The `latex-lab-new-or` code*

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October 31, 2022

Abstract

1 Introduction

This code implements changes to the output routine.

2 Hooks and configuration points

Note: the configuration points do not have an interface mechanism yet and all their names are temporary right now.

2.0.1 Configuration points

To cater for different layouts with respect to text, footnotes, and bottom-floats placements there are two configuration points for now.

`\@makecol@cfgpoint` **(0 arguments)** In this configuration point the `\@outputbox` (holding the galley text for the current column or page) is augmented by attaching floats and footnote areas together with appropriate spacing. Before the code is run any existing glue at the bottom of the `\@outputbox` is removed and stored in a safe place. If needed, it can be reinserted with one of the helper commands.

To support setting this up the following helper commands are available:

`\@outputbox@append` **(1 argument)** This general purpose command alters the `\@outputbox` box by appending material to it.

`\@outputbox@appendfootnotes` **(0 arguments)** This command appends the footnotes to the `\@outputbox` (if there are any). If not, then it does nothing.

`\@outputbox@attachfloats` **(0 arguments)**

`\@outputbox@attachtopfloats` **(0 arguments)**

`\@outputbox@attachbottomfloats` **(0 arguments)** Attaching top and bottom floats can usually be done in one go, but for special layouts we might want more control so we provide also separate commands.

`\@outputbox@reinsertbskip` **(0 arguments)** Reinsert the bottom skip of the `\@outputbox` that was saved before.

*

Testing for existence of material There are a number of helpers to run conditional code depending on whether or not there are footnotes or bottom floats. They are `\@if@footnotes@TF` and `\@if@bfloats@TF` (names are likely to change).

This configuration point needs an appropriate definition; a default is already given in the kernel.

`\@makecol@cfgpointii` **(0 arguments)** This configuration point is used to manipulate the footnote material inside `\box\footins`. It if contains code, it is supposed to do some processing of that box and then write the result back into it (and nothing else!). By default it does nothing.

3 The Implementation

```
1 ⟨*code⟩
```

3.1 File declaration

```
2 \ProvidesFile{latex-lab-new-or.ltx}
3         [2022-03-09 v0.1b changes to the output routine]
```

3.2 `\@makecol` reimplementation

In order for other packages to prepend or append code to `\@makecol`, they can use the generic command hooks `cmd/@makecol/before` and `cmd/@makecol/after`, so there is nothing we need to do here.

`\@makecol` `\@makecol` is shortened a lot, basically all the hardwired code in the middle has moved into a configuration point.

```
4 \def \@makecol {%
5   \@kernel@before@cclv
6   \setbox\@outputbox \box\@cclv
```

The only real addition is the next command which either does nothing or removes an infinite glue from the bottom of the `\@outputbox`.

```
7   \@outputbox@removebskip
```

Any "here" floats in the `\@outputbox` are now handled so we recycle their registers and put them back to the `\@freelist`.

```
8   \let\@elt\relax
9   \xdef\@freelist{\@freelist\@midlist}%
10  \global \let \@midlist \@empty
```

Here we have the configurable part.

TODO: *Interface to configuration points will change in the future*

```
11  \@makecol@cfgpoint
```

The we deal with any `\enlargethispage` or run the normal code to build a column.

```
12  \ifvbox\@kludgeins
13     \@makespecialcolbox
14  \else
15     \@makenormalcolbox
16  \fi
17  \global \maxdepth \@maxdepth
18 }
```

(*End definition for* `\@makecol`. *This function is documented on page* ??.)

`\@outputbox@depth` We need to know the depth of `\@outputbox` once in a while. Rather than using a temp dimen (as it was done in the past), we give it a proper register.

```
\newdimen\@outputbox@depth
```

(*End definition for* `\@outputbox@depth`. *This function is documented on page* ??.)

`\@makenormalcolbox` Taken out of `\@makecol` for readability.

```
\def \@makenormalcolbox {%
   \setbox\@outputbox \vbox to\@colht {%
       \@texttop
       \@outputbox@depth \dp\@outputbox
       \unvbox \@outputbox
       \vskip -\@outputbox@depth
       \@textbottom
      }%
}
```

(*End definition for* `\@makenormalcolbox`. *This function is documented on page* ??.)

