

# 集中管理图形脚本的宏

Macros for Centralized Management of Graphics Scripts

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## 1 文档 Documentation

本宏包设计用于集中管理 L<sup>A</sup>T<sub>E</sub>X 图形脚本，以便维护。

This package is designed to centrally manage L<sup>A</sup>T<sub>E</sub>X graphics scripts for easier maintenance.

### 1.1 用户接口 User Interface

---

```
\newdraw \newdraw {<图形索引>} {<图形脚本>}
\usedraw \newdraw {<graphics-index>} {<graphics-script>}
\usedraw {<图形索引>}
\usedraw {<graphics-index>}
```

---

创建和使用图形。

Create and use graphics.

如下示例代码：

For instance:

```
\ExplSyntaxOn
\newdraw{sampleA}{
  \draw_begin:
  % 曲线 Curves
  \color_stroke:n { blue!30!black }
  \draw_path_rectangle:nn { 0cm, 0cm } { 4cm, 3cm }
  \draw_path_circle:nn { 1cm, 1.1cm } { 0.8cm }
  \draw_path_circle:nn { 2.5cm, 1.5cm } { 1.2cm }
  \draw_path_use_clear:n { stroke }
}
```

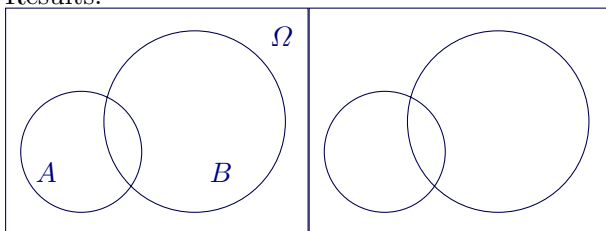
```

\draw_end:
}
\newdraw{sampleB}{
\draw_begin:
% 曲线 Curves
\color_stroke:n { blue!30!black }
\draw_path_rectangle:nn { 0cm, 0cm } { 4cm, 3cm }
\draw_path_circle:nn { 1cm, 1.1cm } { 0.8cm }
\draw_path_circle:nn { 2.5cm, 1.5cm } { 1.2cm }
\draw_path_use_clear:n { stroke }
% 标签 Labels
\color_fill:n { blue!50!black }
\hbox_set:Nn \l_tmpa_box { $\varOmega$ }
\draw_box_use:Nn \l_tmpa_box { 3.5cm, 2.5cm }
\hbox_set:Nn \l_tmpa_box { $A$ }
\draw_box_use:Nn \l_tmpa_box { 0.4cm, 0.7cm }
\hbox_set:Nn \l_tmpa_box { $B$ }
\draw_box_use:Nn \l_tmpa_box { 2.7cm, 0.7cm }
\draw_end:
}
\usedraw{sampleB}
\usedraw{sampleA}
\ExplSyntaxOff

```

将输出:

Results:




---

`\showdraw` `\showdraw [*]`

`\cleardraw` `\cleardraw`

---

显示或清空已添加的图形。星号版本会显示索引及图形本身。

Display or clear added graphics. The starred version shows both indices and graphics.

不带星号的版本 (`\showdraw`) 效果如下:

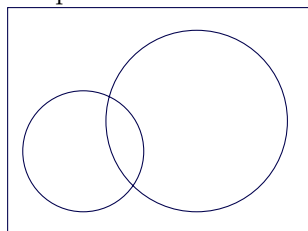
The without star version results:

已保存的图形有：sampleA；sampleB；  
带星号的版本（\showdraw\*）效果如下：

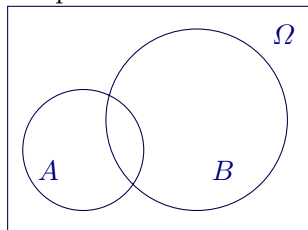
The without star version results:

已保存的图形如下：

sampleA:



sampleB:



---

`\setfigurewidth` `\setfigurewidth` `{(宽度列表)}`

New: 2025-12-25

`\setfigurewidth` `{(wd-list)}`

设置并排排版两张或三张图形时的各图形的宽度比例。`{(宽度列表)}` 是一个长度为 2 或 3 的逗号分隔的列表，每个元素代表一张图形其相对于当前文本宽度的比例。注意，图形之间包含一个 0.05 倍的文本宽度，即逗号列表之和不应当大于  $1 - 0.05(n - 1)$ 。Set the width ratios of each figure when typesetting two or three figures side by side. `{(wd-list)}` is a comma-separated list of length 2 or 3, where each element represents the ratio of the corresponding figure relative to the current text width. Note that there is a gap of 0.05 times the text width between adjacent figures, meaning the sum of the values in the comma-separated list should not exceed  $1 - 0.05(n - 1)$ .

**TeX 黑客笔记：** 这个命令用于修改 `\addfiguredbl`、`\addfigurethr` 命令插入的图形的默认宽度。This command is used to modify the default widths of the figures inserted by the `\addfiguredbl` and `\addfigurethr` commands.

---

<code>\addfigure</code>	<code>\addfigure {&lt;图形索引&gt;} [&lt;图形标签&gt;] {&lt;图形标题&gt;}</code>
<code>\addfiguredbl</code>	<code>\addfigure {&lt;graph-index&gt;} [&lt;graph-label&gt;] {&lt;graph-title&gt;}</code>
<code>\addfigurethr</code>	使用浮动体添加插图。插图内容为 {<图形索引>} 关联的图形，插图标题由 {<图形标题>} 指定。本命令会自动为插图添加标签 (“fig:” + {<图形标签>}), {<图形标签>} 默认与 {<图形索引>} 一致。对于多个图形，每个图形的参数完全一致。

---

Updated: 2025-12-25

Using a floating environment to add illustrations. The content of the illustration corresponds to the graphic associated with {<graph-index>}, and the caption is specified by {<graph-title>}. This command automatically adds a label to the illustration (“fig:” + {<graph-label>}), where {<graph-label>} defaults to {<graph-index>}. For multiple graphics, the parameters for each graphic are completely consistent.

**TeX 黑客笔记:** 单个图形始终独立整个文本宽度，多个图形则按 `\setfigurewidth` 指定的比例排版。对于两个图形的场景，还可以使用可选参数（参数一）来临时指定图形的宽度。A single figure always occupies the full text width independently, while multiple figures are typeset according to the ratios specified by `\setfigurewidth`. For the scenario with two figures, an optional parameter (Parameter 1) can also be used to temporarily specify the widths of the figures.

如下示例代码:

For instance:

```

\setfigurewidth { 0.3, 0.3 }
\setfigurewidth { 0.27, 0.27, 0.27 }
\addfigure {sampleA} [addfigure] {\cs{addfigure} 的效果}
\addfiguredbl {sampleA} [addfiguredbl.1] {两张图的效果 1}
{sampleB} [addfiguredbl.2] {两张图的效果 2}
\addfigurethr {sampleA} [addfigurethr.1] {三张图的效果 1}
{sampleB} [addfigurethr.2] {三张图的效果 2}
{sampleA} [addfigurethr.3] {三张图的效果 3}

```

将输出: 图 1 ~ 6。

will output pic 1 ~ 6.

