

Sample document

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1 LAlignAnd

| | | |
|-----------|---------|----|
| $\&=$ | $a = b$ | ok |
| | $c = d$ | |
| $=\&$ | $a = b$ | ng |
| | $c = d$ | |
| $=\{\}\&$ | $a = b$ | ok |
| | $c = d$ | |

2 LAlignEnd

The following ends with a line break.

$$f(x) = ax^2 + bx + c$$
$$g(x) = dx^2 + ex + f$$

The following does not end with a line break.

$$f(x) = ax^2 + bx + c$$
$$g(x) = dx^2 + ex + f$$

Here is the next line after the align environment.

3 LAlignSingleLine

Long line before display (same result)

Lorem ipsum.

$$f(x) = ax^2 + bx + c$$

This is an **equation** environment.

Lorem ipsum.

$$f(x) = ax^2 + bx + c$$

This is an **align** environment.

Short line before display (different result)

Lrm:

$$f(x) = ax^2 + bx + c$$

This is an [equation](#) environment.

Lrm:

$$f(x) = ax^2 + bx + c$$

This is an [align](#) environment.

Single-line alignat environment is also detected.

$$f(x) = ax^2 + bx + c$$

Multi-line alignat environment is not detected.

$$f(x) = ax^2 + bx + c$$

$$g(x) = dx^2 + ex + f$$

4 LLBig

This is a sample text. This is a sample text. This is a sample text.

Both bigcup $\bigcup_{x \in B} O_x$ and cup $\bigcup_{x \in B} O_x$ do not spoil the line spacing.

This is a sample text. This is a sample text. This is a sample text.

$$\begin{array}{cccccccccccc} X_1 \cap X_2 & X_1 \cup X_2 & X_1 \odot X_2 & X_1 \oplus X_2 & X_1 \otimes X_2 & & & & & & & \\ X_1 \sqcup X_2 & X_1 \uplus X_2 & X_1 \vee X_2 & X_1 \wedge X_2 & \text{ok} & & & & & & & \\ \bigcap_{i=1}^{\infty} X_i & \bigcup_{i=1}^{\infty} X_i & \bigodot_{i=1}^{\infty} X_i & \bigoplus_{i=1}^{\infty} X_i & \bigotimes_{i=1}^{\infty} X_i & \bigsqcup_{i=1}^{\infty} X_i & \biguplus_{i=1}^{\infty} X_i & \bigvee_{i=1}^{\infty} X_i & \bigwedge_{i=1}^{\infty} X_i & \text{ok} & & \\ \cap_{i=1}^{\infty} X_i & \cup_{i=1}^{\infty} X_i & \odot_{i=1}^{\infty} X_i & \oplus_{i=1}^{\infty} X_i & \otimes_{i=1}^{\infty} X_i & & & & & & & \\ \sqcup_{i=1}^{\infty} X_i & \uplus_{i=1}^{\infty} X_i & \vee_{i=1}^{\infty} X_i & \wedge_{i=1}^{\infty} X_i & \text{ng} & & & & & & & \end{array}$$

5 LLBracketCurly

$$\begin{array}{lll} \backslash\max(a,b) & \max(a,b) & \text{ok} \\ \backslash\max\{a,b\} & \max a,b & \text{ng} \\ \backslash\max \{a,b\} & \max a,b & \text{ok?} \end{array}$$

We cannot fully determine whether the use of curly brackets is wrong or not. It is not detected if some spaces are inserted between the command name and the curly brackets.

$\min(a,b)$ and $\min a,b$ are also checked.

6 LLBracketMissing

$$\begin{array}{lll} x^{\{23\}} & x^{23} & \text{ok} \\ x^2 \, 3 & x^2 3 & \text{ok} \\ x^{23} & x^2 3 & \text{ng} \end{array}$$

$x_2 3$, $x^a b$ and $x_a b$ are also checked. Cases like $x^a b$, x^2 and $e^i \pi$ are not detected.

7 LLBracketRound

| | | |
|-----------------------|--------------|----|
| <code>\sqrt{a}</code> | \sqrt{a} | ok |
| <code>\sqrt(a)</code> | $\sqrt{(a)}$ | ng |

$a^{(1)}$ and $a_{(1)}$ are also checked.

8 LLColonEqq

| | | |
|------------------------|-----------|----|
| <code>\coloneqq</code> | $x := y$ | ok |
| <code>\Coloneqq</code> | $x ::= y$ | ok |
| <code>:=</code> | $x := y$ | ng |
| <code>::=</code> | $x ::= y$ | ng |

The difference is quite subtle, but the vertical position of the colon is different.

9 LLColonForMapping

| | | |
|------------------------|-----------------------------------------|----|
| <code>A:B</code> | $A : B$ | ok |
| <code>A\colon B</code> | $A : B$ | ng |
| <code>f:</code> | $f : \mathbb{R} \rightarrow \mathbb{R}$ | ng |
| <code>f\colon</code> | $f : \mathbb{R} \rightarrow \mathbb{R}$ | ok |

— We detect all of `:` in the following —

Here are examples of colons we detect.

- $f : X \rightarrow Y$
- $g : X \mapsto Y$
- $h : \mathbb{R}^{n^2+2n+1} \rightarrow \mathbb{R}$

and

$$f : (X \text{ at new line in tex file}) \rightarrow (Y \text{ at new line in tex file}). \quad (1)$$

— We do NOT detect any of `:` in the following —

Here are examples of `:` we do not detect.

