

Block line-up

Putting items inline or ontop

Abstract

Described is a module for the placement of items either on the same horizontal line or on top of each other. Alignment and separation of the items can be varied in horizontal and vertical direction as required. Titles can be added and their location, style and color specified.

Keywords

combinations, line-up, placement of blocks

Introduction

Being somewhat a do-it-yourself'er I decided to develop a macro for lining up blocks of text, figures, etc. Of course in ConTeXt this can be done with \startcombinations, but that didn't satisfy me. Either because my lack of understanding the full power of its parametrization, or because of its inherent architecture. Anyway, the incentive to produce something of my own became irresistible.

Structure

The number of line-up macros is kept as low as possible. The following displays all there is and explains the general structure. Loading of the module `hvdm-plc` will not be shown in the examples.

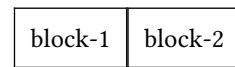
```
\usemodule[hvdm-plc]
\setupplacecx[...,...=...,...]
\startplacecx[...,...=...,...]
  \startcontent[...,...=...,...] ... \stopcontent
  ...
  \startcontent[...,...=...,...] ... \stopcontent
\stopplacecx
```

In illustration of the capabilities of the module the examples below will use small framed blocks containing text. But there are no specific restrictions on what can be given as content, such as figures etc.

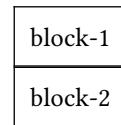
There are two directions for placing the blocks, horizontally and vertically. The former is called up by value `inline` for the parameter `alternative`. It is the default value and therefore will be left out in subsequent ex-

amples. Placement in the vertical direction is chosen by value `ontop`. Below both cases are illustrated.

```
\startplacecx[alternative=inline]
  \startcontent..\stopcontent
  \startcontent..\stopcontent
\stopplacecx
```

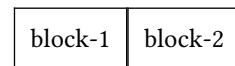


```
\startplacecx[alternative=ontop]
  \startcontent..\stopcontent
  \startcontent..\stopcontent
\stopplacecx
```



Preceding and following commands can be given with parameters `before` and `after`. Below `before` is used to precede the blocks with a \thinrule.

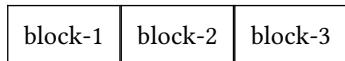
```
\startplacecx[before=\thinrule]
```



Alignment inline

The blocks placed by `inline` can be horizontally aligned left, middle (default) and right. It will be no surprise that this is determined by parameter `align`. By the way, other values will raise an error as to protect the user from typos. The distance between the blocks may be varied by the `distance` parameter. This parameter can take both a dimension like `3pt` or `5mm` as well as the value `fill`. The latter will stretch the space between the content. In the next three examples these possibilities are illustrated.

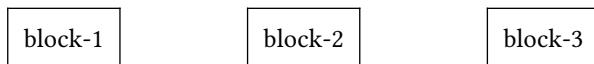
```
\startplacecx[align=left,distance=0mm]
```



```
\startplacecx[align=right,distance=3mm]
```

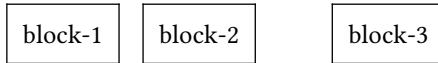


```
\startplacecx[distance=fill]
```



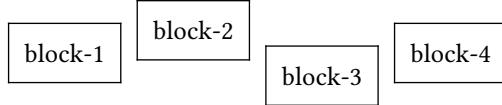
The next example of this sort shows that the distance after each content block can be specified separately. Note however that this cannot be done when the distance parameter has `fill` as its value.

```
\startplacecx[align=middle,distance=3mm]
  \startcontent..\stopcontent
  \startcontent[distance=10mm]..\stopcontent
  \startcontent..\stopcontent
\stopplacecx
```



Finally it is shown that individual blocks can be shifted up or down by using the parameter `shift` on `\startcontent`. A positive value shifts the block upwards, negative is downwards.

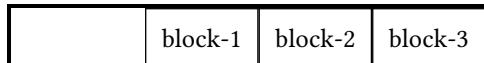
```
\startcontent..\stopcontent
\startcontent[shift=3mm]..\stopcontent
\startcontent[shift=-3mm]..\stopcontent
\startcontent..\stopcontent
```



Alignment and width

The `width` parameter has the default value empty (set by `width=`) which for inline means the current value of `\textwidth`. Another value can be set as is demonstrated below, the framing is added to make the effect clear.

```
\startplacecx[width=0.8\textwidth,align=right]
```



A value `width=fit` sets everything to its natural width. But note that the `align` parameter has no effect in this case. For example, centering across the page must be accomplished by the user herself with `\midaligned` or `\startalignment`.

```
\startplacecx[width=fit]
```