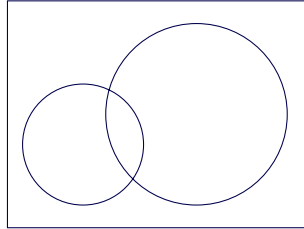


图 1: `\addfigure` 的效果

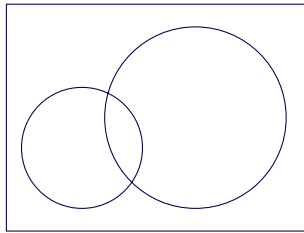


图 2: 两张图的效果 1

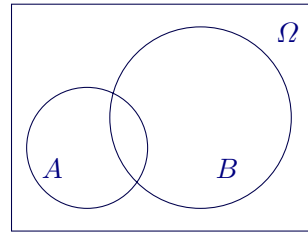


图 3: 两张图的效果 2

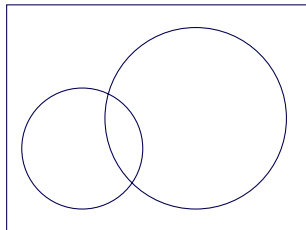


图 4: 三张图的效果 1

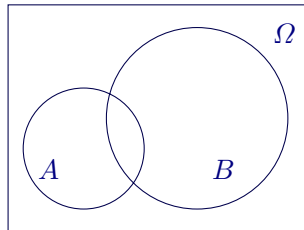


图 5: 三张图的效果 2

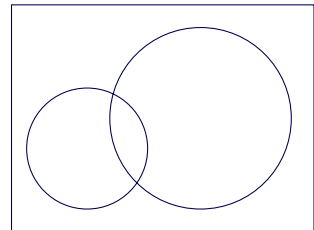


图 6: 三张图的效果 3

## 2 代码实现 Implementation

### 2.1 初始化 Init

```
1 <*package>
2 <@@=drawmgr>
3 \ExplSyntaxOn
4 \NeedsTeXFormat{LaTeX2e}
5 \ProvidesExplPackage{drawmgr}{2025-12-25}{0.2}
6   {集中管理图形脚本的宏}
```

### 2.2 变量 Variable

```
\g__drawmgr_scripts_prop  变量定义
\g__drawmgr_wd_dbl_clist  7 \prop_new:N \g__drawmgr_scripts_prop
\g__drawmgr_wd_thr_clist  8 \clist_new:N \g__drawmgr_wd_dbl_clist
  \l__drawmgr_wd_clist    9 \clist_new:N \g__drawmgr_wd_thr_clist
                        10 \clist_new:N \l__drawmgr_wd_clist
                        11 \clist_set:Nn \g__drawmgr_wd_dbl_clist { 0.49, 0.49 }
                        12 \clist_set:Nn \g__drawmgr_wd_thr_clist { 0.33, 0.33, 0.33 }
```

*(End of definition for \g\_\_drawmgr\_scripts\_prop and others.)*

### 2.3 命令 Command

```
\newdraw  定义保存、使用、显示、清空图形脚本：
\usedraw 13 \NewDocumentCommand \newdraw { m +m }
\showdraw 14 {
\cleardraw 15   \prop_gput:Nnn \g__drawmgr_scripts_prop { #1 } { #2 }
                16 }
                17 \NewDocumentCommand \usedraw { m }
                18 {
                19   \prop_if_in:NnT \g__drawmgr_scripts_prop { #1 }
                20     { \prop_item:Nn \g__drawmgr_scripts_prop { #1 } }
                21 }
                22 \NewDocumentCommand \showdraw { s }
                23 {
                24   \IfBooleanTF { #1 }
                25     {
                26       已保存的图形如下： \par
                27       \prop_map_inline:Nn \g__drawmgr_scripts_prop
                28         { ##1: \par ##2 \par }
                29     }
```

```

30     {
31     已保存的图形有:
32     \prop_map_inline:Nn \g__drawmgr_scripts_prop
33     { ##1 ; }
34     }
35   }
36 \NewDocumentCommand \cleardraw { }
37 {
38   \prop_gc clear:N \g__drawmgr_scripts_prop
39 }

```

(End of definition for `\newdraw` and others. These functions are documented on page 1.)

**`\setfigurewidth`** 设置图形宽度:

```

40 \NewDocumentCommand \setfigurewidth { m }
41 {
42   \clist_set:Nn \l__drawmgr_wd_clist { #1 }
43   \int_compare:nNnTF { \clist_count:N \l__drawmgr_wd_clist } = { 2 }
44     { \clist_gset:Nn \g__drawmgr_wd_dbl_clist { #1 } }
45     { \clist_gset:Nn \g__drawmgr_wd_thr_clist { #1 } }
46 }

```

(End of definition for `\setfigurewidth`. This function is documented on page 3.)

