

Template

Datalogisk institut, Copenhagen University (DIKU)
L^AT_EX

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1 Math extensions

The math extensions were inspired as I was making my way through [Graham et al., 1994], and various courses at DIKU. It seems to me that these macros are generically useful.

1.1 Groups

Very often, mathematical expressions make use of grouping constructs such as \lceil , \lfloor , $()$, etc. These constructs are relatively easy to use in L^AT_EX (with the `amsmath` package), despite the fact that one has to often distinguish between the left and right connectives, as with e.g. `\lfloor` and `\rfloor`. What makes these groups particularly impractical however, is that the height of the connectives is not automatically adjusted to the content they enclose. To this end, one may resort to using the commands `\left` and `\right`, as respective connective prefixes... Yuk! This led to the specification of the following macros:

<code>\ceil{group}</code>	$\lceil group \rceil$
<code>\floor{group}</code>	$\lfloor group \rfloor$
<code>\set{group}</code>	$\{group\}$
<code>\seq{group}</code>	$[group]$ (as in, <i>sequence</i>)
<code>\card{group}</code>	$ group $ (as in, <i>cardinality</i>)
<code>\tuple{group}</code>	$\langle group \rangle$
<code>\parens{group}</code>	$(group)$
<code>\st{group}</code>	$ group $ (as in, <i>such that</i>)

1.2 Backus-Naur Form

<code>\texttt{group}</code>	typewriter text in math mode.
<code>\nonterm{group}</code>	$\langle group \rangle$
<code>\term{group}</code>	$'group'$

1.3 Cormen

```
MERGE-SORT( $A, p, r$ )
1  if  $p < r$ 
2     $q = \lfloor (p + r) / 2 \rfloor$ 
3    MERGE-SORT( $A, p, q$ )
4    MERGE-SORT( $A, q + 1, r$ )
5    MERGE( $A, p, q, r$ )
```

Bla..

References

[Graham et al., 1994] Graham, R. L., Knuth, D. E., and Patashnik, O. (1994). *Concrete Mathematics: A Foundation for Computer Science*. Addison-Wesley Longman Publishing Co., Inc., Boston, MA, USA, 2nd edition.