

# 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 L<sup>A</sup>T<sub>E</sub>X 列表环境，可以让它们正确绕排。

wrapstuff 的实现依赖 L<sup>A</sup>T<sub>E</sub>X 2021-06-01 开始提供的段落钩子，并依赖 L<sup>A</sup>T<sub>E</sub>X 3 2022-04-10 之后的版本。

---

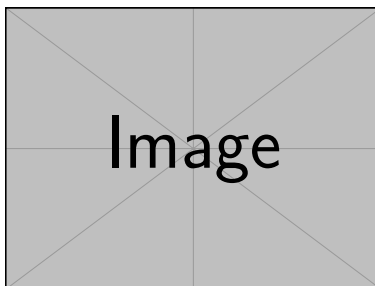
wrapstuff	<pre>\begin{wrapstuff}[&lt;选项&gt;] &lt;绕排内容&gt; \end{wrapstuff} &lt;正文&gt;</pre>
-----------	--

---

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=\dimeval{\linewidth/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，接着是一声钝响，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，所以只得暂寓在党。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，于是没多久，我便一个人剩在书房里。



---

\wrapstuffset	<pre>\wrapstuffset {&lt;选项列表&gt;}</pre>
---------------	---

---

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. e891159.

---

**width** width = <宽度>

---

设置绕排内容的宽度,初始值为 0pt,代表自然宽度。

---

**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**

**i**

**o**

**ratio**







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  云腾致雨露结为霜  
 律召调阳  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  律召调阳  
 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  闰馀成岁律召调阳  
 云腾致雨露结为霜金生丽水玉出昆冈

```
\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  
闰馀成岁律召调阳  
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。

```
\c__wstf_global_tl_tl
\c__wstf_global_dim_tl
\c__wstf_global_int_tl
\c__wstf_global_bool_tl
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_total_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 }

```

\\_\_wstf\_tl\_init:N 全局变量的初始化,注意保存好清除和恢复的设置。

```

\__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: 107 \cs_new_protected_nopar:Npn __wstf_clear:
__wstf_clear_variable: 108 {
__wstf_clear_kludge: 109   __wstf_clear_para_hook:
__wstf_clear_stuff_box: 110   __wstf_clear_kludge:
111   __wstf_clear_variable:
112 }
113 \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 }
118 \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 }
130 \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: 140 \cs_new_protected_nopar:Npn __wstf_status_push:
__wstf_status_clear: 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 }
148 \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 }
157 \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 }
162 \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<sup>A</sup>T<sub>E</sub>X 的 \parbox 和 minipage 等环境中恢复正常的段落状态。  
 \@arrayparboxrestore 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  $\varepsilon$ -TeX 结点判定函数。

```

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

```

```

\__wstf_gadd_hook:nn 261 \cs_new_protected:Npn \__wstf_gadd_hook:nn #1
\__wstf_package_hook:nn 262 { \hook_gput_code:nnn {#1} { wrapstuff } }
263 \cs_new_protected:Npn \__wstf_package_hook:nn #1
264 { \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`。

```

265 \cs_new_protected_nopar:Npn \__wstf_para_raw_end:
266 { \group_begin: \para_raw_end: \group_end: }

\__wstf_gadd_ht:Nn 267 \cs_new_protected:Npn \__wstf_gadd_ht:Nn #1#2
268 { \box_gset_ht:Nn #1 { \box_ht:N #1 + \dim_eval:n {#2} } }

```

**wrapstuff** 主要功能环境接口。

```

269 \NewDocumentEnvironment { wrapstuff } { 0 { } }
270 {
271   \__wstf_clear:
272   \int_set:Nn \l__wstf_top_int { -1 }
273   \tl_if_blank:nTF {#1}
274     { \tl_clear:N \l__wstf_main_kv_tl }
275     {
276       \keys_set_filter:nnnN { wrapstuff }
277       { main , ratio }
278       {#1} \l__wstf_main_kv_tl
279     }
280   \tl_set:Nx \l__wstf_type_tl { \l__wstf_type_tl }
281   \dim_set:Nn \l__wstf_width_dim { \l__wstf_width_tl }
282   \dim_set:Nn \l__wstf_height_dim { \l__wstf_height_tl }
283   \hbox_gset:Nw \g__wstf_stuff_box
284   \dim_compare:nNnTF \l__wstf_width_dim > \c_zero_dim

```

```

285     { \_wstf_minipage_begin: }
286     { \_wstf_hbox_begin: }
287 }
288 {
289   \dim_compare:nNnTF \l__wstf_width_dim > \c_zero_dim
290     { \_wstf_minipage_end: }
291     { \_wstf_hbox_end: }
292   \_wstf_set_vsep:
293   \_wstf_attach_label:
294   \tl_if_empty:NTF \l__wstf_main_kv_tl
295     { \tl_gclear:N \g__wstf_main_setting_tl }
296     { \_wstf_save_main_setting: }
297   \_wstf_set_top_line:
298   \dim_gset:Nn \g__wstf_stuff_wd_dim
299     { \box_wd:N \g__wstf_stuff_box }
300   \dim_gset:Nn \g__wstf_stuff_ht_dim
301     { \box_ht_plus_dp:N \g__wstf_stuff_box }
302   \dim_gset_eq:NN
303     \g__wstf_remaining_dim
304     \g__wstf_stuff_ht_dim
305   \_wstf_next_para:
306 }
307 \_wstf_gadd_hook:nn { env/wrapstuff/before } { \par }
308 \cs_new_protected_nopar:Npn \_wstf_minipage_begin:
309 {
310   \_wstf_floatrow_hook:
311   \dim_compare:nNnTF \l__wstf_height_dim > \c_zero_dim
312     { \begin { minipage } [b] [ \l__wstf_height_dim ] [c] { \l__wstf_width_dim } }
313     { \begin { minipage } [b] { \l__wstf_width_dim } }
314   \tl_if_empty:NF \l__wstf_type_tl
315     { \_wstf_set_float: }
316 }
317 \cs_new_protected_nopar:Npn \_wstf_minipage_end:
318 {
319   \end { minipage }
320   \hbox_gset_end:
321   \_wstf_float_pos_hook:
322 }
323 \cs_new_protected_nopar:Npn \_wstf_hbox_begin:
324 { \tex_ignorespaces:D }
325 \cs_new_protected_nopar:Npn \_wstf_hbox_end:
326 {
327   \tex_unskip:D
328   \hbox_gset_end:
329   \dim_compare:nNnTF \l__wstf_height_dim > \c_zero_dim
330     { \_wstf_gset_height: }
331 }
332 \cs_new_protected_nopar:Npn \_wstf_gset_height:
333 {
334   \hbox_gset:Nn \g__wstf_stuff_box
335     {
336       \box_move_up:nn
337         {
338           ( \l__wstf_height_dim
339             - \box_ht:N \g__wstf_stuff_box
340             + \box_dp:N \g__wstf_stuff_box
341           ) / 2
342         }
343       { \box_use_drop:N \g__wstf_stuff_box }
344     }
345   \box_gset_ht:Nn \g__wstf_stuff_box { \l__wstf_height_dim }
346   \box_gset_dp:Nn \g__wstf_stuff_box { \c_zero_dim }
347 }
348 \cs_new_protected_nopar:Npn \_wstf_set_vsep:
349 {
350   \_wstf_gadd_ht:Nn \g__wstf_stuff_box { \l__wstf_abelovevsep_tl }
351   \dim_set:Nn \l__wstf_shift_dim { \l__wstf_belowsep_tl }

```



```

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

__wstf_attach_label: 370 \cs_new_protected_nopar:Npn \__wstf_attach_label:
__wstf_write_label: 371 {
__wstf_rerun_check: 372 \stepcounter { wrapstuff }
373 \hbox_gset:Nn \g__wstf_stuff_box
374 {
375 \__wstf_write_label:
376 \box_use_drop:N \g__wstf_stuff_box
377 }
378 }
379 \cs_new_protected_nopar:Npn \__wstf_write_label:
380 {
381 \exp_args:Nee \__wstf_write_label_aux:nn
382 { \__wstf_counter:n { wrapstuff } }
383 { \__wstf_counter:n { page } }
384 }
385 \cs_new_protected:Npx \__wstf_write_label_aux:nn #1#2
386 {
387 \prop_gput_if_new:Nnn \exp_not:N \g__wstf_page_prop {#1} {#2}
388 \iow_shipout_x:Nn \exp_not:N \@auxout
389 {
390 \c_backslash_str wrapstuff@label
391 {#1}
392 { \exp_not:N \wrapstuff@counter { page } }
393 }
394 }
395 \newcounter { wrapstuff }
396 \cs_new:Npn \__wstf_counter:n #1
397 { \int_value:w \value {#1} }
398 \cs_new_eq:NN \wrapstuff@counter \__wstf_counter:n
399 \cs_new_protected_nopar:Npn \wrapstuff@label
400 { \prop_gput:Nnn \g__wstf_page_prop }
401 \__wstf_gadd_hook:nn { begindocument }
402 {
403 \legacy_if:nTF { @files }
404 {
405 \iow_now:Nx \@mainaux
406 {
407 \c_backslash_str providecommand
408 \c_backslash_str wrapstuff@label [2] { }
409 }
410 }
411 { \cs_gset_eq:NN \__wstf_write_label: \__wstf_empty: }
412 }
413 \__wstf_gadd_hook:nn { enddocument/afterlastpage }
414 {
415 \legacy_if:nT { @files }
416 { \prop_gclear:N \g__wstf_page_prop }
417 }

```

```

418 \__wstf_gadd_hook:nn { enddocument/info }
419 {
420   \prop_if_empty:NF \g__wstf_rerun_prop
421   { \__wstf_rerun_check: }
422 }
423 \cs_new_protected_nopar:Npn \__wstf_rerun_check:
424 {
425   \prop_map_inline:Nn \g__wstf_rerun_prop
426   {
427     \prop_get:NnN \g__wstf_page_prop { ##1 } \l__wstf_page_tl
428     \int_if_even:nF { \l__wstf_page_tl - ##2 }
429     { \prop_map_break:n { \__wstf_rerun_warning: } }
430   }
431 }
432 \cs_new_protected_nopar:Npn \__wstf_rerun_warning:
433 { \msg_warning:nn { wstf } { rerun-required } }
434 \msg_new:nnn { wstf } { rerun-required }
435 {
436   Page(s)~may~have~changed.\
437   Rerun~to~get~i/o~setting~right.
438 }
439 \tl_new:N \l__wstf_page_tl
440 \prop_new:N \g__wstf_page_prop
441 \prop_new:N \g__wstf_rerun_prop

__wstf_save_main_setting: 442 \cs_new_protected_nopar:Npn \__wstf_save_main_setting:
443 {
444   \exp_args:Nnno
445   \keys_set_filter:nnnN { wrapstuff }
446   { main }
447   { \l__wstf_main_kv_tl } \l__wstf_main_kv_tl
448   \bool_if:NTF \l__wstf_swap_bool
449   { \__wstf_swap_ratio: }
450   { \__wstf_set_ratio:N \l__wstf_ratio_fp }
451   \tl_if_empty:NF \l__wstf_main_kv_tl
452   { \__wstf_save_main_setting_aux: }
453 }
454 \cs_new_protected:Npn \__wstf_set_ratio:N #1
455 {
456   \tl_gset:Nx \g__wstf_main_setting_tl
457   { \fp_set:Nn \exp_not:N \l__wstf_ratio_fp { \fp_use:N #1 } }
458 }
459 \cs_new_protected:Npn \__wstf_set_ratio:n #1
460 {
461   \tl_gset:Nx \g__wstf_main_setting_tl
462   { \fp_set:Nn \exp_not:N \l__wstf_ratio_fp { \fp_eval:n {#1} } }
463 }
464 \cs_new_protected_nopar:Npn \__wstf_save_main_setting_aux:
465 {
466   \exp_args:Nno
467   \keys_precompile:nnN
468   { wrapstuff }
469   { \l__wstf_main_kv_tl } \l__wstf_main_kv_tl
470   \tl_gconcat:NNN
471   \g__wstf_main_setting_tl
472   \g__wstf_main_setting_tl
473   \l__wstf_main_kv_tl
474 }

__wstf_set_top_line: 475 \cs_new_protected_nopar:Npn \__wstf_set_top_line:
476 {
477   \int_compare:nNnF \l__wstf_top_int < \c_zero_int
478   {
479     \tl_gput_right:Nx \g__wstf_main_setting_tl
480     {
481       \int_set:Nn \l__wstf_top_int
482       { \int_use:N \l__wstf_top_int }
483     }

```

