box\plane@box
1658         }}%
1659 }
1660 \def\ds@xlabel#1{%
1661     \label@tk={#1}\@labeltrue%
1662 }
1663
1664 \def\@set@label#1;{\ifds@label\label{#1}\fi}
1665 \def\@init@vars{%
1666     \global\s@lufalse
1667     \setboolean{cpd@checkPieceCounts}{false}%
1668     \setcounter{cpd@defWhitePieces}{\z@}%
1669     \setcounter{cpd@defBlackPieces}{\z@}%
1670     \setcounter{cpd@defNeutralPieces}{\z@}%
1671     \setcounter{cpd@whitePieces}{\z@}%
1672     \setcounter{cpd@blackPieces}{\z@}%
1673     \setcounter{cpd@neutralPieces}{\z@}%
1674     \lin@\z@
1675 }
1676
1677 \def\@clear@board{%
1678     \ifthenelse{\boolean{allwhite}\and\boolean{switchcolors}}{%
1679         {\errmessage{'allwhite' and 'switchcolors' do not make sense used together.}}%
1680         {\@whitefield=\m@ne\@blackfield=144}%
1681     \ifthenelse{\boolean{allwhite}}{\@blackfield=\m@ne}{}%
1682     \ifthenelse{\boolean{switchcolors}}{\@whitefield=144\@blackfield=\m@ne}{}%
1683     \setcounter{cpd@current@row}{0}%
1684     \whiledo{\value{cpd@current@row}<\value{cpd@rowsmax}}{%
1685         \setcounter{cpd@current@line}{0}%
1686         \whiledo{\value{cpd@current@line}<\value{cpd@linesmax}}{%
1687             \set@current@square@index{\value{cpd@current@line}}{\value{cpd@current@row}}%
1688             \setcounter{cpd@helper}{\the\current@plane+\value{cpd@current@line}+\value{cpd@current@row}}%
1689             \ifthenelse{\isodd{\value{cpd@helper}}}%
1690                 {\set@current@square@value{\@whitefield}}%
1691                 {\set@current@square@value{\@blackfield}}%

```



```

1692         \addtocounter{cpd@current@line}{\@ne}%
1693     }%
1694     \addtocounter{cpd@current@row}{\@ne}%
1695 }%
1696 }
1697
1698 \def\put@row#1{%
1699     \lin@z@%
1700     \help@b=#1%
1701     \advance\help@b\brd@ff%
1702     \hbox{%
1703         \ifthenelse{\boolean{legend}}{f}%
1704         \advance\@rows'1%
1705         \llap{\raise .25\sq@width\hbox{\legendfont \char\@rows\ \ }}%
1706     }f}%
1707     \if@stereo%
1708         \ifnum\current@plane>z@%
1709             \ifnum\@rows=12%
1710                 \llap{\raise .5\sq@width\hbox{cpd@boardfont c6\ }}%
1711             \fi%
1712         \fi%
1713     \fi%
1714     \hbox to \z@{\vbox to \sq@width{}}%
1715     \set@current@square@index{\lin@}{#1}%
1716     \loop%
1717         \get@current@square@value%
1718         \ifthenelse{\value{cpd@current@square@value}=\m@ne}%
1719             {\wF}%
1720             {\char\value{cpd@current@square@value}}%
1721         % \ifnum\count\help@b=\m@ne\wF%
1722         % \else\char\count\help@b\fi%
1723         \advance\lin@\@ne%
1724         \addtocounter{cpd@current@square@index}{1}%
1725         % \advance\help@b\@ne%
1726         \ifnum\lin@<\lines@max\repeat%
1727     }%
1728 }
1729 % \def\put@line#1{%
1730 %     \lin@z@%
1731 %     \help@b=#1%
1732 %     \advance\help@b\brd@ff%
1733 %     \hbox{%
1734 %         \if@stereo%
1735 %             \ifnum\current@plane>z@%
1736 %                 \ifnum\@rows=12%
1737 %                     \llap{\raise .5\sq@width\hbox{cpd@boardfont c6\ }}%
1738 %                 \fi%
1739 %             \fi%
1740 %         \fi%
1741 %         \hbox to \z@{\vbox to \sq@width{}}%
1742 %         \loop%
1743 %             \ifnum\count\help@b=\m@ne\wF%
1744 %             \else\char\count\help@b\fi%
1745 %             \advance\lin@\@ne\advance\help@b\@ne%

```



