

mindflow – write your ideas in a clear way

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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.	*

This example only shows the default effect. You can customize it further according to the instructions in the next section.

2. THE USAGE

2.1 How to load it ?

Simply load the package with

```
\usepackage{mindflow}
```

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</code> or <code>twocolumn</code>	The separation line would fit in the column (<i>automatically applied in two-column documents</i>)
<code>off</code> , <code>on</code>	Turn the mindflow environments <i>off</i> or <i>on</i>

Additionally, there is an option `nonbreakble`, which enables the `tcolorbox` version, permits a background color, but is not breakable and doesn't support line numbering quite well.

2.2 How to use it ?

`{mindflow}` You can then use the mindflow environment as

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

2.3 Further configuration

`\mindflowset` You can use `\mindflowset{<configuration>}` to configure the mindflow environment. The available keys are listed at the top of the next page.

left	The left marker	right	The right marker
textcolor	Color of the text	textfont	Font of the text
numcolor	Color of line numbers	numfont	Font of line numbers
markercolor	Color of the markers	markerfont	Font of the marker
linecolor	Color of the separation line	lineheight	Height of the separation line









Additionally, all the options mentioned in the previous section (except for `nonbreakble`) can be set with `\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 8 9 10	   	<i>Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look.</i>	   	7 8 9 10
-------------------	--	---	--	-------------------

4. ABOUT THE LINE NUMBERS

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

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

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

The line numbering feature is provided by the package `lineno`. For more details, please refer to its documentation. 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.

12	$(a + b)^2 = a^2 + 2ab + b^2$	*
13	$(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$	*

*If the package option `nonbreakble` is enabled, then there is also a key `backgroundcolor`, similar to `textcolor`, for configuring the background color of the `mindflow` environments.

5. SOME T_EXNICAL DETAILS

5.1 Internal macro for text elements

<code>\mindflowTextFont</code>	The font for text, line numbers and markers within the <code>mindflow</code> 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>	The left and right markers is defined by <code>\mindflowLeft</code> and <code>\mindflowRight</code> . Both have the default value “*”.
<code>\mindflowRight</code>	
<code>\mindflowLineHeight</code>	The height of the separation lines is a length macro named <code>\mindflowLineHeight</code> , with default value 0.4pt. You can change this with <code>\setlength</code> .

5.2 Internal name of the colors

<code>mindflowLine</code>	And finally, the colors for the separation lines, text, line numbers and markers within the <code>mindflow</code> 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 40% for the separation lines and text, 20% for the markers, and 8% for line numbers.
<code>mindflowText</code>	
<code>mindflowNum</code>	
<code>mindflowMarker</code>	
<code>*mindflowBackground</code>	If the package option <code>nonbreakable</code> is enabled, then there is also the background color <code>mindflowBackground</code> , which by default is white.

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. KNOWN ISSUES

- There is no absolute guarantee that the separation lines will not fall alone at the top or bottom of the page, though great effort has been made to reduce the occurrence of such situation.
- The `tcolorbox` version doesn't support line numbering quite well, especially for displayed equations. This is due to the usage of `internallinenumbers`.

8. IMPLEMENTATION

Below is the complete source code of this package.

```

1 \RequirePackage{kvoptions}
2 \SetupKeyvalOptions{%
3     family = @mindflow,
4     prefix = @mindflow@
5 }
6 \DeclareBoolOption[true]{on}           % Turn on mindflow
7 \DeclareBoolOption[false]{off}         % Turn off mindflow
8 \DeclareBoolOption[false]{leftmarker}  % Left marker
9 \DeclareBoolOption[false]{rightmarker} % Right marker
10 \DeclareBoolOption[false]{linenumber}  % Left line numbers
11 \DeclareBoolOption[false]{leftlinenumber} % Left line numbers
12 \DeclareBoolOption[false]{rightlinenumber} % Right line numbers
13 \DeclareBoolOption[false]{twocolumn}    % Two column
14 \DeclareBoolOption[false]{incolumn}     % Separation line fits in column
15 \DeclareBoolOption[false]{nonbreakable} % Use the tcolorbox version
16
17 \ProcessKeyvalOptions*\relax
18
19 \if@mindflow@on
20     \@mindflow@offfalse
21 \fi
22 \if@mindflow@twocolumn
23     \@mindflow@incolumntrue
24 \fi
25 \if@mindflow@linenumber
26     \@mindflow@leftlinenumbertrue
27 \fi
28
29 %%=====
30 %% Initialization
31 %%=====
32 \RequirePackage{lineno}
33 \RequirePackage{xcolor}
34
35 \colorlet{mfSavedColor}{.}
36 \colorlet{mindflowLine}{mfSavedColor!40}
37 \colorlet{mindflowText}{mfSavedColor!40}
38 \colorlet{mindflowMarker}{mfSavedColor!20}
39 \colorlet{mindflowNum}{mfSavedColor!8}
40
41 \newcommand{\mindflowTextFont}{\footnotesize}
42 \newcommand{\mindflowNumFont}{\scriptsize\ttfamily}
43 \newcommand{\mindflowMarkerFont}{\scriptsize\ttfamily}
44 \newcommand{\mindflowLeft}{*}
45 \newcommand{\mindflowRight}{*}
46 \newlength{\mindflowLineHeight}
47 \setlength{\mindflowLineHeight}{0.4pt}
48
49 %%=====
50 %% The mindflow environment
51 %%=====
52 \PassOptionsToPackage{all}{nowidow}

