

**umoline**  
The Package for Under/Mid/Overline for Long Texts\*

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2000/07/11

**Abstract**

This file provides macros to draw `\Underline`, `\Midline` and `\Overline` with a long text allowing line breaking in the text.

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\*This file has version number v1.1, last revised 2000/07/11.

# 1 Introduction

Users of  $\text{T}_{\text{E}}\text{X}$  and  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$  often complain that a text with `\underline` and `\overline` cannot have line-break points in it. This makes it hard to draw lines under a sentence in order to, for example, show that the sentence is modified by a revision.

Although it is almost impossible to find the perfect solution for the problem, we could have a acceptable approximation by introducing certain reasonable restrictions. For example, macros provided by `umoline` only accept *ordinary* texts as their objective texts to draw underline, etc. In fact, many  $\text{T}_{\text{E}}\text{X}$ ackers have written macros having this restriction, including author's `julem`<sup>1</sup> which copes with texts in both Japanese and English (and other European languages). The style, however, has a few drawbacks including that it consumes a huge amount of computational time and dvi-file space.

The style `umoline` is designed to solve the problem minimizing the time/space consumption to some acceptable level although still they are not very small. Note that `umoline` is only for English (and possibly some other European language) and another style `jumoline` by the author is available for Japanese users.

## 2 Usage

### 2.1 Basic Usage

The package is usable to both  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X } 2_{\varepsilon}$  and  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X-2.09}$  users with their standard package loading declaration. If you use  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X } 2_{\varepsilon}$ , simply do the following.

```
\usepackage{umoline}
```

If you still love  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X-2.09}$ , the following is what you have to do.

```
\documentstyle[...umoline,...]{<style>}
```

You have the following three basic commands to draw underlines and relatives.

<code>\Underline</code>	<ul style="list-style-type: none"><li>• <code>\Underline{&lt;text&gt;}</code> Draw lines under the <i>&lt;text&gt;</i>. For example, this sentence is generated by <code>\Underline{For Example, ... }</code>.</li></ul>
<code>\Midline</code>	<ul style="list-style-type: none"><li>• <code>\Midline{&lt;text&gt;}</code> Draw lines as if hyphens are overlaid on the <i>&lt;text&gt;</i>. For example, this sentence is generated by <code>\Midline{For Example, ... }</code>.</li></ul>
<code>\Overline</code>	<ul style="list-style-type: none"><li>• <code>\Overline{&lt;text&gt;}</code> Draw lines over the <i>&lt;text&gt;</i>. For example, this sentence is generated by <code>\Overline{For Example, ... }</code>.</li></ul>

For each command shown above, its argument *<text>* is the sequence of one of the following elements.

- Ordinary characters excluding those for command invocation and math staffs. For example;

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<sup>1</sup>This style was named by someone who distributed author's macro set posted to a news group, and thus the author himself does not know the reason why it is called so.

`\Underline{Since this sentence does not have macro invocation nor math  
staffs, you may path it directly to the commands.}`

will produce the following result.

Since this sentence does not have macro invocation nor math  
staffs, you may path it directly to the commands.

- Character string surrounded by ‘{’ and ‘}’. Any string that can be passed to L<sup>A</sup>T<sub>E</sub>X’s `\mbox` is also able to be passed to `\Underline` and its relatives. Since the string is processed as if it is packed into `\mbox`, line break will never occur in the string. For example;

`\Underline{The {\textbf{boldface}} part and the math part {$y=x^2$} are  
surrounded by brace pairs because they have special characters.}`

will produce the following result.

The **boldface** part and the math part  $y = x^2$  are surrounded by brace pairs  
because they have special characters.

- Commands `\UM0space`, `\UM0newline` and `\\` for spacing and line breaking. The usage of them will be shown later.

## 2.2 Control Lines

The default distance of the lines drawn by `\Underline` and its relatives from baselines are defined as follows, where  $b$  is the value of `\baselineskip` and  $a$  is the height of ‘-’<sup>2</sup>. Note that positive value means the lines are drawn above baselines, while below baselines if negative.