```

484     }
485 }

\__wstf_swap_ratio: 486 \cs_new_protected_nopar:Npn \__wstf_swap_ratio:
487 {
488     \exp_args:Ne \__wstf_swap_ratio_aux:n
489     { \__wstf_counter:n { wrapstuff } }
490 }
491 \cs_new_protected:Npn \__wstf_swap_ratio_aux:n #1
492 {
493     \fp_compare:nF
494     { \c_zero_fp < \l__wstf_ratio_fp < \c_one_fp }
495     { \fp_zero:N \l__wstf_ratio_fp }
496     \prop_get:NnNF \g__wstf_page_prop {#1} \l__wstf_page_tl
497     { \tl_set:Nx \l__wstf_page_tl { \__wstf_counter:n { page } } }
498     \int_if_odd:nTF { \l__wstf_page_tl }
499     { \bool_if:NTF \l__wstf_inner_bool }
500     { \bool_if:NTF \l__wstf_outer_bool }
501     { \__wstf_set_ratio:N \l__wstf_ratio_fp }
502     { \__wstf_set_ratio:n { \c_one_fp - \l__wstf_ratio_fp } }
503     \prop_gput:Nno \g__wstf_rerun_prop {#1} { \l__wstf_page_tl }
504 }
505 \bool_new:N \l__wstf_swap_bool
506 \bool_new:N \l__wstf_inner_bool
507 \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。

```

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

```

wrapstuff@par 内部环境, 实现主要功能。

```

537 \NewDocumentEnvironment { wrapstuff@par } { }
538 {
539     \tl_use:N \g__wstf_main_setting_tl
540     \dim_set:Nn \l__wstf_leftsep_dim { \l__wstf_leftsep_tl }
541     \dim_set:Nn \l__wstf_rightsep_dim { \l__wstf_rightsep_tl }
542     \dim_set:Nn \l__wstf_voffset_dim { \l__wstf_voffset_tl }
543     \dim_set:Nn \l__wstf_line_dim { \l__wstf_linewidth_tl }

```

```

544 \dim_set:Nn \l__wstf_min_dim { \box_dp:N \strutbox }
545 \dim_set_eq:NN \l__wstf_main_width_dim \l__wstf_line_dim
546 \dim_sub:Nn \l__wstf_line_dim
547 { \tex_leftskip:D + \tex_rightskip:D }
548 \dim_set:Nn \l__wstf_window_dim
549 { \l__wstf_line_dim - \g__wstf_stuff_wd_dim }
550 \fp_compare:nNnTF \l__wstf_ratio_fp > \c_zero_fp
551 {
552   \fp_compare:nNnTF \l__wstf_ratio_fp < \c_one_fp
553   { \__wstf_set_window: }
554   { \__wstf_set_hang_right: }
555 }
556 { \__wstf_set_hang_left: }
557 \int_compare:nNnTF \g__wstf_window_int > \c_zero_int
558 {
559   \int_set_eq:NN \l__wstf_window_int \g__wstf_window_int
560   \int_zero:N \l__wstf_top_int
561 }
562 { \__wstf_set_lines: }
563 \bool_if:NTF \l__wstf_hang_bool
564 {
565   \dim_set_eq:NN \l__wstf_display_dim \l__wstf_window_dim
566   \int_set_eq:NN \l__wstf_window_line_int \l__wstf_window_int
567 }
568 {
569   \dim_set_eq:NN \l__wstf_display_dim \l__wstf_l_dim
570   \int_set:Nn \l__wstf_window_int { \l__wstf_window_int * 2 }
571   \int_set:Nn \l__wstf_window_line_int
572   {
573     \bool_if:NTF \g__wstf_column_bool
574     { \l__wstf_window_int / 2 + \g__wstf_column_int }
575     { \l__wstf_window_int }
576   }
577 }
578 \cs_gset_eq:NN \__wstf_para_before: \__wstf_empty:
579 \cs_gset_eq:NN \__wstf_para_begin: \__wstf_empty:
580 \__wstf_save_parshape:
581 \__wstf_parbox_restore:
582 \vbox_set:Nw \l__wstf_body_box
583   \__wstf_set_prevdepth:N \g__wstf_prevdepth_dim
584   \__wstf_save_tex_skip:
585   \__wstf_tex_parameter:
586   \__wstf_restore_parshape:
587   \__wstf_display_parameter:
588   \__wstf_make_main_parshape:
589   \para_raw_noindent:
590 }
591 {
592   \__wstf_save_hangfrom:
593   \__wstf_save_tex_skip:
594   \__wstf_group_kludge:
595   \__wstf_tex_parameter:
596   \__wstf_make_main_parshape:
597   \para_raw_end:
598   \int_gset_eq:NN \g__wstf_line_int \tex_prevgraf:D
599 \vbox_set_end:
600 \__wstf_adjust_tex_skip:
601 \cs_gset_eq:NN \__wstf_para_end: \__wstf_empty:
602 \cs_gset_eq:NN \__wstf_para_after: \__wstf_empty:
603 \int_compare:nNnTF \g__wstf_line_int > \l__wstf_top_int
604 { \__wstf_build_par: }
605 { \__wstf_put_par: }
606 }
607 \box_new:N \l__wstf_body_box
608 \box_new:N \l__wstf_window_box
609 \int_new:N \l__wstf_window_int
610 \int_new:N \g__wstf_line_int

```

```

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

\__wstf_set_hang_left: 623 \cs_new_protected_nopar:Npn \__wstf_set_hang_left:
\__wstf_set_hang_right: 624 {
\__wstf_set_window: 625   \bool_set_true:N \l__wstf_hang_bool
626   \__wstf_set_hoffset:N \l__wstf_rightsep_dim
627   \dim_zero:N \l__wstf_l_dim
628   \dim_set_eq:NN \l__wstf_r_dim \l__wstf_window_dim
629   \cs_set_eq:NN \__wstf_build_box: \__wstf_build_hang:
630 }
631 \cs_new_protected_nopar:Npn \__wstf_set_hang_right:
632 {
633   \bool_set_true:N \l__wstf_hang_bool
634   \__wstf_set_hoffset:N \l__wstf_leftsep_dim
635   \dim_zero:N \l__wstf_r_dim
636   \dim_set_eq:NN \l__wstf_l_dim \l__wstf_window_dim
637   \cs_set_eq:NN \__wstf_build_box: \__wstf_build_hang:
638 }
639 \cs_new_protected_nopar:Npn \__wstf_set_window:
640 {
641   \bool_set_false:N \l__wstf_hang_bool
642   \dim_sub:Nn \l__wstf_window_dim
643     { \l__wstf_leftsep_dim + \l__wstf_rightsep_dim }
644   \dim_set:Nn \l__wstf_l_dim
645     { \__wstf_ratio:Nn \l__wstf_ratio_fp { \l__wstf_window_dim } }
646   \dim_set:Nn \l__wstf_r_dim
647     { \l__wstf_window_dim - \l__wstf_l_dim }
648   \bool_if:NTF \l__wstf_column_bool
649     { \cs_set_eq:NN \__wstf_build_box: \__wstf_build_column: }
650     { \cs_set_eq:NN \__wstf_build_box: \__wstf_build_block: }
651 }

\__wstf_set_hoffset:N 652 \cs_new_protected:Npn \__wstf_set_hoffset:N #1
653 {
654   \dim_sub:Nn \l__wstf_window_dim {#1}
655   \group_begin:
656     \dim_set:Nn \l__wstf_width_dim { #1 + \g__wstf_stuff_wd_dim }
657     \cs_set_eq:NN \width \l__wstf_width_dim
658     \exp_args:NNNx \group_end:
659     \dim_add:Nn \l__wstf_window_dim
660       { \dim_eval:n { \l__wstf_hoffset_tl } }
661 }

\__wstf_set_lines: 662 \cs_new_protected_nopar:Npn \__wstf_set_lines:
\__wstf_window_init: 663 {
664   \bool_if:NTF \g__wstf_next_bool
665     { \tl_clear:N \l__wstf_lines_tl }
666     { \tl_set:Nx \l__wstf_lines_tl { \l__wstf_lines_tl } }
667   \int_set:Nn \l__wstf_window_int
668     {
669       \tl_if_empty:NTF \l__wstf_lines_tl
670         { \__wstf_unit:n { \g__wstf_remaining_dim + \l__wstf_min_dim } }
671         { \l__wstf_lines_tl }
672     }
673   \bool_if:NF \g__wstf_next_bool
674     { \__wstf_window_init: }

```

```

675 \int_compare:nNnTF \g__wstf_top_int < \c_zero_int
676 {
677   \int_compare:nNnT \l__wstf_top_int < \c_zero_int
678   { \int_zero:N \l__wstf_top_int }
679 }
680 { \int_set_eq:NN \l__wstf_top_int \g__wstf_top_int }
681 }
682 \cs_new_protected_nopar:Npn \__wstf_window_init:
683 {
684   \int_gset_eq:NN \g__wstf_column_int \l__wstf_window_int
685   \dim_gset:Nn \g__wstf_window_ht_dim
686   { \tex_baselineskip:D * \g__wstf_column_int }
687   \tl_if_empty:NF \l__wstf_lines_tl
688   {
689     \dim_gset:Nn \g__wstf_remaining_dim
690     { \g__wstf_window_ht_dim - \box_ht:N \strutbox }
691     \dim_gset_eq:NN \g__wstf_stuff_ht_dim \g__wstf_remaining_dim
692   }
693 }

```

\\_\_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。

```

694 \cs_new_protected_nopar:Npn \__wstf_make_main_parshape:
695 {
696   \dim_compare:nNnTF \g__wstf_hangindent_dim > \c_zero_dim
697   {
698     \int_compare:nNnTF \g__wstf_hangafter_int = \c_one_int
699     { \__wstf_make_hangfrom: }
700     { \__wstf_make_main_parshape_aux: }
701   }
702   { \__wstf_make_main_parshape_aux: }
703 }
704 \cs_new_protected_nopar:Npn \__wstf_make_main_parshape_aux:
705 {
706   \bool_gset_false:N \g__wstf_hangfrom_bool
707   \tex_parshape:D
708   \int_eval:n { \l__wstf_top_int + 1 } ~
709   \prg_replicate:nn
710   { \l__wstf_top_int }
711   { \g__wstf_parshape_indent_dim \g__wstf_parshape_length_dim }
712   \c_zero_dim \c_max_dim
713 }
714 \cs_new_protected_nopar:Npn \__wstf_save_parshape:
715 {
716   \int_gset_eq:NN \g__wstf_parshape_int \tex_parshape:D
717   \int_compare:nNnTF \g__wstf_parshape_int = \c_one_int
718   {
719     \dim_gset:Nn \g__wstf_parshape_indent_dim
720     { \tex_parshapeindent:D \c_one_int }
721     \dim_gset:Nn \g__wstf_parshape_length_dim
722     { \tex_parshapelength:D \c_one_int }
723   }
724   {
725     \int_gzero:N \g__wstf_parshape_int
726     \dim_gzero:N \g__wstf_parshape_indent_dim
727     \dim_gset_eq:NN \g__wstf_parshape_length_dim \l__wstf_main_width_dim
728     \int_gset_eq:NN \g__wstf_hangafter_int \tex_hangafter:D
729     \dim_gset_eq:NN \g__wstf_hangindent_dim \tex_hangindent:D
730   }
731 }
732 \cs_new_protected_nopar:Npn \__wstf_restore_parshape:
733 {
734   \int_compare:nNnTF \g__wstf_parshape_int = \c_one_int
735   {
736     \tex_parshape:D \g__wstf_parshape_int
737     \g__wstf_parshape_indent_dim
738     \g__wstf_parshape_length_dim
739   }

```

```

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

```

\\_wstf\_group\_kludge: L<sup>A</sup>T<sub>E</sub>X 的 \list 环境中, 为了保持 \parshape, \par 被重定义为 {\@@par}。

```

777 \cs_new_protected_nopar:Npn \_wstf_group_kludge:
778 {
779   \scan_stop:
780   \int_compare:nNnTF \tex_currentgrouptype:D = \c_one_int
781   {
782     \c_group_end_token
783     \cs_gset_eq:NN \_wstf_group_begin: \c_group_begin_token
784   }
785   { \cs_gset_eq:NN \_wstf_group_begin: \_wstf_empty: }
786   \legacy_if:nTF { @noitemarg }
787   { \cs_gset_eq:NN \_wstf_set_itemarg: \@noitemargtrue }
788   { \cs_gset_eq:NN \_wstf_set_itemarg: \_wstf_empty: }
789 }
790 \cs_new_eq:NN \_wstf_set_itemarg: \_wstf_empty:
791 \cs_new_eq:NN \_wstf_group_begin: \_wstf_empty:
792 \_wstf_gadd_hook:nn { env/wrapstuff@par/after }
793 {
794   \_wstf_set_itemarg:
795   \_wstf_group_begin:
796 }