```

1746 %      \ifnum\lin@<\lines@max\repeat%
1747 %      }%
1748 % }
1749 \def\@parseTokenlist#1#2{\expandafter\l@klist\the#1#2 \e@list}
1750 \def\@addToPlane#1{%
1751   \setbox\plane@box=\vbox{\hbox{%
1752     \@parseTokenlist#1,%
1753     \box\plane@box%
1754   }}%
1755 }
1756 \def\put@plane{%
1757   % We might want gridchess
1758   \if@stdgrid%
1759     \@stdgrid%
1760     \fi%
1761   % Let us first set the fieldframes
1762   \if@fieldframe%
1763     \let\@action\read@square%
1764     \let\plane@job\set@frame%
1765     \@addToPlane\fieldframe@tk%
1766     \fi%
1767   % Now we set text to all squares which are given using \fieldtext
1768   \if@fieldtext%
1769     \let\@action\p@rsettext%
1770     \let\plane@job\set@text%
1771     \@addToPlane\fieldtext@tk%
1772     \fi%
1773   % Then we should add the gridlines
1774   \if@gridlines%
1775     \let\@action\read@plane%
1776     \let\plane@job\@selGrid%
1777     \@addToPlane\gridlines@tk%
1778   \else%
1779     \if@stereo%
1780       \stereo@center%
1781     \fi%
1782   \fi%
1783   % In an 'allwhite' diagram we display dotted lines
1784   \ifthenelse{\boolean{allwhite}}{%
1785     \setbox\plane@box=\vbox{\hbox{%
1786       \psset{unit=\sq@width,linewidth=.4pt,linestyle=dotted,dotsep=.125}%
1787       \setcounter{field@border}{1}%
1788       \whiledo{\value{field@border}<\lines@max}{%
1789         \psline(\value{field@border},0)(\value{field@border},\rows@max)%
1790         \addtocounter{field@border}{\@ne}%
1791       }%
1792       \setcounter{field@border}{1}%
1793       \whiledo{\value{field@border}<\rows@max}{%
1794         \psline(0,\value{field@border})(\lines@max,\value{field@border})%
1795         \addtocounter{field@border}{\@ne}%
1796       }%
1797       \box\plane@box%
1798     }}%
1799   }{}%

```



```

1800 % Now we should clear the board
1801 \clear@board%
1802 % Let us now parse the list of pieces
1803 \if@pieces%
1804     \let\Action\p@rsepieces%
1805     \let\piece@job\l@k\let\plane@job\set@piece%
1806     \@parseTokenlist\pieces@tk,%
1807 \fi%
1808 % Now we clear all fields, which are given using \nofields
1809 \if@nofields%
1810     \let\Action\read@square%
1811     \let\plane@job\set@nofield%
1812     \@parseTokenlist\nofields@tk,%
1813 \fi%
1814 % Now we can put the pieces to the board
1815 \global\setbox\plane@box=\hbox{%
1816     \vbox{\rlap{\box\plane@box}}%
1817     \vbox{%
1818         \chessfont%
1819         \baselineskip=\z@\lineskip=\z@%
1820         \@rows=\rows@max%
1821         % \multiply\@rows by \lines@max%
1822         \loop%
1823             \advance\@rows \m@ne%
1824             \put@row\@rows%
1825             \ifnum\@rows>\z@\repeat%
1826     }%
1827     % Put a legend if wanted
1828     \ifthenelse{\boolean{legend}}{%
1829         \vbox to \z@{%
1830             \vbox to \z@{\vss}%
1831             \llap{\hbox{\hspace*{\inner@frame}%
1832                 \lin@\z@%
1833                 \loop%
1834                     \hbox to \sq@width{\hfill{\advance\lin@'a\legendfont\char\lin@}\hfill}}%
1835                     \advance\lin@\@ne%
1836                     \ifnum\lin@<\lines@max\repeat%
1837             }}\vss}%
1838     }{}%
1839 }%
1840 }
1841 \def\put@sqs@normal{%
1842     \put@plane%
1843     \setbox\sq@box=\hbox{%
1844         \inner@henbox{\box\plane@box}%
1845     }%
1846 }
1847 \def\put@sqs@stereo{%
1848     \setbox\sq@box=\hbox{\hfil\vbox{%
1849         \current@plane=5%
1850         \vskip\v@space@dist%
1851         \loop%
1852             \advance\current@plane\m@ne%
1853             \ifnum\current@plane=\z@%

```



