

mindflow, write your ideas in a clear way

JINWEN XU

2021/05/24

1. INTRODUCTION

The mindflow package provides you a way to write your ideas and annotations clearly. For example, with the options `linenumber` and `rightmarker`, you will get something like:

1	What to write next:	*
2	• usage: the initialization, options and configuration;	*
3	• an example;	*
4	• some word on the line numbering feature;	*
5	• some internal macros;	*
6	• the complete code.	*

2. USAGE

2.1 Initialization

Simply load the package with

```
\usepackage{mindflow}
```

There are a few options available, which are listed in the next subsection.

2.2 Options

By default, the environment has no line numbers or markers. You can use the following options (they can be specified directly, like `off`, or as a boolean optional, like `off=false`):

<code>linenumber</code>	Same as <code>leftlinenumber</code>
<code>leftlinenumber</code>	Enable left line numbers
<code>rightlinenumber</code>	Enable right line numbers
<code>leftmarker</code>	Enable left marker, by default it is a “*”
<code>rightmarker</code>	Enable right marker, by default it is a “*”
<code>incolumn or twocolumn</code>	The separation line would fit in the column (<i>automatically applied in two-column documents</i>)
<code>off</code>	Hide all the mindflow environments

{mindflow} Then you can use the mindflow environment as

```
\begin{mindflow}  
  <text>  
\end{mindflow}
```

2.3 The configuration

\mindflowset You can use `\mindflowset{<configuration>}` to configure the mindflow environment. The following keys are provided:

<code>left</code>	The left marker
<code>right</code>	The right marker
<code>textcolor</code>	Color of the text
<code>numcolor</code>	Color of line numbers
<code>markercolor</code>	Color of the markers
<code>linecolor</code>	Color of the separation line

textfont	Font of the text
numfont	Font of line numbers
markerfont	Font of the marker
lineheight	Height of the separation line

Additionally, all the options mentioned in the previous section (except for off) can be set within `\mindflowset`.

3. AN EXAMPLE

With the following settings:

```
\mindflowset{
  leftlinenumber, rightlinenumber,
  leftmarker, rightmarker,
  linecolor = green!50!black,
  textcolor = blue!50!cyan,
  numcolor = red!50!orange,
  markercolor = orange,
  textfont = \footnotesize\sffamily\itshape,
  numfont = \small\footnotesize\ttfamily,
  markerfont = \footnotesize\sffamily,
  left = \hspace{1em}\(\succ\),
  right = \(\prec\)\hspace{1em},
  lineheight = 1pt
}
```

One will have something like this:

7	✧	<i>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra</i>	✧	7
8	✧	<i>sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a</i>	✧	8
9	✧	<i>dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent</i>	✧	9
10	✧	<i>in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut</i>	✧	10
11	✧	<i>metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit</i>	✧	11
12	✧	<i>blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum.</i>	✧	12
13	✧	<i>Nunc quis urna dictum turpis accumsan semper.</i>	✧	13

4. ABOUT THE LINE NUMBERS

- You can also add line numbers to the other part of your document in the usual way. For
- example, line numbers have been turned on for this paragraph with `\linenumbers`.

14 Line numbers within the mindflow environments are independent from those of the main text. *

- (I recommend that you put an empty line before and after the mindflow environments, i.e. make the
- mindflow environment a paragraph of its own. This way, your paragraph structure won't get changed
- when you use the off option.)

The feature of line numbering is provided by the package `lineno`. You can read its documentation to learn more about it. Notice that, by default, displayed equations are not numbered. You can add the following line before `\usepackage{mindflow}`:

```
\PassOptionsToPackage{mathlines}{lineno}
```

to enable the line numbers for displayed equations.

15	$(a + b)^2 = a^2 + 2ab + b^2$	*
16	$(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$	*

5. SOME T_EXNICAL DETAILS

<code>\mindflowTextFont</code>	The font for text, line numbers and markers within the mindflow environments can be specified by redefining <code>\mindflowTextFont</code> , <code>\mindflowNumFont</code> and <code>\mindflowMarkerFont</code> . By default, they are defined as:
<code>\mindflowNumFont</code>	
<code>\mindflowMarkerFont</code>	
<hr/> <pre>\newcommand{\mindflowTextFont}{\footnotesize} \newcommand{\mindflowNumFont}{\scriptsize\ttfamily} \newcommand{\mindflowMarkerFont}{\scriptsize\ttfamily}</pre> <hr/>	
<code>\mindflowLeft</code> <code>\mindflowRight</code>	The left and right markers is defined by <code>\mindflowLeft</code> and <code>\mindflowRight</code> . Both have the default value <code>""</code> .
<code>\mindflowLineHeight</code>	The height of the separation lines is a length macro named <code>\mindflowLineHeight</code> , with default value <code>0.4pt</code> . You can change this with <code>\setlength</code> .
<code>mindflowLine</code> <code>mindflowText</code> <code>mindflowNum</code> <code>mindflowMarker</code>	And finally, the colors for the separation lines, text, line numbers and markers within the mindflow environments are called <code>mindflowLine</code> , <code>mindflowText</code> , <code>mindflowNum</code> and <code>mindflowMarker</code> , respectively. By default, they have the same color as the context, with opacity 30% for the separation lines, text and markers, and 8% for the line numbers.

