

# 1 Issue 2557

When typing display math LaTeX in a markdown note, the written LaTeX is parsed correctly but displayed incorrectly, with certain constructs having line breaks between tokens.

## 1.1 Steps

1. Launch Boostnote
2. Open a new Markdown Note. Press *Ctrl N* or click on the icon next to the search bar; then select Markdown Note.
3. Toggle mode to two panels in the top right corner (should be the default). Now you should have two panels open, the edit and view panels.
4. Reproduce the error. Type the following in the edit panel:

```


$$\begin{aligned}
&P(X=x) = \binom{n}{k} P^x (1-p)^{(n-x)} \\
&Var(X) = np(1-p)
\end{aligned}$$


```

## 1.2 Requirements

As of release v0.11.9 of Sep 9, and upstream master branch as of Nov 14, we get this result:

$$P(X = x) = \binom{n}{k} P^x (1 - p)^{(n-x)}$$

$$Var(X) = np(1 - p)$$

However, the expected result is naturally:

$$P(X = x) = \binom{n}{k} P^x (1 - p)^{(n-x)}$$

$$Var(X) = np(1 - p)$$

The problem is that there is a line break where there should not be one: line breaks in display math mode are not allowed outside environments, and inside environment aligned line breaks are inserted with '\', enumerating equations.

## 1.3 Source Code Files

The bug is the file:

- browser/components/markdown.styl

```
body
  font-size 16px
  padding 15px
  font-family helvetica, arial, sans-serif
  line-height 1.6
  overflow-x hidden
  background-color $ui-noteDetail-backgroundColor
  .flowchart-error, .sequence-error .chart-error
    background-color errorBackgroundColor
    color errorTextColor
    padding 5px
    border-radius 5px
    justify-content left
  .katex
    font 400 1.2em 'KaTeX_Main'
    line-height 1.2em
    white-space initial
    text-indent 0
  .katex .mfrac>.vlist>span:nth-child(2)
    top 0 !important
  .katex-error
    background-color errorBackgroundColor
    color errorTextColor
    padding 5px
    margin -5px
    border-radius 5px
li
  label.taskListItem
    margin-left -1.8em
    &.checked
      text-decoration line-through
      opacity 0.5
    &.taskListItem.checked
      text-decoration line-through
      opacity 0.5
div.math-rendered
  text-align center
.math-failed
  background-color alpha(red, 0.1)
  color darken(red, 15%)
  padding 5px
  margin 5px 0
  border-radius 5px
```

## 1.4 Source of the problem

The problem is not in the dependency (**KaTeX**). The **KaTeX** dependency includes its own major stylesheet, which should enforce this restriction on its own display math elements. So the problem should be in some of Boostnote's own style sheets, conflicting somehow with those of **KaTeX**.

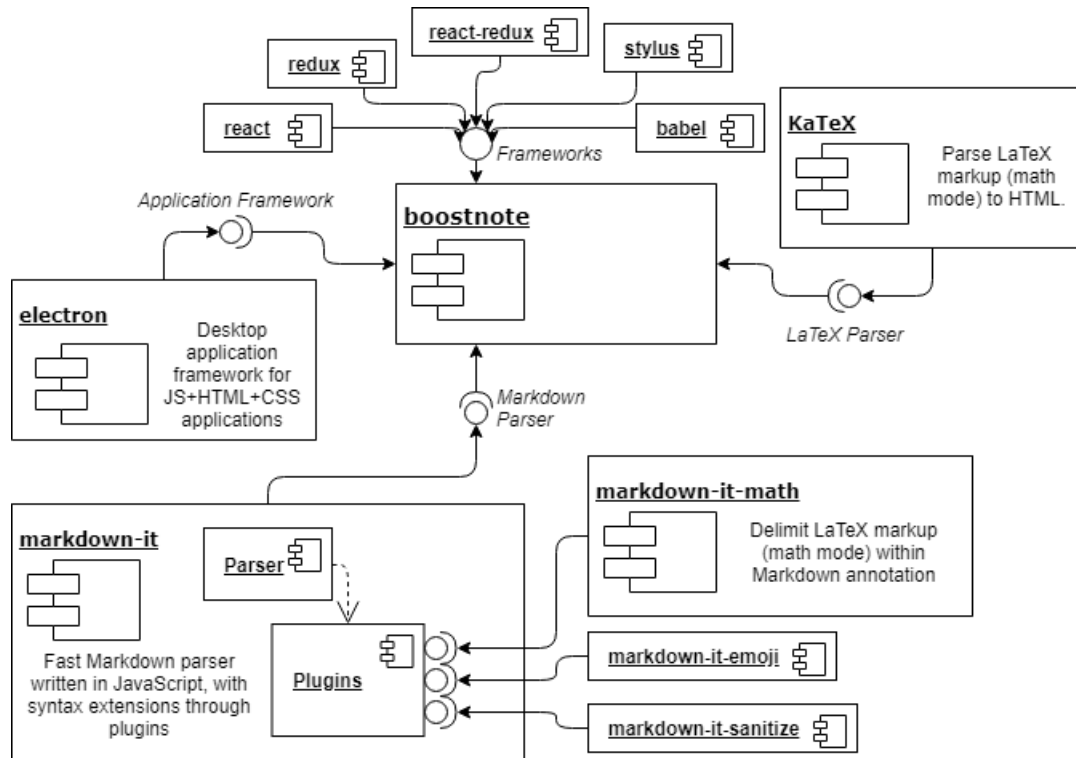
Inspecting the elements inside Boostnote (*Ctrl Shift I*) suggests looking at class names *.katex* and *.katex-display*, as the rendered LaTeX parent element has these class names. A quick

```
grep -rnE "\\..katex" browser/
```

immediately pinpoints file markdown.styl.

## 1.5 System Architecture

A simple rundown of Boostnote's main dependencies, with emphasis on markdown-it and katex:



## 1.6 Design of the fix

There are two ways to fix this issue. At [katex.org](https://katex.org) we compare the computed styles of the LaTeX shown right on the front page to those of Boostnote applied to the same LaTeX elements. In particular we looked at attributes like `display`, `text-align`, and `overflow-wrap`. We concluded quickly that the problem was in the attribute `white-space`, whose value was reset to `initial` in Boostnote (meaning `normal`), instead of `nowrap`.

Changing this attribute to `nowrap` will have unintended side effects (no wrapping in inline math mode), so the problem, albeit simple, will require further testing. The most likely solution will involve demoting selector `body .katex` to `.katex-inline` or removing the attribute, or even removing the `.katex` rules altogether.