```

1854         \lines@max=\@ight%
1855         \rows@max=\@ight%
1856     \else%
1857         \lines@max=\f@ur%
1858         \rows@max=\f@ur%
1859     \fi%
1860     % Now we should clear the board
1861     \begingroup% We need this for inner loops!
1862         \clear@board%
1863         \put@plane%
1864     \endgroup%
1865     \hbox to \bd@width{%
1866         \hfil%
1867         \inner@henbox{\box\plane@box}%
1868         \ifcase\current@plane\or%
1869             \rlap{\cpd@boardfont\ A}\or%
1870             \rlap{\cpd@boardfont\ B}\or%
1871             \rlap{\cpd@boardfont\ C}\or%
1872             \rlap{\cpd@boardfont\ D}%
1873         \fi%
1874         \hfil%
1875     }%
1876     \vskip\v@space@dist%
1877     \ifnum\z@<\current@plane\repeat%
1878 } \hfil}%
1879 }
1880
1881 \def\stereo@center{%
1882     \ifnum\current@plane=\z@%
1883         \setbox\plane@box=\vbox{\hbox{%
1884             \@hGrid\tw@\tw@\f@ur\@hGrid\tw@ 6\f@ur%
1885             \@vGrid\tw@\tw@\f@ur\@vGrid6\tw@\f@ur%
1886             \box\plane@box%
1887         }}%
1888     \fi%
1889 }
1890 \def\put@sqs@space@vertical{%
1891     \setbox\sq@box=\hbox{\hfil\vbox{%
1892         \current@plane=\planes@max%
1893         \vskip\v@space@dist%
1894         \loop%
1895             \advance\current@plane\m@ne%
1896             % Now we should clear the board
1897             \begingroup% We use inner loops!
1898             \clear@board%
1899             \put@plane%
1900             \hbox to \bd@width{%
1901                 \inner@henbox{\box\plane@box}%
1902                 \advance\current@plane'A%
1903                 \rlap{\cpd@boardfont\ \char\current@plane}}%
1904             }%
1905             \endgroup%
1906             \vskip\v@space@dist%
1907         \ifnum\z@<\current@plane\repeat%

```



```

1908 } \hfil}%
1909 }
1910
1911 \def\put@sqs@space@horizontal{%
1912   \setbox\sq@box=\hbox{%
1913     \current@plane=\z@%
1914     \hskip\h@space@dist%
1915     \loop%
1916       % Now we should clear the board
1917       \begingroup% We use inner loops!
1918       \clear@board%
1919       \put@plane%
1920       \hbox to \bd@width{%
1921         \inner@hbox{\box\plane@box}%
1922         \advance\current@plane'A%
1923         \rlap{\cpd@boardfont\ \char\current@plane}}}%
1924       }%
1925       \endgroup%
1926       \hskip\h@space@dist%
1927       \advance\current@plane\@ne%
1928       \ifnum\planes@max>\current@plane%
1929       \repeat%
1930   }%
1931 }
1932
1933 \def\put@sqs@space{%
1934   \ifspace@vertical%
1935     \put@sqs@space@vertical%
1936   \else%
1937     \put@sqs@space@horizontal%
1938   \fi%
1939 }
1940 \def\@inner@vframe{%
1941   \ifvframe%
1942     \vrule width \inner@frame%
1943   \else%
1944     \hskip\inner@frame%
1945   \fi%
1946 }
1947
1948 \def\@inner@hframe{%
1949   \ifhframe%
1950     \hrule height \inner@frame%
1951   \else%
1952     \vskip\inner@frame%
1953   \fi%
1954 }
1955 \def\inner@v@frame@rule{%
1956   \if@stereo%
1957     \@inner@vframe%
1958   \else\if@space%
1959     \@inner@vframe%
1960   \else\if@leaveOuter%
1961     \vrule width \inner@frame%

```



```

1962 \else%
1963 \inner@vframe%
1964 \fi\fi\fi%
1965 }
1966
1967 \def\inner@h@frame@rule{%
1968 \if@stereo%
1969 \inner@hframe%
1970 \else\if@space%
1971 \inner@hframe%
1972 \else\if@leaveOuter%
1973 \hrule height \inner@frame%
1974 \else%
1975 \inner@hframe%
1976 \fi\fi\fi%
1977 }
1978
1979 \def\inner@henbox#1{%
1980 \hbox{%
1981 \inner@v@frame@rule%
1982 \vbox{\inner@h@frame@rule#1\inner@h@frame@rule}%
1983 \inner@v@frame@rule%
1984 }%
1985 }
1986 \def\outer@vrule{\vrule width \outer@frame}
1987
1988 \def\outer@hrule{\hrule height \outer@frame}
1989 \def\outer@v@frame@rule{%
1990 \if@stereo%
1991 \outer@vrule%
1992 \else\if@space%
1993 \outer@vrule%
1994 \else\if@leaveOuter%
1995 \if@vframe\outer@vrule\else\hskip\outer@frame\fi%
1996 \else%
1997 \outer@vrule%
1998 \fi\fi\fi%
1999 }
2000
2001 \def\outer@h@frame@rule{%
2002 \if@stereo%
2003 \outer@hrule%
2004 \else\if@space%
2005 \outer@hrule%
2006 \else\if@leaveOuter%
2007 \if@hframe\outer@hrule\else\vskip\outer@frame\fi%
2008 \else%
2009 \outer@hrule%
2010 \fi\fi\fi%
2011 }
2012
2013 \def\outer@henbox#1{%
2014 \outer@h@frame@rule%
2015 \hbox{%

```



