Go diagrams with TEX

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Encoureged by Zalman Rubinstein, who described his chess diagrams in TUGboat vol. 10 no. 2 [1], I have prepared some special fonts and TEX macros to be used in typesetting go diagrams. For all the people who have never yet played go I found the following introduction to the game [2]:

> *Go is one of the most ancient, interesting, and rewarding of all board games. [...] It is played on a wooden board marked with nineteen vertical and nineteen horizontal lines. The pieces used are disks of slate and white shell slightly more than two centimeters in diameter. These, even made of plastic or glass, as in mass-produced sets, are called stones. They are played on the intersections formed by the lines on the board, not within the squares. The board is empty at the beginning of the game, and the two players take turns placing stones on it one at a time, one player playing black the other playing white. Once played, a stone remains in its place, not moving about from point to point.*

Go diagrams are easy to read. ❶ is the first stone played, ② the second, and so on.

In order to facilitate inserting go diagrams in a text both in Plain TEX and LATEX, I decided to generate with Metafont all the symbols needed, even lines and circles, and to put them in three kinds of fonts:

1. fonts with black stones, eg. go1bla10, go2bla10 (go black stones at 10pt);
2. fonts with white stones, eg. go1whi10, go2whi10 (go white stones at 10pt);
3. fonts with additional symbols, like intersections of lines, border lines, etc., eg. go10 (go symbols at 10pt).

Probably two more fonts will be needed with black and white stones numbered over 255, because games which last over 300 moves are not seldom!

The macros for coding go diagrams are gathered in the 'go.sty' file. In the macros each line intersection is identified by the row label (one of the letters: a, b, c, d, e, f, g, h, i, k, l, m, n, o, p, q, r, s, t) and the column number (from 1 to 19). After issuing the command:

```
\input go.sty
```

[1] I wrote this paper in April 1990, during my work in the Institute of Informatics at the Warsaw University.

the current go diagram is initialized (with no stones on it). Later in your text you can clear the whole diagram or only a part of it by introducing one of the commands:

`\inifulldiagram`

or

`\inidiagram` *with parameters.*

For example, `\inifulldiagram` is equivalent to:

`\inidiagram␣a-t:1-19␣`

(with a space limiting the fourth parameter).

The same rule stands also for showing diagrams:

`\showfulldiagram`

is equivalent to:

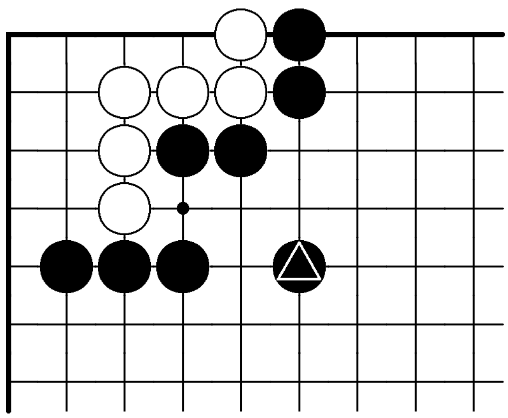
`\showdiagram␣a-t:1-19␣`

Partial diagrams are often used to show go problems, their solutions and different variations of moves.

Putting a stone on the board is coded by the command:

`\pos` *with parameters.*

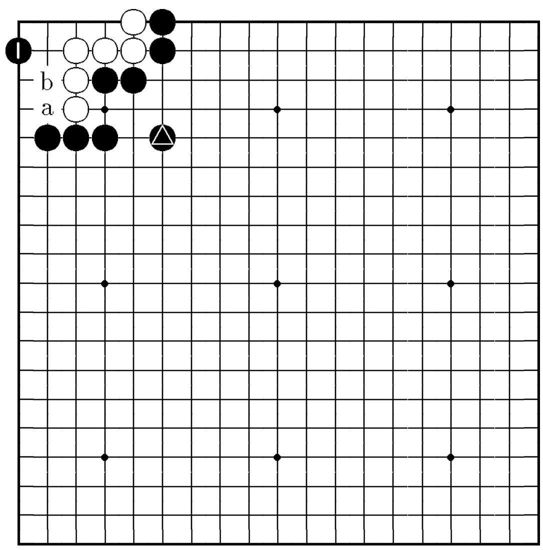
Lets consider an example: a problem to solve (Dia. 1) and its solution (Dia. 2).



