

wrapstuff 宏包

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第 1 节 基本用法

wrapstuff 宏包提供了图文绕排的另一种实现。wrapstuff 尝试整合和扩展 `picinpar`、`floatflt`、`wrapfig`、`cutwin` 和 `wrapfig2` 等同类宏包的功能。本宏包兼容 `caption`、`float` 和 `floatrow` 等宏包，并试图兼容显示(`display`)数学公式和各种 `LATEX` 列表环境，可以让他们正确绕排。

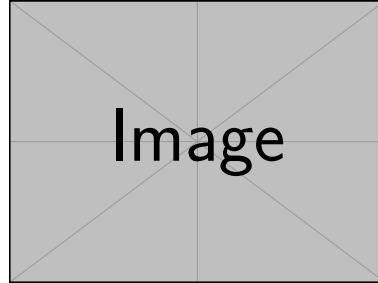
wrapstuff 的实现依赖 `LATEX` 2021-06-01 开始提供的段落钩子，并依赖 `LATEX3` 2022-04-10 之后的版本。

```
wrapstuff \begin{wrapstuff}[<选项>]
  <绕排内容>
\end{wrapstuff}
<正文>
```

wrapstuff 只提供了一个用户环境 `wrapstuff`，会在环境之后的段落开始绕排。例如

```
\begin{wrapstuff}[c,top=1]
  \includegraphics[width=\dimexpr\textwidth/3]{example-image.pdf}
\end{wrapstuff}
\zhlipsum[1][name=zhufu]
```

旧历的年底毕竟最像年底，村镇上不必说，就在天空中也显出将到新年的气象来。灰白色的沉重的晚云中间时时发出闪光，接着一声钝响，是送灶的爆竹；近处燃放的可就更强烈了，震耳的大音还没有息，空气里已经散满了幽微的火药香。我是正在这一夜回到我的故乡鲁镇的。虽说故乡，然而已没有家，所以只得暂住在鲁四老爷的宅子里。他是我的本家，比我长一辈，应该称之为“四叔”，是一个讲理学的老监生。他比先前并没有什么大改变，单是老了些，但也还未留胡子，一见面是寒暄，寒暄之后说我“胖了”，说我“胖了”之后即大骂其新党。但我知道，这并非借题在骂我：因为他所骂的还是康有为。但是，谈话是总不投机的了，于是不多久，我便一个人剩在书房里。



```
\wrapstuffset \wrapstuffset{<选项列表>}
```

wrapstuff 的选项可以在调用宏包时设置，也可以通过 `\wrapstuffset` 设置。选项将在下面描述。

top `top` = <非负整数>

`<n>` 设置在正文段落的第几行之后开始绕排，可以设置为非负整数。非负整数选项 `<n>` 是设置选项 `top` 为 `<n>` 的缩写形式。初始值是 0。

*rev. 3be38c0.

`width width = <宽度>`

设置绕排内容的宽度,初始值为`0pt`,代表自然宽度。此时,`wrapstuff`环境内的内容只能有一行,不能使用`\\\`换行或者`\par`分段。如果需要在环境内换行或者分段,就需要将`width`设置成合适的宽度。

`height height = <高度>`

设置绕排内容的高度,初始值为`0pt`,代表自然高度。

`lines lines = <正整数>`

设置绕排内容占据正文的行数,可以设置正整数。初始值为空,根据绕排内容的高度自动计算行数。

`linewidth linewidth = <宽度>`

设置正文段落的行宽,初始设置为`\linewidth`,一般不需要调整。

`l l/r/c/i/o
r ratio = <实数>`

`c` 这些选项用于设置绕排内容位于正文中的位置。选项`l/r/c/i/o`分别设置绕排内容位于正文的左侧、右侧、中间、内侧、外侧。选项`ratio`设置绕排内容左侧的正文占据行宽的比例,可以设置为 $[0,1]$ 区间中的合理实数。选项`i/o`可以与`ratio`一起使用,这时设置的是内/外侧正文的行宽比例。初始设置为`r`,即位于正文的右侧。

`column column = {true|false|par}`

控制是否将绕排内容两侧的正文分栏显示,只有设置`c`选项或者设置`ratio`不等于0或者1时才有效。`false`表示不分栏,正文文字方向始终保持从左到右的顺序;`par`表示以段落为单位进行分栏,如下示例。

天地玄黄宇宙洪荒日月盈昃辰宿列张寒来暑往 秋收冬藏闰馀成岁 律召调阳	A	云腾致雨露结为霜 金生丽水玉出昆冈
天地玄黄宇宙洪荒日月盈昃辰宿列张寒来暑往 秋收冬藏闰馀成岁 云腾致雨露结为霜	B	律召调阳 金生丽水玉出昆冈
天地玄黄宇宙洪荒 寒来暑往秋收冬藏 云腾致雨露结为霜	C	日月盈昃辰宿列张 闰馀成岁律召调阳 金生丽水玉出昆冈

```
\begin{wrapstuff}[c,1]
  \IMAGE{2em}{a}
\end{wrapstuff}
\QIANZIWEN
\begin{wrapstuff}[c,1,column=par]
  \IMAGE{2em}{b}
\end{wrapstuff}
\QIANZIWEN
\begin{wrapstuff}[c,0,column=false]
  \IMAGE{2em}{c}
\end{wrapstuff}
\QIANZIWEN
```

`leftsep leftsep = <长度>
rightsep rightsep = <长度>
hsep hsep = <长度>`

设置绕排内容与正文的左/右间距,选项`hsep`同时设置`leftsep`和`rightsep`。初始值是`1em`。

`abovesep abovesep = <长度>
belowsep belowsep = <长度>
vsep vsep = <长度>`

设置绕排内容与正文的上/下间距,选项`vsep`同时设置`abovesep`和`belowsep`。初始值是`0pt`。

`hoffset hoffset = <长度>`

设置绕排内容伸出正文版心的长度。当设置了选项`c`或者选项`ratio`的值位于 $(0,1)$ 时,本选项无效。一个特殊值`\width`用于表示绕排内容和相应间距的总宽度,可以将`hoffset`设置为`\width`,完全伸出版心。初始值为`0pt`。

```
voffset voffset = <长度>
```

用于调整绕排内容的竖直位置, 初始值为 0pt。

```
type type = <浮动体类型>
```

设置绕排内容的浮动体类型, 初始值为空。如果需要在 wrapstuff 环境中使用 \caption 命令, 则需要设置 type 为 figure 或 table 等类型, 并需要同时设置 width 指定宽度。

天地玄黄宇宙洪荒日月盈昃
辰宿列张寒来暑往秋收冬藏
闰馀岁岁律召调阳
云腾致雨露结为霜金生丽水
玉出昆冈



图 1 示例

```
\begin{wrapstuff}[type=figure,width=5em]
\centering
\IMAGE{4em}{plain}
\caption{示例}
\end{wrapstuff}
\QIANZIWEN
```

```
\wrapstuffclear
```

如果当前正文段落的行数不够, wrapstuff 的作用会延续到下一段。这可能会导致某些意外结果, 可以在下一段之前启用命令 \wrapstuffclear 消除影响。

第 2 节 代码实现

```
1 <*package>
2 <@@=wstf>
```

wrapstuff 的实现依赖 LATEX 2021-06-01 开始提供的段落钩子。

```
3 \@ifl@t@r \fmtversion { 2021-06-01 }
4 {
5 {
6   \msg_new:nnn { wrapstuff } { latex-too-old }
7   {
8     You~need~to~update~your~LaTeX~to~the~latest~release. \\
9     Loading~wrapstuff~will~abort!
10   }
11   \msg_critical:nn { wrapstuff } { latex-too-old }
12 }
```

由于使用了 \keys_precompile:nnN, 需要比较新的 LATEX3。

```
13 \@ifl@t@r \ExplLoaderFileDate { 2022-04-10 }
14 {
15 {
16   \msg_new:nnn { wrapstuff } { latex3-too-old }
17   {
18     You~need~to~update~your~installation~of~the~bundles~
19     "l3kernel"~and~"l3packages". \\
20     Loading~wrapstuff~will~abort!
21   }
22   \msg_critical:nn { wrapstuff } { latex3-too-old }
23 }
```

```
24 \prop_gput:Nnn \g_msg_module_name_prop { wstf } { wrapstuff }
```

一些需要全局设置的变量。

```
25 \tl_const:Nn \c_wstf_global_tl_tl
26 { \g_wstf_main_setting_tl }
27 \tl_const:Nn \c_wstf_global_dim_tl
28 {
29   \g_wstf_hang_ht_dim
30   \g_wstf_ttotal_ht_dim
31   \g_wstf_stuff_ht_dim
32   \g_wstf_stuff_wd_dim
33   \g_wstf_first_dp_dim
34   \g_wstf_first_sep_dim
35   \g_wstf_prevdepth_dim
36   \g_wstf_column_ht_dim
```

```

37      \g_wstf_window_ht_dim
38      \g_wstf_remaining_dim
39      \g_wstf_column_room_dim
40      \g_wstf_parshape_indent_dim
41      \g_wstf_parshape_length_dim
42  }
43 \tl_const:Nn \c_wstf_global_int_tl
44  {
45      \g_wstf_top_int
46      \g_wstf_column_int
47      \g_wstf_window_int
48  }
49 \tl_const:Nn \c_wstf_global_bool_tl
50  {
51      \g_wstf_next_bool
52      \g_wstf_leqno_bool
53      \g_wstf_column_bool
54      \g_wstf_entire_bool
55      \g_wstf_display_bool
56      \g_wstf_move_hang_bool
57      \g_wstf_next_hang_bool
58      \g_wstf_first_set_bool
59      \g_wstf_first_save_bool
60      \g_wstf_right_move_bool
61  }

```

全局变量的初始化,注意保存好清除和恢复的设置。

```

\__wstf_tl_init:N
\__wstf_dim_init:N
\__wstf_int_init:N
\__wstf_bool_init:N
62 \cs_new_protected:Npn \__wstf_tl_init:N #1
63  {
64      \tl_new:N #1
65      \tl_gput_right:Nn \g_wstf_var_clear_tl
66      { \tl_gclear:N #1 }
67      \tl_gput_right:Nn \g_wstf_var_push_tl
68      { \tl_gset:Nn \exp_not:N #1 { \exp_not:o {#1} } }
69  }
70 \cs_new_protected:Npn \__wstf_dim_init:N #1
71  {
72      \dim_new:N #1
73      \tl_gput_right:Nn \g_wstf_var_clear_tl
74      { \dim_gzero:N #1 }
75      \tl_gput_right:Nn \g_wstf_var_push_tl
76      { \dim_gset:Nn #1 { \dim_use:N #1 } }
77  }
78 \cs_new_protected:Npn \__wstf_int_init:N #1
79  {
80      \int_new:N #1
81      \tl_gput_right:Nn \g_wstf_var_clear_tl
82      { \int_gzero:N #1 }
83      \tl_gput_right:Nn \g_wstf_var_push_tl
84      { \int_gset:Nn #1 { \int_use:N #1 } }
85  }
86 \cs_new_protected:Npn \__wstf_bool_init:N #1
87  {
88      \bool_new:N #1
89      \tl_gput_right:Nn \g_wstf_var_clear_tl
90      { \bool_gset_false:N #1 }
91      \tl_gput_right:Nn \g_wstf_var_push_tl
92      {
93          \bool_if:NTF #1
94          { \bool_gset_true:N #1 }
95          { \bool_gset_false:N #1 }
96      }
97  }
98 \tl_new:N \g_wstf_var_clear_tl
99 \tl_new:N \g_wstf_var_push_tl
100 \tl_map_function:NN \c_wstf_global_tl_tl \__wstf_tl_init:N
101 \tl_map_function:NN \c_wstf_global_dim_tl \__wstf_dim_init:N

```

```

102 \tl_map_function:NN \c_wstf_global_int_tl  \__wstf_int_init:N
103 \tl_map_function:NN \c_wstf_global_bool_tl \__wstf_bool_init:N

```

\g_wstf_top_int 的初始值是 -1。

```

104 \int_gdecr:N \g_wstf_top_int
105 \tl_gput_right:Nn \g_wstf_var_clear_tl
106 { \int_gdecr:N \g_wstf_top_int }

```

__wstf_clear: \cs_new_protected_nopar:Npn __wstf_clear:

```

108 {
109     \__wstf_clear_para_hook:
110     \__wstf_clear_kludge:
111     \__wstf_clear_variable:
112 }

```

\cs_new_protected_nopar:Npn __wstf_clear_variable:

```

114 {
115     \tl_use:N \g_wstf_var_clear_tl
116     \box_gclear:N \g_wstf_stuff_box
117 }

```

\cs_new_protected_nopar:Npn __wstf_clear_kludge:

```

119 {
120     \bool_if:NTF \g_wstf_next_bool
121     {
122         \skip_vertical:n
123         { \tex_baselineskip:D * \g_wstf_window_int }
124     }
125     {
126         \box_if_empty:NF \g_wstf_stuff_box
127         { \__wstf_clear_stuff_box: }
128     }
129 }

```

\cs_new_protected_nopar:Npn __wstf_clear_stuff_box:

```

131 {
132     \__wstf_ignore_depth:
133     \skip_set:Nn \l_wstf_last_skip
134     { \box_dp:N \strutbox }
135     \skip_vertical:N \l_wstf_last_skip
136     \box_use_drop:N \g_wstf_stuff_box
137     \skip_vertical:N \l_wstf_last_skip
138     \__wstf_ignore_depth:
139 }

```

__wstf_status_push: 全局变量的保存与恢复。

__wstf_status_pop:

__wstf_status_restore: __wstf_status_clear:

```

140 \cs_new_protected_nopar:Npn \__wstf_status_push:
141 {
142     \tl_clear:N \l_wstf_status_tl
143     \int_gincr:N \g_wstf_status_int
144     \exp_args:Ne \__wstf_status_push_aux:n
145     { \int_use:N \g_wstf_status_int }
146     \seq_gpush:No \g_wstf_status_seq { \l_wstf_status_tl }
147 }

```

\cs_new_protected:Npn __wstf_status_push_aux:n #1

```

149 {
150     \__wstf_push_cs:nN {#1} \__wstf_para_before:
151     \__wstf_push_cs:nN {#1} \__wstf_para_begin:
152     \__wstf_push_cs:nN {#1} \__wstf_para_end:
153     \__wstf_push_cs:nN {#1} \__wstf_display_hook:
154     \__wstf_push_box:N \g_wstf_stuff_box
155     \__wstf_push_var:
156 }

```

\cs_new_protected:Npn __wstf_push_cs:nN #1#2

```

158 {
159     \exp_args:NNc \__wstf_push_cs_aux:NN #2
160     { \__wstf_ #1 _ \token_to_str:N #2 }
161 }

```

\cs_new_protected:Npn __wstf_push_cs_aux:NN #1#2

```

163  {
164    \cs_gset_eq:NN #2#1
165    \tl_put_right:Nn \l__wstf_status_tl
166    {
167      \cs_gset_eq:NN #1#2
168      \cs_undefine:N #2
169    }
170  }
171 \cs_new_protected:Npn \__wstf_push_box:N #1
172  {
173    \hbox_gset:Nn \g__wstf_stauts_box
174    {
175      \hbox_unpack_drop:N \g__wstf_stauts_box
176      \box_use:N #1
177    }
178    \tl_put_right:Nn \l__wstf_status_tl
179    { \__wstf_pop_box:N #1 }
180  }
181 \cs_new_protected:Npn \__wstf_pop_box:N #1
182  {
183    \hbox_gset:Nw \g__wstf_stauts_box
184    \hbox_unpack_drop:N \g__wstf_stauts_box
185    \box_gset_to_last:N #1
186    \__wstf_if_last_hlist:TF
187    { \hbox_gset_end: }
188    {
189      \hbox_gset_end:
190      \box_gclear:N \g__wstf_stauts_box
191    }
192  }
193 \cs_new_protected_nopar:Npn \__wstf_push_var:
194  {
195    \tl_put_right:Nx \l__wstf_status_tl
196    { \g__wstf_var_push_tl }
197  }
198 \cs_new_protected_nopar:Npn \__wstf_status_pop:
199  {
200    \seq_gpop:NNT \g__wstf_status_seq \l__wstf_status_tl
201    {
202      \int_gdecr:N \g__wstf_status_int
203      \tl_use:N \l__wstf_status_tl
204    }
205  }
206 \cs_new_protected_nopar:Npn \__wstf_status_restore:
207  {
208    \__wstf_status_push:
209    \__wstf_clear_para_hook:
210    \__wstf_clear_display_hook:
211    \__wstf_clear_variable:
212    \group_insert_after:N \__wstf_status_pop:
213  }
214 \cs_new_protected_nopar:Npn \__wstf_status_clear:
215  {
216    \bool_if:NT \g__wstf_next_bool
217    {
218      \__wstf_clear_para_hook:
219      \__wstf_clear_variable:
220    }
221  }
222 \tl_new:N \l__wstf_status_tl
223 \box_new:N \g__wstf_stauts_box
224 \int_new:N \g__wstf_status_int
225 \seq_new:N \g__wstf_status_seq

