# 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

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

But here, the two equal signes 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:

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

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

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

# 3 The implementation

⟨@@=alignedsets⟩

```
\box_new:N\l__alignedsets_clap_box
\box_new:N\l__alignedsets_full_box

```

\overset

```
\let\__alignedsets_original_overset:nn\overset
\cs_set:Npn\overset{
  \group_align_safe_begin:
  \__alignedsets_modified_overset:nwn
}
\NewExpandableDocumentCommand\__alignedsets_modified_overset:nwn{mt{&}m}{
  \group_align_safe_end:
  \IfBooleanTF{#2}{
    \group_begin:
    \hbox_set:Nn\l__alignedsets_clap_box{
      $
      \displaystyle
      {}\__alignedsets_original_overset:nn{\mathclap{#1}}{#3}{}
      $
    }
    \hbox_set:Nn\l__alignedsets_full_box{
      $
      \displaystyle
      {}\__alignedsets_original_overset:nn{#1}{#3}{}
      $
    }
    \hspace{
      \dim_eval:n{(\box_wd:N\l__alignedsets_full_box-\box_wd:N\l__alignedsets_clap_box)/2}
    }
    \exp_args:NNNx
        \group_end:
        {&}
        \hspace{
          -\dim_eval:n{
            (\box_wd:N\l__alignedsets_full_box-\box_wd:N\l__alignedsets_clap_box)/2
          }
        }
    \__alignedsets_original_overset:nn{#1}{#3}
  }{
    \__alignedsets_original_overset:nn{#1}{#3}
  }
}
```

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

\underset

```
\let\__alignedsets_original_underset:nn\underset
\cs_set:Npn\underset{
  \group_align_safe_begin:
  \__alignedsets_modified_underset:nwn
}
```

```
\NewExpandableDocumentCommand\__alignedsets_modified_underset:nwn{mt{&}m}{
  \group_align_safe_end:
  \IfBooleanTF{#2}{
    \group_begin:
    \hbox_set:Nn\l__alignedsets_clap_box{
      $
      \displaystyle
      {}\__alignedsets_original_underset:nn{\mathclap{#1}}{#3}{}
      \m@th
      $
    }
    \hbox_set:Nn\l__alignedsets_full_box{
      $
      \displaystyle
      {}\__alignedsets_original_underset:nn{#1}{#3}{}
      \m@th
      $
    }
    \hspace{
      \dim_eval:n{(\box_wd:N\l__alignedsets_full_box-\box_wd:N\l__alignedsets_clap_box)/2}
    }
    \exp_args:NNNx
        \group_end:
        {&}
        \hspace{
          -\dim_eval:n{
            (\box_wd:N\l__alignedsets_full_box-\box_wd:N\l__alignedsets_clap_box)/2
          }
        }
    \__alignedsets_original_underset:nn{#1}{#3}
  }{
    \__alignedsets_original_underset:nn{#1}{#3}
  }
}
```

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

# Index

The italic numbers denote the pages where the corresponding entry is described, numbers underlined point to the definition, all others indicate the places where it is used.