## A chess font for TeX

Jan Eric Larsson

Computer chess is a fascinating subject, and can, as is seen from this article, spawn quite unexpected projects. I have been working on chess programs for several years, but this year I decided that the time was ripe for a report. Then I found out that there was no good TeX font for producing a chess diagram. After some hesitation, I decided to make one myself.* Producing bitmaps for the chess pieces seemed to be quite straight-forward, as I could use the SunView `iconedit` and the `Touchup` raster editor `pktopx` manual told me the format for `pxl` files. With the help of this knowledge, I wrote a small C program that could read a number of icon files, and produce a `pxl` file from those bitmaps. I also wrote my own `pl` file and used `pltotf` to make a suitable `tfm` file. Using icons was easy, but it means the font is like a string bikini, i.e. one size fits all. The $64 \times 64$ bit squares on the chess board are 5.4187 mm high when output by a 300 dpi laser writer. Ideally, one would of course want to have METAFONT code, but that remains to be written.

The chess font contains 32 characters. There are 6 types of pieces, and each may be white or black. An empty field is also needed. All these 13 patterns must be available with a light and a dark background. This makes up for 26 of the characters. The remaining 6 are smaller ($32 \times 32$ bit) pieces, for use in "figurine" notation. In Swedish (and in German, by the way), the initials of the piece names are B, S, L, T, D, and K, while in English they are P, Kt or N, B, R, Q, and K. In the figurine notation, small chess pieces are used instead, and thus, this notation is easily understood by all.

Character 0 is the empty white field, and character 1 is the empty black. Characters 2 to 5 are the white pawn on white field, white pawn on black, black pawn on white, and black pawn on black, respectively. In like manner, the knight, bishop, rook, queen, and king use characters 6 to 25. The characters 26 to 31 are figurines for pawn, knight, bishop, rook, queen, and king. The pawn is not written out in figurine notation, but it is there if you should want it. It looks like ♟ . Now let us look at an example of the use of both figurine notation and the diagram font.
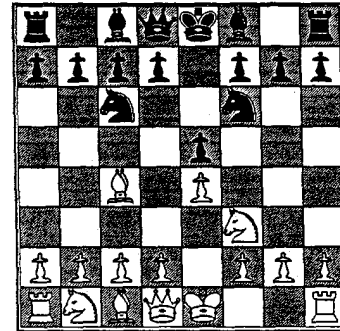
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* Editor's note: Zalman Rubinstein and his co-workers have since produced METAFONT chess fonts. One appears in TUGboat 10#2, pp.170–172; the other is illustrated in this issue of TUGboat, p. 386.
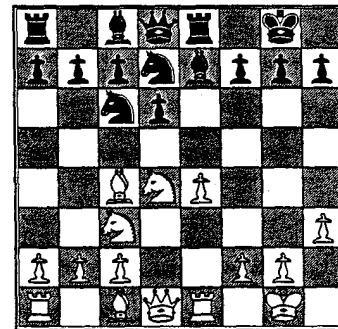
von Holzhausen — Tarrasch
Frankfurt 1912
Two Knights Defense

| 1. e4 | e5 | 2. ♘f3 | ♘c6 | 3. ♗c4 | ♘f6 |



| 4. d4 | exd4 | 6. ♘xd4 | ♗e7 | 8. h3 | ♖e8 |
| 5. 0–0 | d6 | 7. ♘c3 | 0–0 | 9. ♖e1 | ♘d7? |



| 10. ♗xf7†! | ♔xf7 | 11. ♘e6! | Resigns. |

The continuation could be

| 11. – | ♔xe6 | 12. ♕d5† | ♔f6 | 13. ♕f5‡ |

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