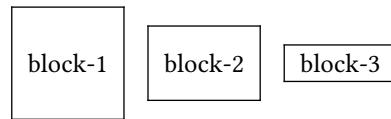
```
\startplacecx[width=fit,distance=5mm]
```



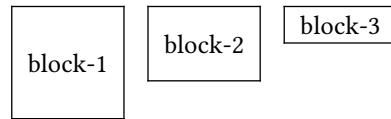
Alignment in case of height differences

When the blocks are differing in height, there alignment in the vertical direction can be threefold. The first example shows a centered alignment, the second aligns them at the top and the third at the bottom. Thus the `location` parameter can have the values `top`, `center` (default) and `bottom`.

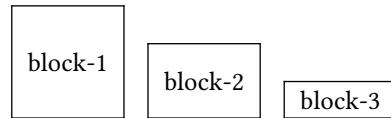
```
\startplacecx[location=center,...]
```



```
\startplacecx[location=top,...]
```



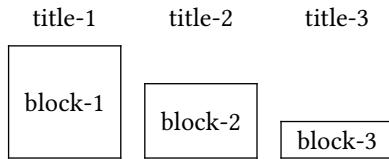
```
\startplacecx[location=bottom,...]
```



Titles for inline

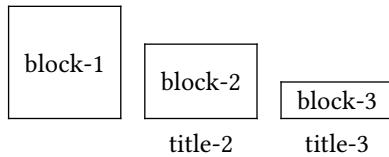
Each of the blocks placed can have a title, although by default this option is off and any title given is simply ignored. These titles are collectively placed either above or below the blocks, all in a straight row. The following two examples have the blocks aligned at the bottom and the titles above and below, respectively by setting the parameter `titlelocation` to either `top` or `bottom`.

```
\startplacecx[titlelocation=top,..]
\startcontent[title=title-1]..\stopcontent
...
```



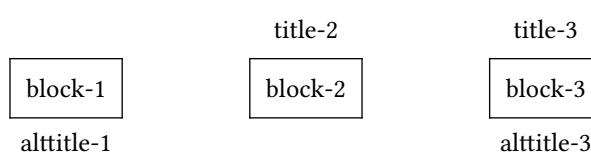
Note in the next example that some titles can be left empty.

```
\startplacecx[titlelocation=bottom,..]
\startcontent..\stopcontent
\startcontent[title=title-2]..\stopcontent
\startcontent[title=title-3]..\stopcontent
\stopplacecx
```



Intermediate change of the location of a title is done by specifying `alttitle` instead of `title`. Both can be in effect at the same time.

```
\startplacecx[titlelocation=top,..]
\startcontent[alttitle=alttitle-1]..\stopcontent
\startcontent[title=title-2]..\stopcontent
\startcontent[title=title-3,alttitle=alttitle-3]..
\stopplacecx
```



Style and color of the title are variable. Parameter `titlestyle` sets the style and `titlecolor` the title's color. They can be globally defined on the `\startplacecx` or locally on the `\startcontent` as the following example demonstrates.

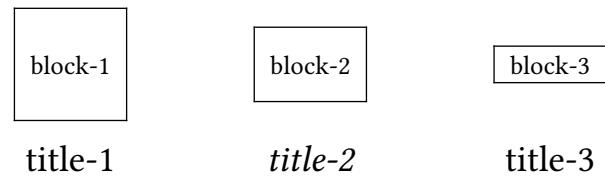
The following values are available for the `titlestyle` option: `bold`, `italic`, `bolditalic`, `italicbold`, `slant`, `slanted`, `boldslanted`, `slantedbold`, `smallcaps`, `oldstyle`, `mediaeval`, `normal`, `serif`, `regular`, `roman`, `sans`, `sansserif`, `mono`, `type`, `teletype`, `handwritten`, `calligraphic`, `big`, `verybig`, `heavy`, `veryheavy`, `small`, `tiny`, `smallmono`, `tinymono`. The values given here translate to appropriate font commands.

As of this moment it is not possible to put commands as `\it` in an attribute and have it executed properly. To cope with this a name in the `titlestyle` attribute not

listed here, is supposed to be the name of a macro and executed as such inside a `\csname-\endcsname` pair. Thus it will effectively become `\it`.