Dia. 1

```
\input go.sty            % inputs macros
\gofontsize{20}          % chooses the size of stones and other
                         % symbols (default=10pt)
\pos{a}{5}=\white.       % puts a white stone (without any number)
\pos{a}{6}=\black.       % puts a black stone (without any number)
                         % on the a6 intersection
\pos{b}{3}=\white.
\pos{b}{4}=\white.
\pos{b}{5}=\white.
\pos{b}{6}=\black.
\pos{c}{3}=\white.
\pos{c}{4}=\black.
\pos{c}{5}=\black.
\pos{d}{3}=\white.
```

```
\pos{e}{2}=\black.
\pos{e}{3}=\black.
\pos{e}{4}=\black.
\pos{e}{6}=\black{\triangle}  %  puts a black stone with
                              %  a triangle
$$                     %  centering
\showdiagram a-g:1-9   %  the result is shown in Dia. 1
$$
\pos{b}{1}=\black{1}   %  puts a black stone with 1
\pos{c}{2}=\letter{b}  %  puts a letter 'b' on
                       %  the c2 intersection
\pos{d}{2}=\letter{a}
\gofontsize{10}        %  changes the size of stones and
                       %  other symbols
$$
\showfulldiagram       %  as in Dia. 2.
$$
\inifulldiagram        %  clears a board
```

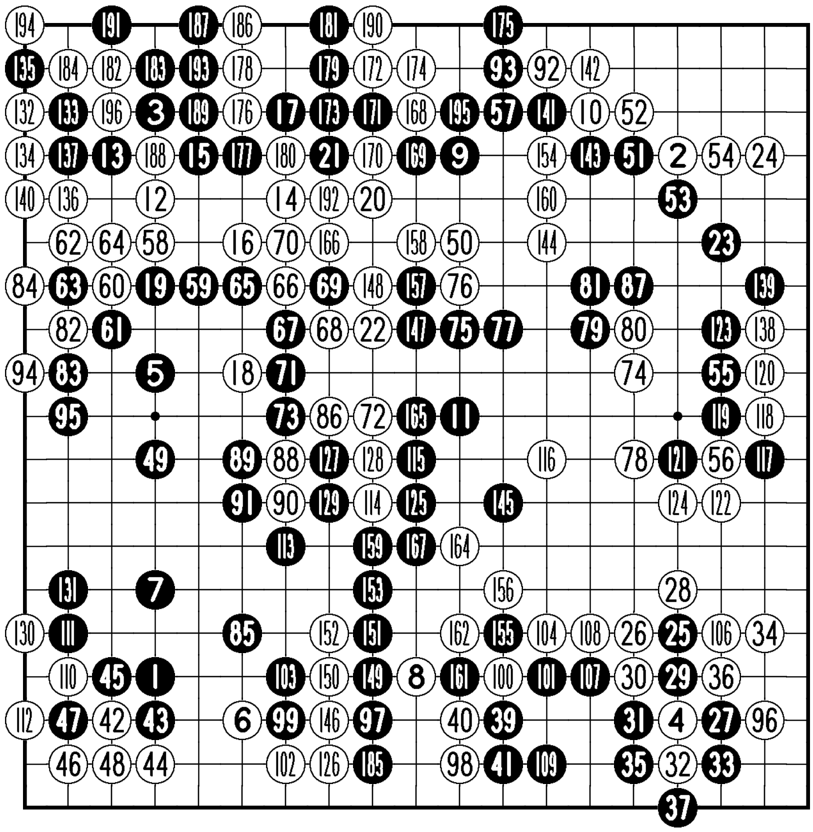


Dia. 2

An example of a real game is shown in Dia. 3 [3].
Diagrams are put in a text like ordinary vboxes.

The stones can be also put directly in a paragraph. To do this you should use the `\textwhite` and `\textblack` commands instead of `\white` and `\black`. For example, the sentence from the beginning of this article: "❶ is the first stone played, ② the second, and so on" was written as: "`\textblack{1}` is the first stone played, `\textwhite{2}` the second, and so on."

There are no other secrets in coding go diagrams. Macros for making 9×9 or 13×13 diagrams can easily be added to 'go.sty' by a simple modification of the existing macros for 19×19 diagrams.



Dia. 3

References

[1] Zalman Rubinstein: "Chess printing via Metafont and TEX", TUGboat Vol. 10, No. 2.

[2] Iwamoto Kaoru, 9 dan: "Go for beginners", Ishi Press, Inc., Tokyo, Japan.

[3] Janusz Kraszek: "Świat Go", COK, Warsaw 1989 (in Polish).