- $f : X \rightarrow Y$, the correct use of `\colon`.
- $A : B : C = 1 : 2 : 3$, the colon for ratio.
- $A : B = 1 : 2$ and $X \rightarrow Y$, separated by dollar sign.
- $g : (\text{some very very very very long long long words}) \rightarrow \mathbb{R}$, the false negative.

10 LLaCref

Theorem 1. *This is a sample theorem.*

Use Thm. 1 with cref instead of Theorem 1 with ref to avoid mistakes.

11 LLaDoubleQuotes

Use “XXX” instead of “XXX” or ”XXX”.

12 LLaENDash

| | |
|---------------|-----|
| hyphen (-) | A-B |
| en-dash (--) | A–B |
| em-dash (---) | A—B |

- Erdos-Renyi (random graph, Erdős–Rényi)
- Einstein-Podolsky-Rosen (quantum physics, Einstein–Podolsky–Rosen)
- Fruchterman-Reingold (graph drawing, Fruchterman–Reingold)
- Gauss-Legendre (numerical integration, Gauss–Legendre)
- Gibbs-Helmholtz (thermodynamics, Gibbs–Helmholtz)
- Karush-Kuhn-Tucker (optimization, Karush–Kuhn–Tucker)

Exception: Fritz-John (optimization, name of a person)

False Positive: Wrong-Example

13 LLaEqnarray

We should not use eqnarray. It has some spacing issues.

$$\begin{array}{rcl} x & = & y \\ a & = & b \end{array}$$

14 LLaIGg

| | | |
|-----|-----------|----|
| \ll | $n \ll m$ | ok |
| << | $n << m$ | ng |

I like human <<< cat <<<<<<< dog.

15 LLRefEq

To refer to the equation, use (1) with eqref instead of (1) with ref.
You can avoid the mistake of forgetting to add parentheses.

16 LLSharp

| | | |
|---------------------|-----------------------|----|
| <code>\#</code> | <code>#A</code> | ok |
| <code>\sharp</code> | <code>\sharp A</code> | ng |

If you really want to use \sharp , you can disable this rule.

17 LLNonASCII

The following line contains non-ASCII characters.

! " # \$ % & ' () * + , - . /

日本語の文章は、upLaTeXでフツウに書けます。
(You can write Japanese sentences as usual with upLaTeX.)

18 LLSI

| | | |
|---------------------------------|------|----|
| <code>\SI{1}{\kilo\byte}</code> | 1 kB | ok |
| 1 kB | 1 kB | ng |
| 1kB | 1kB | ng |

10KB, 3.5 MiB, 500GB are detected. 123 noNumWord GB will not be detected.
Some command named as EB. This is not ExaByte. This 1EB is one ExaByte.

19 LLT

| | | |
|-------------------------|----------|-----|
| <code>\top</code> | X^\top | ok |
| <code>\mathsf{T}</code> | X^\top | ok |
| <code>\T</code> | X^T | ng |
| <code>\{T\}</code> | X^T | ok? |

20 LLTitle

20.1 This Is a Correct Title

20.1.1 this is a wrong title

The quick brown fox jumps over the lazy dog

SubParagraph: Test With Ref 1

20.2 IGNORE IF ALL UPPERCASE

20.3 Math Contains version x

21 LLUserDefined

You can define your own rule.

| | | |
|---------------------|----------|----|
| $f^{\mathrm{a}}(x)$ | $f^a(x)$ | ok |
| $f^a(x)$ | $f^a(x)$ | ng |

| | | |
|----------------|--------------|----|
| $f \infConv g$ | $f \sqcap g$ | ok |
| $f \Box g$ | $f \sqcap g$ | ng |

Appendix A LLSetBar

Detecting inappropriate use of the vertical bar $|$ is very difficult. We are currently trying to detect the following, although not implemented yet.

| | | |
|-------------------------------|--------|----|
| <code>\lvert -1 \rvert</code> | $ -1 $ | ok |
| <code>\abs{-1}</code> | $ -1 $ | ok |
| <code>\vert -1 \vert</code> | $ -1 $ | ng |
| <code> -1 </code> | $ -1 $ | ng |

| | | |
|-------------------------------|------------|----|
| <code>\lVert -x \rVert</code> | $\ -x \ $ | ok |
| <code>\norm{-x}</code> | $\ -x \ $ | ok |
| <code>\Vert -x \Vert</code> | $\ -x \ $ | ng |
| <code> -x </code> | $\ -x \ $ | ng |

| | | |
|----------------------------------|-------------------------------------------|-----|
| <code>\relmiddle </code> (macro) | $\left\{ a \mid a > \frac{1}{2} \right\}$ | ok |
| <code>\mid</code> | $\{ a \mid a > \frac{1}{2} \}$ | ok? |
| <code> </code> | $\{ a \mid a > \frac{1}{2} \}$ | ng |

| | | |
|----------------------------------|--------------|-----|
| <code>\divides</code> (MnSymbol) | $+2 \mid +4$ | ok |
| <code>\mid</code> | $+2 \mid +4$ | ok? |
| <code>\mathrel </code> | $+2 \mid +4$ | ok? |
| <code>\vert</code> | $+2 \mid +4$ | ng |
| <code> </code> | $+2 \mid +4$ | ng |

| | | |
|-------------------------------------------------------|------------------------------------------------------------|-----|
| <code>f(y x)</code> | $f(y x)$ | ok? |
| <code>f(y \mid x)</code> | $f(y \mid x)$ | ok? |
| <code>f(\,y\mid x\,)</code> | $f(y \mid x)$ | ok? |
| <code>\left. \mathrm{d}v{t} \right _{t=0} f(t)</code> | $\left. \frac{\mathrm{d}}{\mathrm{d}t} \right _{t=0} f(t)$ | ok? |