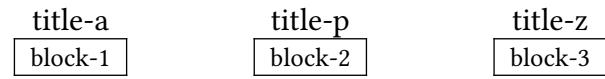
The distance between the line of titles and the blocks can be regulated with parameter `titledistance`, taking a dimension.

```
\startplacecx[titlefont=14pt,titledistance=3mm,..]
\startcontent[title=title-1]..
\startcontent[title=title-2,titlestyle=it]..
```

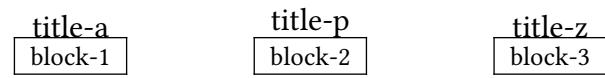


In order to avoid wobbling of the baselines of the titles, a strut is added to each title by default. The strut is placed right after the application of the `titlefont` and `titlestyle` options. Subsequent changes in font and style should be handled by the user. In case the strut is not wanted, set the value of `titlestrut` to `no`. The next example shows the effect of descenders in the title in combination with the strut respectively on and off.

```
\startplacecx[titlestrut=on,titledistance=0mm,..]
```



```
\startplacecx[titlestrut=off,titledistance=0mm,..]
```

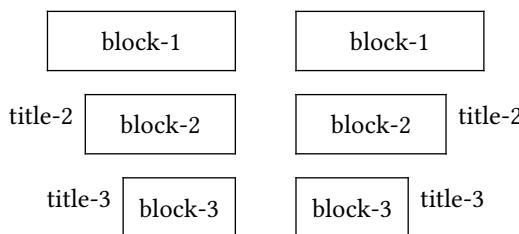


Note that by keeping the default `titlelocation=none` (leaving it empty has the same effect) or setting this on a `\startplacecx`, all typesetting of titles is suppressed notwithstanding their presence in `\startcontent[title=something]`. They will appear after specifying a location for the `titlelocation` parameter or giving it on `\setupplacecx`.

Alignment ontop

Remember that this placement requires that alternative is set to `ontop` or the use of `\startplacecxontop`, because `ontop` is not the default. As with the inline alignment here too the blocks can be aligned at the left or the right side or in the middle (the default). Parameter `distance` sets the blocks apart in the vertical direction.

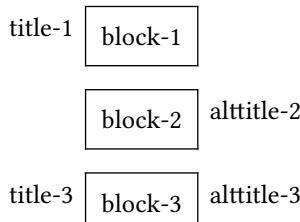
```
\startplacecx[align=right,titlelocation=left,..]
\startplacecx[align=left,titlelocation=right,..]
```



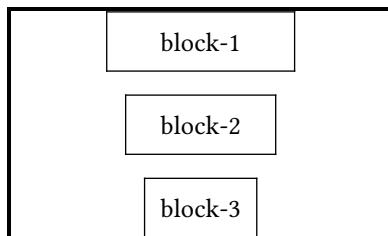
Freely placing titles to the left or to the right finds a natural restriction in the alignment of the blocks with respect to the margin of the page. An alignment to the right will force the titles to the left in spite of setting `titlelocation=right`; the same applies *mutatis mutandis* to the `altttitle`'s.

For a middle alignment the restriction on the placing of the titles does not apply. Here they can be placed left and right at will or even one on both sides. The relevant parameter here is `altttitle` which places the title on the side opposite the location given by `titlelocation`.

```
\startplace[align=middle,titlelocation=left,...]
  \startcontent[title=title-1]..\stopcontent
  \startcontent[altttitle=altttitle-2]..
  \startcontent[title=title-3,altttitle=altttitle-3]..
\stopplace
```



```
\startplace[width=5cm,height=3cm,distance=fill,...]
```



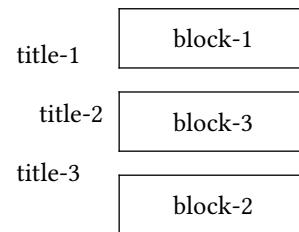
Finally above is shown that one can specify a total height and use `distance=fill` to spread the contents evenly in the vertical dimension. By default the width of the ontop placement is the general `\textwidth` of the environment, but special dimensions and the value `fit` can be given too. For a fixed width one has to take care of the horizontal alignment.

Alignment ontop and title variants

For `ontop` there is somewhat more variation in title placement than for the inline configuration. The example below shows two of these variations. First the parameter `titledistance` is used both globally and locally to provide an offset between the block and the title.