6. THE SAME EXAMPLE

With option `leftlinenumber`, `rightlinenumber`, `leftmarker`, `rightmarker` and the following settings:

```

\colorlet{mindflowLine}{green!50!black}
\colorlet{mindflowText}{blue!50!cyan}
\colorlet{mindflowNum}{red!50!orange}
\colorlet{mindflowMarker}{orange}
\renewcommand{\mindflowTextFont}{\footnotesize\sffamily\itshape}
\renewcommand{\mindflowNumFont}{\small\footnotesize\ttfamily}
\renewcommand{\mindflowMarkerFont}{\footnotesize\sffamily}
\renewcommand{\mindflowLeft}{\hspace{1em}\(\succ\)}
\renewcommand{\mindflowRight}{\(\prec\)\hspace{1em}}
\setlength{\mindflowLineHeight}{1pt}

```

One will get the same result as in the previous example.

7. IMPLEMENTATION

Below is the complete source code of this package.

```

1 \RequirePackage{kvoptions}
2 \SetupKeyvalOptions{%
3     family = @mindflow,
4     prefix = @mindflow@
5 }
6 \DeclareBoolOption[false]{off}           % Turn off mindflow
7 \DeclareBoolOption[false]{leftmarker}    % Left marker
8 \DeclareBoolOption[false]{rightmarker}   % Right marker
9 \DeclareBoolOption[false]{linenumber}    % Left line numbers
10 \DeclareBoolOption[false]{leftlinenumber} % Left line numbers
11 \DeclareBoolOption[false]{rightlinenumber} % Right line numbers
12 \DeclareBoolOption[false]{twocolumn}     % Two column
13 \DeclareBoolOption[false]{incolumn}      % Separation line fits in column

```

```

14
15 \ProcessKeyvalOptions*\relax
16
17 \if@mindflow@twocolumn
18   \@mindflow@incolumntrue
19 \fi
20 \if@mindflow@linenumber
21   \@mindflow@leftlinenumbertrue
22 \fi
23
24 %%=====
25 %% Initialization
26 %%=====
27 \RequirePackage{lineno}
28 \RequirePackage{xcolor}
29
30 \colorlet{mfSavedColor}{.}
31 \colorlet{mindflowLine}{mfSavedColor!30}
32 \colorlet{mindflowText}{mfSavedColor!30}
33 \colorlet{mindflowMarker}{mfSavedColor!30}
34 \colorlet{mindflowNum}{mfSavedColor!8}
35
36 \newcommand{\mindflowTextFont}{\footnotesize}
37 \newcommand{\mindflowNumFont}{\scriptsize\ttfamily}
38 \newcommand{\mindflowMarkerFont}{\scriptsize\ttfamily}
39 \newcommand{\mindflowLeft}{*}
40 \newcommand{\mindflowRight}{*}
41 \newlength{\mindflowLineHeight}
42 \setlength{\mindflowLineHeight}{0.4pt}
43
44 %%=====
45 %% The mindflow environment
46 %%=====
47 \newif\ifLNturnsON
48 \newcommand*{\mfSepLine}{%
49   \parskip=0pt
50   \LNturnsONfalse%
51   \ifLineNumbers\LNturnsONtrue\fi\nolinenumbers%
52   \par\noindent\nopagebreak%
53   \if@mindflow@incolumn%
54     \makebox[\linewidth]{\rule{\linewidth}{\mindflowLineHeight}}%
55   \else%
56     \hspace*{-\paperwidth}%
57     \makebox[\linewidth]{\rule{4\paperwidth}{\mindflowLineHeight}}%
58   \fi%
59   \nopagebreak\par%
60   \ifLNturnsON\linenumbers\fi%
61 }
62
63 \newcounter{recordLN}
64 \newcounter{mfLN}
65 \setcounter{mfLN}{1}
66
67 \if@mindflow@off
68   \RequirePackage{verbatim}
69   \let\mindflow=\comment