```

```

53 \RequirePackage{nowidow}
54 \RequirePackage{verbatim}
55
56 \newif\ifLNturnsON
57 \def\LocallyStopLineNumbers{\LNturnsONfalse%
58   \iflineNumbers\LNturnsONtrue\fi\nolinenumbers}
59 \def\ResumeLineNumbers{\ifLNturnsON\linenumbers\fi}
60
61 \newcounter{recordLN}
62 \newcounter{mfLN}
63 \setcounter{mfLN}{1}
64
65 \newcommand*{\mfSepLine}{%
66   \par%\nobreak%
67   \LocallyStopLineNumbers%
68   \vspace*{-.5\baselineskip}%
69   \if@mindflow@incolumn%
70     \makebox[\linewidth]{\color{mindflowLine}\rule{\linewidth}{\mindflowLineHeight}}%
71   \else%
72     \hspace*{-.5\paperwidth}%
73     \makebox[\linewidth]{\color{mindflowLine}\rule{4\paperwidth}{\mindflowLineHeight}}%
74   \fi%
75   \par%\nobreak%
76   \ResumeLineNumbers%
77 }
78
79 \newcommand{\mindflow@makeLineNumber}{%
80   \hss%
81   \if@mindflow@leftlinenumber%
82     \normalfont\mindflowNumFont\color{mindflowNum}\LineNumber\hspace{1em}%
83   \fi%
84   \color{mindflowMarker}%
85   \if@mindflow@leftmarker%
86     \normalfont\mindflowMarkerFont\mindflowLeft\hspace{1em}%
87   \fi%
88   \rlap{\hskip\textwidth%
89     \if@mindflow@rightmarker%
90       \hspace{1em}\mindflowRight%
91     \fi%
92     \if@mindflow@rightlinenumber%
93       \hspace{1em}%
94       \normalfont\mindflowNumFont\color{mindflowNum}\LineNumber%
95     \fi%
96   }%
97 }%
98
99 \let\mindflowOFF=\comment
100 \let\endmindflowOFF=\endcomment
101
102 \def\mindflowON{%
103   \postdisplaypenalty=10000
104   \parskip=0pt
105   \medskip%
106   \setcounter{recordLN}{\value{linenumber}}%

```

```

107 \setcounter{linenumber}{\value{mfLN}}%
108 \mfSepLine%
109 \normalfont\mindflowTextFont\color{mindflowText}%
110 \linenumbers%
111 \let\makeLineNumber\mindflow@makeLineNumber%
112 \nopagebreak%
113 }
114 \def\endmindflowON{%
115 \nowidow[3]%
116 \mfSepLine%
117 \setcounter{mfLN}{\value{linenumber}}%
118 \setcounter{linenumber}{\value{recordLN}}%
119 \medskip%
120 }
121
122 \colorlet{mindflowBackground}{white}
123
124 \if@mindflow@nonbreakable
125 \PassOptionsToPackage{many}{tcolorbox}
126 \RequirePackage{tcolorbox}
127 \newlength{\mindflow@parindent}
128 \newlength{\mindflow@parskip}
129 \def\mindflowON{%
130 \LNturnsONfalse%
131 \ifLineNumbers\LNturnsONtrue\fi\nolinenumbers%
132 \setlength{\mindflow@parindent}{\parindent}%
133 \setlength{\mindflow@parskip}{\parskip}%
134 \begin{tcolorbox}[enhanced jigsaw,
135 colback=mindflowBackground,colframe=mindflowLine,
136 leftrule=0pt, rightrule=0pt, sharp corners,
137 toprule=\mindflowLineHeight, bottomrule=\mindflowLineHeight,
138 top=.15\baselineskip, bottom=.15\baselineskip,
139 grow to left by=\linewidth,left=\linewidth,
140 grow to right by=\linewidth,right=\linewidth,
141 fontupper=\mindflowTextFont,extras={colupper={mindflowText}},
142 before upper={
143 \setlength{\parindent}{\mindflow@parindent}%
144 \setlength{\parskip}{\mindflow@parskip}%
145 }]
146 \begin{internallinenumbers}%
147 \let\makeLineNumber\mindflow@makeLineNumber%
148 }
149 \def\endmindflowON{%
150 \nowidow[3]%
151 \end{internallinenumbers}%
152 \end{tcolorbox}\par%
153 \ifLNturnsON\linenumbers\fi%
154 }
155 \fi
156
157 \if@mindflow@off
158 \let\mindflow=\mindflowOFF
159 \let\endmindflow=\endmindflowOFF
160 \else
161 \let\mindflow=\mindflowON
162 \let\endmindflow=\endmindflowON