```

2016 \outer@v@frame@rule%
2017 \ifspace@vertical%
2018 \hskip\h@frame@dist%
2019 \fi%
2020 \vbox{%
2021 \ifspace@vertical%
2022 \vskip\v@frame@dist%
2023 \else%
2024 \vskip\v@space@dist%
2025 \fi%
2026 #1%
2027 \ifspace@vertical%
2028 \vskip\v@frame@dist%
2029 \else%
2030 \vskip\v@space@dist%
2031 \fi%
2032 }%
2033 \ifspace@vertical%
2034 \hskip\h@frame@dist%
2035 \fi%
2036 \outer@v@frame@rule%
2037 }%
2038 \outer@h@frame@rule%
2039 }
2040 \def\ch@fig#1{%
2041 \ifvmode\noindent\fi%
2042 \hbox{\c@textfont\lower.1\fontdimen\tw@\c@textfont\hbox{\char#1}}%
2043 }
2044 \def\@dia@index{%
2045 \@ifundefined{newindex}%
2046 {\errmessage{You should add documentstyle-option 'index'}}{}%
2047 }
2048
2049 \def\showlabel#1{%
2050 \if@develop%
2051 \raise1ex\hbox{\labelfont#1}\penalty\exhyphenpenalty%
2052 \fi%
2053 }
2054
2055 \def\@aidxitem#1, #2, #3{%
2056 \par\medskip#1, \write@christian#2; \dotfill #3%
2057 }
2058
2059 \def\dia@index#1\@sep#2[#3]{\index[#3]{#2/showlabel{#1}}}
2060
2061 \def\parse@aindex#1; {%
2062 \expandafter\dia@index\the\label@tk\@sep#1[author]\l@klist%
2063 }
2064
2065 \def\@aindex{%
2066 \if@aindex%
2067 \ifnormal@names%
2068 \errmessage{Cannot create index entries with normalnames}%
2069 \else\ifauth@r%

```



```

2070         \let\@action=\parse@aindex\@parseTokenlist\aut@tk;%
2071         \fi\fi%
2072     \fi%
2073 }
2074
2075 \def\x@sindex#1\@sepf\expandafter\dia@index\the\label@tk\@sep#1[source]}
2076
2077 \def\@sindex{%
2078     \if@sindex\if@source%
2079         \expandafter\x@sindex\the\source@tk\@sep%
2080     \fi\fi%
2081 }
2082
2083 \def\parse@tindex#1, {%
2084     \expandafter\dia@index\the\label@tk\@sep#1[theme]\l@klist%
2085 }
2086
2087 \def\@tindex{%
2088     \if@tindex\if@theme%
2089         \let\@action=\parse@tindex\@parseTokenlist\theme@tk,%
2090     \fi\fi%
2091 }
2092 \def\@setPieceColor#1#2#3{%
2093     \gdef\ds@white{#1}\gdef\ds@black{#2}\gdef\ds@neutral{#3}%
2094 }
2095
2096 \def\@setPieceSpec#1#2#3#4#5#6{%
2097     \gdef\ds@king{#1}\gdef\ds@queen{#2}\gdef\ds@rook{#3}%
2098     \gdef\ds@bishop{#4}\gdef\ds@knight{#5}\gdef\ds@pawn{#6}%
2099 }
2100
2101 \def\@setPieceRotation#1#2#3{%
2102     \gdef\ds@left{#1}\gdef\ds@right{#2}\gdef\ds@upsideup{#3}%
2103 }
2104 \def\loop@rotation{%
2105     \bgroup%
2106         \n@cnt\z@%
2107         \help@a\z@%
2108         \loop%
2109             \ifcase\n@cnt%
2110                 \def\@theRotation{}%
2111             \or%
2112                 \def\@theRotation{\ds@left}%
2113             \or%
2114                 \def\@theRotation{\ds@right}%
2115             \or%
2116                 \def\@theRotation{\ds@upsideup}%
2117             \fi%
2118             \loop@color%
2119             \advance\n@cnt\@ne%
2120             \advance\help@a by 36\relax%
2121             \ifnum\n@cnt<\f@ur\repeat%
2122     \egroup%
2123 }

```



