

# Rough Introduction to `expandparams`

@bd\_gfngfn on Twitter, gfngfn on GitHub

2014/10/5

## 1 Usage of `\expandparams` and `\prexp`

When you want to expand parameters before the main control sequence is expanded, `\expandparams` makes you save the cost writing thousands of `\expandafter`. For example, let `\csone`, `\cstwo` and `\separatetokens` be defined by below:

code

```
\def\csone{JK}%
\def\cstwo{\csone F}%
\newcommand{\separatetokens}[3]{%
  \@tfor\ch:=#1\do{[\ch]}%
  \@tfor\ch:=#2\do{(\ch)}%
  \@tfor\ch:=#3\do{\{\ch\}}%
}%
```

When you want to expand `\csone` and `\cstwo` before `\separatetokens` is expanded, you can use `\prexp` and write

code

```
\expandparams{\separatetokens\prexp{\csone V}{CD}\prexp{\cstwo W}}
```

instead of

code

```
\expandafter\expandafter\expandafter\separatetokens%
\expandafter\expandafter\expandafter%
{\expandafter\csone\expandafter V\expandafter}\expandafter%
{\expandafter C\expandafter D\expandafter}\expandafter{\cstwo W}
```

to gain `[J][K][V](C)(D){JK}{F}{W}`. Similarly, when you want to expand `\cstwo` *twice* before `\separatetokens` is expanded, you can use double `\prexp` and write

code

```
\expandparams{\separatetokens{AB}{CD}\prexp\prexp{\cstwo W}}
```

instead of

code

```
\expandafter\expandafter\expandafter\separatetokens%
\expandafter\expandafter\expandafter{\expandafter\expandafter\expandafter A%
\expandafter\expandafter\expandafter B\expandafter\expandafter\expandafter}%
\expandafter\expandafter\expandafter{\expandafter\expandafter\expandafter C%
\expandafter\expandafter\expandafter D\expandafter\expandafter\expandafter}%
\expandafter\expandafter\expandafter{\cstwo W}
```

to gain [A][B](C)(D){J}{K}{F}{W}. Indeed the results of these two ways coincide with each other:

Using \expandafter:	[A][B](C)(D){J}{K}{F}{W}
Using \expandparams:	[A][B](C)(D){J}{K}{F}{W}

## 2 Small Experiments

LJKM; [L][JK][M]

XLJKM; [X][L][JK][M]

XLYJKM; [X][L][Y][JK][M]

XLYJKMJJK; [X][L][Y][JK][M][JK]

XYJKMJJK; [X][Y][JK][M][JK]

XYMJJK; [X][Y][M][JK]

0: X; [X]

1: Y; [Y]

2: M; [M]

3: JK; [JK]

XYDEMJK; [X][Y][DE][M][JK]

2: DE; [DE]

XDEMJK; [X][DE][M][JK]

XUVDEMJK; [X][U][V][DE][M][JK]

X; [X]

Ordinary: [JK][R]

Using \expandparams: [J][K][R]

Ordinary: [JKF][S]

Using \expandparams: : [JK][F][S]

Ordinary: [PQ][A]

Using \expandparams: : [PQ][A]

Ordinary: [A][B](JK)(W)

Using `\expandparams`: :  $[A][B](J)(K)(W)$

Ordinary:  $[JKF](JK)(W)$

Using `expandparams`: :  $[JK][F](J)(K)(W)$

Ordinary:  $[JKF]$

Using `\expandparams`: :  $[J][K][F]$