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\spacefactor    [ <number> parameter ]
\spaceskip      [ <glue> parameter ]
\xspaceskip     [ <glue> parameter ]
\sffcode <charcode> [ <number> table entry ]

```

These primitive parameters affect how much space T<sub>E</sub>X puts between two adjacent words, i.e., the interword spacing. The normal interword spacing is supplied by the current font. As T<sub>E</sub>X is processing a horizontal list, it keeps track of the space factor  $f$  in `\spacefactor`. As it processes each input character  $c$ , it updates  $f$  according to the value of  $f_c$ , the space factor code of  $c$  (see below). For most characters,  $f_c$  is 1000 and T<sub>E</sub>X sets  $f$  to 1000. (The initial value of  $f$  is also 1000.) When T<sub>E</sub>X sees an interword space, it adjusts the size of that space by multiplying the stretch and shrink of that space by  $f/1000$  and  $1000/f$  respectively. Thus:

- 1) If  $f = 1000$ , the interword space keeps its normal value.
- 2) If  $f < 1000$ , the interword space gets less stretch and more shrink.
- 3) If  $f > 1000$ , the interword space gets more stretch and less shrink.

In addition, if  $f \geq 2000$  the interword space is further increased by the “extra space” parameter associated with the current font.

Each input character  $c$  has an entry in the `\sffcode` (space factor code) table. The `\sffcode` table entry is independent of the font. Usually T<sub>E</sub>X just sets  $f$  to  $f_c$  after it processes  $c$ . However:

- If  $f_c$  is zero, T<sub>E</sub>X leaves  $f$  unchanged. Thus a character such as ‘)’ in plain T<sub>E</sub>X, for which  $f_c$  is zero, is essentially transparent to the interword space calculation.
- If  $f < 1000 < f_c$ , T<sub>E</sub>X sets  $f$  to 1000 rather than to  $f_c$ , i.e., it refuses to raise  $f$  very rapidly.

The `\sffcode` value for a period is normally 3000, which is why T<sub>E</sub>X usually puts extra space after a period (see the rule above for the case  $f \geq 2000$ ). Noncharacter items in a horizontal list, e.g., vertical rules, generally act like characters with a space factor of 1000.

You can change the space factor explicitly by assigning a different numerical value to `\spacefactor`. You can also override the normal interword spacing by assigning a different numerical value to `\xspaceskip` or to `\spaceskip`:

- `\xspaceskip` specifies the glue to be used when  $f \geq 2000$ ; in the case where `\xspaceskip` is zero, the normal rules apply.
- `\spaceskip` specifies the glue to be used when  $f < 2000$  or when `\xspaceskip` is zero; if `\spaceskip` is zero, the normal rules apply. The stretch and shrink of the `\spaceskip` glue, like that of the ordinary interword glue, is modified according to the value of  $f$ .

See page 76 of *The T<sub>E</sub>Xbook* for the precise rules that T<sub>E</sub>X uses in calculating interword glue, and pages 285–287 of *The T<sub>E</sub>Xbook* for the adjustments made to `\spacefactor` after various items in a horizontal list.