```

\wrapstuff@parboxrestore 在 L^AT_EX 的 \parbox 和 minipage 等环境中恢复正常段落状态。\\wrapstuff@parboxrestore 的初始值是在分组后清除活动的段落钩子和相关全局变量，只有在 wrapstuff@par 环境内部

才等于 `__wstf_status_restore`, 保存和恢复相关状态。

```

226 \cs_new_protected_nopar:Npn \wrapstuff@parboxrestore
227 { \group_insert_after:N \__wstf_status_clear: }
228 \cs_new_protected_nopar:Npn \__wstf_parbox_restore:
229 {
230     \cs_set_eq:NN
231         \wrapstuff@parboxrestore
232         \__wstf_status_restore:
233 }
234 \g@addto@macro \arrayparboxrestore
235 { \wrapstuff@parboxrestore }
```

`__wstf_if_last_none:TF` 一些 ϵ -TeX 结点判定函数。

```

\__wstf_if_last_hlist:TF 236 \group_begin:
\__wstf_if_last_whatsit:TF 237 \cs_set:Npn \__wstf_tmp:nn #1
\__wstf_if_last_glue:TF 238 {
\__wstf_if_last_kern:TF 239     \exp_args:Ncc \__wstf_tmp_aux:NNn
\__wstf_if_last_penalty:TF 240     { \__wstf_if_last_ #1 : }
241     { c_\__wstf_ #1 _node }
242 }
243 \cs_set:Npn \__wstf_tmp_aux:NNn #1#2#3
244 {
245     \int_const:Nn #2 {#3}
246     \prg_new_conditional:Npnn #1 { T , F , TF }
247     {
248         \if_int_compare:w \tex_lastnodetype:D = #2
249             \prg_return_true: \else: \prg_return_false: \fi:
250     }
251 }
252 \__wstf_tmp:nn { none } { -1 }
253 \__wstf_tmp:nn { hlist } { 1 }
254 \__wstf_tmp:nn { whatsit } { 9 }
255 \__wstf_tmp:nn { glue } { 11 }
256 \__wstf_tmp:nn { kern } { 12 }
257 \__wstf_tmp:nn { penalty } { 13 }
258 \group_end:
```

`__wstf_gadd_hook:nn` `__wstf_package_hook:nn`

```

259 \cs_new_protected:Npn \__wstf_gadd_hook:nn #1
260 { \hook_gput_code:nnn {#1} { wrapstuff } }
261 \cs_new_protected:Npn \__wstf_package_hook:nn #1
262 { \hook_gput_code:nnn { package/#1/after } { wrapstuff } }
```

`__wstf_para_raw_end:` 将 `\para_raw_end:` 放在分组中是为了保持 `\parshape`。

```

263 \cs_new_protected_nopar:Npn \__wstf_para_raw_end:
264 { \group_begin: \para_raw_end: \group_end: }

\__wstf_gadd_ht:Nn 265 \cs_new_protected:Npn \__wstf_gadd_ht:Nn #1#2
266 { \box_gset_ht:Nn #1 { \box_ht:N #1 + \dim_eval:n {#2} } }
```

wrapstuff 主要功能环境接口。

```

267 \NewDocumentEnvironment { wrapstuff } { O{ } }
268 {
269     \__wstf_clear:
270     \int_set:Nn \l__wstf_top_int { -1 }
271     \tl_if_blank:nTF {#1}
272     { \tl_clear:N \l__wstf_main_kv_tl }
273     {
274         \keys_set_filter:nnnN { wrapstuff }
275         { main , ratio }
276         {#1} \l__wstf_main_kv_tl
277     }
278     \tl_set:Nx \l__wstf_type_tl { \l__wstf_type_tl }
279     \dim_set:Nn \l__wstf_width_dim { \l__wstf_width_tl }
280     \dim_set:Nn \l__wstf_height_dim { \l__wstf_height_tl }
281     \hbox_gset:Nw \g__wstf_stuff_box
```

```

282     \dim_compare:nNnTF \l_wstf_width_dim > \c_zero_dim
283     { \__wstf_minipage_begin: }
284     { \__wstf_hbox_begin: }
285   }
286   {
287     \dim_compare:nNnTF \l_wstf_width_dim > \c_zero_dim
288     { \__wstf_minipage_end: }
289     { \__wstf_hbox_end: }
290     \__wstf_set_vsep:
291     \__wstf_attach_label:
292     \tl_if_empty:NTF \l_wstf_main_kv_tl
293     { \tl_gclear:N \g_wstf_main_setting_tl }
294     { \__wstf_save_main_setting: }
295     \__wstf_set_top_line:
296     \dim_gset:Nn \g_wstf_stuff_wd_dim
297     { \box_wd:N \g_wstf_stuff_box }
298     \dim_gset:Nn \g_wstf_stuff_ht_dim
299     { \box_ht_plus_dp:N \g_wstf_stuff_box }
300     \dim_gset_eq:NN
301     \g_wstf_remaining_dim
302     \g_wstf_stuff_ht_dim
303     \__wstf_next_para:
304   }
305 \__wstf_gadd_hook:nn { env/wrapstuff/before } { \par }
306 \cs_new_protected_nopar:Npn \__wstf_minipage_begin:
307   {
308     \__wstf_floatrow_hook:
309     \dim_compare:nNnTF \l_wstf_height_dim > \c_zero_dim
310     { \begin{minipage} [b] [ \l_wstf_height_dim ] [c] { \l_wstf_width_dim } }
311     { \begin{minipage} [b] { \l_wstf_width_dim } }
312     \tl_if_empty:NF \l_wstf_type_tl
313     { \__wstf_set_float: }
314   }
315 \cs_new_protected_nopar:Npn \__wstf_minipage_end:
316   {
317     \end{minipage}
318     \hbox_gset_end:
319     \__wstf_float_pos_hook:
320   }
321 \cs_new_protected_nopar:Npn \__wstf_hbox_begin:
322   { \tex_ignorespaces:D }
323 \cs_new_protected_nopar:Npn \__wstf_hbox_end:
324   {
325     \tex_unskip:D
326     \hbox_gset_end:
327     \dim_compare:nNnT \l_wstf_height_dim > \c_zero_dim
328     { \__wstf_gset_height: }
329   }
330 \cs_new_protected_nopar:Npn \__wstf_gset_height:
331   {
332     \hbox_gset:Nn \g_wstf_stuff_box
333     {
334       \box_move_up:nn
335       {
336         ( \l_wstf_height_dim
337           - \box_ht:N \g_wstf_stuff_box
338           + \box_dp:N \g_wstf_stuff_box
339         ) / 2
340       }
341       { \box_use_drop:N \g_wstf_stuff_box }
342     }
343     \box_gset_ht:Nn \g_wstf_stuff_box { \l_wstf_height_dim }
344     \box_gset_dp:Nn \g_wstf_stuff_box { \c_zero_dim }
345   }
346 \cs_new_protected_nopar:Npn \__wstf_set_vsep:
347   {
348     \__wstf_gadd_ht:Nn \g_wstf_stuff_box { \l_wstf_abovesep_tl }

```

```

349      \dim_set:Nn \l__wstf_shift_dim { \l__wstf_belowsep_tl }
350      \dim_compare:nNnF \l__wstf_shift_dim = \c_zero_dim
351          { \__wstf_set_belowsep: }
352      }
353 \cs_new_protected_nopar:Npn \__wstf_set_belowsep:
354 {
355     \hbox_gset:Nn \g__wstf_stuff_box
356     {
357         \box_move_up:nn
358             { \l__wstf_shift_dim + \box_dp:N \g__wstf_stuff_box }
359             { \box_use_drop:N \g__wstf_stuff_box }
360     }
361     \box_gset_dp:Nn \g__wstf_stuff_box { \c_zero_dim }
362 }
363 \tl_new:N \l__wstf_main_kv_tl
364 \box_new:N \g__wstf_stuff_box
365 \dim_new:N \l__wstf_shift_dim
366 \dim_new:N \l__wstf_width_dim
367 \dim_new:N \l__wstf_height_dim

\__wstf_attach_label: 368 \cs_new_protected_nopar:Npn \__wstf_attach_label:
\__wstf_write_label: 369 {
\__wstf_rerun_check: 370     \stepcounter { wrapstuff }
371     \hbox_gset:Nn \g__wstf_stuff_box
372     {
373         \__wstf_write_label:
374         \box_use_drop:N \g__wstf_stuff_box
375     }
376 }
377 \cs_new_protected_nopar:Npn \__wstf_write_label:
378 {
379     \exp_args:Nee \__wstf_write_label_aux:nn
380         { \__wstf_counter:n { wrapstuff } }
381         { \__wstf_counter:n { page } }
382 }
383 \cs_new_protected:Npx \__wstf_write_label_aux:nn #1#2
384 {
385     \prop_gput_if_new:Nnn \exp_not:N \g__wstf_page_prop {#1} {#2}
386     \iow_shipout_x:Nn \exp_not:N @auxout
387     {
388         \c_underscore_str wrapstuff@label
389             {#1}
390             { \exp_not:N \wrapstuff@counter { page } }
391     }
392 }
393 \newcounter { wrapstuff }
394 \cs_new:Npn \__wstf_counter:n #1
395     { \int_value:w \value {#1} }
396 \cs_new_eq:NN \wrapstuff@counter \__wstf_counter:n
397 \cs_new_protected_nopar:Npn \wrapstuff@label
398     { \prop_gput:Nnn \g__wstf_page_prop }
399 \__wstf_gadd_hook:nn { begindocument }
400 {
401     \legacy_if:nTF { @filesw }
402     {
403         \iow_now:Nx \@mainaux
404         {
405             \c_underscore_str providecommand
406             \c_underscore_str wrapstuff@label [2] { }
407         }
408     }
409     { \cs_gset_eq:NN \__wstf_write_label: \__wstf_empty: }
410 }
411 \__wstf_gadd_hook:nn { enddocument/afterlastpage }
412 {
413     \legacy_if:nT { @filesw }
414     { \prop_gclear:N \g__wstf_page_prop }

```

```

415    }
416 \_\_wstf_gadd_hook:nn { enddocument/info }
417 {
418     \prop_if_empty:NF \g\_\_wstf_rerun_prop
419     { \_\_wstf_rerun_check: }
420 }
421 \cs_new_protected_nopar:Npn \_\_wstf_rerun_check:
422 {
423     \prop_map_inline:Nn \g\_\_wstf_rerun_prop
424     {
425         \prop_get:NnN \g\_\_wstf_page_prop { ##1 } \l\_\_wstf_page_tl
426         \int_if_even:nF { \l\_\_wstf_page_tl - ##2 }
427         { \prop_map_break:n { \_\_wstf_rerun_warning: } }
428     }
429 }
430 \cs_new_protected_nopar:Npn \_\_wstf_rerun_warning:
431 { \msg_warning:nn { wstf } { rerun-required } }
432 \msg_new:nnn { wstf } { rerun-required }
433 {
434     Page(s)~may~have~changed.\\
435     Rerun~to~get~i/o~setting~right.
436 }
437 \tl_new:N \l\_\_wstf_page_tl
438 \prop_new:N \g\_\_wstf_page_prop
439 \prop_new:N \g\_\_wstf_rerun_prop

\_\_wstf_save_main_setting: 440 \cs_new_protected_nopar:Npn \_\_wstf_save_main_setting:
441 {
442     \exp_args:Nnno
443     \keys_set_filter:nnnN { wrapstuff }
444     { main }
445     { \l\_\_wstf_main_kv_tl } \l\_\_wstf_main_kv_tl
446     \bool_if:NTF \l\_\_wstf_swap_bool
447     { \_\_wstf_swap_ratio: }
448     { \_\_wstf_set_ratio:N \l\_\_wstf_ratio_fp }
449     \tl_if_empty:NF \l\_\_wstf_main_kv_tl
450     { \_\_wstf_save_main_setting_aux: }
451 }
452 \cs_new_protected:Npn \_\_wstf_set_ratio:N #1
453 {
454     \tl_gset:Nx \g\_\_wstf_main_setting_tl
455     { \fp_set:Nn \exp_not:N \l\_\_wstf_ratio_fp { \fp_use:N #1 } }
456 }
457 \cs_new_protected:Npn \_\_wstf_set_ratio:n #1
458 {
459     \tl_gset:Nx \g\_\_wstf_main_setting_tl
460     { \fp_set:Nn \exp_not:N \l\_\_wstf_ratio_fp { \fp_eval:n {#1} } }
461 }
462 \cs_new_protected_nopar:Npn \_\_wstf_save_main_setting_aux:
463 {
464     \exp_args:Nno
465     \keys_compile:nnN
466     { wrapstuff }
467     { \l\_\_wstf_main_kv_tl } \l\_\_wstf_main_kv_tl
468     \tl_gconcat:NNN
469     \g\_\_wstf_main_setting_tl
470     \g\_\_wstf_main_setting_tl
471     \l\_\_wstf_main_kv_tl
472 }

\_\_wstf_set_top_line: 473 \cs_new_protected_nopar:Npn \_\_wstf_set_top_line:
474 {
475     \int_compare:nNnF \l\_\_wstf_top_int < \c_zero_int
476     {
477         \tl_gput_right:Nx \g\_\_wstf_main_setting_tl
478         {
479             \int_set:Nn \l\_\_wstf_top_int
480             { \int_use:N \l\_\_wstf_top_int }

```

```

481         }
482     }
483 }
484 \cs_new_protected_nopar:Npn \__wstf_swap_ratio:
485 {
486     \exp_args:Ne \__wstf_swap_ratio_aux:n
487     { \__wstf_counter:n { wrapstuff } }
488 }
489 \cs_new_protected:Npn \__wstf_swap_ratio_aux:n #1
490 {
491     \fp_compare:nF
492     { \c_zero_fp < \l__wstf_ratio_fp < \c_one_fp }
493     { \fp_zero:N \l__wstf_ratio_fp }
494     \prop_get:NnNF \g__wstf_page_prop {#1} \l__wstf_page_tl
495     { \tl_set:Nx \l__wstf_page_tl { \__wstf_counter:n { page } } }
496     \int_if_odd:nTF { \l__wstf_page_tl }
497     { \bool_if:NTF \l__wstf_inner_bool }
498     { \bool_if:NTF \l__wstf_outer_bool }
499     { \__wstf_set_ratio:N \l__wstf_ratio_fp }
500     { \__wstf_set_ratio:n { \c_one_fp - \l__wstf_ratio_fp } }
501     \prop_gput:Nno \g__wstf_rerun_prop {#1} { \l__wstf_page_tl }
502 }
503 \bool_new:N \l__wstf_swap_bool
504 \bool_new:N \l__wstf_inner_bool
505 \bool_new:N \l__wstf_outer_bool

```

__wstf_next_para: 将 wrapstuff 环境之后的段落放入内部环境 wrapstuff@par 中。为了控制钩子执行顺序，需要使用 wrapstuff 标签，而不用更为方便的 \hook_gput_next_code:nn 实现。

```

506 \__wstf_gadd_hook:nn { para/before } { \__wstf_para_before: }
507 \__wstf_gadd_hook:nn { para/after } { \__wstf_para_after: }
508 \__wstf_gadd_hook:nn { para/begin } { \__wstf_para_begin: }
509 \__wstf_gadd_hook:nn { para/end } { \__wstf_para_end: }
510 \cs_new_protected_nopar:Npn \__wstf_next_para:
511 {
512     \cs_gset_eq:NN \__wstf_para_before: \__wstf_env_before:
513     \cs_gset_eq:NN \__wstf_para_begin: \__wstf_env_begin:
514     \cs_gset_eq:NN \__wstf_para_end: \__wstf_env_end:
515 }
516 \cs_new_protected_nopar:Npn \__wstf_env_before:
517 { \dim_gset_eq:NN \g__wstf_prevdepth_dim \tex_prevdepth:D }
518 \cs_new_protected_nopar:Npn \__wstf_env_begin:
519 { \begin { wrapstuff@par } }
520 \cs_new_protected_nopar:Npn \__wstf_env_end:
521 { \end { wrapstuff@par } }
522 \cs_new_protected_nopar:Npn \__wstf_clear_para_hook:
523 {
524     \cs_gset_eq:NN \__wstf_para_before: \__wstf_empty:
525     \cs_gset_eq:NN \__wstf_para_after: \__wstf_empty:
526     \cs_gset_eq:NN \__wstf_para_begin: \__wstf_empty:
527     \cs_gset_eq:NN \__wstf_para_end: \__wstf_empty:
528 }
529 \cs_new_protected_nopar:Npn \__wstf_empty:
530 { }
531 \cs_new_eq:NN \__wstf_para_before: \__wstf_empty:
532 \cs_new_eq:NN \__wstf_para_after: \__wstf_empty:
533 \cs_new_eq:NN \__wstf_para_begin: \__wstf_empty:
534 \cs_new_eq:NN \__wstf_para_end: \__wstf_empty:

```

wrapstuff@par 内部环境，实现主要功能。

```

535 \NewDocumentEnvironment { wrapstuff@par } { }
536 {
537     \tl_use:N \g__wstf_main_setting_tl
538     \dim_set:Nn \l__wstf_leftsep_dim { \l__wstf_leftsep_tl }
539     \dim_set:Nn \l__wstf_rightsep_dim { \l__wstf_rightsep_tl }
540     \dim_set:Nn \l__wstf_voffset_dim { \l__wstf_voffset_tl }

```

```

541 \dim_set:Nn \l_wstf_line_dim { \l_wstf_linewidth_t1 }
542 \dim_set:Nn \l_wstf_min_dim { \box_dp:N \strutbox }
543 \dim_set_eq:NN \l_wstf_main_width_dim \l_wstf_line_dim
544 \dim_sub:Nn \l_wstf_line_dim
545   { \tex_leftskip:D + \tex_rightskip:D }
546 \dim_set:Nn \l_wstf_window_dim
547   { \l_wstf_line_dim - \g_wstf_stuff_wd_dim }
548 \fp_compare:nNnTF \l_wstf_ratio_fp > \c_zero_fp
549   {
550     \fp_compare:nNnTF \l_wstf_ratio_fp < \c_one_fp
551       { \l_wstf_set_window: }
552       { \l_wstf_set_hang_right: }
553   }
554   { \l_wstf_set_hang_left: }
555 \int_compare:nNnTF \g_wstf_window_int > \c_zero_int
556   {
557     \int_set_eq:NN \l_wstf_window_int \g_wstf_window_int
558     \int_zero:N \l_wstf_top_int
559   }
560   { \l_wstf_set_lines: }
561 \bool_if:NTF \l_wstf_hang_bool
562   {
563     \dim_set_eq:NN \l_wstf_display_dim \l_wstf_window_dim
564     \int_set_eq:NN \l_wstf_window_line_int \l_wstf_window_int
565   }
566   {
567     \dim_set_eq:NN \l_wstf_display_dim \l_wstf_l_dim
568     \int_set:Nn \l_wstf_window_int { \l_wstf_window_int * 2 }
569     \int_set:Nn \l_wstf_window_line_int
570       {
571         \bool_if:NTF \g_wstf_column_bool
572           { \l_wstf_window_int / 2 + \g_wstf_column_int }
573           { \l_wstf_window_int }
574       }
575   }
576 \cs_gset_eq:NN \l_wstf_para_before: \l_wstf_empty:
577 \cs_gset_eq:NN \l_wstf_para_begin: \l_wstf_empty:
578 \l_wstf_save_parshape:
579 \l_wstf_parbox_restore:
580 \vbox_set:Nw \l_wstf_body_box
581 \l_wstf_set_prevdepth:N \g_wstf_prevdepth_dim
582 \l_wstf_save_tex_skip:
583 \l_wstf_tex_parameter:
584 \l_wstf_restore_parshape:
585 \l_wstf_display_parameter:
586 \l_wstf_make_main_parshape:
587 \para_raw_noindent:
588 }
589 {
590   \l_wstf_save_hangfrom:
591   \l_wstf_save_tex_skip:
592   \l_wstf_group_kludge:
593   \l_wstf_tex_parameter:
594   \l_wstf_make_main_parshape:
595   \para_raw_end:
596   \int_gset_eq:NN \g_wstf_line_int \tex_prevgraf:D
597   \vbox_set_end:
598   \l_wstf_adjust_tex_skip:
599   \cs_gset_eq:NN \l_wstf_para_end: \l_wstf_empty:
600   \cs_gset_eq:NN \l_wstf_para_after: \l_wstf_empty:
601   \int_compare:nNnTF \g_wstf_line_int > \l_wstf_top_int
602     { \l_wstf_build_par: }
603     { \l_wstf_put_par: }
604   }
605 \box_new:N \l_wstf_body_box
606 \box_new:N \l_wstf_window_box
607 \int_new:N \l_wstf_window_int

```

```

608 \int_new:N \g__wstf_line_int
609 \int_new:N \l__wstf_window_line_int
610 \dim_new:N \l__wstf_l_dim
611 \dim_new:N \l__wstf_r_dim
612 \dim_new:N \l__wstf_min_dim
613 \dim_new:N \l__wstf_line_dim
614 \dim_new:N \l__wstf_window_dim
615 \dim_new:N \l__wstf_display_dim
616 \dim_new:N \l__wstf_voffset_dim
617 \dim_new:N \l__wstf_leftsep_dim
618 \dim_new:N \l__wstf_rightsep_dim
619 \dim_new:N \l__wstf_main_width_dim
620 \bool_new:N \l__wstf_hang_bool

\__wstf_set_hang_left: 621 \cs_new_protected_nopar:Npn \__wstf_set_hang_left:
\__wstf_set_hang_right: 622 {
\__wstf_set_window: 623   \bool_set_true:N \l__wstf_hang_bool
624   \__wstf_set_hoffset:N \l__wstf_rightsep_dim
625   \dim_zero:N \l__wstf_l_dim
626   \dim_set_eq:NN \l__wstf_r_dim \l__wstf_window_dim
627   \cs_set_eq:NN \__wstf_build_box: \__wstf_build_hang:
628 }
629 \cs_new_protected_nopar:Npn \__wstf_set_hang_right:
630 {
631   \bool_set_true:N \l__wstf_hang_bool
632   \__wstf_set_hoffset:N \l__wstf_leftsep_dim
633   \dim_zero:N \l__wstf_r_dim
634   \dim_set_eq:NN \l__wstf_l_dim \l__wstf_window_dim
635   \cs_set_eq:NN \__wstf_build_box: \__wstf_build_hang:
636 }
637 \cs_new_protected_nopar:Npn \__wstf_set_window:
638 {
639   \bool_set_false:N \l__wstf_hang_bool
640   \dim_sub:Nn \l__wstf_window_dim
641     { \l__wstf_leftsep_dim + \l__wstf_rightsep_dim }
642   \dim_set:Nn \l__wstf_l_dim
643     { \__wstf_ratio:Nn \l__wstf_ratio_fp { \l__wstf_window_dim } }
644   \dim_set:Nn \l__wstf_r_dim
645     { \l__wstf_window_dim - \l__wstf_l_dim }
646   \bool_if:NTF \l__wstf_column_bool
647     { \cs_set_eq:NN \__wstf_build_box: \__wstf_build_column: }
648     { \cs_set_eq:NN \__wstf_build_box: \__wstf_build_block: }
649 }

\__wstf_set_hoffset:N 650 \cs_new_protected:Npn \__wstf_set_hoffset:N #1
651 {
652   \dim_sub:Nn \l__wstf_window_dim {#1}
653   \group_begin:
654     \dim_set:Nn \l__wstf_width_dim { #1 + \g__wstf_stuff_wd_dim }
655     \cs_set_eq:NN \width \l__wstf_width_dim
656   \exp_args:NNNx \group_end:
657   \dim_add:Nn \l__wstf_window_dim
658     { \dim_eval:n { \l__wstf_hoffset_tl } }
659 }

\__wstf_set_lines: 660 \cs_new_protected_nopar:Npn \__wstf_set_lines:
\__wstf_window_init: 661 {
662   \bool_if:NTF \g__wstf_next_bool
663     { \tl_clear:N \l__wstf_lines_tl }
664     { \tl_set:Nx \l__wstf_lines_tl { \l__wstf_lines_tl } }
665   \int_set:Nn \l__wstf_window_int
666   {
667     \tl_if_empty:NTF \l__wstf_lines_tl
668       { \__wstf_unit:n { \g__wstf_remaining_dim + \l__wstf_min_dim } }
669       { \l__wstf_lines_tl }
670   }
671   \bool_if:NF \g__wstf_next_bool

```

```

672     { \__wstf_window_init: }
673     \int_compare:nNnTF \g__wstf_top_int < \c_zero_int
674     {
675         \int_compare:nNnT \l__wstf_top_int < \c_zero_int
676         { \int_zero:N \l__wstf_top_int }
677     }
678     { \int_set_eq:NN \l__wstf_top_int \g__wstf_top_int }
679 }
680 \cs_new_protected_nopar:Npn \__wstf_window_init:
681 {
682     \int_gset_eq:NN \g__wstf_column_int \l__wstf_window_int
683     \dim_gset:Nn \g__wstf_window_ht_dim
684     { \tex_baselineskip:D * \g__wstf_column_int }
685     \tl_if_empty:NF \l__wstf_lines_tl
686     {
687         \dim_gset:Nn \g__wstf_remaining_dim
688         { \g__wstf_window_ht_dim - \box_ht:N \strutbox }
689         \dim_gset_eq:NN \g__wstf_stuff_ht_dim \g__wstf_remaining_dim
690     }
691 }

```

__wstf_make_main_parshape: 主要处理用于标题悬挂的 \hangfrom 和用于列表环境的 \parshape。

```

692 \cs_new_protected_nopar:Npn \__wstf_make_main_parshape:
693 {
694     \dim_compare:nNnTF \g__wstf_hangindent_dim > \c_zero_dim
695     {
696         \int_compare:nNnTF \g__wstf_hangafter_int = \c_one_int
697         { \__wstf_make_hangfrom: }
698         { \__wstf_make_main_parshape_aux: }
699     }
700     { \__wstf_make_main_parshape_aux: }
701 }
702 \cs_new_protected_nopar:Npn \__wstf_make_main_parshape_aux:
703 {
704     \bool_gset_false:N \g__wstf_hangfrom_bool
705     \tex_parshape:D
706     \int_eval:n { \l__wstf_top_int + 1 } ~
707     \prg_replicate:nn
708     { \l__wstf_top_int }
709     { \g__wstf_parshape_indent_dim \g__wstf_parshape_length_dim }
710     \c_zero_dim \c_max_dim
711 }
712 \cs_new_protected_nopar:Npn \__wstf_save_parshape:
713 {
714     \int_gset_eq:NN \g__wstf_parshape_int \tex_parshape:D
715     \int_compare:nNnTF \g__wstf_parshape_int = \c_one_int
716     {
717         \dim_gset:Nn \g__wstf_parshape_indent_dim
718         { \tex_parshapeindent:D \c_one_int }
719         \dim_gset:Nn \g__wstf_parshape_length_dim
720         { \tex_parshapelen:D \c_one_int }
721     }
722     {
723         \int_gzero:N \g__wstf_parshape_int
724         \dim_gzero:N \g__wstf_parshape_indent_dim
725         \dim_gset_eq:NN \g__wstf_parshape_length_dim \l__wstf_main_width_dim
726         \int_gset_eq:NN \g__wstf_hangafter_int \tex_hangafter:D
727         \dim_gset_eq:NN \g__wstf_hangindent_dim \tex_hangindent:D
728     }
729 }
730 \cs_new_protected_nopar:Npn \__wstf_restore_parshape:
731 {
732     \int_compare:nNnTF \g__wstf_parshape_int = \c_one_int
733     {
734         \tex_parshape:D \g__wstf_parshape_int
735         \g__wstf_parshape_indent_dim
736         \g__wstf_parshape_length_dim

```

```

737     }
738     { \__wstf_restore_hangfrom: }
739   }
740 \cs_new_protected_nopar:Npn \__wstf_parshape_kern:
741   {
742     \dim_compare:nNnT \l__wstf_l_dim = \c_zero_dim
743     {
744       \dim_compare:nNnF \g__wstf_parshape_indent_dim = \c_zero_dim
745       { \tex_kern:D - \g__wstf_parshape_indent_dim }
746     }
747   }
748 \cs_new_protected_nopar:Npn \__wstf_make_hangfrom:
749   {
750     \bool_if:NTF \l__wstf_hang_bool
751     { \__wstf_make_hangfrom_aux: }
752     { \__wstf_make_main_parshape_aux: }
753   }
754 \cs_new_protected_nopar:Npn \__wstf_make_hangfrom_aux:
755   {
756     \__wstf_restore_hangfrom:
757     \int_zero:N \tex_parshape:D
758     \bool_gset_true:N \g__wstf_hangfrom_bool
759     \dim_set_eq:NN \tex_hsize:D \l__wstf_window_dim
760   }
761 \cs_new_protected_nopar:Npn \__wstf_save_hangfrom:
762   {
763     \int_gset_eq:NN \g__wstf_hangafter_int \tex_hangafter:D
764     \dim_gset_eq:NN \g__wstf_hangindent_dim \tex_hangindent:D
765   }
766 \cs_new_protected_nopar:Npn \__wstf_restore_hangfrom:
767   {
768     \int_set_eq:NN \tex_hangafter:D \g__wstf_hangafter_int
769     \dim_set_eq:NN \tex_hangindent:D \g__wstf_hangindent_dim
770   }
771 \bool_new:N \g__wstf_hangfrom_bool
772 \int_new:N \g__wstf_parshape_int
773 \int_new:N \g__wstf_hangafter_int
774 \dim_new:N \g__wstf_hangindent_dim

```

__wstf_group_kludge: L^AT_EX 的 \list 环境中, 为了保持 \parshape, \par 被重定义为 {\@@par}。

```

775 \cs_new_protected_nopar:Npn \__wstf_group_kludge:
776   {
777     \scan_stop:
778     \int_compare:nNnTF \tex_currentgroup_type:D = \c_one_int
779     {
780       \c_group_end_token
781       \cs_gset_eq:NN \__wstf_group_begin: \c_group_begin_token
782     }
783     { \cs_gset_eq:NN \__wstf_group_begin: \__wstf_empty: }
784     \legacy_if:nTF { @noitemarg }
785     { \cs_gset_eq:NN \__wstf_set_itemarg: @_noitemargtrue }
786     { \cs_gset_eq:NN \__wstf_set_itemarg: @_wstf_empty: }
787   }
788 \cs_new_eq:NN \__wstf_set_itemarg: \__wstf_empty:
789 \cs_new_eq:NN \__wstf_group_begin: \__wstf_empty:
790 \__wstf_gadd_hook:nn { env/wrapstuff@par/after }
791   {
792     \__wstf_set_itemarg:
793     \__wstf_group_begin:
794   }

```

```

\__wstf_ratio:Nn 795 \cs_new:Npn \__wstf_ratio:Nn #1#2
\__wstf_unit:n 796   { \fp_to_dim:n { #1 \dim_to_fp:n {#2} } }
797 \cs_new:Npn \__wstf_unit:n #1
798   {
799     \int_eval:n
800     {