`\Underline` :  $-0.3b$  (depth of `\strutbox`)  
`\Midline` :  $+0.5a$   
`\Overline` :  $+0.7b$  (height of `\strutbox`)

If you wish to draw lines at the position other than the defaults, you may set the following *length commands* (or *dimen register* in TeX’s jargon) to some appropriate positive values representing the distance from baselines using `\setlength`.

<code>\UnderlineDepth</code>	• <code>\UnderlineDepth</code> . . . . .	The depth of <code>\Underline</code>
<code>\MidlineHeight</code>	• <code>\MidlineHeight</code> . . . . .	The height of <code>\Midline</code>
<code>\OverlineHeight</code>	• <code>\OverlineHeight</code> . . . . .	The height of <code>\Overline</code>

Setting these commands to any negative values makes corresponding lines drawn at the defaults.

`\MidlineChar` Another position control for `\Midline` is to change the *reference* character by `\Midline Char{<c>}`. That is, `\Midline` will be drawn  $0.5a$  above baselines where  $a$  is the height of  $c$ .

`\UM0line` Yet another position control can be done by a generalized line drawing command;  
`\UM0line{<height>}{<text>}`

This command draw lines  $\langle height \rangle$  above (or below if negative) baselines for the  $\langle text \rangle$ .

`\UM0lineThickness` The thickness of lines is the value set to the length-command `\UM0lineThickness`,

<sup>2</sup>The height of ‘-’ is not the distance between a baseline and the visible short line of the image of ‘-’. Rather, its invisible part is approximately twice as tall as the distance.

whose default value is 0.4 pt.

## 2.3 Explicit Spacing and Line Breaking

If the argument  $\langle text \rangle$  has a command invocation, it should be surrounded by ‘{’ and ‘}’ and its result will be packed in a `\mbox`. Therefore a space inserted by `{\hspace{\langle len \rangle}}` will not disappear when a line is broken just before the space. Commands for line breaking, such as `\(no)linebreak`, `\newline` and `\` will not have any effect in `\mbox` (or cause error).

To solve these problems, the following commands for spacing and line breaking are available.

<code>\UMOsace</code>	<ul style="list-style-type: none"><li>• <code>\UMOsace{\langle len \rangle}[\langle num \rangle]</code> A space of <math>\langle len \rangle</math> wide is inserted and will disappear if a line is broken just before the space. The optional argument <math>\langle num \rangle</math> discourage or encourage the line break at the space. If <math>\langle num \rangle</math> is non-negative, it discourages line breaking in the same way as the argument of <code>\nolinebreak</code>. If negative, it encourages breaking and its absolute value corresponds to the argument of <code>\linebreak</code>. Note that if <math>[\langle num \rangle]</math> follows ‘*’, <math>\langle num \rangle</math> is interpreted as the value to pass T<sub>E</sub>X’s <code>\penalty</code>.</li></ul>
<code>\UMOsace*</code>	<ul style="list-style-type: none"><li>• <code>\UMOsace*{\langle len \rangle}</code> A space of <math>\langle len \rangle</math> wide is inserted and will not disappear even if a line is broken at the space.</li></ul>
<code>\UMOneline</code> <code>\</code>	<ul style="list-style-type: none"><li>• <code>\UMOneline</code>, <code>\</code> Terminate a line simply leaving space.</li></ul>
<code>\UMOneline*</code> <code>\</code> *	<ul style="list-style-type: none"><li>• <code>\UMOneline*</code>, <code>\</code>* Terminate a line leaving underlined (or mid/overlined) space.</li></ul>

## 2.4 Remarks

1. No hyphenation will be performed in  $\langle text \rangle$ .
2. As other L<sup>A</sup>T<sub>E</sub>X’s commands, `\verb` in  $\langle text \rangle$  may cause an error even if it surrounded by ‘{’ and ‘}’.
3. Also as other L<sup>A</sup>T<sub>E</sub>X’s commands, paragraph separator cannot be included in  $\langle text \rangle$  or you will have an error message.
4. Processing time for underlined (or mid/overlined) text is approximately 10 times as long as that for ordinary text. The size of dvi file also enlarged by factor three or so.