`\@makespecialcolbox` Make the colbox when `\enlargethispage` was used.

```
\def \@makespecialcolbox {%
   \@outputbox@append {\vskip-\@outputbox@depth}%
   \@tempdima \@colht
   \ifdim \wd\@kludgeins>\z@
     \advance \@tempdima -\ht\@outputbox
     \advance \@tempdima \pageshrink
     \setbox\@outputbox \vbox to \@colht {%
       \unvbox\@outputbox
       \vskip \@tempdima
       \@textbottom
       }%
   \else
     \advance \@tempdima -\ht\@kludgeins
     \setbox \@outputbox \vbox to \@colht {%
       \vbox to \@tempdima {%
         \unvbox\@outputbox
         \@textbottom}%
       \vss}%
   \fi
   {\setbox \@tempboxa \box \@kludgeins}%
}
```

(*End definition for* `\@makespecialcolbox`. *This function is documented on page* ??.)

`\@outputbox@removebskip` This is really a bug fix for the kernel but one we only automatically make in new documents using `\DocumentMetadata`.

TODO: *may make optional for legacy docs*

If \raggedbottom is in force, footnotes get attached to the main galley at a distance of \footskip on all pages except on those that are ended by \newpage or \clearpage where the \vfil from \newpage pushes the footnotes to the very bottom.

This is kind of a weird difference to a page ending with \pagebreak—in that case the page is also run short, but the footnotes are not pushed to the bottom.

In footmisc \@outputbox@removebskip is only applied when footmisc is called with with an option specifying the footnote placement, i.e., not in the default case. In new documents we apply it always.

```
\def\@outputbox@removebskip{%
```

We first test if we are in a \raggedbottom layout. If not we do nothing, but we don't disable the code because \raggedbottom may get used only for some parts of the document.

```
  \ifx\@textbottom\relax \else
```

We then append some negative glue at the end of \@outputbox provided it has a glue stretch order of 1 or more (i.e., contains a fil or fill part).

```
    \@outputbox@append{%
      \@tempskipa\lastskip
      \ifnum \gluestretchorder\@tempskipa>\z@
        \vskip-\@tempskipa
```

\@outputbox@reinsertbskip

We also record the value so that it can be reinserted elsewhere. As we have to do this globally, we also need to explicitly reset it if we don't find any such glue.

```
        \xdef\@outputbox@reinsertbskip
            {\noexpand\@outputbox@append{\vskip\the\@tempskipa}}%
      \else
        \global\let\@outputbox@reinsertbskip\relax
      \fi
    }%
  \fi
}
```

We need a trivial top-level definition for \@outputbox@reinsertbskip in case the first page has no bottom glue and the command gets called.

```
\let\@outputbox@reinsertbskip\relax
```

(*End definition for* \@outputbox@removebskip *and* \@outputbox@reinsertbskip*. These functions are documented on page* ??.)

\@kernel@before@cclv
\@kernel@before@footins

These two commands are internal kernel hooks intended for tagging support in case that is active. By default they do nothing (and may have been defined already by \DocumentMetadata).

```
\providecommand\@kernel@before@cclv{}
\providecommand\@kernel@before@footins{}
```

(*End definition for* \@kernel@before@cclv *and* \@kernel@before@footins*. These functions are documented on page* ??.)

3.3 The output routine configuration components

Here we provide the components that are used to define `\@makecol@cfgpoint`.

`\@outputbox@append` This general purpose command alters the `\@outputbox` box by appending material to it. As this is a box typesetting operation we make sure that the last line of the box reflects the true depth of the last line (in case that is needed later). We also expose the current depth of `\@outputbox` as `\@outputbox@depth` before unboxing so that its value can be used by `#1` if wanted.

```
\def\@outputbox@append #1{%
%  \if!\detokenize{#1}!\else
     \setbox\@outputbox \vbox {%
       \boxmaxdepth \@maxdepth
       \@outputbox@depth\dp\@outputbox      % if needed in #1
       \unvbox \@outputbox
       #1%
     }%
%  \fi
}
```

(*End definition for* `\@outputbox@append`*. This function is documented on page* **??**.)

`\@outputbox@appendfootnotes` This command appends the footnotes to the `\@outputbox` (if there are any). If not then it does nothing.

```
\def\@outputbox@appendfootnotes {%
   \ifvoid\footins \else
```

First come two configuration points: what to do if we are in a split footnote situation and a second one that does some manipulation of the `\footins` box before it gets appended.

TODO: *this code will get revised as part of CP handling in the future*

```
     \@makecol@handlesplitfootnotes
     \@makecol@cfgpointii
```

Then the footnotes are appended:

```
     \@outputbox@append{%
       \vskip \skip\footins
       \@kernel@before@footins
       \color@begingroup
         \normalcolor
         \footnoterule
```

Support for pdfcolfoot, eventually this can go once color is properly supported.

```
         \csname pdfcolfoot@current\endcsname
         \unvbox \footins
       \color@endgroup
     }%
  \fi
}
```

(*End definition for* `\@outputbox@appendfootnotes`*. This function is documented on page* **??**.)