```

```

\_wstf_ratio:Nn 797 \cs_new:Npn \_wstf_ratio:Nn #1#2
\_wstf_unit:n 798 { \fp_to_dim:n { #1 \dim_to_fp:n {#2} } }
799 \cs_new:Npn \_wstf_unit:n #1
800 {
801   \int_eval:n
802   {
803     \exp_last_unbraced:Ne \_wstf_unit_aux:w

```

```

804         { \dim_to_decimal_in_unit:nn {#1} { \tex_baselineskip:D } }
805     \s_stop
806 }
807 }
808 \cs_new:Npn \__wstf_unit_aux:w #1 . #2 \s_stop
809 { #1 + 1 }

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

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

\__wstf_split_parameter: 867 \cs_new_protected_nopar:Npn \__wstf_split_parameter:
868 {

```



```

869 \skip_zero:N \texSplittopskip:D
870 \dim_set_eq:NN \tex_vfuzz:D \c_max_dim
871 \int_set_eq:NN \tex_vbadness:D \c_max_int
872 }

\__wstf_build_par: 873 \cs_new_protected_nopar:Npn \__wstf_build_par:
874 {
875   \bool_if:NTF \g__wstf_hangfrom_bool
876     { \__wstf_build_box: }
877     { \__wstf_build_par_aux: }
878   \box_if_empty:NTF \l__wstf_window_box
879     { \__wstf_put_next_par: }
880     { \__wstf_put_box: }
881 }
882 \cs_new_protected_nopar:Npn \__wstf_build_par_aux:
883 {
884   \__wstf_extract_display_hbox:NN \l__wstf_body_box \l__wstf_bottom_box
885   \int_compare:nNnT \l__wstf_top_int > \c_zero_int
886     { \__wstf_put_body_box: }
887   \box_if_empty:NTF \l__wstf_bottom_box
888     {
889       \box_if_empty:NF \g__wstf_display_box
890       { \__wstf_build_display_box: }
891     }
892     { \__wstf_build_body_box: }
893 }
894 \box_new:N \l__wstf_bottom_box

\__wstf_put_par: 895 \cs_new_protected_nopar:Npn \__wstf_put_par:
896 {
897   \int_gset:Nn \g__wstf_top_int
898     { \l__wstf_top_int - \g__wstf_line_int }
899   \int_gzero:N \g__wstf_window_int
900   \__wstf_put_body_box:
901   \skip_zero:N \tex_parskip:D
902   \para_raw_noindent:
903   \__wstf_next_para:
904 }

\__wstf_put_body_box: 905 \cs_new_protected_nopar:Npn \__wstf_put_body_box:
906 {
907   \__wstf_para_raw_end:
908   \dim_compare:nNnTF { \box_wd:N \l__wstf_body_box } < \c_max_dim
909     { \__wstf_put_body_aux:N \l__wstf_body_box }
910     {
911       \__wstf_extract_hbox:NN \l__wstf_body_box \l__wstf_bottom_box
912       \__wstf_put_body_aux:N \l__wstf_body_box
913       \box_set_eq_drop:NN \l__wstf_body_box \l__wstf_bottom_box
914     }
915   \__wstf_para_raw_end:
916 }
917 \cs_new_protected_nopar:Npn \__wstf_put_body_aux:N #1
918 {
919   \dim_gset:Nn \g__wstf_prevdepth_dim { \box_dp:N #1 }
920   \dim_compare:nNnT \g__wstf_prevdepth_dim = \c_zero_dim
921     { \__wstf_extract_depth:N #1 }
922   \vbox_unpack_drop:N #1
923   \__wstf_set_prevdepth:N \g__wstf_prevdepth_dim
924 }
925 \cs_new_protected_nopar:Npn \__wstf_extract_depth:N #1
926 {
927   \vbox_set:Nn \l__wstf_last_box
928     {
929       \vbox_unpack:N #1
930       \__wstf_if_last_hlist:F
931       {
932         \tex_unskip:D \tex_unpenalty:D
933         \tex_unskip:D \tex_unpenalty:D

```

```

934     }
935     \__wstf_if_last_hlist:T
936     {
937         \box_set_to_last:N \l__wstf_last_box
938         \dim_gset:Nn \g__wstf_prevdepth_dim
939         { \box_dp:N \l__wstf_last_box }
940     }
941 }
942 }

\__wstf_put_next_par: 943 \cs_new_protected_nopar:Npn \__wstf_put_next_par:
944 {
945     \int_gzero:N \g__wstf_top_int
946     \int_gzero:N \g__wstf_window_int
947     \skip_zero:N \tex_parskip:D
948     \para_raw_noindent:
949     \__wstf_next_para:
950 }

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

```

```

1000     \skip_gadd:Nn \g__wstf_pre_skip { \tex_lastskip:D }
1001     \tex_unskip:D
1002     \skip_vertical:N \g__wstf_pre_skip
1003   }
1004 }
1005 \cs_new_protected_nopar:Npn \__wstf_build_display_auxi:
1006 {
1007   \bool_if:NTF \g__wstf_amsmath_bool
1008   { \box_set_eq_drop:NN \l__wstf_window_box \g__wstf_equation_box }
1009   {
1010     \hbox_set_to_wd:Nnn \l__wstf_window_box
1011     { \l__wstf_display_dim }
1012     {
1013       \tex_hss:D
1014       \__wstf_adjust_equation:
1015       \box_use_drop:N \g__wstf_equation_box
1016       \tex_hss:D
1017     }
1018   }
1019   \dim_gset:Nn \g__wstf_ht_dim { \box_ht:N \l__wstf_window_box }
1020   \dim_add:Nn \l__wstf_voffset_dim
1021   { \box_ht:N \g__wstf_display_box / 2 }
1022 }
1023 \cs_new_protected_nopar:Npn \__wstf_build_display_auxii:
1024 {
1025   \box_if_horizontal:NTF \l__wstf_body_box
1026   {
1027     \box_set_eq:NN \l__wstf_bottom_box \l__wstf_body_box
1028     \__wstf_build_display_auxiii:
1029   }
1030   {
1031     \__wstf_extract_hbox:NN \l__wstf_body_box \l__wstf_bottom_box
1032     \str_if_eq:eeTF
1033     {
1034       \dim_eval:n { \box_ht:N \l__wstf_body_box }
1035       \dim_eval:n { \box_dp:N \l__wstf_body_box }
1036       \dim_eval:n { \box_ht:N \l__wstf_bottom_box }
1037       \dim_eval:n { \box_dp:N \l__wstf_bottom_box }
1038     }
1039     { \c__wstf_zero_pt_str }
1040     {
1041       \vbox_unpack_drop:N \l__wstf_body_box
1042       \box_clear:N \l__wstf_bottom_box
1043       \__wstf_build_display_auxi:
1044     }
1045     { \__wstf_build_display_auxiii: }
1046   }
1047 }
1048 \str_const:Nx \c__wstf_zero_pt_str
1049 {
1050   \dim_use:N \c_zero_dim
1051   \dim_use:N \c_zero_dim
1052   \dim_use:N \c_zero_dim
1053   \dim_use:N \c_zero_dim
1054 }
1055 \cs_new_protected_nopar:Npn \__wstf_build_display_auxiii:
1056 {
1057   \bool_set_true:N \l__wstf_attach_equation_bool
1058   \box_gc_clear:N \g__wstf_display_box
1059   \bool_if:NF \g__wstf_amsmath_bool
1060   { \__wstf_adjust_equation: }
1061   \__wstf_build_body_box:
1062 }
1063 \bool_new:N \l__wstf_display_bool
1064 \bool_new:N \l__wstf_attach_equation_bool

```

```

\__wstf_attach_left:N 1065 \cs_new_protected:Npn \__wstf_attach_left:N #1
\__wstf_attach_right:N

```

```

1066 {
1067   \_wstf_attach_equation:Nn #1
1068   { \g__wstf_parshape_indent_dim }
1069 }
1070 \cs_new_protected:Npn \_wstf_attach_right:N #1
1071 {
1072   \_wstf_attach_equation:Nn #1
1073   {
1074     \l__wstf_line_dim
1075     - \l__wstf_display_dim
1076     + \g__wstf_parshape_indent_dim
1077   }
1078 }
1079 \cs_new_protected:Npn \_wstf_attach_equation:Nn #1#2
1080 {
1081   \vbox_set:Nn \l__wstf_last_box
1082   {
1083     \vbox_unpack:N #1
1084     \box_set_to_last:N \l__wstf_last_box
1085     \bool_if:NTF \g__wstf_amsmath_bool
1086     { \_wstf_attach_equation_amsmath:Nn #1 }
1087     { \_wstf_attach_equation_normal:Nn #1 }
1088     \l__wstf_last_box {#2}
1089   }
1090 }
1091 \cs_new_protected:Npn \_wstf_attach_equation_amsmath:Nn #1#2
1092 {
1093   \vbox_gset:Nn \g__wstf_equation_box
1094   {
1095     \_wstf_nobreak:
1096     \skip_vertical:n
1097     {
1098       \g__wstf_display_pre_skip
1099       + \g__wstf_display_pre_dim
1100       - \box_dp:N #1
1101     }
1102     \box_move_right:nn {#2}
1103     { \box_use_drop:N \g__wstf_equation_box }
1104   }
1105 }
1106 \cs_new_protected:Npn \_wstf_attach_equation_normal:Nn #1#2
1107 {
1108   \vbox_set:Nn \l__wstf_last_box
1109   {
1110     \_wstf_tex_parameter:
1111     \dim_set_eq:NN \tex_hsize:D \l__wstf_display_dim
1112     \para_raw_noindent:
1113     \hbox_unpack_drop:N #1 \tex_unskip:D
1114     \_wstf_insert_equation:
1115     \para_raw_end:
1116     \skip_gset_eq:NN \g__wstf_pos_skip \tex_lastskip:D
1117     \tex_unskip:D
1118     \int_gset_eq:NN \g__wstf_pos_int \tex_lastpenalty:D
1119     \tex_unpenalty:D
1120     \box_set_to_last:N \l__wstf_last_box
1121     \skip_set_eq:NN \l__wstf_last_skip \tex_lastskip:D
1122     \tex_unskip:D
1123     \skip_add:Nn \l__wstf_last_skip { \tex_lastskip:D }
1124     \vbox_gset:Nn \g__wstf_equation_box
1125     {
1126       \_wstf_nobreak:
1127       \skip_vertical:N \l__wstf_last_skip
1128       \box_move_right:nn {#2}
1129       {
1130         \hbox_to_wd:nn
1131         { \l__wstf_display_dim }
1132         {

```

```

1133             \tex_hss:D
1134             \box_use_drop:N \l__wstf_last_box
1135             \tex_hss:D
1136         }
1137     }
1138 }
1139 }
1140 }
1141 \cs_new_protected_nopar:Npn \__wstf_insert_equation:
1142 {
1143     \c_math_toggle_token \c_math_toggle_token
1144     \dim_compare:nNnTF \tex_displaywidth:D = \l__wstf_display_dim
1145     { \box_use_drop:N \g__wstf_equation_box }
1146     {
1147         \bool_if:NTF \g__wstf_eqnum_bool
1148         { \__wstf_repack_equation: }
1149         { \box_use_drop:N \g__wstf_equation_box }
1150     }
1151     \c_math_toggle_token \c_math_toggle_token
1152 }
1153 \cs_new_protected_nopar:Npn \__wstf_repack_equation:
1154 {
1155     \box_gclear:N \g__wstf_equation_box
1156     \box_use_drop:N \g__wstf_eqbody_box
1157     \bool_if:NTF \g__wstf_leqno_bool
1158     { \tex_leqno:D }
1159     { \tex_eqno:D }
1160     \box_use_drop:N \g__wstf_eqnum_box
1161 }
1162 \cs_new_protected_nopar:Npn \__wstf_adjust_equation:
1163 {
1164     \__wstf_test_eqnum:
1165     \bool_if:NT \g__wstf_eqnum_bool
1166     { \__wstf_adjust_equation_width: }
1167 }
1168 \cs_new_protected_nopar:Npn \__wstf_test_eqnum:
1169 {
1170     \hbox_set:Nn \l__wstf_last_box
1171     {
1172         \bool_gset_false:N \g__wstf_eqnum_bool
1173         \hbox_unpack:N \g__wstf_equation_box
1174         \__wstf_if_last_hlist:F { \use_none_delimit_by_s_stop:w }
1175         \box_gset_to_last:N \g__wstf_eqnum_box
1176         \__wstf_if_last_kern:F { \use_none_delimit_by_s_stop:w }
1177         \tex_unkern:D
1178         \__wstf_if_last_hlist:F { \use_none_delimit_by_s_stop:w }
1179         \box_gset_to_last:N \g__wstf_eqbody_box
1180         \__wstf_if_last_none:F { \use_none_delimit_by_s_stop:w }
1181         \bool_gset_true:N \g__wstf_eqnum_bool
1182         \use_none_delimit_by_s_stop:w \s_stop
1183     }
1184 }
1185 \cs_new_protected_nopar:Npn \__wstf_adjust_equation_width:
1186 {
1187     \bool_if:NTF \g__wstf_leqno_bool
1188     { \__wstf_adjust_leqno: }
1189     {
1190         \box_gset_wd:Nn \g__wstf_equation_box
1191         { \box_wd:N \g__wstf_eqbody_box }
1192     }
1193 }
1194 \cs_new_protected_nopar:Npn \__wstf_adjust_leqno:
1195 {
1196     \box_set_eq_drop:NN \l__wstf_last_box \g__wstf_eqnum_box
1197     \box_gset_eq_drop:NN \g__wstf_eqnum_box \g__wstf_eqbody_box
1198     \box_gset_eq_drop:NN \g__wstf_eqbody_box \l__wstf_last_box
1199     \hbox_gset:Nn \g__wstf_equation_box

