
Page style tricks with `scrpage2`

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Abstract

For the fourth edition of the KOMA-Script book I've used a special style for the page header, in which the page number is separated by a small black bar from the running head and moved out into the margin. This was accomplished by using the KOMA-Script package `scrpage2`. Although the KOMA-Script book was created using a KOMA-Script class, use of the `scrpage2` package is not limited to those classes. It may also be used with several other classes, e.g., the standard classes.

1 Issue

Kohm and Morawski (2012) was produced using a layout with a long, narrow text column and a relatively wide, and heavily used, column for margin notes. For this design, the default page style of KOMA-Script would have been problematical. On the one hand, the page header with running head aligned to the outer edge of the text area would have accented the text column too much. On the other hand, the page number, if aligned to the outer edge of the text area at the foot of the page, would have seemed lost in space; this might even have caused the page proportions to seem wrong.

It would usually be suggested to extend the page header across the entire text and margin note columns, aligning the running head text to the outer edge of the margin note column. Similarly, the footer should also extend across both columns. But on pages with few margin notes, the page number at the outer edge of the margin note column would look lost. To avoid squeezing the page number into the lower outside corner of the page, the bottom margin would have to be very large.

To avoid such problems, the page header and footer are often separated from the rest of the page by horizontal lines. These rules form a kind of frame. Personally I don't like this, because such frames optically constrict the page body. Also, the book already contains several elements with frame effects, e.g., tables, syntax frames, figures of pages, and all of those may be close to the page head or foot. Such a concentration of horizontal lines is best avoided.

Because of this, I've decided not to use horizontal lines below the head or above the foot. The foot should in any case remain empty, to avoid the prob-

lem with the page numbers. So the pagination must be somewhere in the head. But where? Moving the page number from the foot to the head only moved the problem.

I reject page numbers at the inner margin. I think that the design of a page layout is not only about the appearance, but also about utility. If one is searching for a page based on the table of contents or an index, or even a cross reference, the page number is the object of the search. Placing it in the inner margin or the gutter makes it nearly useless; somewhere in the outer margin is much better, so one doesn't need to open the book completely to find the number. Then the search will be much faster.

2 Solution

The final choice was a classic design with the title on the inside, and the page number on the outside of the running head. Because of the prominent border for margin notes, heavily used also for figures and tables or their captions, the page number was aligned not at the edge of the text, but at the outer edge of the margin note column.

Of course, the margin note column isn't always occupied; on some pages this column is empty, and sometimes the main text is even indented on the left. On such pages, the page number may seem a bit lost. However, as mentioned earlier, I didn't want to accentuate the header with a horizontal rule. Instead, I introduced a somewhat heavier vertical rule to the inside of the page number, as shown in figure 1.

To implement this heading, first the package `scrpage2` is loaded, and the page style `scrheadings` activated. This page style is configured to set the running head text flush to the inner edge of the main text area. In addition, the page number is aligned to the outer edge of the margin note column, even on `plain` pages, which will be used, e.g., for starting new chapters. The footer is configured to be empty:

```
\usepackage{scrpage2}
\pagestyle{scrheadings}
\clearscrheadfoot
\ihead{\headmark}
\ohead[\pagemark]{\pagemark}
```

Note that `scrpage2` uses the optional argument of commands like `\ohead` to configure the page style `scrplain`, the plain page style used together with `scrheadings`.

After this, the pagination routine is redefined to add the vertical rule beside the page number, distinguishing between odd and even pages:

```
\renewcommand*{\pagemark}{%
  \usekomafont{pagenumber} %
```

Editor's note: First published in *Die T_EXnische Komödie* 3/2012, pp. 17–21; translation by the author and Barbara Beeton.

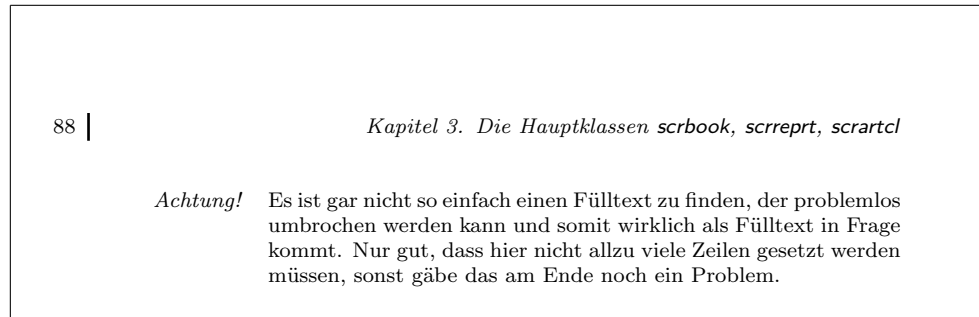


Figure 1: Page head used in Kohm and Morawski (2012)

```

\ifodd\value{page}\pnumber\enskip\fi
\thepage
\ifodd\value{page}\else\enskip\pnumber\fi
}%
\newcommand*{\pnumber}{%
  \raisebox{0pt}[\ht\strutbox][\dp\strutbox]{%
    \rule[-\dp\strutbox]
      {1.5pt}
      {1.1\baselineskip}}%
}%
}

```

So printing the rule beside the page number isn't part of the definition of the page style itself, but part of the definition of the pagination macro `\pagemark`. The height, alignment, and width of the rule were determined by experiment. The rule has been set to the height and depth of a normal text line using `\raisebox`; this ensures proper alignment with the page number and running head text.