```

```

70 \let\endmindflow=\endcomment
71 \else
72 \newenvironment{mindflow}
73 {%
74 \setcounter{recordLN}{\value{linenumber}}%
75 \setcounter{linenumber}{\value{mfLN}}%
76 \LNturnsONfalse%
77 \iflineNumbers\LNturnsONtrue\fi\nolinenumbers%
78 \color{mindflowLine}\mfSepLine%
79 \normalfont\mindflowTextFont\color{mindflowText}%
80 \linenumbers%
81 \renewcommand\makeLineNumber{%
82 \hss%
83 \if@mindflow@leftlinenumber%
84 \normalfont\mindflowNumFont\color{mindflowNum}\LineNumber\hspace{1
em}%
85 \fi%
86 \color{mindflowMarker}%
87 \if@mindflow@leftmarker%
88 \normalfont\mindflowMarkerFont\mindflowLeft\hspace{1em}%
89 \fi%
90 \rlap{\hskip\textwidth%
91 \if@mindflow@rightmarker%
92 \hspace{1em}\mindflowRight%
93 \fi%
94 \if@mindflow@rightlinenumber%
95 \hspace{1em}%
96 \normalfont\mindflowNumFont\color{mindflowNum}\LineNumber%
97 \fi%
98 }%
99 }%
100 }
101 {%
102 \par%
103 \vspace{-.5\baselineskip}\color{mindflowLine}\mfSepLine%
104 \ifLNturnsON\linenumbers\fi%
105 \setcounter{mfLN}{\value{linenumber}}%
106 \setcounter{linenumber}{\value{recordLN}}%
107 }
108 \fi
109
110 %%=====
111 %% \mindflowset
112 %%=====
113 \define@key{mindflow}{leftmarker}[true]{\csname @mindflow@leftmarker#1\
endcsname}
114 \define@key{mindflow}{rightmarker}[true]{\csname @mindflow@rightmarker#1\
endcsname}
115 \define@key{mindflow}{linenumber}[true]{\csname @mindflow@linenumber#1\
endcsname}
116 \define@key{mindflow}{leftlinenumber}[true]{\csname
@mindflow@leftlinenumber#1\endcsname}
117 \define@key{mindflow}{rightlinenumber}[true]{\csname
@mindflow@rightlinenumber#1\endcsname}
118 \define@key{mindflow}{twocolumn}[true]{\csname @mindflow@twocolumn#1\
endcsname}

```

```

119 \define@key{mindflow}{incolumn}[true]{\csname @mindflow@incolumn#1\
    endcsname}
120 \define@key{mindflow}{linecolor}{\colorlet{mindflowLine}{#1}}
121 \define@key{mindflow}{textcolor}{\colorlet{mindflowText}{#1}}
122 \define@key{mindflow}{numcolor}{\colorlet{mindflowNum}{#1}}
123 \define@key{mindflow}{markercolor}{\colorlet{mindflowMarker}{#1}}
124 \define@key{mindflow}{textfont}{\renewcommand{\mindflowTextFont}{#1}}
125 \define@key{mindflow}{numfont}{\renewcommand{\mindflowNumFont}{#1}}
126 \define@key{mindflow}{markerfont}{\renewcommand{\mindflowMarkerFont}{#1}}
127 \define@key{mindflow}{left}{\renewcommand{\mindflowLeft}{#1}}
128 \define@key{mindflow}{right}{\renewcommand{\mindflowRight}{#1}}
129 \define@key{mindflow}{lineheight}{\setlength{\mindflowLineHeight}{#1}}
130 \newcommand{\mindflowset}[1]{%
131   \setkeys{mindflow}{#1}%
132   \if@mindflow@twocolumn%
133     \@mindflow@incolumntrue%
134   \fi%
135   \if@mindflow@linenumber%
136     \@mindflow@leftlinenumbertrue%
137   \fi%
138 }
139
140 %%=====
141 %% lineno patch
142 %%=====
143 \ifdefined\linenomathpatch\else
144   \RequirePackage{amsmath}
145   \RequirePackage{etoolbox}
146   \newcommand*\linenomathpatch[1]{%
147     \cspreto{#1}{\linenomath}%
148     \cspreto{#1*}{\linenomath}%
149     \csappto{end#1}{\endlinenomath}%
150     \csappto{end#1*}{\endlinenomath}%
151   }
152   \newcommand*\linenomathpatchAMS[1]{%
153     \cspreto{#1}{\linenomathAMS}%
154     \cspreto{#1*}{\linenomathAMS}%
155     \csappto{end#1}{\endlinenomath}%
156     \csappto{end#1*}{\endlinenomath}%
157   }
158   \expandafter\ifx\linenomath\linenomathWithnumbers
159     \let\linenomathAMS\linenomathWithnumbers
160     \patchcmd\linenomathAMS{\advance\postdisplaypenalty\linenopenalty}{}{}{}
161   \else
162     \let\linenomathAMS\linenomathNonumbers
163   \fi
164   \linenomathpatch{equation}
165   \linenomathpatchAMS{gather}
166   \linenomathpatchAMS{multline}
167   \linenomathpatchAMS{align}
168   \linenomathpatchAMS{alignat}
169   \linenomathpatchAMS{flalign}
170 \fi

```