```

```

1200     {
1201         \skip_horizontal:n
1202         {
1203             \box_wd:N \g__wstf_eqbody_box
1204             - \box_wd:N \g__wstf_equation_box
1205         }
1206         \box_use_drop:N \g__wstf_equation_box
1207     }
1208 }
1209 \box_new:N \g__wstf_eqbody_box
1210 \box_new:N \g__wstf_eqnum_box
1211 \box_new:N \g__wstf_equation_box
1212 \int_new:N \g__wstf_pos_int
1213 \skip_new:N \g__wstf_pos_skip
1214 \bool_new:N \g__wstf_eqnum_bool

\__wstf_add_pos_kludge: 1215 \cs_new_protected_nopar:Npn \__wstf_add_pos_kludge:
1216 {
1217     \dim_gset:Nn \g__wstf_prevdepth_dim
1218     { \box_dp:N \l__wstf_window_box }
1219     \bool_gset_false:N \g__wstf_equation_dp_bool
1220     \bool_if:NTF \g__wstf_next_bool
1221     {
1222         \tex_vadjust:D
1223         {
1224             \box_if_empty:NF \g__wstf_equation_box
1225             { \__wstf_output_equation_box: }
1226             \__wstf_nobreak:
1227             \bool_if:NT \l__wstf_display_bool
1228             { \skip_vertical:N \g__wstf_pos_skip }
1229         }
1230     }
1231     {
1232         \bool_if:NT \l__wstf_display_bool
1233         {
1234             \tex_vadjust:D
1235             {
1236                 \box_if_empty:NF \g__wstf_equation_box
1237                 { \__wstf_output_equation_box: }
1238                 \tex_penalty:D \g__wstf_pos_int
1239                 \skip_vertical:N \g__wstf_pos_skip
1240             }
1241         }
1242     }
1243     \int_gzero:N \g__wstf_pos_int
1244     \skip_gzero:N \g__wstf_pos_skip
1245 }
1246 \cs_new_protected_nopar:Npn \__wstf_output_equation_box:
1247 {
1248     \cs_gset_eq:NN
1249     \__wstf_para_after:
1250     \__wstf_set_equation_depth:
1251     \bool_gset_true:N \g__wstf_equation_dp_bool
1252     \dim_gset:Nn \g__wstf_prevdepth_dim
1253     { \box_dp:N \g__wstf_equation_box }
1254     \vbox_unpack_drop:N \g__wstf_equation_box
1255 }
1256 \cs_new_protected_nopar:Npn \__wstf_set_equation_depth:
1257 {
1258     \cs_gset_eq:NN \__wstf_para_after: \__wstf_empty:
1259     \bool_gset_false:N \g__wstf_equation_dp_bool
1260     \__wstf_set_prevdepth:N \g__wstf_prevdepth_dim
1261 }
1262 \bool_new:N \g__wstf_equation_dp_bool

\__wstf_build_body_box: 1263 \cs_new_protected_nopar:Npn \__wstf_build_body_box:
1264 {
1265     \box_set_eq:NN \l__wstf_save_body_box \l__wstf_bottom_box

```

```

1266   \_wstf_build_window:
1267   \int_compare:nNnTF \g__wstf_line_int > \l__wstf_window_line_int
1268     { \_wstf_extract_hbox:NN \l__wstf_body_box \l__wstf_bottom_box }
1269     { \box_clear:N \l__wstf_bottom_box }
1270   \box_if_empty:NF \l__wstf_bottom_box
1271     { \bool_set_false:N \l__wstf_attach_equation_bool }
1272   \box_clear:N \l__wstf_window_box
1273   \_wstf_build_box:
1274 }
1275 \box_new:N \l__wstf_save_body_box

```

```

\_wstf_build_body_box: 1276 \cs_new_protected_nopar:Npn \_wstf_build_window:
1277 {
1278   \vbox_set:Nn \l__wstf_body_box
1279   {
1280     \dim_zero:N \tex_emergencystretch:D
1281     \dim_set_eq:NN \tex_hfuzz:D \c_max_dim
1282     \dim_set_eq:NN \tex_vfuzz:D \c_max_dim
1283     \int_set_eq:NN \tex_hbadness:D \c_max_int
1284     \int_set_eq:NN \tex_vbadness:D \c_max_int
1285     \int_set:Nn \tex_tolerance:D { 1000 }
1286     \para_raw_noindent:
1287       \hbox_unpack_drop:N \l__wstf_bottom_box
1288       \_wstf_tex_parameter:
1289       \_wstf_make_parshape:
1290       \_wstf_interline_penalties:
1291     \para_raw_end:
1292     \int_gset_eq:NN \g__wstf_line_int \tex_prevgraf:D
1293   }
1294 }

```

```

\_wstf_make_parshape: 1295 \cs_new_protected_nopar:Npn \_wstf_make_parshape:
1296 {
1297   \tex_parshape:D
1298   \int_eval:n { \l__wstf_window_line_int + 1 } ~
1299   \bool_if:NTF \l__wstf_hang_bool
1300   {
1301     \prg_replicate:nn
1302     { \l__wstf_window_int }
1303     { \c_zero_dim \l__wstf_window_dim }
1304   }
1305   {
1306     \bool_if:NTF \l__wstf_column_bool
1307     {
1308       \prg_replicate:nn
1309       { \l__wstf_window_int / 2 }
1310       { \c_zero_dim \l__wstf_l_dim }
1311       \prg_replicate:nn
1312       {
1313         \bool_if:NTF \g__wstf_column_bool
1314         { \g__wstf_column_int }
1315         { \l__wstf_window_int / 2 }
1316       }
1317       { \c_zero_dim \l__wstf_r_dim }
1318     }
1319     {
1320       \prg_replicate:nn
1321       { \l__wstf_window_int / 2 }
1322       {
1323         \c_zero_dim \l__wstf_l_dim
1324         \c_zero_dim \l__wstf_r_dim
1325       }
1326     }
1327   }
1328   \c_zero_dim \c_max_dim
1329 }

```

```

\_wstf_interline_penalties: 1330 \cs_new_protected_nopar:Npn \_wstf_interline_penalties:

```

```

1331 {
1332   \bool_if:NF \l__wstf_hang_bool
1333   {
1334     \bool_if:NTF \l__wstf_column_bool
1335     { \__wstf_column_penalties: }
1336     { \__wstf_block_penalties: }
1337   }
1338 }
1339 \cs_new_protected_nopar:Npn \__wstf_column_penalties:
1340 {
1341   \tex_interlinepenalties:D
1342   \int_eval:n { \l__wstf_window_int / 2 + \c_one_int } ~
1343   \prg_replicate:nn
1344   { \l__wstf_window_int / 2 - \c_one_int }
1345   { \c__wstf_nobreak_int }
1346   \c__wstf_break_int
1347   \c_zero_int
1348 }
1349 \cs_new_protected_nopar:Npn \__wstf_block_penalties:
1350 {
1351   \tex_interlinepenalties:D \l__wstf_window_int
1352   \prg_replicate:nn
1353   { \l__wstf_window_int - \c_one_int }
1354   { \c__wstf_break_int }
1355   \c_zero_int
1356 }

\__wstf_break: 1357 \cs_new_protected_nopar:Npn \__wstf_break:
\__wstf_nobreak: 1358 { \tex_penalty:D \c__wstf_break_int }
1359 \cs_new_protected_nopar:Npn \__wstf_nobreak:
1360 { \tex_penalty:D \c__wstf_nobreak_int }
1361 \int_const:Nn \c__wstf_break_int { -10000 }
1362 \int_const:Nn \c__wstf_nobreak_int { 10000 }

\__wstf_build_box: 1363 \cs_new_protected_nopar:Npn \__wstf_build_block:
\__wstf_build_block: 1364 {
1365   \vbox_set:Nn \l__wstf_window_box
1366   {
1367     \__wstf_split_parameter:
1368     \skip_set_eq:NN \tex_baselineskip:D \g__wstf_baseline_skip
1369     \__wstf_build_line:
1370   }
1371 }
1372 \cs_new_protected_nopar:Npn \__wstf_build_line:
1373 {
1374   \vbox_set_split_to_ht:NNn \l__wstf_l_box \l__wstf_body_box
1375   { \g__wstf_baseline_skip }
1376   \vbox_set_split_to_ht:NNn \l__wstf_r_box \l__wstf_body_box
1377   { \g__wstf_baseline_skip }
1378   \__wstf_build_line_repack:
1379   \box_if_empty:NTF \l__wstf_body_box
1380   { \__wstf_put_last_line: }
1381   {
1382     \__wstf_put_line_box:
1383     \__wstf_build_line:
1384   }
1385 }
1386 \cs_new_protected_nopar:Npn \__wstf_build_line_repack:
1387 {
1388   \vbox_set:Nn \l__wstf_l_box
1389   { \vbox_unpack_drop:N \l__wstf_l_box }
1390   \box_if_empty:NF \l__wstf_r_box
1391   {
1392     \vbox_set:Nn \l__wstf_r_box
1393     { \vbox_unpack_drop:N \l__wstf_r_box }
1394   }
1395   \__wstf_save_first_ht:

```



```

1396 }
1397 \cs_new_protected_nopar:Npn \__wstf_put_last_line:
1398 {
1399   \bool_if:NT \l__wstf_attach_equation_bool
1400   { \__wstf_attach_left:N \l__wstf_l_box }
1401   \__wstf_put_line_box:
1402 }
1403 \cs_new_protected_nopar:Npn \__wstf_put_line_box:
1404 {
1405   \hbox_to_wd:nn { \l__wstf_line_dim }
1406   {
1407     \box_use_drop:N \l__wstf_l_box
1408     \tex_hfil:D
1409     \box_use_drop:N \l__wstf_r_box
1410   }
1411 }
1412 \cs_new_protected_nopar:Npn \__wstf_save_first_ht:
1413 {
1414   \dim_gset:Nn \g__wstf_ht_dim
1415   {
1416     \dim_max:nn
1417     { \box_ht:N \l__wstf_l_box }
1418     { \box_ht:N \l__wstf_r_box }
1419   }
1420   \cs_set_eq:NN \__wstf_save_first_ht: \__wstf_empty:
1421 }
1422 \dim_new:N \g__wstf_ht_dim
1423 \box_new:N \l__wstf_l_box
1424 \box_new:N \l__wstf_r_box

__wstf_build_column_fuzzy: 1425 \cs_new_protected_nopar:Npn \__wstf_build_column_fuzzy:
1426 {
1427   \hbox_set_to_wd:Nnn \l__wstf_window_box
1428   { \l__wstf_line_dim }
1429   {
1430     \__wstf_split_parameter:
1431     \__wstf_build_column_aux:
1432     \box_if_empty:NT \l__wstf_bottom_box
1433     { \__wstf_build_column_fuzzy_aux: }
1434     \__wstf_repack_left_box:
1435     \bool_if:NT \l__wstf_attach_equation_bool
1436     { \__wstf_attach_left:N \l__wstf_l_box }
1437     \box_use:N \l__wstf_l_box
1438     \tex_hfil:D
1439     \box_move_up:nn
1440     { \box_ht:N \l__wstf_l_box - \box_ht:N \l__wstf_r_box }
1441     { \box_use_drop:N \l__wstf_r_box }
1442   }
1443 }
1444 \cs_new_protected_nopar:Npn \__wstf_build_column_aux:
1445 {
1446   \vbox_set_split_to_ht:Nnn \l__wstf_l_box \l__wstf_body_box
1447   { \box_ht:N \l__wstf_body_box / 2 }
1448   \vbox_set_top:Nn \l__wstf_l_box
1449   { \vbox_unpack_drop:N \l__wstf_l_box }
1450   \box_set_eq_drop:NN \l__wstf_r_box \l__wstf_body_box
1451 }
1452 \cs_new_protected_nopar:Npn \__wstf_build_column_fuzzy_aux:
1453 {
1454   \dim_compare:nNnTF
1455   {
1456     \box_ht_plus_dp:N \l__wstf_r_box -
1457     \box_ht_plus_dp:N \l__wstf_l_box
1458   }
1459   >
1460   { \l__wstf_min_dim }
1461   {
1462     \box_if_empty:NF \l__wstf_last_l_box