`\__drawmgr_insert_draw:nnnn` 向文档中插入图片 (#1 图形宽度; #2 图形索引; #3 图形标签; #4 图形标题名):

```

47 \cs_new:Npn \__drawmgr_insert_draw:nnnn #1#2#3#4
48 {
49   \begin{minipage}[t]{ #1\textwidth }
50     \centering
51     \usedraw{#2}
52     \caption{#4}
53     \label{fig:#3}
54   \end{minipage}
55 }
56 \cs_generate_variant:Nn \__drawmgr_insert_draw:nnnn { Vnnn }

```

(End of definition for `\__drawmgr_insert_draw:nnnn`.)

**`\addfigure`** 用于 (并排) 插入单张、两张或三张图片:

```

\addfiguredbl 57 \NewDocumentCommand \addfigure { m o m }
\addfigurethr 58 {
59   \begin{figure}[!htbp]
60     \centering
61     \IfNoValueTF { #2 }

```

```

62     { \_drawmgr_insert_draw:nnnn { 1 } { #1 } { #1 } { #3 } }
63     { \_drawmgr_insert_draw:nnnn { 1 } { #1 } { #2 } { #3 } }
64 \end{figure}
65 }
66 \NewDocumentCommand \addfiguredbl { o m o m m o m }
67 {
68   \IfNoValueTF {#1}
69     { \clist_set_eq:NN \l__drawmgr_wd_clist \g__drawmgr_wd_dbl_clist }
70     { \clist_set:Nn \l__drawmgr_wd_clist {#1} }
71   \clist_log:N \l__drawmgr_wd_clist
72   \begin{figure}[!htbp]
73     \centering
74     \str_set:Ne \l_tmpa_str { \clist_item:Nn \l__drawmgr_wd_clist { 1 } }
75     \IfNoValueTF { #3 }
76       { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #2 } { #2 } { #4 } }
77       { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #2 } { #3 } { #4 } }
78     \rule{ 0.05\textwidth } { Opt }
79     \str_set:Ne \l_tmpa_str { \clist_item:Nn \l__drawmgr_wd_clist { 2 } }
80     \IfNoValueTF { #6 }
81       { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #5 } { #5 } { #7 } }
82       { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #5 } { #6 } { #7 } }
83   \end{figure}
84 }
85 \NewDocumentCommand \addfigurethr { m o m m o m m o m }
86 {
87   \clist_set_eq:NN \l__drawmgr_wd_clist \g__drawmgr_wd_thr_clist
88   \begin{figure}[!htbp]
89     \centering
90     \str_set:Ne \l_tmpa_str { \clist_item:Nn \l__drawmgr_wd_clist { 1 } }
91     \IfNoValueTF { #2 }
92       { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #1 } { #1 } { #3 } }
93       { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #1 } { #2 } { #3 } }
94     \rule{ 0.05\textwidth } { Opt }
95     \str_set:Ne \l_tmpa_str { \clist_item:Nn \l__drawmgr_wd_clist { 2 } }
96     \IfNoValueTF { #5 }
97       { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #4 } { #4 } { #6 } }
98       { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #4 } { #5 } { #6 } }
99     \rule{ 0.05\textwidth } { Opt }
100    \str_set:Ne \l_tmpa_str { \clist_item:Nn \l__drawmgr_wd_clist { 3 } }
101    \IfNoValueTF { #8 }
102      { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #7 } { #7 } { #9 } }
103      { \_drawmgr_insert_draw:Vnnn \l_tmpa_str { #7 } { #8 } { #9 } }

```



```

104 \end{figure}
105 }

```

(End of definition for `\addfigure`, `\addfiguredbl`, and `\addfigurethr`. These functions are documented on page 4.)

```

106 \ExplSyntaxOff
107 </package>

```

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