```

```

801           \exp_last_unbraced:Ne \__wstf_unit_aux:w
802             { \dim_to_decimal_in_unit:nn {#1} { \tex_baselineskip:D } }
803             \s_stop
804         }
805     }
806 \cs_new:Npn \__wstf_unit_aux:w #1 . #2 \s_stop
807   { #1 + 1 }

\__wstf_save_tex_skip: 808 \cs_new_protected_nopar:Npn \__wstf_save_tex_skip:
\__wstf_parameter: 809  {
810   \skip_gset_eq:NN \g__wstf_left_skip \tex_leftskip:D
811   \skip_gset_eq:NN \g__wstf_right_skip \tex_rightskip:D
812   \skip_gset_eq:NN \g__wstf_parfill_skip \tex_parfillskip:D
813   \skip_gset_eq:NN \g__wstf_baseline_skip \tex_baselineskip:D
814   \skip_gset:Nn \g__wstf_main_left_skip { - \tex_leftskip:D }
815 }
816 \cs_new_protected_nopar:Npn \__wstf_adjust_tex_skip:
817  {
818   \__wstf_adjust_skip:N \g__wstf_left_skip
819   \__wstf_adjust_skip:N \g__wstf_right_skip
820   \__wstf_adjust_skip:N \g__wstf_parfill_skip
821 }
822 \cs_new_protected:Npn \__wstf_adjust_skip:N #1
823   { \skip_gsub:Nn #1 { \dim_eval:n {#1} } }
824 \cs_new_protected_nopar:Npn \__wstf_tex_parameter:
825  {
826   \int_zero:N \tex_clubpenalty:D
827   \int_zero:N \tex_widowpenalty:D
828   \int_zero:N \tex_interlinepenalty:D
829   \int_zero:N \tex_displaywidowpenalty:D
830   \int_zero:N \tex_clubpenalties:D
831   \int_zero:N \tex_widowpenalties:D
832   \int_zero:N \tex_interlinepenalties:D
833   \int_zero:N \tex_displaywidowpenalties:D
834   \skip_set_eq:NN \tex_leftskip:D \g__wstf_left_skip
835   \skip_set_eq:NN \tex_rightskip:D \g__wstf_right_skip
836   \skip_set_eq:NN \tex_parfillskip:D \g__wstf_parfill_skip
837   \skip_set_eq:NN \tex_baselineskip:D \g__wstf_baseline_skip
838 }
839 \skip_new:N \g__wstf_left_skip
840 \skip_new:N \g__wstf_right_skip
841 \skip_new:N \g__wstf_parfill_skip
842 \skip_new:N \g__wstf_baseline_skip
843 \skip_new:N \g__wstf_main_left_skip

\__wstf_display_parameter: 844 \cs_new_protected_nopar:Npn \__wstf_display_parameter:
845  {
846   \bool_gset_false:N \g__wstf_display_bool
847   \tex_everydisplay:D \exp_after:wN
848   {
849     \tex_the:D \tex_everydisplay:D
850     \__wstf_display_hook:
851   }
852 }
853 \cs_new_protected_nopar:Npn \__wstf_display_hook:
854  {
855   \__wstf_test_leqno:
856   \dim_compare:nNnf \tex_displaywidth:D < \c_max_dim
857   {
858     \bool_gset_true:N \g__wstf_display_bool
859     \dim_set_eq:NN \tex_displaywidth:D \l__wstf_display_dim
860   }
861 }
862 \cs_new_eq:NN \__wstf_test_leqno: \__wstf_empty:
863 \cs_new_protected_nopar:Npn \__wstf_clear_display_hook:
864   { \cs_gset_eq:NN \__wstf_display_hook: \__wstf_empty: }

\__wstf_split_parameter: 865 \cs_new_protected_nopar:Npn \__wstf_split_parameter:

```

```

866  {
867    \skip_zero:N \tex_splittopskip:D
868    \dim_set_eq:NN \tex_vfuzz:D \c_max_dim
869    \int_set_eq:NN \tex_vbadness:D \c_max_int
870  }
871 \cs_new_protected_nopar:Npn \__wstf_build_par:
872  {
873    \bool_if:NTF \g__wstf_hangfrom_bool
874      { \__wstf_build_box: }
875      { \__wstf_build_par_aux: }
876    \box_if_empty:NTF \l__wstf_window_box
877      { \__wstf_put_next_par: }
878      { \__wstf_put_box: }
879  }
880 \cs_new_protected_nopar:Npn \__wstf_build_par_aux:
881  {
882    \__wstf_extract_display_hbox:NN \l__wstf_body_box \l__wstf_bottom_box
883    \int_compare:nNnT \l__wstf_top_int > \c_zero_int
884      { \__wstf_put_body_box: }
885    \box_if_empty:NTF \l__wstf_bottom_box
886      {
887        \box_if_empty:NF \g__wstf_display_box
888          { \__wstf_build_display_box: }
889      }
890      { \__wstf_build_body_box: }
891  }
892 \box_new:N \l__wstf_bottom_box

\__wstf_put_par: 893 \cs_new_protected_nopar:Npn \__wstf_put_par:
894  {
895    \int_gset:Nn \g__wstf_top_int
896      { \l__wstf_top_int - \g__wstf_line_int }
897    \int_gzero:N \g__wstf_window_int
898    \__wstf_put_body_box:
899    \skip_zero:N \tex_parskip:D
900    \para_raw_noindent:
901    \__wstf_next_para:
902  }

\__wstf_put_body_box: 903 \cs_new_protected_nopar:Npn \__wstf_put_body_box:
904  {
905    \__wstf_para_raw_end:
906    \dim_compare:nNnTF { \box_wd:N \l__wstf_body_box } < \c_max_dim
907      { \__wstf_put_body_aux:N \l__wstf_body_box }
908      {
909        \__wstf_extract_hbox:NN \l__wstf_body_box \l__wstf_bottom_box
910        \__wstf_put_body_aux:N \l__wstf_body_box
911        \box_set_eq_drop:NN \l__wstf_body_box \l__wstf_bottom_box
912      }
913    \__wstf_para_raw_end:
914  }
915 \cs_new_protected_nopar:Npn \__wstf_put_body_aux:N #1
916  {
917    \dim_gset:Nn \g__wstf_prevdepth_dim { \box_dp:N #1 }
918    \dim_compare:nNnT \g__wstf_prevdepth_dim = \c_zero_dim
919      { \__wstf_extract_depth:N #1 }
920    \vbox_unpack_drop:N #1
921    \__wstf_set_prevdepth:N \g__wstf_prevdepth_dim
922  }
923 \cs_new_protected_nopar:Npn \__wstf_extract_depth:N #1
924  {
925    \vbox_set:Nn \l__wstf_last_box
926    {
927      \vbox_unpack:N #1
928      \__wstf_if_last_hlist:
929      {
930        \tex_unskip:D \tex_unpenalty:D

```

```

931         \tex_untoken:D \tex_unpenalty:D
932     }
933     \__wstf_if_last_hlist:T
934     {
935         \box_set_to_last:N \l__wstf_last_box
936         \dim_gset:Nn \g__wstf_prevdepth_dim
937         { \box_dp:N \l__wstf_last_box }
938     }
939 }
940 }

\__wstf_put_next_par: 941 \cs_new_protected_nopar:Npn \__wstf_put_next_par:
942 {
943     \int_gzero:N \g__wstf_top_int
944     \int_gzero:N \g__wstf_window_int
945     \skip_zero:N \tex_parskip:D
946     \para_raw_noindent:
947     \__wstf_next_para:
948 }

\__wstf_build_display_box: 949 \cs_new_protected_nopar:Npn \__wstf_build_display_box:
950 {
951     \bool_set_true:N \l__wstf_display_bool
952     \bool_if:NTF \g__wstf_amsmath_bool
953     { \__wstf_build_display_amsmath: }
954     { \__wstf_build_display_normal: }
955     \box_if_empty:NTF \l__wstf_body_box
956     { \__wstf_build_display_auxi: }
957     { \__wstf_build_display_auxii: }
958 }
959 \cs_new_protected_nopar:Npn \__wstf_build_display_amsmath:
960 {
961     \group_begin:
962     \vbox_gset:Nn \g__wstf_equation_box
963     {
964         \__wstf_break:
965         \vbox_unpack_drop:N \g__wstf_display_box
966         \skip_gset_eq:NN \g__wstf_pos_skip \tex_lastskip:D
967         \tex_untoken:D
968         \int_gset_eq:NN \g__wstf_pos_int \tex_lastpenalty:D
969         \tex_unpenalty:D
970         \skip_gadd:Nn \g__wstf_pos_skip { \tex_lastskip:D }
971         \tex_untoken:D
972         \tex_unpenalty:D
973     }
974     \__wstf_split_parameter:
975     \vbox_set_split_to_ht:NNn \l__wstf_last_box \g__wstf_equation_box
976     { \c_zero_dim }
977     \group_end:
978     \box_gset_wd:Nn \g__wstf_equation_box { \l__wstf_display_dim }
979     \vbox_gset:Nn \g__wstf_display_box
980     {
981         \tex_penalty:D \g__wstf_display_pre_int
982         \skip_vertical:N \g__wstf_display_pre_skip
983     }
984     \skip_gset_eq:NN \g__wstf_pre_skip \g__wstf_display_pre_skip
985 }
986 \cs_new_protected_nopar:Npn \__wstf_build_display_normal:
987 {
988     \vbox_gset:Nn \g__wstf_display_box
989     {
990         \vbox_unpack_drop:N \g__wstf_display_box
991         \skip_gset_eq:NN \g__wstf_pos_skip \tex_lastskip:D
992         \tex_untoken:D
993         \int_gset_eq:NN \g__wstf_pos_int \tex_lastpenalty:D
994         \tex_unpenalty:D
995         \box_gset_to_last:N \g__wstf_equation_box
996         \skip_gset_eq:NN \g__wstf_pre_skip \tex_lastskip:D

```

```

997      \tex_untoken:D
998      \skip_gadd:Nn \g_wstf_pre_skip { \tex_lastskip:D }
999      \tex_untoken:D
1000     \skip_vertical:N \g_wstf_pre_skip
1001   }
1002 }
1003 \cs_new_protected_nopar:Npn \__wstf_build_display_auxi:
1004 {
1005   \bool_if:NTF \g_wstf_amsmath_bool
1006   { \box_set_eq_drop:NN \l_wstf_window_box \g_wstf_equation_box }
1007   {
1008     \hbox_set_to_wd:Nnn \l_wstf_window_box
1009     { \l_wstf_display_dim }
1010   }
1011   \tex_hss:D
1012   \__wstf_adjust_equation:
1013   \box_use_drop:N \g_wstf_equation_box
1014   \tex_hss:D
1015 }
1016 }
1017 \dim_gset:Nn \g_wstf_ht_dim { \box_ht:N \l_wstf_window_box }
1018 \dim_add:Nn \l_wstf_voffset_dim
1019 { \box_ht:N \g_wstf_display_box / 2 }
1020 }
1021 \cs_new_protected_nopar:Npn \__wstf_build_display_auxii:
1022 {
1023   \box_if_horizontal:NTF \l_wstf_body_box
1024   {
1025     \box_set_eq:NN \l_wstf_bottom_box \l_wstf_body_box
1026     \__wstf_build_display_auxiii:
1027   }
1028   {
1029     \__wstf_extract_hbox:NN \l_wstf_body_box \l_wstf_bottom_box
1030     \str_if_eq:eeTF
1031     {
1032       \dim_eval:n { \box_ht:N \l_wstf_body_box }
1033       \dim_eval:n { \box_dp:N \l_wstf_body_box }
1034       \dim_eval:n { \box_ht:N \l_wstf_bottom_box }
1035       \dim_eval:n { \box_dp:N \l_wstf_bottom_box }
1036     }
1037     { \c_wstf_zero_pt_str }
1038     {
1039       \vbox_unpack_drop:N \l_wstf_body_box
1040       \box_clear:N \l_wstf_bottom_box
1041       \__wstf_build_display_auxi:
1042     }
1043     { \__wstf_build_display_auxiii: }
1044   }
1045 }
1046 \str_const:Nx \c_wstf_zero_pt_str
1047 {
1048   \dim_use:N \c_zero_dim
1049   \dim_use:N \c_zero_dim
1050   \dim_use:N \c_zero_dim
1051   \dim_use:N \c_zero_dim
1052 }
1053 \cs_new_protected_nopar:Npn \__wstf_build_display_auxiii:
1054 {
1055   \bool_set_true:N \l_wstf_attach_equation_bool
1056   \box_gclear:N \g_wstf_display_box
1057   \bool_if:NF \g_wstf_amsmath_bool
1058   { \__wstf_adjust_equation: }
1059   \__wstf_build_body_box:
1060 }
1061 \bool_new:N \l_wstf_display_bool
1062 \bool_new:N \l_wstf_attach_equation_bool

