

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\\
  &\quad\quad\quad=2x
\end{align*}
```

This results in

$$f(x) \overset{\text{Def}}{=} x + x \\ = 2x$$

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\\
  &\quad\quad\quad=2x
\end{align*}
```

which result in correct alignment:

$$f(x) \overset{\text{Def}}{=} x + x \\ = 2x$$

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}{&\ge}` instead of `\overset{\approx}{\{\&\ge\}}`.

*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
```

\overset

```
5 \let\__alignedsets_original_overset:nn\overset
6 \cs_set:Npn\overset{
7   \group_align_safe_begin:
8   \__alignedsets_modified_overset:nwn
9 }
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     \hspace{
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     \hspace{
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:nn{\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     \hspace{
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     \hspace{
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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