```

```

1463         {
1464             \box_set_eq_drop:NN \l__wstf_l_box \l__wstf_last_l_box
1465             \box_set_eq_drop:NN \l__wstf_r_box \l__wstf_last_r_box
1466         }
1467     }
1468     { \__wstf_rebuild_window: }
1469 }
1470 \cs_new_protected_nopar:Npn \__wstf_rebuild_window:
1471 {
1472     \int_compare:nNnT \l__wstf_window_int > { 2 }
1473     { \__wstf_rebuild_window_aux: }
1474 }
1475 \cs_new_protected_nopar:Npn \__wstf_rebuild_window_aux:
1476 {
1477     \int_sub:Nn \l__wstf_window_int { 2 }
1478     \box_set_eq_drop:NN \l__wstf_last_l_box \l__wstf_l_box
1479     \box_set_eq_drop:NN \l__wstf_last_r_box \l__wstf_r_box
1480     \box_set_eq:NN \l__wstf_bottom_box \l__wstf_save_body_box
1481     \int_set_eq:NN \l__wstf_window_line_int \l__wstf_window_int
1482     \__wstf_build_window:
1483     \__wstf_build_column_aux:
1484     \__wstf_build_column_fuzzy_aux:
1485 }
1486 \box_new:N \l__wstf_last_l_box
1487 \box_new:N \l__wstf_last_r_box
__wstf_build_column_strict: 1488 \cs_new_protected_nopar:Npn \__wstf_build_column_strict:
1489 {
1490     \group_begin:
1491     \__wstf_split_parameter:
1492     \__wstf_build_column_aux:
1493     \box_if_empty:NTF \l__wstf_r_box
1494     { \__wstf_build_column_strict_auxi: }
1495     {
1496         \box_if_empty:NTF \l__wstf_bottom_box
1497         { \__wstf_build_column_strict_auxii: }
1498         {
1499             \bool_if:NTF \g__wstf_column_bool
1500             { \__wstf_build_column_strict_auxiii: }
1501             { \__wstf_build_column_strict_auxiv: }
1502         }
1503     }
1504     \group_end:
1505     \box_set_eq_drop:NN \l__wstf_window_box \g__wstf_window_box
1506 }
1507 \cs_new_protected_nopar:Npn \__wstf_build_column_strict_auxi:
1508 {
1509     \__wstf_repack_left_box:
1510     \bool_if:NT \l__wstf_attach_equation_bool
1511     { \__wstf_attach_left:N \l__wstf_l_box }
1512     \box_gset_eq_drop:NN \g__wstf_window_box \l__wstf_l_box
1513     \bool_gset_true:N \g__wstf_column_bool
1514     \bool_if:NF \g__wstf_first_save_bool
1515     {
1516         \bool_gset_true:N \g__wstf_first_save_bool
1517         \dim_gset:Nn \g__wstf_first_sep_dim
1518         { \tex_baselineskip:D - \g__wstf_ht_dim }
1519         \dim_gset_eq:NN \g__wstf_first_dp_dim \g__wstf_prevdepth_dim
1520     }
1521     \int_case:nnT { \g__wstf_window_int }
1522     {
1523         { \c_zero_int } { }
1524         { \g__wstf_line_int } { }
1525     }
1526     { \__wstf_column_move_entire_aux: }
1527 }
1528 \cs_new_protected_nopar:Npn \__wstf_column_move_entire_aux:
1529 {

```

```

1530 \bool_gset_true:N \g__wstf_entire_bool
1531 \bool_gset_true:N \g__wstf_next_hang_bool
1532 }
1533 \cs_new_protected_nopar:Npn \__wstf_column_move_entire:
1534 {
1535 \dim_gsub:Nn \g__wstf_first_sep_dim
1536 { \box_dp:N \l__wstf_window_box }
1537 \bool_gset_false:N \g__wstf_entire_bool
1538 \dim_gzero:N \g__wstf_column_ht_dim
1539 \dim_gset_eq:NN \g__wstf_prevdepth_dim \g__wstf_first_dp_dim
1540 \__wstf_column_right_move_set:nn
1541 { \g__wstf_stuff_ht_dim }
1542 { \g__wstf_window_ht_dim }
1543 \int_gset_eq:NN \g__wstf_window_int \g__wstf_column_int
1544 }
1545 \cs_new_protected:Npn \__wstf_column_right_move_set:nn #1#2
1546 {
1547 \bool_gset_true:N \g__wstf_right_move_bool
1548 \bool_gset_true:N \g__wstf_first_set_bool
1549 \tl_gput_right:Nn \g__wstf_main_setting_tl
1550 {
1551 \bool_if:NTF \g__wstf_first_set_bool
1552 {
1553 \bool_gset_false:N \g__wstf_first_set_bool
1554 \bool_set_true:N \l__wstf_first_move_bool
1555 }
1556 { \bool_set_false:N \l__wstf_first_move_bool }
1557 \fp_zero:N \l__wstf_ratio_fp
1558 }
1559 \__wstf_make_next_stuff:nn
1560 { \l__wstf_line_dim - \l__wstf_r_dim - \l__wstf_rightsep_dim }
1561 {#1}
1562 \dim_gset:Nn \g__wstf_column_room_dim {#2}
1563 \int_gzero:N \g__wstf_top_int
1564 }
1565 \cs_new_protected_nopar:Npn \__wstf_build_column_strict_auxii:
1566 {
1567 \bool_gset_false:N \g__wstf_entire_bool
1568 \__wstf_repack_left_box:
1569 \bool_if:NT \l__wstf_attach_equation_bool
1570 { \__wstf_attach_right:N \l__wstf_r_box }
1571 \dim_gset:Nn \g__wstf_hang_ht_dim
1572 {
1573 \g__wstf_stuff_ht_dim - \tex_baselineskip:D *
1574 \__wstf_unit:n { \box_ht_plus_dp:N \l__wstf_r_box }
1575 - \box_ht_plus_dp:N \g__wstf_equation_box
1576 - \g__wstf_pos_skip
1577 }
1578 \dim_compare:nNnTF \g__wstf_hang_ht_dim > \c_zero_dim
1579 { \__wstf_column_move_right: }
1580 { \__wstf_column_put_right: }
1581 \box_gset_ht:Nn \g__wstf_window_box { \box_ht:N \l__wstf_l_box }
1582 \box_gset_dp:Nn \g__wstf_window_box { \box_dp:N \l__wstf_l_box }
1583 }
1584 \cs_new_protected_nopar:Npn \__wstf_column_move_right:
1585 {
1586 \int_compare:nNnTF \g__wstf_window_int > \c_zero_int
1587 {
1588 \dim_gset:Nn \g__wstf_column_room_dim
1589 {
1590 \g__wstf_window_ht_dim
1591 - \g__wstf_first_sep_dim
1592 - \box_ht_plus_dp:N \l__wstf_r_box
1593 - \box_ht_plus_dp:N \g__wstf_equation_box
1594 }
1595 \__wstf_next_hang_para:
1596 }

```

```

1597 {
1598   \dim_gset:Nn \g__wstf_column_room_dim
1599   {
1600     \box_ht:N \l__wstf_l_box
1601     - \box_ht_plus_dp:N \l__wstf_r_box
1602     - \box_ht_plus_dp:N \g__wstf_equation_box
1603   }
1604   \dim_gset:Nn \g__wstf_first_sep_dim
1605   { \tex_baselineskip:D - \g__wstf_ht_dim }
1606   \bool_gset_true:N \g__wstf_right_move_bool
1607   \bool_gset_true:N \g__wstf_next_hang_bool
1608 }
1609 \hbox_gset_to_wd:Nnn \g__wstf_window_box
1610 { \l__wstf_line_dim }
1611 {
1612   \box_use:N \l__wstf_l_box
1613   \tex_hfil:D
1614   \box_move_up:nn
1615   { \g__wstf_column_room_dim }
1616   { \box_use:N \l__wstf_r_box }
1617 }
1618 \dim_gset:Nn \g__wstf_column_ht_dim
1619 {
1620   \box_ht_plus_dp:N \l__wstf_r_box
1621   + \box_ht_plus_dp:N \g__wstf_equation_box
1622   + \g__wstf_pos_skip
1623 }
1624 }
1625 \cs_new_protected_nopar:Npn \__wstf_column_put_right:
1626 {
1627   \hbox_gset_to_wd:Nnn \g__wstf_window_box
1628   { \l__wstf_line_dim }
1629   {
1630     \box_use:N \l__wstf_l_box
1631     \tex_hfil:D
1632     \box_move_up:nn
1633     {
1634       \int_compare:nNnTF \g__wstf_window_int > \c_zero_int
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   { \__wstf_column_move_entire: }
1647   {
1648     \__wstf_column_right_move_set:nn
1649     { \g__wstf_hang_ht_dim }
1650     { \g__wstf_column_room_dim }
1651     \int_gzero:N \g__wstf_window_int
1652   }
1653   \bool_gset_false:N \g__wstf_next_hang_bool
1654 }
1655 \cs_new_protected_nopar:Npn \__wstf_build_column_strict_auxiii:
1656 {
1657   \bool_gset_false:N \g__wstf_column_bool
1658   \__wstf_repack_left_box:
1659   \hbox_gset_to_wd:Nnn \g__wstf_window_box
1660   { \l__wstf_line_dim }
1661   {
1662     \box_use:N \l__wstf_l_box
1663     \tex_hfil:D

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```

1664     \box_use:N \l__wstf_r_box
1665   }
1666   \box_gset_ht:Nn \g__wstf_window_box
1667   { \box_ht:N \l__wstf_l_box }
1668 }
1669 \cs_new_protected_nopar:Npn \__wstf_build_column_strict_auxiv:
1670 {
1671   \__wstf_repack_left_box:
1672   \hbox_gset_to_wd:Nnn \g__wstf_window_box
1673   { \l__wstf_line_dim }
1674   {
1675     \box_use:N \l__wstf_l_box
1676     \tex_hfil:D
1677     \box_move_up:nn
1678     { \box_ht:N \l__wstf_l_box - \box_ht:N \l__wstf_r_box }
1679     { \box_use_drop:N \l__wstf_r_box }
1680   }
1681 }
1682 \cs_new_protected_nopar:Npn \__wstf_repack_left_box:
1683 {
1684   \dim_gset:Nn \g__wstf_ht_dim { \box_ht:N \l__wstf_l_box }
1685   \vbox_set:Nn \l__wstf_l_box
1686   { \vbox_unpack_drop:N \l__wstf_l_box }
1687 }
1688 \box_new:N \g__wstf_window_box
1689 \bool_new:N \l__wstf_first_move_bool

__wstf_build_box: 1690 \bool_new:N \l__wstf_column_bool
__wstf_build_column: 1691 \cs_new_eq:NN \__wstf_build_column: \__wstf_build_column_strict:
1692 \cs_new_eq:NN \__wstf_build_box: \__wstf_build_column:

__wstf_build_hang: 1693 \cs_new_protected_nopar:Npn \__wstf_build_hang:
1694 {
1695   \bool_if:NTF \g__wstf_hangfrom_bool
1696   { \__wstf_build_hangfrom: }
1697   {
1698     \vbox_set_top:Nn \l__wstf_window_box
1699     { \vbox_unpack:N \l__wstf_body_box }
1700     \dim_gset:Nn \g__wstf_ht_dim { \box_ht:N \l__wstf_window_box }
1701   }
1702   \box_set_eq_drop:NN \l__wstf_window_box \l__wstf_body_box
1703   \bool_if:NT \l__wstf_attach_equation_bool
1704   { \__wstf_build_hang_attach: }
1705   \dim_compare:nNnT \g__wstf_column_room_dim > \c_zero_dim
1706   { \__wstf_build_hang_move: }
1707 }
1708 \cs_new_protected_nopar:Npn \__wstf_build_hang_attach:
1709 {
1710   \dim_compare:nNnTF \l__wstf_r_dim = \c_zero_dim
1711   { \__wstf_attach_left:N \l__wstf_window_box }
1712   { \__wstf_attach_right:N \l__wstf_window_box }
1713 }
1714 \cs_new_protected_nopar:Npn \__wstf_build_hang_move:
1715 {
1716   \dim_set:Nn \l__wstf_shift_dim
1717   {
1718     \dim_max:nn
1719     { \box_ht:N \l__wstf_window_box }
1720     { \tex_baselineskip:D * \g__wstf_line_int }
1721     + \box_ht_plus_dp:N \g__wstf_equation_box
1722     + \tex_parskip:D
1723   }
1724   \dim_gsub:Nn \g__wstf_column_room_dim { \l__wstf_shift_dim }
1725   \dim_compare:nNnTF \g__wstf_column_room_dim > \c_zero_dim
1726   {
1727     \box_if_empty:NTF \l__wstf_bottom_box
1728     { \bool_if:NT \g__wstf_right_move_bool { \__wstf_set_next_hang: } }
1729   }

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1730     { \use:n }
1731     {
1732         \bool_gset_false:N \g__wstf_move_hang_bool
1733         \bool_gset_false:N \g__wstf_right_move_bool
1734     }
1735 }
1736 \cs_new_protected_nopar:Npn \__wstf_set_next_hang:
1737 {
1738     \bool_if:NF \g__wstf_move_hang_bool
1739     {
1740         \bool_gset_true:N \g__wstf_move_hang_bool
1741         \dim_gset_eq:NN \g__wstf_hang_ht_dim \g__wstf_remaining_dim
1742     }
1743     \dim_gsub:Nn \g__wstf_hang_ht_dim { \l__wstf_shift_dim }
1744     \__wstf_column_right_move_set:nn
1745     { \g__wstf_hang_ht_dim }
1746     { \g__wstf_column_room_dim }
1747     \int_gzero:N \g__wstf_window_int
1748 }

\__wstf_build_hangfrom: 1749 \cs_new_protected_nopar:Npn \__wstf_build_hangfrom:
1750 {
1751     \group_begin:
1752     \vbox_gset:Nn \g__wstf_window_box
1753     {
1754         \__wstf_break:
1755         \vbox_unpack:N \l__wstf_body_box
1756     }
1757     \__wstf_split_parameter:
1758     \vbox_set_split_to_ht:NNn \l__wstf_last_box \g__wstf_window_box
1759     { \c_zero_dim }
1760     \dim_gset:Nn \g__wstf_ht_dim
1761     {
1762         \g__wstf_baseline_skip
1763         - \g__wstf_prevdepth_dim
1764         - \box_ht:N \l__wstf_body_box
1765         + \box_ht:N \g__wstf_window_box
1766     }
1767     \group_end:
1768     \box_set_eq_drop:NN \l__wstf_body_box \g__wstf_window_box
1769 }

\__wstf_put_box: 1770 \cs_new_protected_nopar:Npn \__wstf_put_box:
1771 {
1772     \__wstf_para_raw_end:
1773     \dim_compare:nNnTF \g__wstf_prevdepth_dim > \c__wstf_ignore_depth_dim
1774     { \__wstf_add_vskip: }
1775     { \__wstf_set_vskip: }
1776     \skip_set_eq:NN \l__wstf_par_skip \tex_parskip:D
1777     \skip_zero:N \tex_parskip:D
1778     \dim_set:Nn \l__wstf_window_ht_dim
1779     { \box_ht_plus_dp:N \l__wstf_window_box }
1780     \bool_if:NTF \g__wstf_right_move_bool
1781     { \__wstf_put_box_aux: }
1782     {
1783         \box_if_empty:NTF \l__wstf_bottom_box
1784         { \__wstf_put_next_test: }
1785         { \__wstf_put_box_aux: }
1786     }
1787 }
1788 \dim_new:N \l__wstf_window_ht_dim
1789 \skip_new:N \l__wstf_par_skip
1790 \cs_new_protected_nopar:Npn \__wstf_put_next_test:
1791 {
1792     \box_if_empty:NF \g__wstf_equation_box
1793     {
1794         \dim_add:Nn \l__wstf_window_ht_dim
1795         { \box_ht_plus_dp:N \g__wstf_equation_box + \g__wstf_pos_skip }

