

L^AT_EX 3 basic knowledge

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1 cs_new:Npn VS cs_new:Nn

Hello T_EX,
world

2 __nopar command

Hello T_EX, world

3 expand type

3.1 e/x/o-type

```
macro:->\l_tmpa_tl
macro:->hello
macro:->hello
```

3.2 f-type

```
('x'-expand)macro:->AB
('f'-expand)macro:->A\l_tmpb_tl
('o'-type once)macro:->\l_tmpa_tl \l_tmpb_tl
('o'-type twice)macro:->A\l_tmpb_tl
('o'-type third)macro:->A\l_tmpb_tl
```

4 argument specifier

Every function must include an **argument specifier**. For functions which take no arguments, this will be blank and the function name will end ‘:’.

- **N** and **n**: means **no manipulation**, pass the argument through **exactly as given**
- **c**: means **csname**, argument be turned into a csname. like `\csname mycmd \csname`.
- **V** and **v**: means **value of variable**, get the content of a variable A **V** argument will be a single token (similar to **N**), using **v** a csname is **constructed first**, and then the **value** is recovered. So `\foo:V \MyVariable = \foo:v {MyVariable}`. You can only define a **base function** argument is **n** instead of **v**, **x**, **e**, **o** etc. Then generiant the variant(only **n** can be variant).

- **o**: means **expansion once** (Is it equivalent to expand only the first macro once?), while that **V, v** are preferred.
- **x**: means **exhaustive expansion**, fully expand every macro (until only unexpandable ones remain). Functions which feature an **x**-type argument **are not expandable**.
- **e**: means **expandable functions**, The **e** specifier is in many respects identical to **x**, Functions which feature an **e**-type argument **may be expandable**. Besides, Parameter character (usually **#**) in the argument need not be doubled (when in nest loop).
- **f**: means **full(first) expansion**. The **f** specifier stands for full expansion, and in contrast to **x**, this type **stops at the first non-expandable token** (<space> is gobbled) (reading the argument from left to right) without trying to expand it.
- **T, F**: **Ture/False** in logic test.
- **p**: means **T_EX parameters**, like `\cs_set:Npn \foo:n #1{\textbf{#1}}`
- **w**: means **weird arguments**, This covers everything else, but mainly applies to delimited values