Secondly, the parameter `titleposition` can be used to shift the title up and down with respect to block it belongs to. The value can vary between 0 and 1 with 0.5 as the default, by which the baseline of the title is placed halfway the height of the box. In the example this parameter is used to shift the upper and lower titles towards each other.

```
\startplace[titledistance=10mm,...]
  \startcontent[title=title-1,titleposition=0.1]...
  \startcontent[title=title-2,titledistance=2mm]...
  \startcontent[title=title-1,titleposition=1.0]...
\stopplace
```



Instead of keeping the distance between block and title constant, they might also be aligned respectively against the left or right side of the environment. The gap between the title and the block can be filled by either space, a line, dots, dashes or bullets; the default is filling with space. The `titledistance` will separate the fill on both sides from its surroundings. The parameter `titlefill` does this and can be set either globally or for each content block separately.

The last content block in the next example demonstrates the use of an arbitrary macro by giving its name as the value for `titlefill`. The macro expansion of `\heartsuit` will be placed inside a `\texthbox` and multiplied with `\leaders`.

Note however, that in all cases the width of the title is not taken into account for the alignment of the content blocks in order to line them up in a consistent way. As a result, titles can protrude in the margin or overlap other elements in the text: caveat user.

space		block-1
dot	block-2
bullet	• • • • • • • • • •	block-3
dash	- - - - - - - - - - - -	block-4
line	_____	block-5
hearts	♥ ♥ ♥ ♥ ♥ ♥ ♥	block-6

```
\def\hearts{\hbox{ to 1.5em{\heartsuit\hss}}}
\startplace{x[align=right,titlelocation=left,...]
  \startcontent[title=space,titlefill=space]...
  \startcontent[title=dot,titlefill=dot]...
  \startcontent[title=bullet,titlefill=bullet]...
  \startcontent[title=dash,titlefill=dash]...
  \startcontent[title=line,titlefill=line]...
  \startcontent[title=hearts,titlefill=hearts]...
\stopplace{x}
```

Like for inline, individual blocks can be shifted, in this case to the left or to the right. Note however that here in left/right alignment a left/right shift is prohibited too.

```
\startcontent[title=..,alttitle..,shift=-10mm]..
```

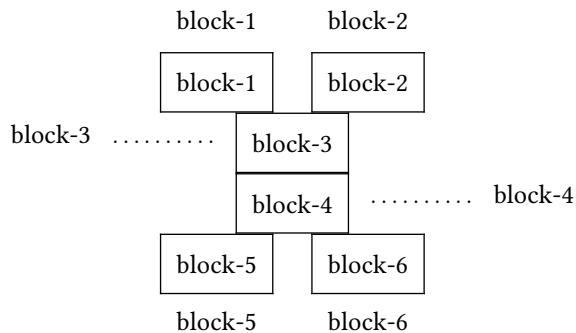
The diagram consists of three separate horizontal connections. Each connection starts with a title label on the left, followed by a short horizontal line segment, and ends with a rectangular box containing a block label. The first connection is between 'title-1' and 'block-1'. The second connection is between 'title-2' and 'block-2', with an additional horizontal line segment extending from the right side of 'block-2' towards 'alttitle-2'. The third connection is between 'title-3' and 'block-3'.

```
graph LR; title1[title-1] --- block1["block-1"]; title2[title-2] --- block2["block-2"]; alttitle2[alttitle-2] --- block2; title3[title-3] --- block3["block-3"]
```

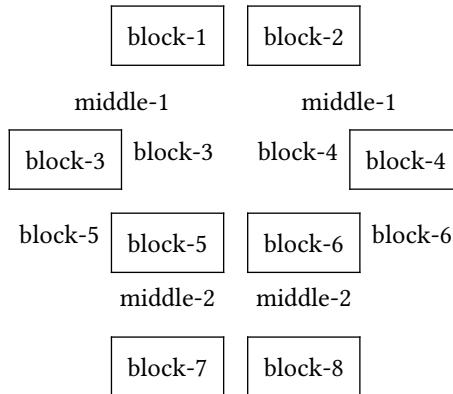
Combined placements

Two similar combinations of placements inside each other are demonstrated in full. In the first example they are simply stacked together, in the second example they are nested inside `\startcontent.. \stopcontent` pairs.

```
\startplacexon top[distance=5mm,  
    titledistance=2mm,titlefill=dot]  
\startplacexin inline[titlelocation=top]  
    \startcontent[title=block-1]..\stopcontent  
    \startcontent[title=block-2]..\stopcontent  
\stopplacexin inline  
\startplacexon top[titlelocation=left]  
    \startcontent[title=block-3]..\stopcontent  
\stopplacexon top  
\startplacexon top[titlelocation=right]  
    \startcontent[title=block-4]..\stopcontent  
\stopplacexon top  
\startplacexin inline[titlelocation=bottom]  
    \startcontent[title=block-5]..\stopcontent  
    \startcontent[title=block-6]..\stopcontent  
\stopplacexin inline  
\stopplacexon top
```



