

The `aligned-overset` package*

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This package allows the base character of `\underset` or `\overset` to be used as the alignment position for the amsmath aligned math environments.

1 Example

The naive way to align at an operator annotated by `\overset` would be

```
\begin{align*}
f(x) &\overset{\text{Def}}{=} x+x \\
&= 2x
\end{align*}
```

This results in

$$\begin{aligned} f(x) &\stackrel{\text{Def}}{=} x + x \\ &= 2x \end{aligned}$$

But here, the two equal signs are not aligned.

Using this package, this can be fixed by writing

```
\begin{align*}
f(x) \overset{\text{Def}}{&=} x+x \\
&= 2x
\end{align*}
```

which result in correct alignment:

$$\begin{aligned} f(x) &\stackrel{\text{Def}}{&} x + x \\ &= 2x \end{aligned}$$

2 Usage

\overset
\underset

To add an alignment point at an `\overset` or `\underset`, add a `&` before the base symbol. The `&` should not be enclosed in braces, even if the symbols are enclosed in braces. For example you have to write `\overset{\approx}{\&}{\geq}` instead of `\overset{\approx}{\{\&\}\geq}`.

*This document corresponds to `aligned-overset` 0.1.0, dated 2018/04/04.

3 The implementation

```
1 <@@=alignedsets>
2 \box_new:N\l__alignedsets_clap_box
3 \box_new:N\l__alignedsets_full_box
4
5 \overset
6 \let\__alignedsets_original_overset:nn\overset
7 \cs_set:Npn\overset{
8   \group_align_safe_begin:
9   \__alignedsets_modified_overset:nwn
10 }{ \NewExpandableDocumentCommand\__alignedsets_modified_overset:nwn{mt{&}m}{%
11   \group_align_safe_end:
12   \IfBooleanTF{#2}{%
13     \group_begin:
14     \hbox_set:Nn\l__alignedsets_clap_box{%
15       $%
16       \displaystyle
17       {} \__alignedsets_original_overset:nn{\mathclap{#1}}{#3}{}%
18       $%
19     }%
20     \hbox_set:Nn\l__alignedsets_full_box{%
21       $%
22       \displaystyle
23       {} \__alignedsets_original_overset:nn{#1}{#3}{}%
24       $%
25     }%
26     \hskip{%
27       \dim_eval:n{(\box_wd:N\l__alignedsets_full_box-\box_wd:N\l__alignedsets_clap_box)/2}%
28     }%
29     \exp_args:NNNx
30     \group_end:
31     {&}
32     \hskip{%
33       -\dim_eval:n{%
34         (\box_wd:N\l__alignedsets_full_box-\box_wd:N\l__alignedsets_clap_box)/2}%
35       }%
36     }%
37     \__alignedsets_original_overset:nn{#1}{#3}%
38   }{%
39     \__alignedsets_original_overset:nn{#1}{#3}%
40   }%
41 }
```

(End definition for `\overset`. This function is documented on page 1.)

```
\underset
42 \let\__alignedsets_original_underset:nn\underset
43 \cs_set:Npn\underset{
44   \group_align_safe_begin:
45   \__alignedsets_modified_underset:nwn
46 }
```

```

47 \NewExpandableDocumentCommand{\_alignedsets_modified_underset:nwn}{\mt{&}\m}{{
48   \group_align_safe_end:
49   \IfBooleanTF{#2}{%
50     \group_begin:
51     \hbox_set:Nn\l__alignedsets_clap_box{%
52       $%
53       \displaystyle
54       {} \_alignedsets_original_underset:nnf{\mathclap{#1}}{#3}{}%
55       \m@th
56       $%
57     }%
58     \hbox_set:Nn\l__alignedsets_full_box{%
59       $%
60       \displaystyle
61       {} \_alignedsets_original_underset:nn{#1}{#3}{}%
62       \m@th
63       $%
64     }%
65     \hskip{%
66       \dim_eval:n{(\box_wd:N\l__alignedsets_full_box-\box_wd:N\l__alignedsets_clap_box)/2}%
67     }%
68     \exp_args:NNNx
69     \group_end:
70     {&}%
71     \hskip{%
72       -\dim_eval:n{%
73         (\box_wd:N\l__alignedsets_full_box-\box_wd:N\l__alignedsets_clap_box)/2}%
74     }%
75     }%
76     \_alignedsets_original_underset:nn{#1}{#3}%
77   }%
78   \_alignedsets_original_underset:nn{#1}{#3}%
79 }
80 }

```

(End definition for `\underset`. This function is documented on page 1.)

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