```

```

1796     }
1797     \dim_compare:nNnTF
1798     { \g__wstf_remaining_dim + \g__wstf_pos_skip } > \l__wstf_window_ht_dim
1799     { \__wstf_set_next: }
1800     { \__wstf_put_box_aux: }
1801   }
1802   \cs_new_protected_nopar:Npn \__wstf_put_box_aux:
1803   {
1804     \__wstf_output_window_box:
1805     \box_if_empty:NTF \l__wstf_bottom_box
1806     { \__wstf_put_trailer_box: }
1807     { \__wstf_put_bottom_box: }
1808   }
1809   \cs_new_protected_nopar:Npn \__wstf_put_trailer_box:
1810   {
1811     \bool_if:NTF \g__wstf_next_hang_bool
1812     {
1813       \__wstf_next_hang_para:
1814       \__wstf_next_para_trailer:
1815     }
1816     {
1817       \bool_if:NTF \g__wstf_right_move_bool
1818       { \__wstf_next_para_trailer: }
1819       {
1820         \__wstf_add_pos_kludge:
1821         \__wstf_put_pos_box:
1822         \__wstf_clear_variable:
1823       }
1824     }
1825   }
1826   \cs_new_protected_nopar:Npn \__wstf_put_bottom_box:
1827   {
1828     \__wstf_para_raw_end:
1829     \para_raw_noindent:
1830     \hbox_unpack_drop:N \l__wstf_bottom_box
1831     \box_if_empty:NF \g__wstf_equation_box
1832     { \__wstf_insert_equation: }
1833     \__wstf_put_pos_box:
1834     \__wstf_clear_variable:
1835   }
1836   \cs_new_protected_nopar:Npn \__wstf_output_window_box:
1837   {
1838     \__wstf_hbox:n
1839     {
1840       \__wstf_put_window_box:
1841       \bool_if:NF \g__wstf_next_bool
1842       { \__wstf_output_stuff_box: }
1843     }
1844   }
1845   \cs_new_protected_nopar:Npn \__wstf_put_pos_box:
1846   {
1847     \box_if_empty:NF \g__wstf_pos_box
1848     { \__wstf_output_pos_box: }
1849   }
1850   \cs_new_protected_nopar:Npn \__wstf_output_pos_box:
1851   {
1852     \__wstf_if_last_none:F
1853     { \__wstf_output_pos_box_aux: }
1854     \hbox_unpack_drop:N \g__wstf_pos_box
1855   }
1856   \cs_new_protected_nopar:Npn \__wstf_output_pos_box_aux:
1857   {
1858     \__wstf_para_raw_end:
1859     \bool_if:NT \g__wstf_equation_dp_bool
1860     { \__wstf_set_equation_depth: }
1861     \para_raw_noindent:
1862   }

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```

1863 \cs_new_protected:Npn \__wstf_hbox:n #1
1864 {
1865   \para_raw_noindent:
1866   \hbox_gset:Nn \g__wstf_last_box {#1}
1867   \box_gset_wd:Nn \g__wstf_last_box { \l__wstf_line_dim }
1868   \box_use_drop:N \g__wstf_last_box
1869 }
1870 \cs_new_protected_nopar:Npn \__wstf_put_window_box:
1871 {
1872   \dim_compare:nNnF \l__wstf_l_dim > \c_zero_dim
1873   { \skip_horizontal:n { \l__wstf_line_dim - \l__wstf_r_dim } }
1874   \box_use:N \l__wstf_window_box
1875 }
1876 \cs_new_protected_nopar:Npn \__wstf_output_stuff_box:
1877 {
1878   \hbox_gset:Nn \g__wstf_stuff_box
1879   {
1880     \__wstf_parshape_kern:
1881     \box_move_up:nn
1882     {
1883       + \box_ht:N \l__wstf_window_box
1884       - ( \l__wstf_window_ht_dim
1885         + \box_ht_plus_dp:N \g__wstf_stuff_box ) / 2
1886       + \l__wstf_voffset_dim
1887     }
1888     { \box_use_drop:N \g__wstf_stuff_box }
1889   }
1890   \box_gset_ht:Nn \g__wstf_stuff_box { \c_zero_dim }
1891   \box_gset_dp:Nn \g__wstf_stuff_box { \c_zero_dim }
1892   \skip_horizontal:n
1893   {
1894     \dim_compare:nNnTF \l__wstf_r_dim > \c_zero_dim
1895     {
1896       \dim_compare:nNnTF
1897       { \box_wd:N \l__wstf_window_box }
1898       <
1899       { \l__wstf_window_dim }
1900       { \l__wstf_leftsep_dim }
1901       {
1902         - \l__wstf_r_dim
1903         - \l__wstf_rightsep_dim
1904         - \g__wstf_stuff_wd_dim
1905       }
1906     }
1907     { \l__wstf_leftsep_dim }
1908   }
1909   \box_use_drop:N \g__wstf_stuff_box
1910 }
__wstf_add_vskip: 1911 \cs_new_protected_nopar:Npn \__wstf_add_vskip:
1912 {
1913   \box_if_empty:NNTF \g__wstf_display_box
1914   { \__wstf_add_vskip_auxi: }
1915   { \__wstf_add_vskip_display: }
1916 }
1917 \cs_new_protected_nopar:Npn \__wstf_add_vskip_display:
1918 {
1919   \bool_set_true:N \l__wstf_display_pre_bool
1920   \vbox_unpack_drop:N \g__wstf_display_box
1921   \__wstf_ignore_depth:
1922 }
1923 \cs_new_protected_nopar:Npn \__wstf_add_vskip_auxi:
1924 {
1925   \dim_compare:nNnTF \tex_pagegoal:D < \c_max_dim
1926   { \__wstf_add_vskip_auxii: }
1927   {
1928     \bool_if:NNTF \g__wstf_next_bool
1929     { \__wstf_add_vskip_auxii: }

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1930         { \__wstf_add_vskip_auxiii: }
1931     }
1932 }
1933 \cs_new_protected_nopar:Npn \__wstf_add_vskip_auxii:
1934 {
1935     \__wstf_add_vskip_auxiv:
1936     \bool_if:NTF \l__wstf_first_move_bool
1937     { \__wstf_first_move_skip: }
1938     { \skip_vertical:N \g__wstf_pre_skip }
1939     \__wstf_ignore_depth:
1940 }
1941 \cs_new_protected_nopar:Npn \__wstf_add_vskip_auxiii:
1942 {
1943     \__wstf_add_vskip_auxiv:
1944     \skip_vertical:N \g__wstf_pre_skip
1945     \dim_compare:nNnTF \tex_topskip:D > \g__wstf_ht_dim
1946     {
1947         \skip_sub:Nn \tex_topskip:D { \g__wstf_ht_dim }
1948         \tex_hrulerule:D height \c_zero_dim \scan_stop:
1949     }
1950     { \__wstf_ignore_depth: }
1951 }
1952 \cs_new_protected_nopar:Npn \__wstf_add_vskip_auxiv:
1953 {
1954     \skip_gset:Nn \g__wstf_pre_skip
1955     {
1956         \g__wstf_baseline_skip
1957         - \g__wstf_prevdepth_dim
1958         - \g__wstf_ht_dim
1959     }
1960     \dim_compare:nNnTF \g__wstf_pre_skip < \tex_lineskiplimit:D
1961     { \skip_gset_eq:NN \g__wstf_pre_skip \tex_lineskip:D }
1962 }
1963 \cs_new_protected_nopar:Npn \__wstf_first_move_skip:
1964 {
1965     \skip_vertical:n
1966     {
1967         \g__wstf_first_sep_dim
1968         - \g__wstf_window_ht_dim
1969         - \tex_parskip:D
1970         \dim_compare:nNnTF \g__wstf_column_ht_dim > \c_zero_dim
1971         { + \g__wstf_column_ht_dim + \g__wstf_pre_skip }
1972     }
1973 }
1974 \skip_new:N \g__wstf_pre_skip
1975 \bool_new:N \l__wstf_display_pre_bool

\__wstf_set_vskip: 1976 \cs_new_protected_nopar:Npn \__wstf_set_vskip:
1977 {
1978     \box_if_empty:NTF \g__wstf_display_box
1979     {
1980         \skip_gset:Nn \g__wstf_pre_skip
1981         { \g__wstf_baseline_skip - \g__wstf_ht_dim }
1982     }
1983     { \__wstf_add_vskip_display: }
1984 }

\__wstf_ignore_depth: 1985 \cs_new_protected_nopar:Npn \__wstf_ignore_depth:
\__wstf_set_prevdepth:N 1986 { \dim_set_eq:NN \tex_prevdepth:D \c__wstf_ignore_depth_dim }
1987 \cs_new_protected_nopar:Npn \__wstf_set_prevdepth:N
1988 { \dim_set_eq:NN \tex_prevdepth:D }
1989 \dim_const:Nn \c__wstf_ignore_depth_dim { -1000pt }

\__wstf_set_next: 1990 \cs_new_protected_nopar:Npn \__wstf_set_next:
1991 {
1992     \dim_set:Nn \l__wstf_height_dim
1993     {
1994         \bool_if:NT \g__wstf_next_bool { \l__wstf_par_skip }

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1995         + \g__wstf_pre_skip
1996         + \l__wstf_window_ht_dim
1997     }
1998     \dim_gadd:Nn \g__wstf_total_ht_dim { \l__wstf_height_dim }
1999     \dim_set:Nn \l__wstf_shift_dim
2000     { \g__wstf_remaining_dim - \l__wstf_height_dim }
2001     \dim_compare:nNnTF
2002     { - \l__wstf_shift_dim } < \l__wstf_min_dim
2003     { \__wstf_set_next_para: }
2004     { \__wstf_set_next_output: }
2005 }
2006 \cs_new_protected_nopar:Npn \__wstf_set_next_para:
2007 {
2008     \int_gset:Nn \g__wstf_window_int
2009     {
2010         \dim_compare:nNnTF \l__wstf_shift_dim > \c_zero_dim
2011         { \__wstf_unit:n { \l__wstf_shift_dim } }
2012         { \c_one_int }
2013     }
2014     \__wstf_set_next_verify:
2015     \__wstf_output_window_box:
2016     \__wstf_make_next_stuff:nn
2017     { \g__wstf_stuff_wd_dim }
2018     { \l__wstf_shift_dim }
2019     \int_gzero:N \g__wstf_top_int
2020     \__wstf_next_para_trailer:
2021 }
2022 \cs_new_protected_nopar:Npn \__wstf_set_next_output:
2023 {
2024     \__wstf_output_window_box:
2025     \__wstf_add_pos_kludge:
2026     \__wstf_put_pos_box:
2027     \__wstf_clear_variable:
2028 }
2029 \cs_new_protected_nopar:Npn \__wstf_set_next_verify:
2030 {
2031     \dim_set:Nn \l__wstf_height_dim
2032     { \g__wstf_window_ht_dim - \g__wstf_total_ht_dim - \l__wstf_min_dim }
2033     \dim_while_do:nNnn
2034     { \tex_baselineskip:D * \g__wstf_window_int + \l__wstf_par_skip }
2035     <
2036     { \l__wstf_height_dim }
2037     { \int_gincr:N \g__wstf_window_int }
2038     \bool_if:NF \g__wstf_next_bool
2039     {
2040         \dim_add:Nn \l__wstf_window_ht_dim
2041         { \tex_baselineskip:D * \g__wstf_window_int + \l__wstf_par_skip }
2042     }
2043 }
2044 \__wstf_next_para_trailer: \cs_new_protected_nopar:Npn \__wstf_next_para_trailer:
2045 {
2046     \__wstf_add_pos_kludge:
2047     \box_if_empty:NTF \g__wstf_pos_box
2048     { \__wstf_next_para: }
2049     {
2050         \__wstf_env_begin:
2051         \hbox_unpack_drop:N \g__wstf_pos_box
2052         \__wstf_env_end:
2053     }
2054 }
2055 \__wstf_make_next_stuff:nn \cs_new_protected:Npn \__wstf_make_next_stuff:nn #1#2
2056 {
2057     \bool_gset_true:N \g__wstf_next_bool
2058     \dim_gset:Nn \g__wstf_stuff_wd_dim {#1}
2059     \dim_gset:Nn \g__wstf_remaining_dim {#2}
2060 }