`\@outputbox@attachfloats` Attaching top and bottom floats can usually be done in one go, but for special layouts we might want more control so we provide also separate commands.

`\@outputbox@attachtopfloats`

`\@outputbox@attachbottomfloats`

```
\let \@outputbox@attachfloats \@combinefloats
```

```
\def \@outputbox@attachtopfloats {%
  \ifx \@toplist\@empty \else \@cflt \fi
}
\def \@outputbox@attachbottomfloats {%
    \ifx \@botlist\@empty \else \@cflb \fi
}
```

(*End definition for* `\@outputbox@attachfloats`, `\@outputbox@attachtopfloats`, *and* `\@outputbox@attachbottomfloats`. *These functions are documented on page* **??**.)

`\@makecol@handlesplitfootnotes`
`\@makecol@splitfootnotemessagehook`

This is only an early draft and doesn't do much. Contains incomplete preparation for tagging commented out.

TODO: *Interfaces and code will change in the future*

```
\def\@makecol@handlesplitfootnotes {%
%  \ifx\splitfootnote@continuation\@empty \else
%    \setbox\footins\vbox{\splitfootnote@continuation\unvbox\footins}%
%    \global\let\splitfootnote@continuation\@empty
%  \fi
  \ifnum\insertpenalties>\z@
    \@makecol@splitfootnotemessagehook
%    \setbox\footins\vbox{\unvbox\footins --- END at split}%
%    \gdef\splitfootnote@continuation    {--- START after split}%
  \fi
}
%\def\splitfootnote@continuation{}
```

This could issue warning if split footnotes are encountered.

```
\let \@makecol@splitfootnotemessagehook \@empty
```

(*End definition for* `\@makecol@handlesplitfootnotes` *and* `\@makecol@splitfootnotemessagehook`. *These functions are documented on page* **??**.)

`\@makecol@cfgpointii` Configuration point to support manipulation of footins box (result needs to be moved back in there). Used by the `para` option.

TODO: *Interface will change in the future*

```
\let \@makecol@cfgpointii \@empty
```

(*End definition for* `\@makecol@cfgpointii`. *This function is documented on page* **??**.)

TODO: *Some temp interfaces until configuration points are available.*

`\@if@flushbottom@TF` Test for `\flushbottom` (currently not used).

```
\def\@if@flushbottom@TF{%
  \ifx\@textbottom\relax
    \expandafter\@firstoftwo
  \else
    \expandafter\@secondoftwo
  \fi
}
```

(*End definition for* `\@if@flushbottom@TF`. *This function is documented on page* **??**.)

\@if@footnotes@TF Test if footnotes are present on the current page.

```
\def\@if@footnotes@TF{%
  \ifvoid\footins
    \expandafter\@secondoftwo
  \else
    \expandafter\@firstoftwo
  \fi
}
```

(*End definition for* `\@if@footnotes@TF`. *This function is documented on page* ??.)

\@if@bfloats@TF Test if bottom floats are around.

```
\def\@if@bfloats@TF{%
  \ifx \@botlist\@empty
    \expandafter\@secondoftwo
  \else
    \expandafter\@firstoftwo
  \fi
}
```

(*End definition for* `\@if@bfloats@TF`. *This function is documented on page* ??.)

3.4 The \@makecol configuration

\@makecol@cfgpoint Here is only the configuration for the default case for now, others are provided by footmisc.

```
    \def\@makecol@cfgpoint {%
       \@outputbox@appendfootnotes
       \@outputbox@attachfloats
```

We do, however, reinsert the bottom skip from `\newpage` if it was taken out earlier. This is, strictly speaking, not necessary in most cases, but it is a `\vfil` while `\raggedbottom` is only generating `\vspace{0pt plus .0001fil}`, so if you have several `\vfil` on the page before the `\newpage` you would alter the space distribution if one is taken out.

```
       \@outputbox@reinsertbskip
    }
```

(*End definition for* `\@makecol@cfgpoint`. *This function is documented on page* ??.)

4 Replacement for the footmisc package

The replacement for footmisc. If the new code is used, we must replace the package if it is loaded by the user:

```
\declare@file@substitution{footmisc.sty}{latex-lab-footmisc.ltx}
```

5 Temp stuff that is related but should go to the kernel

```
\input{latex-lab-footnotes.ltx}
```

⟨/code⟩

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