```

```

\__wstf_attach_left:N 1063 \cs_new_protected:Npn \__wstf_attach_left:N #1
\__wstf_attach_right:N 1064 {
 1065   \__wstf_attach_equation:Nn #1
 1066   { \g_wstf_parshape_indent_dim }
 1067 }
 1068 \cs_new_protected:Npn \__wstf_attach_right:N #1
 1069 {
 1070   \__wstf_attach_equation:Nn #1
 1071   {
 1072     \l_wstf_line_dim
 1073     - \l_wstf_display_dim
 1074     + \g_wstf_parshape_indent_dim
 1075   }
 1076 }
 1077 \cs_new_protected:Npn \__wstf_attach_equation:Nn #1#2
 1078 {
 1079   \vbox_set:Nn \l_wstf_last_box
 1080   {
 1081     \vbox_unpack:N #1
 1082     \box_set_to_last:N \l_wstf_last_box
 1083     \bool_if:NTF \g_wstf_amsmath_bool
 1084     { \__wstf_attach_equation_amsmath:Nn }
 1085     { \__wstf_attach_equation_normal:Nn }
 1086     \l_wstf_last_box {#2}
 1087   }
 1088 }
 1089 \cs_new_protected:Npn \__wstf_attach_equation_amsmath:Nn #1#2
 1090 {
 1091   \vbox_gset:Nn \g_wstf_equation_box
 1092   {
 1093     \__wstf_nobreak:
 1094     \skip_vertical:n
 1095     {
 1096       \g_wstf_display_pre_skip
 1097       + \g_wstf_display_pre_dim
 1098       - \box_dp:N #1
 1099     }
 1100     \box_move_right:nn {#2}
 1101     { \box_use_drop:N \g_wstf_equation_box }
 1102   }
 1103 }
 1104 \cs_new_protected:Npn \__wstf_attach_equation_normal:Nn #1#2
 1105 {
 1106   \vbox_set:Nn \l_wstf_last_box
 1107   {
 1108     \__wstf_tex_parameter:
 1109     \dim_set_eq:NN \tex_hsize:D \l_wstf_display_dim
 1110     \para_raw_noindent:
 1111     \ hbox_unpack_drop:N #1 \tex_unskip:D
 1112     \__wstf_insert_equation:
 1113     \para_raw_end:
 1114     \skip_gset_eq:NN \g_wstf_pos_skip \tex_lastskip:D
 1115     \tex_unskip:D
 1116     \int_gset_eq:NN \g_wstf_pos_int \tex_lastpenalty:D
 1117     \tex_unpenalty:D
 1118     \box_set_to_last:N \l_wstf_last_box
 1119     \skip_set_eq:NN \l_wstf_last_skip \tex_lastskip:D
 1120     \tex_unskip:D
 1121     \skip_add:Nn \l_wstf_last_skip { \tex_lastskip:D }
 1122     \vbox_gset:Nn \g_wstf_equation_box
 1123     {
 1124       \__wstf_nobreak:
 1125       \skip_vertical:N \l_wstf_last_skip
 1126       \box_move_right:nn {#2}
 1127       {
 1128         \hbox_to_wd:nn
 1129         { \l_wstf_display_dim }
 1130       }
 1131     }
 1132   }
 1133 }
 1134 
```

```

1130         {
1131             \tex_hss:D
1132                 \box_use_drop:N \l__wstf_last_box
1133             \tex_hss:D
1134         }
1135     }
1136 }
1137 }
1138 }
1139 \cs_new_protected_nopar:Npn \__wstf_insert_equation:
1140 {
1141     \c_math_toggle_token \c_math_toggle_token
1142     \dim_compare:nNnTF \tex_displaywidth:D = \l__wstf_display_dim
1143     { \box_use_drop:N \g__wstf_equation_box }
1144     {
1145         \bool_if:NTF \g__wstf_eqnum_bool
1146         { \__wstf_repack_equation: }
1147         { \box_use_drop:N \g__wstf_equation_box }
1148     }
1149     \c_math_toggle_token \c_math_toggle_token
1150 }
1151 \cs_new_protected_nopar:Npn \__wstf_repack_equation:
1152 {
1153     \box_gclear:N \g__wstf_equation_box
1154     \box_use_drop:N \g__wstf_eqbody_box
1155     \bool_if:NTF \g__wstf_leqno_bool
1156     { \tex_leqno:D }
1157     { \tex_eqno:D }
1158     \box_use_drop:N \g__wstf_eqnum_box
1159 }
1160 \cs_new_protected_nopar:Npn \__wstf_adjust_equation:
1161 {
1162     \__wstf_test_eqnum:
1163     \bool_if:NT \g__wstf_eqnum_bool
1164     { \__wstf_adjust_equation_width: }
1165 }
1166 \cs_new_protected_nopar:Npn \__wstf_test_eqnum:
1167 {
1168     \hbox_set:Nn \l__wstf_last_box
1169     {
1170         \bool_gset_false:N \g__wstf_eqnum_bool
1171         \hbox_unpack:N \g__wstf_equation_box
1172         \__wstf_if_last_hlist:F { \use_none_delimit_by_s_stop:w }
1173         \box_gset_to_last:N \g__wstf_eqnum_box
1174         \__wstf_if_last_kern:F { \use_none_delimit_by_s_stop:w }
1175         \tex_unkern:D
1176         \__wstf_if_last_hlist:F { \use_none_delimit_by_s_stop:w }
1177         \box_gset_to_last:N \g__wstf_eqbody_box
1178         \__wstf_if_last_none:F { \use_none_delimit_by_s_stop:w }
1179         \bool_gset_true:N \g__wstf_eqnum_bool
1180         \use_none_delimit_by_s_stop:w \s_stop
1181     }
1182 }
1183 \cs_new_protected_nopar:Npn \__wstf_adjust_equation_width:
1184 {
1185     \bool_if:NTF \g__wstf_leqno_bool
1186     { \__wstf_adjust_leqno: }
1187     {
1188         \box_gset_wd:Nn \g__wstf_equation_box
1189         { \box_wd:N \g__wstf_eqbody_box }
1190     }
1191 }
1192 \cs_new_protected_nopar:Npn \__wstf_adjust_leqno:
1193 {
1194     \box_set_eq_drop:NN \l__wstf_last_box \g__wstf_eqnum_box
1195     \box_gset_eq_drop:NN \g__wstf_eqnum_box \g__wstf_eqbody_box
1196     \box_gset_eq_drop:NN \g__wstf_eqbody_box \l__wstf_last_box

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1197      \hbox_gset:Nn \g_wstf_equation_box
1198      {
1199          \skip_horizontal:n
1200          {
1201              \box_wd:N \g_wstf_eqbody_box
1202              - \box_wd:N \g_wstf_equation_box
1203          }
1204          \box_use_drop:N \g_wstf_equation_box
1205      }
1206  }
1207 \box_new:N \g_wstf_eqbody_box
1208 \box_new:N \g_wstf_eqnum_box
1209 \box_new:N \g_wstf_equation_box
1210 \int_new:N \g_wstf_pos_int
1211 \skip_new:N \g_wstf_pos_skip
1212 \bool_new:N \g_wstf_eqnum_bool

\__wstf_add_pos_kludge: 1213 \cs_new_protected_nopar:Npn \__wstf_add_pos_kludge:
1214  {
1215      \dim_gset:Nn \g_wstf_prevdepth_dim
1216      { \box_dp:N \l_wstf_window_box }
1217      \bool_gset_false:N \g_wstf_equation_dp_bool
1218      \bool_if:NTF \g_wstf_next_bool
1219      {
1220          \tex_vadjust:D
1221          {
1222              \box_if_empty:NF \g_wstf_equation_box
1223              { \__wstf_output_equation_box: }
1224              \__wstf_nobreak:
1225              \bool_if:NT \l_wstf_display_bool
1226              { \skip_vertical:N \g_wstf_pos_skip }
1227          }
1228      }
1229      {
1230          \bool_if:NT \l_wstf_display_bool
1231          {
1232              \tex_vadjust:D
1233              {
1234                  \box_if_empty:NF \g_wstf_equation_box
1235                  { \__wstf_output_equation_box: }
1236                  \tex_penalty:D \g_wstf_pos_int
1237                  \skip_vertical:N \g_wstf_pos_skip
1238              }
1239          }
1240      }
1241      \int_gzero:N \g_wstf_pos_int
1242      \skip_gzero:N \g_wstf_pos_skip
1243  }
1244 \cs_new_protected_nopar:Npn \__wstf_output_equation_box:
1245  {
1246      \cs_gset_eq:NN
1247      \__wstf_para_after:
1248      \__wstf_set_equation_depth:
1249      \bool_gset_true:N \g_wstf_equation_dp_bool
1250      \dim_gset:Nn \g_wstf_prevdepth_dim
1251      { \box_dp:N \g_wstf_equation_box }
1252      \vbox_unpack_drop:N \g_wstf_equation_box
1253  }
1254 \cs_new_protected_nopar:Npn \__wstf_set_equation_depth:
1255  {
1256      \cs_gset_eq:NN \__wstf_para_after: \__wstf_empty:
1257      \bool_gset_false:N \g_wstf_equation_dp_bool
1258      \__wstf_set_prevdepth:N \g_wstf_prevdepth_dim
1259  }
1260 \bool_new:N \g_wstf_equation_dp_bool

\__wstf_build_body_box: 1261 \cs_new_protected_nopar:Npn \__wstf_build_body_box:
1262  {

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1263   \box_set_eq:NN \l_wstf_save_body_box \l_wstf_bottom_box
1264   \__wstf_build_window:
1265   \int_compare:nNnTF \g_wstf_line_int > \l_wstf_window_line_int
1266   { \__wstf_extract_hbox:NN \l_wstf_body_box \l_wstf_bottom_box }
1267   { \box_clear:N \l_wstf_bottom_box }
1268   \box_if_empty:NF \l_wstf_bottom_box
1269   { \bool_set_false:N \l_wstf_attach_equation_bool }
1270   \box_clear:N \l_wstf_window_box
1271   \__wstf_build_box:
1272 }
1273 \box_new:N \l_wstf_save_body_box

\__wstf_build_body_box: 1274 \cs_new_protected_nopar:Npn \__wstf_build_window:
1275 {
1276   \vbox_set:Nn \l_wstf_body_box
1277   {
1278     \dim_zero:N \tex_emergencystretch:D
1279     \dim_set_eq:NN \tex_hfuzz:D \c_max_dim
1280     \dim_set_eq:NN \tex_vfuzz:D \c_max_dim
1281     \int_set_eq:NN \tex_hbadness:D \c_max_int
1282     \int_set_eq:NN \tex_vbadness:D \c_max_int
1283     \int_set:Nn \tex_tolerance:D { 1000 }
1284     \para_raw_noindent:
1285     \hbox_unpack_drop:N \l_wstf_bottom_box
1286     \__wstf_tex_parameter:
1287     \__wstf_make_parshape:
1288     \__wstf_interline_penalties:
1289     \para_raw_end:
1290     \int_gset_eq:NN \g_wstf_line_int \tex_prevgraf:D
1291   }
1292 }

\__wstf_make_parshape: 1293 \cs_new_protected_nopar:Npn \__wstf_make_parshape:
1294 {
1295   \tex_parshape:D
1296   \int_eval:n { \l_wstf_window_line_int + 1 } ~
1297   \bool_if:NTF \l_wstf_hang_bool
1298   {
1299     \prg_replicate:nn
1300     { \l_wstf_window_int }
1301     { \c_zero_dim \l_wstf_window_dim }
1302   }
1303   {
1304     \bool_if:NTF \l_wstf_column_bool
1305     {
1306       \prg_replicate:nn
1307       { \l_wstf_window_int / 2 }
1308       { \c_zero_dim \l_wstf_l_dim }
1309       \prg_replicate:nn
1310       {
1311         \bool_if:NTF \g_wstf_column_bool
1312         { \g_wstf_column_int }
1313         { \l_wstf_window_int / 2 }
1314       }
1315       { \c_zero_dim \l_wstf_r_dim }
1316     }
1317   {
1318     \prg_replicate:nn
1319     { \l_wstf_window_int / 2 }
1320     {
1321       \c_zero_dim \l_wstf_l_dim
1322       \c_zero_dim \l_wstf_r_dim
1323     }
1324   }
1325 }
1326 \c_zero_dim \c_max_dim
1327 }
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\__wstf_interline_penalties: 1328 \cs_new_protected_nopar:Npn \__wstf_interline_penalties:
1329 {
1330     \bool_if:NF \l__wstf_hang_bool
1331     {
1332         \bool_if:NTF \l__wstf_column_bool
1333         {
1334             \__wstf_column_penalties:
1335         }
1336     }
1337 \cs_new_protected_nopar:Npn \__wstf_column_penalties:
1338 {
1339     \tex_interlinepenalties:D
1340     \int_eval:n { \l__wstf_window_int / 2 + \c_one_int } ~
1341     \prg_replicate:nn
1342     {
1343         \l__wstf_window_int / 2 - \c_one_int
1344     }
1345     \c_wstf_break_int
1346     \c_zero_int
1347 }
1348 \cs_new_protected_nopar:Npn \__wstf_block_penalties:
1349 {
1350     \tex_interlinepenalties:D \l__wstf_window_int
1351     \prg_replicate:nn
1352     {
1353         \l__wstf_window_int - \c_one_int
1354     }
1355     \c_wstf_break_int
1356     \c_zero_int
1357 }

\__wstf_break: 1355 \cs_new_protected_nopar:Npn \__wstf_break:
\__wstf_nobreak: 1356 { \tex_penalty:D \c_wstf_break_int }
1357 \cs_new_protected_nopar:Npn \__wstf_nobreak:
1358 { \tex_penalty:D \c_wstf_nobreak_int }
1359 \int_const:Nn \c_wstf_break_int { -10000 }
1360 \int_const:Nn \c_wstf_nobreak_int { 10000 }

\__wstf_build_box: 1361 \cs_new_protected_nopar:Npn \__wstf_build_box:
\__wstf_build_box: 1362 {
1363     \vbox_set:Nn \l__wstf_window_box
1364     {
1365         \__wstf_split_parameter:
1366         \skip_set_eq:NN \tex_baselineskip:D \g_wstf_baseline_skip
1367         \__wstf_build_line:
1368     }
1369 }
1370 \cs_new_protected_nopar:Npn \__wstf_build_line:
1371 {
1372     \vbox_set_split_to_ht>NNN \l__wstf_l_box \l__wstf_body_box
1373     { \g_wstf_baseline_skip }
1374     \vbox_set_split_to_ht>NNN \l__wstf_r_box \l__wstf_body_box
1375     { \g_wstf_baseline_skip }
1376     \__wstf_build_line_repack:
1377     \box_if_empty:NTF \l__wstf_body_box
1378     { \__wstf_put_last_line: }
1379     {
1380         \__wstf_put_line_box:
1381         \__wstf_build_line:
1382     }
1383 }
1384 \cs_new_protected_nopar:Npn \__wstf_build_line_repack:
1385 {
1386     \vbox_set:Nn \l__wstf_l_box
1387     { \vbox_unpack_drop:N \l__wstf_l_box }
1388     \box_if_empty:NF \l__wstf_r_box
1389     {
1390         \vbox_set:Nn \l__wstf_r_box
1391         { \vbox_unpack_drop:N \l__wstf_r_box }
1392 }

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1393     \__wstf_save_first_ht:
1394   }
1395 \cs_new_protected_nopar:Npn \__wstf_put_last_line:
1396   {
1397     \bool_if:NT \l__wstf_attach_equation_bool
1398       { \__wstf_attach_left:N \l__wstf_l_box }
1399     \__wstf_put_line_box:
1400   }
1401 \cs_new_protected_nopar:Npn \__wstf_put_line_box:
1402   {
1403     \hbox_to_wd:nn { \l__wstf_line_dim }
1404   {
1405     \box_use_drop:N \l__wstf_l_box
1406     \tex_hfil:D
1407     \box_use_drop:N \l__wstf_r_box
1408   }
1409 }
1410 \cs_new_protected_nopar:Npn \__wstf_save_first_ht:
1411   {
1412     \dim_gset:Nn \g__wstf_ht_dim
1413   {
1414     \dim_max:nn
1415       { \box_ht:N \l__wstf_l_box }
1416       { \box_ht:N \l__wstf_r_box }
1417   }
1418   \cs_set_eq:NN \__wstf_save_first_ht: \__wstf_empty:
1419 }
1420 \dim_new:N \g__wstf_ht_dim
1421 \box_new:N \l__wstf_l_box
1422 \box_new:N \l__wstf_r_box

\__wstf_build_column_fuzzy: 1423 \cs_new_protected_nopar:Npn \__wstf_build_column_fuzzy:
1424   {
1425     \hbox_set_to_wd:Nnn \l__wstf_window_box
1426       { \l__wstf_line_dim }
1427   {
1428     \__wstf_split_parameter:
1429     \__wstf_build_column_aux:
1430     \box_if_empty:NT \l__wstf_bottom_box
1431       { \__wstf_build_column_fuzzy_aux: }
1432     \__wstf_repack_left_box:
1433     \bool_if:NT \l__wstf_attach_equation_bool
1434       { \__wstf_attach_left:N \l__wstf_l_box }
1435     \box_use:N \l__wstf_l_box
1436     \tex_hfil:D
1437     \box_move_up:nn
1438       { \box_ht:N \l__wstf_l_box - \box_ht:N \l__wstf_r_box }
1439       { \box_use_drop:N \l__wstf_r_box }
1440   }
1441 }
1442 \cs_new_protected_nopar:Npn \__wstf_build_column_aux:
1443   {
1444     \vbox_set_split_to_ht:NNn \l__wstf_l_box \l__wstf_body_box
1445       { \box_ht:N \l__wstf_body_box / 2 }
1446     \vbox_set_top:Nn \l__wstf_l_box
1447       { \vbox_unpack_drop:N \l__wstf_l_box }
1448     \box_set_eq_drop:NN \l__wstf_r_box \l__wstf_body_box
1449   }
1450 \cs_new_protected_nopar:Npn \__wstf_build_column_fuzzy_aux:
1451   {
1452     \dim_compare:nNnTF
1453       {
1454         \box_ht_plus_dp:N \l__wstf_r_box -
1455         \box_ht_plus_dp:N \l__wstf_l_box
1456       }
1457     >
1458     { \l__wstf_min_dim }
1459   }

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1460     \box_if_empty:NF \l_wstf_last_l_box
1461     {
1462         \box_set_eq_drop:NN \l_wstf_l_box \l_wstf_last_l_box
1463         \box_set_eq_drop:NN \l_wstf_r_box \l_wstf_last_r_box
1464     }
1465 }
1466 { \__wstf_rebuild_window: }
1467 }
1468 \cs_new_protected_nopar:Npn \__wstf_rebuild_window:
1469 {
1470     \int_compare:nNnT \l_wstf_window_int > { 2 }
1471     { \__wstf_rebuild_window_aux: }
1472 }
1473 \cs_new_protected_nopar:Npn \__wstf_rebuild_window_aux:
1474 {
1475     \int_sub:Nn \l_wstf_window_int { 2 }
1476     \box_set_eq_drop:NN \l_wstf_last_l_box \l_wstf_l_box
1477     \box_set_eq_drop:NN \l_wstf_last_r_box \l_wstf_r_box
1478     \box_set_eq:NN \l_wstf_bottom_box \l_wstf_save_body_box
1479     \int_set_eq:NN \l_wstf_window_line_int \l_wstf_window_int
1480     \__wstf_build_window:
1481     \__wstf_build_column_aux:
1482     \__wstf_build_column_fuzzy_aux:
1483 }
1484 \box_new:N \l_wstf_last_l_box
1485 \box_new:N \l_wstf_last_r_box

\__wstf_build_column_strict:
1486 \cs_new_protected_nopar:Npn \__wstf_build_column_strict:
1487 {
1488     \group_begin:
1489     \__wstf_split_parameter:
1490     \__wstf_build_column_aux:
1491     \box_if_empty:NTF \l_wstf_r_box
1492     { \__wstf_build_column_strict_auxi: }
1493     {
1494         \box_if_empty:NTF \l_wstf_bottom_box
1495         { \__wstf_build_column_strict_auxii: }
1496         {
1497             \bool_if:NTF \g_wstf_column_bool
1498             { \__wstf_build_column_strict_auxiii: }
1499             { \__wstf_build_column_strict_auxiv: }
1500         }
1501     }
1502     \group_end:
1503     \box_set_eq_drop:NN \l_wstf_window_box \g_wstf_window_box
1504 }
1505 \cs_new_protected_nopar:Npn \__wstf_build_column_strict_auxi:
1506 {
1507     \__wstf_repack_left_box:
1508     \bool_if:NT \l_wstf_attach_equation_bool
1509     { \__wstf_attach_left:N \l_wstf_l_box }
1510     \box_gset_eq_drop:NN \g_wstf_window_box \l_wstf_l_box
1511     \bool_gset_true:N \g_wstf_column_bool
1512     \bool_if:NF \g_wstf_first_save_bool
1513     {
1514         \bool_gset_true:N \g_wstf_first_save_bool
1515         \dim_gset:Nn \g_wstf_first_sep_dim
1516         { \tex_baselineskip:D - \g_wstf_ht_dim }
1517         \dim_gset_eq:NN \g_wstf_first_dp_dim \g_wstf_prevdepth_dim
1518     }
1519     \int_case:nnT { \g_wstf_window_int }
1520     {
1521         { \c_zero_int } { }
1522         { \g_wstf_line_int } { }
1523     }
1524     { \__wstf_column_move_entire_aux: }
1525 }
1526 \cs_new_protected_nopar:Npn \__wstf_column_move_entire_aux:

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1527  {
1528    \bool_gset_true:N \g_wstf_entire_bool
1529    \bool_gset_true:N \g_wstf_next_hang_bool
1530  }
1531 \cs_new_protected_nopar:Npn \__wstf_column_move_entire:
1532  {
1533    \dim_gsub:Nn \g_wstf_first_sep_dim
1534    { \box_dp:N \l_wstf_window_box }
1535    \bool_gset_false:N \g_wstf_entire_bool
1536    \dim_gzero:N \g_wstf_column_ht_dim
1537    \dim_gset_eq:NN \g_wstf_prevdepth_dim \g_wstf_first_dp_dim
1538    \__wstf_column_right_move_set:nn
1539    { \g_wstf_stuff_ht_dim }
1540    { \g_wstf_window_ht_dim }
1541    \int_gset_eq:NN \g_wstf_window_int \g_wstf_column_int
1542  }
1543 \cs_new_protected:Npn \__wstf_column_right_move_set:nn #1#2
1544  {
1545    \bool_gset_true:N \g_wstf_right_move_bool
1546    \bool_gset_true:N \g_wstf_first_set_bool
1547    \tl_gput_right:Nn \g_wstf_main_setting_tl
1548    {
1549      \bool_if:NTF \g_wstf_first_set_bool
1550      {
1551        \bool_gset_false:N \g_wstf_first_set_bool
1552        \bool_set_true:N \l_wstf_first_move_bool
1553      }
1554      { \bool_set_false:N \l_wstf_first_move_bool }
1555      \fp_zero:N \l_wstf_ratio_fp
1556    }
1557    \__wstf_make_next_stuff:nn
1558    { \l_wstf_line_dim - \l_wstf_r_dim - \l_wstf_rightsep_dim }
1559    {#1}
1560    \dim_gset:Nn \g_wstf_column_room_dim {#2}
1561    \int_gzero:N \g_wstf_top_int
1562  }
1563 \cs_new_protected_nopar:Npn \__wstf_build_column_strict_auxii:
1564  {
1565    \bool_gset_false:N \g_wstf_entire_bool
1566    \__wstf_repack_left_box:
1567    \bool_if:NT \l_wstf_attach_equation_bool
1568    { \__wstf_attach_right:N \l_wstf_r_box }
1569    \dim_gset:Nn \g_wstf_hang_ht_dim
1570    {
1571      \g_wstf_stuff_ht_dim - \tex_baselineskip:D *
1572      \__wstf_unit:n { \box_ht_plus_dp:N \l_wstf_r_box }
1573      - \box_ht_plus_dp:N \g_wstf_equation_box
1574      - \g_wstf_pos_skip
1575    }
1576    \dim_compare:nNnTF \g_wstf_hang_ht_dim > \c_zero_dim
1577    { \__wstf_column_move_right: }
1578    { \__wstf_column_put_right: }
1579    \box_gset_ht:Nn \g_wstf_window_box { \box_ht:N \l_wstf_l_box }
1580    \box_gset_dp:Nn \g_wstf_window_box { \box_dp:N \l_wstf_l_box }
1581  }
1582 \cs_new_protected_nopar:Npn \__wstf_column_move_right:
1583  {
1584    \int_compare:nNnTF \g_wstf_window_int > \c_zero_int
1585    {
1586      \dim_gset:Nn \g_wstf_column_room_dim
1587      {
1588        \g_wstf_window_ht_dim
1589        - \g_wstf_first_sep_dim
1590        - \box_ht_plus_dp:N \l_wstf_r_box
1591        - \box_ht_plus_dp:N \g_wstf_equation_box
1592      }
1593      \__wstf_next_hang_para:

```

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1594     }
1595     {
1596         \dim_gset:Nn \g_wstf_column_room_dim
1597         {
1598             \box_ht:N \l_wstf_l_box
1599             - \box_ht_plus_dp:N \l_wstf_r_box
1600             - \box_ht_plus_dp:N \g_wstf_equation_box
1601         }
1602         \dim_gset:Nn \g_wstf_first_sep_dim
1603         {
1604             \tex_baselineskip:D - \g_wstf_ht_dim
1605             \bool_gset_true:N \g_wstf_right_move_bool
1606             \bool_gset_true:N \g_wstf_next_hang_bool
1607         }
1608         \hbox_gset_to_wd:Nnn \g_wstf_window_box
1609         {
1610             \l_wstf_line_dim
1611         }
1612         {
1613             \box_use:N \l_wstf_l_box
1614             \tex_hfil:D
1615             \box_move_up:nn
1616             {
1617                 \g_wstf_column_room_dim
1618                 \box_use:N \l_wstf_r_box
1619             }
1620             + \box_ht_plus_dp:N \g_wstf_equation_box
1621             + \g_wstf_pos_skip
1622         }
1623 \cs_new_protected_nopar:Npn \__wstf_column_put_right:
1624 {
1625     \hbox_gset_to_wd:Nnn \g_wstf_window_box
1626     {
1627         \l_wstf_line_dim
1628         {
1629             \box_use:N \l_wstf_l_box
1630             \tex_hfil:D
1631             \box_move_up:nn
1632             {
1633                 \int_compare:nNnTF \g_wstf_window_int > \c_zero_int
1634                 {
1635                     \g_wstf_window_ht_dim - \g_wstf_first_sep_dim
1636                     \box_ht:N \l_wstf_l_box
1637                     - \box_ht:N \l_wstf_r_box
1638                 }
1639                 \box_use:N \l_wstf_r_box
1640             }
1641             \skip_gzero:N \g_wstf_pos_skip
1642         }
1643 \cs_new_protected_nopar:Npn \__wstf_next_hang_para:
1644 {
1645     \bool_if:NTF \g_wstf_entire_bool
1646     {
1647         \__wstf_column_move_entire:
1648         {
1649             \__wstf_column_right_move_set:nn
1650             {
1651                 \g_wstf_hang_ht_dim
1652                 \g_wstf_column_room_dim
1653                 \int_gzero:N \g_wstf_window_int
1654             }
1655             \bool_gset_false:N \g_wstf_next_hang_bool
1656         }
1657 \cs_new_protected_nopar:Npn \__wstf_build_column_strict_auxiii:
1658 {
1659     \bool_gset_false:N \g_wstf_column_bool
1660     \__wstf_repack_left_box:
1661     \hbox_gset_to_wd:Nnn \g_wstf_window_box
1662     {
1663         \l_wstf_line_dim
1664         {
1665             \box_use:N \l_wstf_l_box

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1661      \tex_hfil:D
1662      \box_use:N \l_wstf_r_box
1663  }
1664  \box_gset_ht:Nn \g_wstf_window_box
1665  { \box_ht:N \l_wstf_l_box }
1666  }
1667 \cs_new_protected_nopar:Npn \__wstf_build_column_strict_auxiv:
1668  {
1669      \__wstf_repack_left_box:
1670      \hbox_gset_to_wd:Nnn \g_wstf_window_box
1671      { \l_wstf_line_dim }
1672      {
1673          \box_use:N \l_wstf_l_box
1674          \tex_hfil:D
1675          \box_move_up:nn
1676          { \box_ht:N \l_wstf_l_box - \box_ht:N \l_wstf_r_box }
1677          { \box_use_drop:N \l_wstf_r_box }
1678      }
1679  }
1680 \cs_new_protected_nopar:Npn \__wstf_repack_left_box:
1681  {
1682      \dim_gset:Nn \g_wstf_ht_dim { \box_ht:N \l_wstf_l_box }
1683      \vbox_set:Nn \l_wstf_l_box
1684      { \vbox_unpack_drop:N \l_wstf_l_box }
1685  }
1686 \box_new:N \g_wstf_window_box
1687 \bool_new:N \l_wstf_first_move_bool

\__wstf_build_box: 1688 \bool_new:N \l_wstf_column_bool
\__wstf_build_column: 1689 \cs_new_eq:NN \__wstf_build_column: \__wstf_build_column_strict:
1690 \cs_new_eq:NN \__wstf_build_box: \__wstf_build_column:

\__wstf_build_hang: 1691 \cs_new_protected_nopar:Npn \__wstf_build_hang:
1692  {
1693      \bool_if:NTF \g_wstf_hangfrom_bool
1694      { \__wstf_build_hangfrom: }
1695      {
1696          \vbox_set_top:Nn \l_wstf_window_box
1697          { \vbox_unpack:N \l_wstf_body_box }
1698          \dim_gset:Nn \g_wstf_ht_dim { \box_ht:N \l_wstf_window_box }
1699      }
1700      \box_set_eq_drop:NN \l_wstf_window_box \l_wstf_body_box
1701      \bool_if:NT \l_wstf_attach_equation_bool
1702      { \__wstf_build_hang_attach: }
1703      \dim_compare:nNnT \g_wstf_column_room_dim > \c_zero_dim
1704      { \__wstf_build_hang_move: }
1705  }
1706 \cs_new_protected_nopar:Npn \__wstf_build_hang_attach:
1707  {
1708      \dim_compare:nNnTF \l_wstf_r_dim = \c_zero_dim
1709      { \__wstf_attach_left:N \l_wstf_window_box }
1710      { \__wstf_attach_right:N \l_wstf_window_box }
1711  }
1712 \cs_new_protected_nopar:Npn \__wstf_build_hang_move:
1713  {
1714      \dim_set:Nn \l_wstf_shift_dim
1715  {
1716      \dim_max:nn
1717      { \box_ht:N \l_wstf_window_box }
1718      { \tex_baselineskip:D * \g_wstf_line_int }
1719      + \box_ht_plus_dp:N \g_wstf_equation_box
1720      + \tex_parskip:D
1721  }
1722  \dim_gsub:Nn \g_wstf_column_room_dim { \l_wstf_shift_dim }
1723  \dim_compare:nNnTF \g_wstf_column_room_dim > \c_zero_dim
1724  {
1725      \box_if_empty:NTF \l_wstf_bottom_box
1726      { \bool_if:NT \g_wstf_right_move_bool { \__wstf_set_next_hang: } }

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1727     }
1728     { \use:n }
1729     {
1730         \bool_gset_false:N \g_wstf_move_hang_bool
1731         \bool_gset_false:N \g_wstf_right_move_bool
1732     }
1733 }
1734 \cs_new_protected_nopar:Npn \__wstf_set_next_hang:
1735 {
1736     \bool_if:NF \g_wstf_move_hang_bool
1737     {
1738         \bool_gset_true:N \g_wstf_move_hang_bool
1739         \dim_gset_eq:NN \g_wstf_hang_ht_dim \g_wstf_remaining_dim
1740     }
1741     \dim_gsub:Nn \g_wstf_hang_ht_dim { \l_wstf_shift_dim }
1742     \__wstf_column_right_move_set:nn
1743     { \g_wstf_hang_ht_dim }
1744     { \g_wstf_column_room_dim }
1745     \int_gzero:N \g_wstf_window_int
1746 }
1747 \__wstf_build_hangfrom: \cs_new_protected_nopar:Npn \__wstf_build_hangfrom:
1748 {
1749     \group_begin:
1750     \vbox_gset:Nn \g_wstf_window_box
1751     {
1752         \__wstf_break:
1753         \vbox_unpack:N \l_wstf_body_box
1754     }
1755     \__wstf_split_parameter:
1756     \vbox_set_split_to_ht:NNn \l_wstf_last_box \g_wstf_window_box
1757     { \c_zero_dim }
1758     \dim_gset:Nn \g_wstf_ht_dim
1759     {
1760         \g_wstf_baseline_skip
1761         - \g_wstf_prevdepth_dim
1762         - \box_ht:N \l_wstf_body_box
1763         + \box_ht:N \g_wstf_window_box
1764     }
1765     \group_end:
1766     \box_set_eq_drop:NN \l_wstf_body_box \g_wstf_window_box
1767 }

\__wstf_put_box: \cs_new_protected_nopar:Npn \__wstf_put_box:
1768 {
1769     \__wstf_para_raw_end:
1770     \dim_compare:nNnTF \g_wstf_prevdepth_dim > \c_wstf_ignore_depth_dim
1771     { \__wstf_add_vskip: }
1772     { \__wstf_set_vskip: }
1773     \skip_set_eq:NN \l_wstf_par_skip \tex_parskip:D
1774     \skip_zero:N \tex_parskip:D
1775     \dim_set:Nn \l_wstf_window_ht_dim
1776     { \box_ht_plus_dp:N \l_wstf_window_box }
1777     \bool_if:NTF \g_wstf_right_move_bool
1778     { \__wstf_put_box_aux: }
1779     {
1780         \box_if_empty:NTF \l_wstf_bottom_box
1781         { \__wstf_put_next_test: }
1782         { \__wstf_put_box_aux: }
1783     }
1784 }
1785 \dim_new:N \l_wstf_window_ht_dim
1786 \skip_new:N \l_wstf_par_skip
1787 \cs_new_protected_nopar:Npn \__wstf_put_next_test:
1788 {
1789     \box_if_empty:NF \g_wstf_equation_box
1790     {
1791