```

2124
2125 \def\loop@color{%
2126     \bgroup%
2127     \w@cnt\z@%
2128     \loop%
2129         \ifcase\w@cnt%
2130             \def\@theColor{\ds@white}%
2131         \or%
2132             \def\@theColor{\ds@neutral}%
2133         \or%
2134             \def\@theColor{\ds@black}%
2135         \fi%
2136     \loop@piece%
2137     \advance\w@cnt\@ne%
2138     \advance\help@a by 6%
2139     \ifnum\w@cnt<\thr@@\repeat%
2140 \egroup%
2141 }
2142
2143 \def\loop@piece{%
2144     \bgroup%
2145     \b@cnt\z@%
2146     \loop%
2147         \ifcase\b@cnt%
2148             \def\@thePiece{\ds@pawn}%
2149         \or%
2150             \def\@thePiece{\ds@knight}%
2151         \or%
2152             \def\@thePiece{\ds@bishop}%
2153         \or%
2154             \def\@thePiece{\ds@rook}%
2155         \or%
2156             \def\@thePiece{\ds@queen}%
2157         \or%
2158             \def\@thePiece{\ds@king}%
2159         \fi%
2160     \expandafter\xdef\csname%
2161         \@theColor\@thePiece\@theRotation\endcsname{%
2162         \noexpand\ch@fig{\the\help@a}%
2163     }
2164     \advance\b@cnt\@ne%
2165     \advance\help@a by \@ne%
2166     \ifnum\b@cnt<6\repeat%
2167 \egroup%
2168 }
2169 \elchfont\@fselch
2170
2171 \defaultelchfont%
2172 \diagnum{\@ne}
2173 %% \figcnttrue
2174 \setboolean{piececounter}{true}
2175 \def\@dianame{\@fullname}
2176 \def\@solname{\@fullname}
2177 \space@verticaltrue

```



```

2178 \diagnumbering{arabic}
2179 \def\write@month{\@arabic}%
2180 \diagleft
2181 \cl@arsol
2182 \let\orig@author=\author
2183 \let\orig@day=\day
2184 \let\orig@month=\month
2185 \let\orig@year=\year
2186 \let\orig@label=\label
2187 \DefinePieces{wsn}{KDTLSB}{LRU}
2188 \newdimen\normalboardwidth
2189 \def\setboardwidth{%
2190   \normalboardwidth=\@ight\fontdimen\tw@\chessfont%
2191   \advance\normalboardwidth\tw@\inner@frame%
2192   \advance\normalboardwidth\tw@\h@frame@dist%
2193   \advance\normalboardwidth\tw@\outer@frame%
2194 }
2195
2196 \setboardwidth
2197
2198 \</style>

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Change History

v0.1	to parse given piececount. . . . 1
General: First Version 1	v1.5
v0.2	General: Added license meta-
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v0.4	General: Added some per-
General: Added most missing user	cent signs at line ends in
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General: Fixed wrong piece count	added spaces. 1
when using imitators 1	v1.5.3
v0.6	General: Changed switch, which
General: Changed erroneous code	is used to decide, whether

infomration 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.	1		
v1.5.4		General: Defined 2 different versions of @writename 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 set white, black and neutral Circles within text.	1
v1.5.5		General: Changed amount of lowering 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 showcity and code to suppress display 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 allwhite problems.	1
v1.6.3		General: Added boolean for board with switched field colors.	1
v1.6.4		General: Added convenience command for 'allwhite' and 'switchcolors' booleans.	1
v1.6.5		General: As suggested by Torsten Linß and Thomas Brand added support for Equihopper and turned Equihopper (X) . . .	1
v1.6.6		General: Introduced new command to switch to the default diagram size.	1
v1.6.7		General: Fixed issue '19a' with allwhite on quadratic fields.	1
v1.7.0		General: Implemented Issue '32c': the command diagnum now allows to specify a prefix to be used for the following diagrams.	1
v1.8.0		General: Implemented issue '03f/f2a': Added code to display a legend around the board, controlled by the boolean 'legend'.	1
v1.8.1		General: Implemented issue '03f/83c': changed tex boolean solafterdiagram to latex boolean.	1
v1.9		General: Implemented issue '03f/932': Renamed boardfont to cpd@boardfont due to a naming collision with another chess package. Changed all font definitions to newcommand instead of def.	1