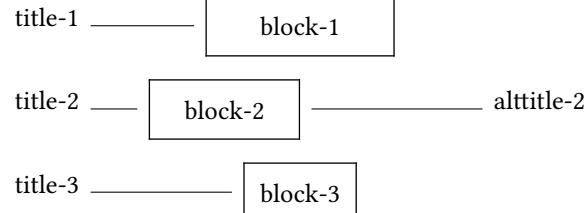
```
\startplacexontop[distance=3mm]
  \startcontent
    \startplacexinline
      \startcontent[title=block-1]..\stopcontent
      \startcontent[title=block-2]..\stopcontent
    \stopplacexinline
  \stopcontent
  \startcontent
    \startplacexinline[distance=0mm,titlelocation=top]
      \startcontent[title=middle-1]
        \startplacexontop[align=left,width=30mm]
          \startcontent[title=block-3]..\stopcontent
        \stopplacexontop
      \stopcontent
    \startcontent[title=middle-1]
      \startplacexontop[align=right,width=30mm]
        \startcontent[title=block-4]..\stopcontent
      \stopplacexontop
    \stopcontent
  \stopcontent
  \startcontent
    \startplacexinline[titlelocation=bottom]
      \startcontent[title=middle-2]
        \startplacexontop[align=right,width=fit]
          \startcontent[title=block-5]..\stopcontent
        \stopplacexontop
      \stopcontent
    \startcontent[title=middle-2]
      \startplacexontop[align=left,width=fit]
        \startcontent[title=block-6]..\stopcontent
      \stopplacexontop
    \stopcontent
  \stopcontent
  \startcontent
    \startplacexinline
      \startcontent[title=block-7]..\stopcontent
      \startcontent[title=block-8]..\stopcontent
    \stopplacexinline
  \stopcontent
\stopplacexontop
```



XML-interface

The services of this module are available in XML through implementation of `<place>` `<placexinline>` `<placexontop>` and `<placexcontent>`. These are sufficient for use with the XML/HTML module of this author, previously in the MAPS under the title *A bit of HTML and a bit of ConTeXt*. They take the same attributes as the corresponding macros. A previous example follows in XML. Note that here the TeX-content must be contained inside a `<tex>`-node, in order to invoke `\xmlflushcontext` instead of `\xmlflush`. When used exclusively in an XML-environment, this `<tex> ... </tex>` enclosure should be omitted.

```
<placexontop distance="3mm" titlelocation="left"
              titlefill="line">
  <placexcontent title="title-1">
    <tex>...</tex>
  </placexcontent>
  <placexcontent shift="-10mm" title="title-2"
                  alttitle="altitle-2">
    <tex>...</tex>
  </placexcontent>
</placexontop>
```



Summary

```
\setupplacecx[...]
same as \startplacecx
```

```
\startplacecx[...]
alternative = inline ontop
location = top center bottom
align = left, middle, right
width = DIMENSION fit textwidth
height = DIMENSION fit
before = COMMAND
after = COMMAND
distance = DIMENSION fill
titlelocation = none left right top bottom
titledistance = DIMENSION 1ex
titlecolor = COLOR
titlefill = none space dot bullet dash line COMMAND
titleleaders = leaders cleaders, xleaders
titleposition = 0 .. 0.5 .. 1
titlefont = small .. 10pt ..
titlestyle = COMMAND
titlestrut = yes/on no/off
```

```
\startplacecxinline[...]
same as \startplacecx[alternative=inline,...]
```

```
\startplacecxontop[...]
same as \startplacecx[alternative=ontop,...]
```

```
\startcontent[...]
title = TEXT
altitle = TEXT
shift = DIMENSION
next inherited from \startplacecx
distance = DIMENSION
titledistance = DIMENSION
titlecolor = COLOR
titlefill = none space dot bullet dash line COMMAND
titleleaders = leaders cleaders, xleaders
titleposition = 0 .. 0.5 .. 1
titlefont = small .. 10pt ..
titlestyle = COMMAND
titlestrut = yes/on no/off
```

```
<placecx attributes> ... </placecx>
<placecxinline attributes> ... </placecxinline>
<placecxontop attributes> ... </placecxontop>
<placecontent attributes> ... </placecontent>
```

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