```

```

163 \fi
164
165 %%=====
166 %% \mindflowset
167 %%=====
168 \define@key{mindflow}{on}[true]{%
169   \csname @mindflow@on#1\endcsname%
170   \if@mindflow@off%
171     \let\mindflow=\mindflowOFF%
172     \let\endmindflow=\endmindflowOFF%
173   \else%
174     \let\mindflow=\mindflowON%
175     \let\endmindflow=\endmindflowON%
176   \fi%
177 }
178 \define@key{mindflow}{off}[true]{%
179   \csname @mindflow@off#1\endcsname%
180   \if@mindflow@off%
181     \let\mindflow=\mindflowOFF%
182     \let\endmindflow=\endmindflowOFF%
183   \else%
184     \let\mindflow=\mindflowON%
185     \let\endmindflow=\endmindflowON%
186   \fi%
187 }
188 \define@key{mindflow}{leftmarker}[true]{\csname @mindflow@leftmarker#1\
189   \endcsname}
189 \define@key{mindflow}{rightmarker}[true]{\csname @mindflow@rightmarker#1\
190   \endcsname}
190 \define@key{mindflow}{linenumber}[true]{\csname @mindflow@linenumber#1\
191   \endcsname}
191 \define@key{mindflow}{leftlinenumber}[true]{\csname
192   @mindflow@leftlinenumber#1\endcsname}
192 \define@key{mindflow}{rightlinenumber}[true]{\csname
193   @mindflow@rightlinenumber#1\endcsname}
193 \define@key{mindflow}{twocolumn}[true]{\csname @mindflow@twocolumn#1\
194   \endcsname}
194 \define@key{mindflow}{incolumn}[true]{\csname @mindflow@incolumn#1\
195   \endcsname}
195 \define@key{mindflow}{linecolor}{\colorlet{mindflowLine}{#1}}
196 \define@key{mindflow}{textcolor}{\colorlet{mindflowText}{#1}}
197 \define@key{mindflow}{numcolor}{\colorlet{mindflowNum}{#1}}
198 \define@key{mindflow}{markercolor}{\colorlet{mindflowMarker}{#1}}
199 \define@key{mindflow}{backgroundcolor}{
200   \if@mindflow@nonbreakable
201     \colorlet{mindflowBackground}{#1}
202   \else
203     \PackageWarning{mindflow}{The key ‘‘backgroundcolor’’ is only available
204       when the package option\MessageBreak ‘‘nonbreakable’’ is enabled.}
205   \fi
206 }
206 \define@key{mindflow}{textfont}{\renewcommand{\mindflowTextFont}{#1}}
207 \define@key{mindflow}{numfont}{\renewcommand{\mindflowNumFont}{#1}}
208 \define@key{mindflow}{markerfont}{\renewcommand{\mindflowMarkerFont}{#1}}
209 \define@key{mindflow}{left}{\renewcommand{\mindflowLeft}{#1}}
210 \define@key{mindflow}{right}{\renewcommand{\mindflowRight}{#1}}

```

```

211 \define@key{mindflow}{lineheight}{\setlength{\mindflowLineHeight}{#1}}
212 \newcommand{\mindflowset}[1]{%
213   \setkeys{mindflow}{#1}%
214   \if@mindflow@twocolumn%
215     \@mindflow@incolumntrue%
216   \fi%
217   \if@mindflow@linenumber%
218     \@mindflow@leftlinenumbertrue%
219   \fi%
220 }
221
222 %%=====
223 %% lineno patch
224 %%=====
225 \ifdefined\linenomathpatch\else
226   \RequirePackage{amsmath}
227   \RequirePackage{etoolbox}
228   \newcommand*\linenomathpatch[1]{%
229     \cspreto{#1}{\linenomath}%
230     \cspreto{#1*}{\linenomath}%
231     \csappto{end#1}{\endlinenomath}%
232     \csappto{end#1*}{\endlinenomath}%
233   }
234   \newcommand*\linenomathpatchAMS[1]{%
235     \cspreto{#1}{\linenomathAMS}%
236     \cspreto{#1*}{\linenomathAMS}%
237     \csappto{end#1}{\endlinenomath}%
238     \csappto{end#1*}{\endlinenomath}%
239   }
240   \expandafter\ifx\linenomath\linenomathWithnumbers
241     \let\linenomathAMS\linenomathWithnumbers
242     \patchcmd\linenomathAMS{\advance\postdisplaypenalty\linenopenalty}{}{}{}{}
243   \else
244     \let\linenomathAMS\linenomathNonumbers
245   \fi
246   \linenomathpatch{equation}
247   \linenomathpatchAMS{gather}
248   \linenomathpatchAMS{multline}
249   \linenomathpatchAMS{align}
250   \linenomathpatchAMS{alignat}
251   \linenomathpatchAMS{flalign}
252 \fi

```