Last but not least the header has been enlarged to span not only the text area but also the margin note column. To make sure that recalculation of the page area will also adjust the width of the header, the `\AfterCalculatingTypearea` hook of the `typearea` package has been used, with the command `\recalctypearea` activating the adjustment.

```

\AfterCalculatingTypearea{%
  \setheadwidth[0pt]{%
    \dimexpr\textwidth
      +\marginparsep
      +\marginparwidth\relax
    }%
}%
\recalctypearea

```

If you don't use the `typearea` package from KOMA-Script, you may omit `\AfterCalculatingTypearea` and `\recalctypearea`; just use `\setheadwidth` directly and avoid further changes to the page area.

3 Usage with standard page areas

I've already mentioned that Kohm and Morawski (2012) uses a special page area with a wide margin note column. Optically this will be part of the type area and of the margin. But what about when using a standard layout without margin notes or only some small margin notes? Would the same page header definition blend well in this case? See figure 2 for an example.

In my opinion, the distance from the page number to the left edge of the text area is too large. An alternative would be to align the page number at the inner edge of the margin column instead of the outer edge. Figure 3 shows an example of this suggestion.

Only a small change to the `\pagemark` command is needed to implement this alternative:

```

\renewcommand*{\pagemark}{%
  \usekomafont{pagenumber}%
  \ifodd\value{page}%
    \makebox[\marginparwidth][l]
      {\pnumber\enskip\thepage}%
  \else
    \makebox[\marginparwidth][r]
      {\thepage\enskip\pnumber}%
  \fi
}

```

4 More modifications

The page head shown is suitable for double-sided printing. For single-sided printing the distinction between odd and even pages may be dropped; in this case only the variant for right-hand (odd) pages is needed.

The running head can be aligned not only to the inner edge of the text area but alternatively to its outer edge. To do so, remove the `\ihead` commands from the first listing and extend the `\ohead` command appropriately. Alternatively you may substitute the commands `\rohead` and `\rehead`:

```

\lehead[\pagemark]{%

```

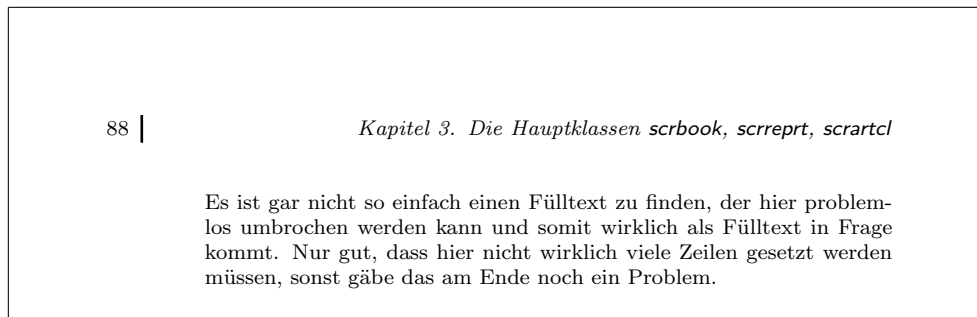


Figure 2: Page head of figure 1 in combination with a standard layout

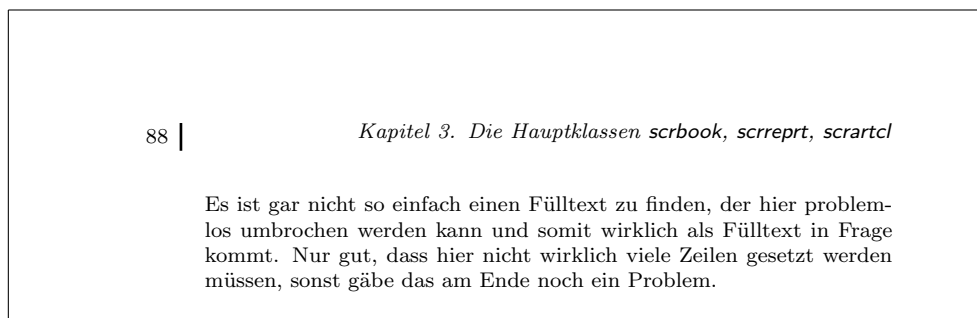


Figure 3: Alternative alignment of the page number with respect to figure 2 in combination with a standard layout

```

\makebox[\marginparwidth][l]{\pagemark}%
\hspace{\marginparsep}\headmark
}
\rohead[\pagemark]{%
\headmark\hspace{\marginparsep}%
\makebox[\marginparwidth][r]{\pagemark}%
}

```

If you want to change only the width, height or depth of the rule beside the page number, you just have to change the `\pnumbar` command; neither the pagination command nor the page header definition needs to be changed.

Of course, you may also move the page number to the page footer as is the default for the KOMA-Script classes. To do so, you don't need to change the command `\pagemark`, but only the usage of this command in the configuration of the page styles.

5 Concluding remark

In this article you've been told how to use `scrpage2` to alter the layout of the page header and footer.

You've seen behind the curtain of making design decisions. An implementation of the desired design has been shown, one that has been used for a real book project.

Alternatives for different margin settings have been explicated and suggestions for implementing some of them have been given. Finally, some further possibilities have been offered for changing design or implementation.

References

Kohm, Markus, and J.-U. Morawski. *KOMA-Script*. Lehmanns Media, Berlin, 4th edition, 2012.

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