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1792         \dim_add:Nn \l__wstf_window_ht_dim
1793             { \box_ht_plus_dp:N \g__wstf_equation_box + \g__wstf_pos_skip }
1794     }
1795 \dim_compare:nNnTF
1796     { \g__wstf_remaining_dim + \g__wstf_pos_skip } > \l__wstf_window_ht_dim
1797     { \__wstf_set_next: }
1798     { \__wstf_put_box_aux: }
1799 }
1800 \cs_new_protected_nopar:Npn \__wstf_put_box_aux:
1801 {
1802     \__wstf_output_window_box:
1803     \box_if_empty:NTF \l__wstf_bottom_box
1804         { \__wstf_put_trailer_box: }
1805         { \__wstf_put_bottom_box: }
1806 }
1807 \cs_new_protected_nopar:Npn \__wstf_put_trailer_box:
1808 {
1809     \bool_if:NTF \g__wstf_next_hang_bool
1810     {
1811         \__wstf_next_hang_para:
1812         \__wstf_next_para_trailer:
1813     }
1814     {
1815         \bool_if:NTF \g__wstf_right_move_bool
1816             { \__wstf_next_para_trailer: }
1817             {
1818                 \__wstf_add_pos_kludge:
1819                 \__wstf_put_pos_box:
1820                 \__wstf_clear_variable:
1821             }
1822     }
1823 }
1824 \cs_new_protected_nopar:Npn \__wstf_put_bottom_box:
1825 {
1826     \__wstf_para_raw_end:
1827     \para_raw_noindent:
1828     \hbox_unpack_drop:N \l__wstf_bottom_box
1829     \box_if_empty:NF \g__wstf_equation_box
1830         { \__wstf_insert_equation: }
1831     \__wstf_put_pos_box:
1832     \__wstf_clear_variable:
1833 }
1834 \cs_new_protected_nopar:Npn \__wstf_output_window_box:
1835 {
1836     \__wstf_hbox:n
1837     {
1838         \__wstf_put_window_box:
1839         \bool_if:NF \g__wstf_next_bool
1840             { \__wstf_output_stuff_box: }
1841     }
1842 }
1843 \cs_new_protected_nopar:Npn \__wstf_put_pos_box:
1844 {
1845     \box_if_empty:NF \g__wstf_pos_box
1846         { \__wstf_output_pos_box: }
1847 }
1848 \cs_new_protected_nopar:Npn \__wstf_output_pos_box:
1849 {
1850     \__wstf_if_last_none:F
1851         { \__wstf_output_pos_box_aux: }
1852     \hbox_unpack_drop:N \g__wstf_pos_box
1853 }
1854 \cs_new_protected_nopar:Npn \__wstf_output_pos_box_aux:
1855 {
1856     \__wstf_para_raw_end:
1857     \bool_if:NT \g__wstf_equation_dp_bool
1858         { \__wstf_set_equation_depth: }
```

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1859      \para_raw_noindent:
1860    }
1861 \cs_new_protected:Npn \__wstf_hbox:n #1
1862 {
1863   \para_raw_noindent:
1864   \hbox_gset:Nn \g__wstf_last_box {#1}
1865   \box_gset_wd:Nn \g__wstf_last_box { \l__wstf_line_dim }
1866   \box_use_drop:N \g__wstf_last_box
1867 }
1868 \cs_new_protected_nopar:Npn \__wstf_put_window_box:
1869 {
1870   \dim_compare:nNnF \l__wstf_l_dim > \c_zero_dim
1871   { \skip_horizontal:n { \l__wstf_line_dim - \l__wstf_r_dim } }
1872   \box_use:N \l__wstf_window_box
1873 }
1874 \cs_new_protected_nopar:Npn \__wstf_output_stuff_box:
1875 {
1876   \hbox_gset:Nn \g__wstf_stuff_box
1877   {
1878     \__wstf_parshape_kern:
1879     \box_move_up:nn
1880     {
1881       \box_dp:N \g__wstf_stuff_box
1882       + \box_ht:N \l__wstf_window_box
1883       - ( \l__wstf_window_ht_dim
1884         + \box_ht_plus_dp:N \g__wstf_stuff_box ) / 2
1885       + \l__wstf_voffset_dim
1886     }
1887     { \box_use_drop:N \g__wstf_stuff_box }
1888   }
1889   \box_gset_ht:Nn \g__wstf_stuff_box { \c_zero_dim }
1890   \box_gset_dp:Nn \g__wstf_stuff_box { \c_zero_dim }
1891   \skip_horizontal:n
1892   {
1893     \dim_compare:nNnTF \l__wstf_r_dim > \c_zero_dim
1894     {
1895       \dim_compare:nNnTF
1896       { \box_wd:N \l__wstf_window_box }
1897       <
1898       { \l__wstf_window_dim }
1899       { \l__wstf_leftsep_dim }
1900       {
1901         - \l__wstf_r_dim
1902         - \l__wstf_rightsep_dim
1903         - \g__wstf_wd_dim
1904       }
1905     }
1906     { \l__wstf_leftsep_dim }
1907   }
1908   \box_use_drop:N \g__wstf_stuff_box
1909 }

\__wstf_add_vskip: 1910 \cs_new_protected_nopar:Npn \__wstf_add_vskip:
1911 {
1912   \box_if_empty:NTF \g__wstf_display_box
1913   { \__wstf_add_vskip_auxi: }
1914   { \__wstf_add_vskip_display: }
1915 }
1916 \cs_new_protected_nopar:Npn \__wstf_add_vskip_display:
1917 {
1918   \bool_set_true:N \l__wstf_display_pre_bool
1919   \vbox_unpack_drop:N \g__wstf_display_box
1920   \__wstf_ignore_depth:
1921 }
1922 \cs_new_protected_nopar:Npn \__wstf_add_vskip_auxi:
1923 {
1924   \dim_compare:nNnTF \tex_pagegoal:D < \c_max_dim
1925   { \__wstf_add_vskip_auxii: }

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1926      {
1927          \bool_if:NTF \g_wstf_next_bool
1928              { \__wstf_add_vskip_auxii: }
1929              { \__wstf_add_vskip_auxiii: }
1930      }
1931  }
1932 \cs_new_protected_nopar:Npn \__wstf_add_vskip_auxii:
1933  {
1934      \__wstf_add_vskip_auxiv:
1935      \bool_if:NTF \l_wstf_first_move_bool
1936          { \__wstf_first_move_skip: }
1937          { \skip_vertical:N \g_wstf_pre_skip }
1938      \__wstf_ignore_depth:
1939  }
1940 \cs_new_protected_nopar:Npn \__wstf_add_vskip_auxiii:
1941  {
1942      \__wstf_add_vskip_auxiv:
1943      \skip_vertical:N \g_wstf_pre_skip
1944      \dim_compare:nNnTF \tex_topskip:D > \g_wstf_ht_dim
1945      {
1946          \skip_sub:Nn \tex_topskip:D { \g_wstf_ht_dim }
1947          \tex_hrule:D height \c_zero_dim \scan_stop:
1948      }
1949      { \__wstf_ignore_depth: }
1950  }
1951 \cs_new_protected_nopar:Npn \__wstf_add_vskip_auxiv:
1952  {
1953      \skip_gset:Nn \g_wstf_pre_skip
1954      {
1955          \g_wstf_baseline_skip
1956          - \g_wstf_prevdepth_dim
1957          - \g_wstf_ht_dim
1958      }
1959      \dim_compare:nNnT \g_wstf_pre_skip < \tex_lineskiplimit:D
1960      { \skip_gset_eq:NN \g_wstf_pre_skip \tex_lineskip:D }
1961  }
1962 \cs_new_protected_nopar:Npn \__wstf_first_move_skip:
1963  {
1964      \skip_vertical:n
1965      {
1966          \g_wstf_first_sep_dim
1967          - \g_wstf_window_ht_dim
1968          - \tex_parskip:D
1969          \dim_compare:nNnT \g_wstf_column_ht_dim > \c_zero_dim
1970          { + \g_wstf_column_ht_dim + \g_wstf_pre_skip }
1971      }
1972  }
1973 \skip_new:N \g_wstf_pre_skip
1974 \bool_new:N \l_wstf_display_pre_bool

\__wstf_set_vskip: 1975 \cs_new_protected_nopar:Npn \__wstf_set_vskip:
1976  {
1977      \box_if_empty:NTF \g_wstf_display_box
1978      {
1979          \skip_gset:Nn \g_wstf_pre_skip
1980          { \g_wstf_baseline_skip - \g_wstf_ht_dim }
1981      }
1982      { \__wstf_add_vskip_display: }
1983  }

\__wstf_ignore_depth: 1984 \cs_new_protected_nopar:Npn \__wstf_ignore_depth:
\__wstf_set_prevdepth:N 1985 { \dim_set_eq:NN \tex_prevdepth:D \c_wstf_ignore_depth_dim }
1986 \cs_new_protected_nopar:Npn \__wstf_set_prevdepth:N
1987 { \dim_set_eq:NN \tex_prevdepth:D }
1988 \dim_const:Nn \c_wstf_ignore_depth_dim { -1000pt }

\__wstf_set_next: 1989 \cs_new_protected_nopar:Npn \__wstf_set_next:
1990  {

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1991 \dim_set:Nn \l__wstf_height_dim
1992 {
1993     \bool_if:NT \g__wstf_next_bool { \l__wstf_par_skip }
1994     + \g__wstf_pre_skip
1995     + \l__wstf_window_ht_dim
1996 }
1997 \dim_gadd:Nn \g__wstf_total_ht_dim { \l__wstf_height_dim }
1998 \dim_set:Nn \l__wstf_shift_dim
1999     { \g__wstf_remaining_dim - \l__wstf_height_dim }
2000 \dim_compare:nNnTF
2001     { - \l__wstf_shift_dim } < \l__wstf_min_dim
2002     { \__wstf_set_next_para: }
2003     { \__wstf_set_next_output: }
2004 }
2005 \cs_new_protected_nopar:Npn \__wstf_set_next_para:
2006 {
2007     \int_gset:Nn \g__wstf_window_int
2008     {
2009         \dim_compare:nNnTF \l__wstf_shift_dim > \c_zero_dim
2010         { \__wstf_unit:n { \l__wstf_shift_dim } }
2011         { \c_one_int }
2012     }
2013     \__wstf_set_next_verify:
2014     \__wstf_output_window_box:
2015     \__wstf_make_next_stuff:nn
2016     { \g__wstf_stuff_wd_dim }
2017     { \l__wstf_shift_dim }
2018     \int_gzero:N \g__wstf_top_int
2019     \__wstf_next_para_trailer:
2020 }
2021 \cs_new_protected_nopar:Npn \__wstf_set_next_output:
2022 {
2023     \__wstf_output_window_box:
2024     \__wstf_add_pos_kludge:
2025     \__wstf_put_pos_box:
2026     \__wstf_clear_variable:
2027 }
2028 \cs_new_protected_nopar:Npn \__wstf_set_next_verify:
2029 {
2030     \dim_set:Nn \l__wstf_height_dim
2031     { \g__wstf_window_ht_dim - \g__wstf_total_ht_dim - \l__wstf_min_dim }
2032     \dim_while_do:nNn
2033     { \tex_baselineskip:D * \g__wstf_window_int + \l__wstf_par_skip }
2034     <
2035     { \l__wstf_height_dim }
2036     { \int_gincr:N \g__wstf_window_int }
2037     \bool_if:NF \g__wstf_next_bool
2038     {
2039         \dim_add:Nn \l__wstf_window_ht_dim
2040         { \tex_baselineskip:D * \g__wstf_window_int + \l__wstf_par_skip }
2041     }
2042 }
2043 \__wstf_next_para_trailer: \cs_new_protected_nopar:Npn \__wstf_next_para_trailer:
2044 {
2045     \__wstf_add_pos_kludge:
2046     \box_if_empty:NTF \g__wstf_pos_box
2047     { \__wstf_next_para: }
2048     {
2049         \__wstf_env_begin:
2050         \hbox_unpack_drop:N \g__wstf_pos_box
2051         \__wstf_env_end:
2052     }
2053 }
2054 \__wstf_make_next_stuff:nn \cs_new_protected:Npn \__wstf_make_next_stuff:nn #1#2
2055 {
2056     \bool_gset_true:N \g__wstf_next_bool

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```

2057     \dim_gset:Nn \g_wstf_stuff_wd_dim {#1}
2058     \dim_gset:Nn \g_wstf_remaining_dim {#2}
2059 }

\__wstf_extract_hbox:NN 2060 \cs_new_protected:Npn \__wstf_extract_display_hbox:NN #1
2061 {
2062     \box_gclear:N \g_wstf_pos_box
2063     \vbox_set:Nn #1
2064     {
2065         \vbox_unpack_drop:N #1
2066         \bool_if:NTF \g_wstf_display_bool
2067             { \__wstf_test_display_math: }
2068             { \box_gclear:N \g_wstf_display_box }
2069         \box_if_empty:NTF \g_wstf_display_box
2070             {
2071                 \bool_gset_false:N \g_wstf_amsmath_bool
2072                 \__wstf_extract_last_hbox:N \g_wstf_last_box
2073             }
2074             { \box_gclear:N \g_wstf_last_box }
2075     }
2076     \box_if_empty:NF \g_wstf_display_box
2077         { \dim_gset:Nn \g_wstf_display_pre_dim { \box_dp:N #1 } }
2078     \__wstf_extract_hbox_aux:N
2079 }

2080 \cs_new_protected:Npn \__wstf_extract_hbox:NN #1
2081 {
2082     \vbox_set:Nn #1
2083     {
2084         \vbox_unpack_drop:N #1
2085         \__wstf_extract_last_hbox:N \g_wstf_last_box
2086     }
2087     \__wstf_extract_hbox_aux:N
2088 }

2089 \cs_new_protected:Npn \__wstf_extract_hbox_aux:N #1
2090 {
2091     \box_if_empty:NTF \g_wstf_last_box
2092         { \box_clear:N #1 }
2093         { \__wstf_repack_hbox:N #1 }
2094 }

2095 \cs_new_protected:Npn \__wstf_repack_hbox:N #1
2096 {
2097     \hbox_set:Nn #1
2098     {
2099         \skip_if_eq:nnF
2100             { \g_wstf_main_left_skip } { \c_zero_skip }
2101             { \skip_horizontal:N \g_wstf_main_left_skip }
2102         \hbox_unpack_drop:N \g_wstf_last_box
2103         \tex_unskip:D \tex_unskip:D \tex_unpenalty:D
2104     }
2105 }

2106 \cs_new_protected:Npn \__wstf_extract_last_hbox:N #1
2107 {
2108     \__wstf_if_last_hlist:TF
2109     {
2110         \box_gset_to_last:N #1
2111         \tex_unskip:D
2112     }
2113     { \box_gclear:N #1 }
2114 }

2115 \box_new:N \g_wstf_last_box
2116 \box_new:N \g_wstf_display_box
2117 \dim_new:N \g_wstf_display_pre_dim

\__wstf_test_display_math: 2118 \cs_new_protected_nopar:Npn \__wstf_test_display_math:
2119 {
2120     \__wstf_if_last_hlist:T { \__wstf_extract_pos_hbox: }
2121     \box_clear:N \l_wstf_add_box
2122     \box_gclear:N \g_wstf_display_box

```

```

2123   \skip_gzero:N \g__wstf_last_skip
2124   \skip_gzero:N \g__wstf_display_pre_skip
2125   \bool_gset_false:N \g__wstf_amsmath_bool
2126   \__wstf_add_last_skip:w
2127   \__wstf_add_last_penalty:w
2128   \__wstf_add_last_box:w
2129   \__wstf_add_last_skip:w
2130   \__wstf_add_last_skip:w
2131   \__wstf_add_last_penalty:w
2132   \__wstf_add_last_finalise:w \s_stop
2133 }
2134 \cs_new_protected_nopar:Npn \__wstf_extract_pos_hbox:
2135 {
2136   \box_gset_to_last:N \g__wstf_last_box
2137   \__wstf_repack_hbox:N \l__wstf_last_box
2138   \box_gset_eq_drop:NN \g__wstf_pos_box \l__wstf_last_box
2139   \tex_unskip:D
2140 }
2141 \box_new:N \l__wstf_add_box
2142 \box_new:N \g__wstf_pos_box

\__wstf_add_last_stop:w 2143 \cs_new_protected_nopar:Npn \__wstf_add_last_stop:w
2144 {
2145   \vbox_unpack_drop:N \l__wstf_add_box
2146   \use_none_delimit_by_s_stop:w
2147 }

\__wstf_add_last_skip:w 2148 \cs_new_protected_nopar:Npn \__wstf_add_last_skip:w
2149 {
2150   \__wstf_if_last_glue:TF
2151   {
2152     \skip_set_eq:NN \l__wstf_last_skip \tex_lastskip:D
2153     \vbox_set:Nn \l__wstf_add_box
2154     {
2155       \skip_vertical:N \l__wstf_last_skip
2156       \vbox_unpack_drop:N \l__wstf_add_box
2157     }
2158     \tex_unskip:D
2159     \skip_gadd:Nn \g__wstf_last_skip { \l__wstf_last_skip }
2160   }
2161   { \__wstf_skip_stop:w }
2162 }
2163 \skip_new:N \l__wstf_last_skip
2164 \skip_new:N \g__wstf_last_skip
2165 \cs_new_eq:NN \__wstf_skip_stop:w \__wstf_add_last_stop:w

\__wstf_add_last_penalty:w 2166 \cs_new_protected_nopar:Npn \__wstf_add_last_penalty:w
2167 {
2168   \__wstf_if_last_penalty:TF
2169   {
2170     \int_set_eq:NN \l__wstf_last_int \tex_lastpenalty:D
2171     \vbox_set:Nn \l__wstf_add_box
2172     {
2173       \tex_penalty:D \l__wstf_last_int
2174       \vbox_unpack_drop:N \l__wstf_add_box
2175     }
2176     \tex_unpenalty:D
2177     \skip_gset_eq:NN \g__wstf_pre_skip \g__wstf_last_skip
2178     \skip_gzero:N \g__wstf_last_skip
2179   }
2180   { \__wstf_penalty_stop:w }
2181 }
2182 \int_new:N \l__wstf_last_int
2183 \cs_new_eq:NN \__wstf_penalty_stop:w \__wstf_add_last_stop:w

\__wstf_add_last_box:w 2184 \cs_new_protected_nopar:Npn \__wstf_add_last_box:w
2185 {
2186   \__wstf_if_last_hlist:TF

```

```

2187     {
2188         \skip_gzero:N \g_wstf_last_skip
2189         \box_set_to_last:N \l_wstf_last_box
2190         \vbox_set:Nn \l_wstf_add_box
2191         {
2192             \box_use_drop:N \l_wstf_last_box
2193             \vbox_unpack_drop:N \l_wstf_add_box
2194         }
2195     }
2196     { \wstf_box_stop:w }
2197 }
2198 \box_new:N \l_wstf_last_box
2199 \cs_new_eq:NN \wstf_box_stop:w \wstf_add_last_stop:w

\wstf_add_last_finalise:w 2200 \cs_new_protected_nopar:Npn \wstf_add_last_finalise:w
2201 {
2202     \int_gset_eq:NN \g_wstf_display_pre_int \l_wstf_last_int
2203     \skip_gadd:Nn \g_wstf_display_pre_skip { \g_wstf_pre_skip }
2204     \int_case:nnTF { \tex_lastnodetype:D }
2205     {
2206         { \c_wstf_hlist_node } { }
2207         { \c_wstf_none_node } { }
2208         { \c_wstf_whatsit_node } { }
2209     }
2210     { \box_gset_eq_drop:NN \g_wstf_display_box \l_wstf_add_box }
2211     { \vbox_unpack_drop:N \l_wstf_add_box }
2212     \use_none_delimit_by_s_stop:w
2213 }
2214 \int_new:N \g_wstf_display_pre_int
2215 \skip_new:N \g_wstf_display_pre_skip