```

```

\__wstf_extract_hbox:NN 2061 \cs_new_protected:Npn \__wstf_extract_display_hbox:NN #1
2062 {
2063   \box_gclear:N \g__wstf_pos_box
2064   \vbox_set:Nn #1
2065   {
2066     \vbox_unpack_drop:N #1
2067     \bool_if:NTF \g__wstf_display_bool
2068     { \__wstf_test_display_math: }
2069     { \box_gclear:N \g__wstf_display_box }
2070     \box_if_empty:NTF \g__wstf_display_box
2071     {
2072       \bool_gset_false:N \g__wstf_amsmath_bool
2073       \__wstf_extract_last_hbox:N \g__wstf_last_box
2074     }
2075     { \box_gclear:N \g__wstf_last_box }
2076   }
2077   \box_if_empty:NF \g__wstf_display_box
2078   { \dim_gset:Nn \g__wstf_display_pre_dim { \box_dp:N #1 } }
2079   \__wstf_extract_hbox_aux:N
2080 }
2081 \cs_new_protected:Npn \__wstf_extract_hbox:NN #1
2082 {
2083   \vbox_set:Nn #1
2084   {
2085     \vbox_unpack_drop:N #1
2086     \__wstf_extract_last_hbox:N \g__wstf_last_box
2087   }
2088   \__wstf_extract_hbox_aux:N
2089 }
2090 \cs_new_protected:Npn \__wstf_extract_hbox_aux:N #1
2091 {
2092   \box_if_empty:NTF \g__wstf_last_box
2093   { \box_clear:N #1 }
2094   { \__wstf_repack_hbox:N #1 }
2095 }
2096 \cs_new_protected:Npn \__wstf_repack_hbox:N #1
2097 {
2098   \hbox_set:Nn #1
2099   {
2100     \skip_if_eq:nnF
2101     { \g__wstf_main_left_skip } { \c_zero_skip }
2102     { \skip_horizontal:N \g__wstf_main_left_skip }
2103     \hbox_unpack_drop:N \g__wstf_last_box
2104     \tex_unskip:D \tex_unskip:D \tex_unpenalty:D
2105   }
2106 }
2107 \cs_new_protected:Npn \__wstf_extract_last_hbox:N #1
2108 {
2109   \__wstf_if_last_hlist:TF
2110   {
2111     \box_gset_to_last:N #1
2112     \tex_unskip:D
2113   }
2114   { \box_gclear:N #1 }
2115 }
2116 \box_new:N \g__wstf_last_box
2117 \box_new:N \g__wstf_display_box
2118 \dim_new:N \g__wstf_display_pre_dim
\__wstf_test_display_math: 2119 \cs_new_protected_nopar:Npn \__wstf_test_display_math:
2120 {
2121   \__wstf_if_last_hlist:T { \__wstf_extract_pos_hbox: }
2122   \box_clear:N \l__wstf_add_box
2123   \box_gclear:N \g__wstf_display_box
2124   \skip_gzero:N \g__wstf_last_skip
2125   \skip_gzero:N \g__wstf_display_pre_skip
2126   \bool_gset_false:N \g__wstf_amsmath_bool
2127   \__wstf_add_last_skip:w

```

```

2128 \__wstf_add_last_penalty:w
2129 \__wstf_add_last_box:w
2130 \__wstf_add_last_skip:w
2131 \__wstf_add_last_skip:w
2132 \__wstf_add_last_penalty:w
2133 \__wstf_add_last_finalise:w \s_stop
2134 }
2135 \cs_new_protected_nopar:Npn \__wstf_extract_pos_hbox:
2136 {
2137   \box_gset_to_last:N \g__wstf_last_box
2138   \__wstf_repack_hbox:N \l__wstf_last_box
2139   \box_gset_eq_drop:NN \g__wstf_pos_box \l__wstf_last_box
2140   \tex_unskip:D
2141 }
2142 \box_new:N \l__wstf_add_box
2143 \box_new:N \g__wstf_pos_box

\__wstf_add_last_stop:w 2144 \cs_new_protected_nopar:Npn \__wstf_add_last_stop:w
2145 {
2146   \vbox_unpack_drop:N \l__wstf_add_box
2147   \use_none_delimit_by_s_stop:w
2148 }

\__wstf_add_last_skip:w 2149 \cs_new_protected_nopar:Npn \__wstf_add_last_skip:w
2150 {
2151   \__wstf_if_last_glue:TF
2152   {
2153     \skip_set_eq:NN \l__wstf_last_skip \tex_lastskip:D
2154     \vbox_set:Nn \l__wstf_add_box
2155     {
2156       \skip_vertical:N \l__wstf_last_skip
2157       \vbox_unpack_drop:N \l__wstf_add_box
2158     }
2159     \tex_unskip:D
2160     \skip_gadd:Nn \g__wstf_last_skip { \l__wstf_last_skip }
2161   }
2162   { \__wstf_skip_stop:w }
2163 }
2164 \skip_new:N \l__wstf_last_skip
2165 \skip_new:N \g__wstf_last_skip
2166 \cs_new_eq:NN \__wstf_skip_stop:w \__wstf_add_last_stop:w

\__wstf_add_last_penalty:w 2167 \cs_new_protected_nopar:Npn \__wstf_add_last_penalty:w
2168 {
2169   \__wstf_if_last_penalty:TF
2170   {
2171     \int_set_eq:NN \l__wstf_last_int \tex_lastpenalty:D
2172     \vbox_set:Nn \l__wstf_add_box
2173     {
2174       \tex_penalty:D \l__wstf_last_int
2175       \vbox_unpack_drop:N \l__wstf_add_box
2176     }
2177     \tex_unpenalty:D
2178     \skip_gset_eq:NN \g__wstf_pre_skip \g__wstf_last_skip
2179     \skip_gzero:N \g__wstf_last_skip
2180   }
2181   { \__wstf_penalty_stop:w }
2182 }
2183 \int_new:N \l__wstf_last_int
2184 \cs_new_eq:NN \__wstf_penalty_stop:w \__wstf_add_last_stop:w

\__wstf_add_last_box:w 2185 \cs_new_protected_nopar:Npn \__wstf_add_last_box:w
2186 {
2187   \__wstf_if_last_hlist:TF
2188   {
2189     \skip_gzero:N \g__wstf_last_skip
2190     \box_set_to_last:N \l__wstf_last_box
2191     \vbox_set:Nn \l__wstf_add_box

```

```

2192         {
2193             \box_use_drop:N \l__wstf_last_box
2194             \vbox_unpack_drop:N \l__wstf_add_box
2195         }
2196     }
2197     { \__wstf_box_stop:w }
2198 }
2199 \box_new:N \l__wstf_last_box
2200 \cs_new_eq:NN \__wstf_box_stop:w \__wstf_add_last_stop:w
\__wstf_add_last_finalise:w 2201 \cs_new_protected_nopar:Npn \__wstf_add_last_finalise:w
2202 {
2203     \int_gset_eq:NN \g__wstf_display_pre_int \l__wstf_last_int
2204     \skip_gadd:Nn \g__wstf_display_pre_skip { \g__wstf_pre_skip }
2205     \int_case:nnTF { \tex_lastnodetype:D }
2206     {
2207         { \c__wstf_hlist_node } { }
2208         { \c__wstf_none_node } { }
2209         { \c__wstf_whatsit_node } { }
2210     }
2211     { \box_gset_eq_drop:NN \g__wstf_display_box \l__wstf_add_box }
2212     { \vbox_unpack_drop:N \l__wstf_add_box }
2213     \use_none_delimit_by_s_stop:w
2214 }
2215 \int_new:N \g__wstf_display_pre_int
2216 \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 2217 \cs_new_protected_nopar:Npn \__wstf_amsmath_boot:w
\__wstf_amsmath_multline:w 2218 {
2219     \__wstf_add_last_skip:w
2220     \__wstf_add_last_penalty:w
2221     \cs_set_eq:NN \__wstf_box_stop:w \__wstf_add_last_stop:w
2222     \__wstf_add_last_box:w
2223     \bool_gset_true:N \g__wstf_amsmath_bool
2224     \cs_set_eq:NN \__wstf_skip_stop:w \__wstf_amsmath_multline:w
2225     \cs_set_eq:NN \__wstf_penalty_stop:w \__wstf_amsmath_stop:NN
2226     \__wstf_amsmath_recursion:w
2227 }
2228 \cs_new_protected_nopar:Npn \__wstf_amsmath_recursion:w
2229 {
2230     \__wstf_add_last_skip:w
2231     \__wstf_add_last_skip:w
2232     \__wstf_add_last_penalty:w
2233     \__wstf_add_last_box:w
2234     \__wstf_amsmath_recursion:w
2235 }
2236 \cs_new_protected:Npn \__wstf_amsmath_stop:NN #1#2
2237 {
2238     \cs_set_eq:NN \__wstf_skip_stop:w \__wstf_add_last_stop:w
2239     \cs_set_eq:NN \__wstf_penalty_stop:w \__wstf_add_last_stop:w
2240 }
2241 \bool_new:N \g__wstf_amsmath_bool

```

`\__wstf_amsmath_multline:w` `multline` 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{%
            #1%
            \ifdt@p
                \global\dt@pfalse
                \vskip-\lineskiplimit
                \vskip\normallineskiplimit
            \else
                \penalty\@eqpen \global\dspbrk@lvl\m@ne
            \fi

```