```

`\wstf_amsmath_boot:w` **amsmath** 的 align 等数学环境内部是一个 `\halign` 环境, 结构不一样, 需要另外处理。

```

\wstf_amsmath_recursion:w 2216 \cs_new_protected_nopar:Npn \wstf_amsmath_boot:w
\wstf_amsmath_multline:w 2217 {
2218     \wstf_add_last_skip:w
2219     \wstf_add_last_penalty:w
2220     \cs_set_eq:NN \wstf_box_stop:w \wstf_add_last_stop:w
2221     \wstf_add_last_box:w
2222     \bool_gset_true:N \g_wstf_amsmath_bool
2223     \cs_set_eq:NN \wstf_skip_stop:w \wstf_amsmath_multline:w
2224     \cs_set_eq:NN \wstf_penalty_stop:w \wstf_amsmath_stop:NN
2225     \wstf_amsmath_recursion:w
2226 }
2227 \cs_new_protected_nopar:Npn \wstf_amsmath_recursion:w
2228 {
2229     \wstf_add_last_skip:w
2230     \wstf_add_last_skip:w
2231     \wstf_add_last_penalty:w
2232     \wstf_add_last_box:w
2233     \wstf_amsmath_recursion:w
2234 }
2235 \cs_new_protected:Npn \wstf_amsmath_stop:NN #1#2
2236 {
2237     \cs_set_eq:NN \wstf_skip_stop:w \wstf_add_last_stop:w
2238     \cs_set_eq:NN \wstf_penalty_stop:w \wstf_add_last_stop:w
2239 }
2240 \bool_new:N \g_wstf_amsmath_bool

```

`\wstf_amsmath_multline:w` multiline 环境的结构与其他环境不一样。**amsmath** 的 `\@display@init` 定义为

```

\def\@display@init#1{%
    \global\dt@ptrue \spread@equation
    \everycr{%
        \noalign{%
            \ifdt@p
                \global\dt@pfalse
                \vskip-\lineskip\limits
            \fi
        }
    }
}

```

```

        \vskip\normalineskiplimit
    \else
        \penalty\@eqpen \global\dspbrk@lvl\m@ne
    \fi
}%
}%
}

```

1。

```

2241 \cs_new_protected_nopar:Npn \__wstf_amsmath_multline:w
2242 {
2243     \__wstf_amsmath_stop:NN ?
2244     \__wstf_add_last_penalty:w
2245     \skip_gset_eq:NN \g__wstf_display_pre_skip
2246         \g__wstf_pre_skip
2247     \__wstf_add_last_skip:w
2248     \__wstf_add_last_penalty:w
2249     \__wstf_add_last_finalise:w
2250 }

```

__wstf_amsmath_leqno: amsmath 的 leqno 是直接用 \tex_leqno:D 实现的,与 LATEX 的实现不一样。

```

2251 \cs_new_protected_nopar:Npn \__wstf_amsmath_leqno:
2252 {
2253     \legacy_if:nTF { tagsleft@ }
2254     { \bool_gset_true:N \g__wstf_leqno_bool }
2255     { \bool_gset_false:N \g__wstf_leqno_bool }
2256 }

2257 \__wstf_package_hook:nn { amsmath }
2258 {
2259     \cs_gset_eq:NN \__wstf_box_stop:w
2260         \__wstf_amsmath_boot:w
2261     \cs_gset_eq:NN \__wstf_test_leqno:
2262         \__wstf_amsmath_leqno:
2263 }

\__wstf_set_float: 2264 \cs_new_protected_nopar:Npn \__wstf_set_float:
2265 {
2266     \cs_set_eq:NN \@capttype \l__wstf_type_tl
2267     \__wstf_float_pre_hook:
2268     \__wstf_caption_hook:
2269     \@floatboxreset
2270 }

\__wstf_float_pre_hook: 2271 \cs_new_eq:NN \__wstf_float_pre_hook: \__wstf_empty:
\__wstf_float_pos_hook: 2272 \cs_new_eq:NN \__wstf_float_pos_hook: \__wstf_empty:
2273 \__wstf_package_hook:nn { float }
2274 {
2275     \bool_new:N \g__wstf_float_pos_bool
2276     \cs_gset_protected_nopar:Npn \__wstf_float_pre_hook:
2277         { \exp_args:No \__wstf_float_pre_aux:n { \l__wstf_type_tl } }
2278     \cs_new_protected:Npn \__wstf_float_pre_aux:n #1
2279     {
2280         \cs_if_exist_use:cTF { fst@ #1 }
2281         {
2282             \@float@seteverystyle {#1}
2283             \bool_gset_true:N \g__wstf_float_pos_bool
2284         }
2285         { \bool_gset_false:N \g__wstf_float_pos_bool }
2286     }
2287     \cs_gset_protected_nopar:Npn \__wstf_float_pos_hook:
2288     {
2289         \bool_if:NT \g__wstf_float_pos_bool

```

¹<https://github.com/latex3/latex2e/issues/793>

```

2290         { \exp_args:No \__wstf_float_pos_aux:n { \l__wstf_type_tl } }
2291     }
2292     \cs_new_protected:Npn \__wstf_float_pos_aux:n #1
2293     {
2294         \hbox_gset:Nn \g__wstf_stuff_box
2295         {
2296             \use:c { fst@ #1 }
2297             \cs_set_eq:NN \currbox \g__wstf_stuff_box
2298             \vbox_gset:Nn \g__wstf_stuff_box
2299             { \box_use_drop:N \g__wstf_stuff_box }
2300             \exp_args:Ne \float@makebox
2301             { \dim_eval:n { \box_wd:N \g__wstf_stuff_box } }
2302         }
2303     }
2304 }

\__wstf_floatrow_hook: 2305 \cs_new_eq:NN \__wstf_floatrow_hook: \__wstf_empty:
2306 \__wstf_package_hook:nn { floatrow }
2307 {
2308     \cs_gset_protected_nopar:Npn \__wstf_floatrow_hook:
2309     {
2310         \cs_set_eq:NN \capttype \l__wstf_type_tl
2311         \killfloatstyle
2312         \FR@redefs
2313         \dim_zero:N \FBc@wd
2314         \exp_args:Ne \flrow@setlist
2315         {
2316             { \l__wstf_type_tl }
2317             { wrapfloat }
2318             { wrap \l__wstf_type_tl }
2319         }
2320         \FRiffBOX \@@setframe \relax \@@FStrue
2321         \hbox_gset:Nw \g__wstf_stuff_box
2322         \tl_set:Nx \FB@wd { \dim_use:N \l__wstf_width_dim }
2323         \FB@fs@wd
2324         \dim_set:Nn \l__wstf_width_dim { \FBo@wd }
2325     }
2326     \cs_gset_protected_nopar:Npn \__wstf_float_pre_hook:
2327     { \the \FR@everyfloat }
2328     \cs_gset_protected_nopar:Npn \__wstf_float_pos_hook:
2329     {
2330         \legacy_if:nTF { FBbuild }
2331         {
2332             \cs_set_eq:NN \currbox \g__wstf_stuff_box
2333             \vbox_gset:Nn \g__wstf_stuff_box
2334             { \box_use_drop:N \g__wstf_stuff_box }
2335             \flrow@FB { \l__wstf_width_dim }
2336         }
2337         {
2338             \cs_undefine:N \flrow@typ@tmpset
2339             \box_use_drop:N \g__wstf_stuff_box
2340         }
2341         \hbox_gset_end:
2342     }
2343 }

\__wstf_caption_hook: 2344 \cs_new_eq:NN \__wstf_caption_hook: \__wstf_empty:
2345 \__wstf_package_hook:nn { caption }
2346 {
2347     \cs_gset_protected_nopar:Npn \__wstf_caption_hook:
2348     { \exp_args:No \__wstf_caption_aux:n { \l__wstf_type_tl } }
2349     \cs_new_protected:Npn \__wstf_caption_aux:n #1
2350     {
2351         \caption@settype {#1}
2352         \caption@clearmargin
2353         \caption@setoptions { wrap #1 }
2354     }
2355 }

```

```

top 2356 \keys_define:nn { wrapstuff }
2357  {
2358      abovesep    .tl_set:N = \l_wstf_abovesep_tl ,
2359      belowsep   .tl_set:N = \l_wstf_belowsep_tl ,
2360      leftsep     .tl_set:N = \l_wstf_leftsep_tl ,
2361      rightsep    .tl_set:N = \l_wstf_rightsep_tl ,
2362      linewidth   .tl_set:N = \l_wstf_linewidth_tl ,
2363      lines       .tl_set:N = \l_wstf_lines_tl ,
2364      width       .tl_set:N = \l_wstf_width_tl ,
2365      height      .tl_set:N = \l_wstf_height_tl ,
2366      hoffset     .tl_set:N = \l_wstf_hoffset_tl ,
2367      voffset     .tl_set:N = \l_wstf_voffset_tl ,
2368      type        .tl_set:N = \l_wstf_type_tl ,
2369      ratio       .fp_set:N = \l_wstf_ratio_fp ,
2370      top         .int_set:N = \l_wstf_top_int ,
2371      i            .code:n = \_wstf_swap_true:N \c_true_bool ,
2372      o            .code:n = \_wstf_swap_true:N \c_false_bool ,
2373      l            .code:n = \_wstf_swap_false:N \c_zero_fp ,
2374      r            .code:n = \_wstf_swap_false:N \c_one_fp ,
2375      c            .code:n = \_wstf_swap_false:N \c_wstf_c_fp ,
2376      column      .choice: ,
2377      column/true .code:n =
2378      {
2379          \bool_set_true:N \l_wstf_column_bool
2380          \cs_set_eq:NN \_wstf_build_column:
2381              \_wstf_build_column_strict:
2382      } ,
2383      column/par   .code:n =
2384      {
2385          \bool_set_true:N \l_wstf_column_bool
2386          \cs_set_eq:NN \_wstf_build_column:
2387              \_wstf_build_column_fuzzy:
2388      } ,
2389      column/false .code:n =
2390          { \bool_set_false:N \l_wstf_column_bool } ,
2391      hsep        .code:n =
2392      {
2393          \tl_set:Nn \l_wstf_leftsep_tl {#1}
2394          \tl_set_eq:NN \l_wstf_rightsep_tl
2395              \l_wstf_leftsep_tl
2396      } ,
2397      vsep        .code:n =
2398      {
2399          \tl_set:Nn \l_wstf_abovesep_tl {#1}
2400          \tl_set_eq:NN \l_wstf_belowsep_tl
2401              \l_wstf_abovesep_tl
2402      } ,
2403      unknown     .code:n =
2404          { \exp_args:No \_wstf_unknown_key:n { \l_keys_key_str } } ,
2405      leftsep    .groups:n = main ,
2406      rightsep   .groups:n = main ,
2407      hsep       .groups:n = main ,
2408      linewidth  .groups:n = main ,
2409      lines      .groups:n = main ,
2410      column     .groups:n = main ,
2411      hoffset    .groups:n = main ,
2412      voffset    .groups:n = main ,
2413      top        .groups:n = stuff ,
2414      abovesep   .groups:n = stuff ,
2415      belowsep   .groups:n = stuff ,
2416      vsep       .groups:n = stuff ,
2417      width      .groups:n = stuff ,
2418      height     .groups:n = stuff ,
2419      float      .groups:n = stuff ,
2420      ratio      .groups:n = ratio ,
2421      l           .groups:n = ratio ,
2422      r           .groups:n = ratio ,

```

```

2423   c      .groups:n = ratio ,
2424   i      .groups:n = ratio ,
2425   o      .groups:n = ratio ,
2426   column .default:n = true ,
2427   column .initial:n = true ,
2428   abovesep .initial:n = \c_zero_dim ,
2429   belowsep .initial:n = \c_zero_dim ,
2430   leftsep  .initial:n = 1em ,
2431   rightsep .initial:n = 1em ,
2432   linewidth .initial:n = \linewidth ,
2433   hoffset  .initial:n = \c_zero_dim ,
2434   voffset  .initial:n = \c_zero_dim ,
2435   width    .initial:n = \c_zero_dim ,
2436   height   .initial:n = \c_zero_dim ,
2437   ratio    .initial:n = \c_one_fp ,
2438   abovesep .value_required:n = true ,
2439   belowsep .value_required:n = true ,
2440   leftsep  .value_required:n = true ,
2441   rightsep .value_required:n = true ,
2442   linewidth.value_required:n = true ,
2443   width    .value_required:n = true ,
2444   height   .value_required:n = true ,
2445   hoffset  .value_required:n = true ,
2446   voffset  .value_required:n = true ,
2447   hsep    .value_required:n = true ,
2448   vsep    .value_required:n = true ,
2449   l       .value_forbidden:n = true ,
2450   r       .value_forbidden:n = true ,
2451   c       .value_forbidden:n = true ,
2452   i       .value_forbidden:n = true ,
2453   o       .value_forbidden:n = true
2454 }
2455 \fp_const:Nn \c_wstf_c_fp { 0.5 }
2456 \cs_new_protected:Npn \_wstf_swap_true:N #
2457 {
2458   \bool_set_true:N \l_wstf_swap_bool
2459   \bool_set_eq:NN \l_wstf_inner_bool #1
2460   \bool_if:NTF \l_wstf_inner_bool
2461     { \bool_set_false:N \l_wstf_outer_bool }
2462     { \bool_set_true:N \l_wstf_outer_bool }
2463 }
2464 \cs_new_protected_nopar:Npn \_wstf_swap_false:N
2465 {
2466   \bool_set_false:N \l_wstf_swap_bool
2467   \fp_set_eq:NN \l_wstf_ratio_fp
2468 }
2469 \cs_new_protected:Npn \_wstf_unknown_key:n #
2470 {
2471   \regex_match:NnTF \c_wstf_integer_regex {#1}
2472   { \int_set:Nn \l_wstf_top_int }
2473   { \_wstf_unknown_key_error:n }
2474 {#1}
2475 }
2476 \regex_const:Nn \c_wstf_integer_regex { \A \d+ \Z }
2477 \cs_new_protected_nopar:Npn \_wstf_unknown_key_error:n
2478 { \msg_error:nnn { wstf } { unknown-key } }
2479 \msg_new:nnnn { wstf } { unknown-key }
2480 { The~key~"#1"~is~unknown~and~is~being~ignored. }
2481 {
2482   The~package~wrapstuff~does~not~have~a~key~called~"#1". \\
2483   Check~that~you~have~spelled~the~key~name~correctly.
2484 }

\wrapstuffset 2485 \NewDocumentCommand \wrapstuffset { m }
2486 { \keys_set:nn { wrapstuff } {#1} }

```

\wrapstuffclear 保险起见,加入 \par 结束段落,同时结束 wrapstuff@par 环境。

```
2487 \NewDocumentCommand \wrapstuffclear { }
2488   {
2489     \par
2490     \__wstf_clear:
2491   }

2492 \cs_if_exist:NTF \ProcessKeyOptions
2493   { \ProcessKeyOptions [ wrapstuff ] }
2494   {
2495     \RequirePackage { 13keys2e }
2496     \ProcessKeysOptions { wrapstuff }
2497   }

2498 </package>
```

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v0.1	(2022/07/05 – 2022/07/20)	
General: 初始版本。	1	兼容 \parbox 与 minipage 等使用环境。 6
首次提交到 CTAN 发布。	1	提高稳定性。 24
v0.2	(2022/07/21 – 2022/07/26)	
General: 改进对显示数学公式的处理。	19	修复 hoffset 选项。 13
改进放置方式。	1	优化重新编译警告。 9
v0.3	(2022/07/31)	
General: 修复 stuff 深度不为零时的垂直对齐问题。	30	

代码索引

意大利体的数字表示描述对应索引项的页码; 带下划线的数字表示定义对应索引项的代码行号; 罗马字体的数字表示使用对应索引项的代码行号。

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