```

    }%
  }%
}

```

`align` 等环境的开头 `\ifdt@p` 为真, 会插入两个 `\vskip`, 但是 `multline` 定义中的 `\mmeasure@` 没有重定义 `\everycr`, 上述定义中的 `\dt@pfalse` 被执行, 导致环境开头被加入了 `\penalty`, 不确定是有意为之还是疏忽<sup>1</sup>。

```

2242 \cs_new_protected_nopar:Npn \__wstf_amsmath_multline:w
2243 {
2244   \__wstf_amsmath_stop:NN ? ?
2245   \__wstf_add_last_penalty:w
2246   \skip_gset_eq:NN \g__wstf_display_pre_skip
2247           \g__wstf_pre_skip
2248   \__wstf_add_last_skip:w
2249   \__wstf_add_last_penalty:w
2250   \__wstf_add_last_finalise:w
2251 }

```

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

```

2252 \cs_new_protected_nopar:Npn \__wstf_amsmath_leqno:
2253 {
2254   \legacy_if:nTF { tagsleft@ }
2255     { \bool_gset_true:N \g__wstf_leqno_bool }
2256     { \bool_gset_false:N \g__wstf_leqno_bool }
2257 }

```

```

2258 \__wstf_package_hook:nn { amsmath }
2259 {
2260   \cs_gset_eq:NN \__wstf_box_stop:w
2261           \__wstf_amsmath_boot:w
2262   \cs_gset_eq:NN \__wstf_test_leqno:
2263           \__wstf_amsmath_leqno:
2264 }

```

```

\__wstf_set_float: 2265 \cs_new_protected_nopar:Npn \__wstf_set_float:
2266 {
2267   \cs_set_eq:NN \@capttype \l__wstf_type_tl
2268   \__wstf_float_pre_hook:
2269   \__wstf_caption_hook:
2270   \@floatboxreset
2271 }

```

```

\__wstf_float_pre_hook: 2272 \cs_new_eq:NN \__wstf_float_pre_hook: \__wstf_empty:
\__wstf_float_pos_hook: 2273 \cs_new_eq:NN \__wstf_float_pos_hook: \__wstf_empty:
2274 \__wstf_package_hook:nn { float }
2275 {
2276   \bool_new:N \g__wstf_float_pos_bool
2277   \cs_gset_protected_nopar:Npn \__wstf_float_pre_hook:
2278     { \exp_args:No \__wstf_float_pre_aux:n { \l__wstf_type_tl } }
2279   \cs_new_protected:Npn \__wstf_float_pre_aux:n #1
2280     {
2281       \cs_if_exist_use:cTF { fst@ #1 }
2282       {
2283         \@float@setevery {#1}
2284         \bool_gset_true:N \g__wstf_float_pos_bool
2285       }
2286       { \bool_gset_false:N \g__wstf_float_pos_bool }
2287     }
2288   \cs_gset_protected_nopar:Npn \__wstf_float_pos_hook:
2289     {
2290       \bool_if:NT \g__wstf_float_pos_bool
2291       { \exp_args:No \__wstf_float_pos_aux:n { \l__wstf_type_tl } }
2292     }
2293   \cs_new_protected:Npn \__wstf_float_pos_aux:n #1
2294     {

```

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

```

2295     \hbox_gset:Nn \g__wstf_stuff_box
2296     {
2297         \use:c { fst@ #1 }
2298         \cs_set_eq:NN \@currbox \g__wstf_stuff_box
2299         \vbox_gset:Nn \g__wstf_stuff_box
2300         { \box_use_drop:N \g__wstf_stuff_box }
2301         \exp_args:Ne \float@makebox
2302         { \dim_eval:n { \box_wd:N \g__wstf_stuff_box } }
2303     }
2304 }
2305 }

\__wstf_floatrow_hook: 2306 \cs_new_eq:NN \__wstf_floatrow_hook: \__wstf_empty:
2307 \__wstf_package_hook:nn { floatrow }
2308 {
2309     \cs_gset_protected_nopar:Npn \__wstf_floatrow_hook:
2310     {
2311         \cs_set_eq:NN \@capttype \l__wstf_type_tl
2312         \killfloatstyle
2313         \FR@redefs
2314         \dim_zero:N \FBc@wd
2315         \exp_args:Ne \flrow@setlist
2316         {
2317             { \l__wstf_type_tl }
2318             { wrapfloat }
2319             { wrap \l__wstf_type_tl }
2320         }
2321         \FRifFBBOX \@@setframe \relax \@@FStrue
2322         \hbox_gset:Nw \g__wstf_stuff_box
2323         \tl_set:Nx \FBB@wd { \dim_use:N \l__wstf_width_dim }
2324         \FB@fs@wd
2325         \dim_set:Nn \l__wstf_width_dim { \FBo@wd }
2326     }
2327     \cs_gset_protected_nopar:Npn \__wstf_float_pre_hook:
2328     { \the \FR@everyfloat }
2329     \cs_gset_protected_nopar:Npn \__wstf_float_pos_hook:
2330     {
2331         \legacy_if:nTF { FBbuild }
2332         {
2333             \cs_set_eq:NN \@currbox \g__wstf_stuff_box
2334             \vbox_gset:Nn \g__wstf_stuff_box
2335             { \box_use_drop:N \g__wstf_stuff_box }
2336             \flrow@FB { \l__wstf_width_dim }
2337         }
2338         {
2339             \cs_undefine:N \flrow@typ@tmpset
2340             \box_use_drop:N \g__wstf_stuff_box
2341         }
2342         \hbox_gset_end:
2343     }
2344 }

\__wstf_caption_hook: 2345 \cs_new_eq:NN \__wstf_caption_hook: \__wstf_empty:
2346 \__wstf_package_hook:nn { caption }
2347 {
2348     \cs_gset_protected_nopar:Npn \__wstf_caption_hook:
2349     { \exp_args:No \__wstf_caption_aux:n { \l__wstf_type_tl } }
2350     \cs_new_protected:Npn \__wstf_caption_aux:n #1
2351     {
2352         \caption@settype {#1}
2353         \caption@clearmargin
2354         \caption@setoptions { wrap #1 }
2355     }
2356 }

top 2357 \keys_define:nn { wrapstuff }
2358 {
2359     abovesep .tl_set:N = \l__wstf_abovesep_tl ,

```

```

2360 belowsep .tl_set:N = \l__wstf_belowsep_tl ,
2361 leftsep .tl_set:N = \l__wstf_leftsep_tl ,
2362 rightsep .tl_set:N = \l__wstf_rightsep_tl ,
2363 linewidth .tl_set:N = \l__wstf_linewidth_tl ,
2364 lines .tl_set:N = \l__wstf_lines_tl ,
2365 width .tl_set:N = \l__wstf_width_tl ,
2366 height .tl_set:N = \l__wstf_height_tl ,
2367 hoffset .tl_set:N = \l__wstf_hoffset_tl ,
2368 voffset .tl_set:N = \l__wstf_voffset_tl ,
2369 type .tl_set:N = \l__wstf_type_tl ,
2370 ratio .fp_set:N = \l__wstf_ratio_fp ,
2371 top .int_set:N = \l__wstf_top_int ,
2372 i .code:n = \__wstf_swap_true:N \c_true_bool ,
2373 o .code:n = \__wstf_swap_true:N \c_false_bool ,
2374 l .code:n = \__wstf_swap_false:N \c_zero_fp ,
2375 r .code:n = \__wstf_swap_false:N \c_one_fp ,
2376 c .code:n = \__wstf_swap_false:N \c__wstf_c_fp ,
2377 column .choice: ,
2378 column/true .code:n =
2379 {
2380 \bool_set_true:N \l__wstf_column_bool
2381 \cs_set_eq:NN \__wstf_build_column:
2382 \__wstf_build_column_strict:
2383 } ,
2384 column/par .code:n =
2385 {
2386 \bool_set_true:N \l__wstf_column_bool
2387 \cs_set_eq:NN \__wstf_build_column:
2388 \__wstf_build_column_fuzzy:
2389 } ,
2390 column/false .code:n =
2391 { \bool_set_false:N \l__wstf_column_bool } ,
2392 hsep .code:n =
2393 {
2394 \tl_set:Nn \l__wstf_leftsep_tl {#1}
2395 \tl_set_eq:NN \l__wstf_rightsep_tl
2396 \l__wstf_leftsep_tl
2397 } ,
2398 vsep .code:n =
2399 {
2400 \tl_set:Nn \l__wstf_avesep_tl {#1}
2401 \tl_set_eq:NN \l__wstf_belowsep_tl
2402 \l__wstf_avesep_tl
2403 } ,
2404 unknown .code:n =
2405 { \exp_args:No \__wstf_unknown_key:n { \l_keys_key_str } } ,
2406 leftsep .groups:n = main ,
2407 rightsep .groups:n = main ,
2408 hsep .groups:n = main ,
2409 linewidth .groups:n = main ,
2410 lines .groups:n = main ,
2411 column .groups:n = main ,
2412 hoffset .groups:n = main ,
2413 voffset .groups:n = main ,
2414 top .groups:n = stuff ,
2415 abovesep .groups:n = stuff ,
2416 belowsep .groups:n = stuff ,
2417 vsep .groups:n = stuff ,
2418 width .groups:n = stuff ,
2419 height .groups:n = stuff ,
2420 float .groups:n = stuff ,
2421 ratio .groups:n = ratio ,
2422 l .groups:n = ratio ,
2423 r .groups:n = ratio ,
2424 c .groups:n = ratio ,
2425 i .groups:n = ratio ,
2426 o .groups:n = ratio ,

```



```

2427 column .default:n = true ,
2428 column .initial:n = true ,
2429 abovesep .initial:n = \c_zero_dim ,
2430 belowsep .initial:n = \c_zero_dim ,
2431 leftsep .initial:n = 1em ,
2432 rightsep .initial:n = 1em ,
2433 linewidth .initial:n = \linewidth ,
2434 hoffset .initial:n = \c_zero_dim ,
2435 voffset .initial:n = \c_zero_dim ,
2436 width .initial:n = \c_zero_dim ,
2437 height .initial:n = \c_zero_dim ,
2438 ratio .initial:n = \c_one_fp ,
2439 abovesep .value_required:n = true ,
2440 belowsep .value_required:n = true ,
2441 leftsep .value_required:n = true ,
2442 rightsep .value_required:n = true ,
2443 linewidth .value_required:n = true ,
2444 width .value_required:n = true ,
2445 height .value_required:n = true ,
2446 hoffset .value_required:n = true ,
2447 voffset .value_required:n = true ,
2448 hsep .value_required:n = true ,
2449 vsep .value_required:n = true ,
2450 l .value_forbidden:n = true ,
2451 r .value_forbidden:n = true ,
2452 c .value_forbidden:n = true ,
2453 i .value_forbidden:n = true ,
2454 o .value_forbidden:n = true
2455 }
2456 \fp_const:Nn \c__wstf_c_fp { 0.5 }
2457 \cs_new_protected:Npn \__wstf_swap_true:N #1
2458 {
2459   \bool_set_true:N \l__wstf_swap_bool
2460   \bool_set_eq:NN \l__wstf_inner_bool #1
2461   \bool_if:NTF \l__wstf_inner_bool
2462     { \bool_set_false:N \l__wstf_outer_bool }
2463     { \bool_set_true:N \l__wstf_outer_bool }
2464 }
2465 \cs_new_protected_nopar:Npn \__wstf_swap_false:N
2466 {
2467   \bool_set_false:N \l__wstf_swap_bool
2468   \fp_set_eq:NN \l__wstf_ratio_fp
2469 }
2470 \cs_new_protected:Npn \__wstf_unknown_key:n #1
2471 {
2472   \regex_match:NnTF \c__wstf_integer_regex {#1}
2473     { \int_set:Nn \l__wstf_top_int }
2474     { \__wstf_unknown_key_error:n }
2475     {#1}
2476 }
2477 \regex_const:Nn \c__wstf_integer_regex { \A \d+ \Z }
2478 \cs_new_protected_nopar:Npn \__wstf_unknown_key_error:n
2479 { \msg_error:nnn { wstf } { unknown-key } }
2480 \msg_new:nnnn { wstf } { unknown-key }
2481 { The~key~"#1"~is~unknown~and~is~being~ignored. }
2482 {
2483   The~package~wrapstuff~does~not~have~a~key~called~"#1".\\
2484   Check~that~you~have~spelled~the~key~name~correctly.
2485 }
\wrapstuffset 2486 \NewDocumentCommand \wrapstuffset { m }
2487 { \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。
2488 \NewDocumentCommand \wrapstuffclear { }
2489 {
2490   \par

```

```
2491     \__wstf_clear:
2492   }

2493 \cs_if_exist:NTF \ProcessKeyOptions
2494   { \ProcessKeyOptions [ wrapstuff ] }
2495   {
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2497     \ProcessKeysOptions { wrapstuff }
2498   }

2499 </package>
```

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