

Examples of how to use `shortex.sty`

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1 Brackets and bracket-like functions

You can specify a bracket size using `*` for `\left` and `\right` or one of the standard size choices (`\big`, `\Big`, `\bigg`, `\Bigg`).

Description	Example	Text style	Display style
Round brackets (i.e., parentheses)	<code>\rbra{\frac{x}{y}}</code>	$(\frac{x}{y})$	$(\frac{x}{y})$
Curly brackets	<code>\cbra*{\frac{x}{y}}</code>	$\{\frac{x}{y}\}$	$\{\frac{x}{y}\}$
Square brackets	<code>\sbra[\bigg]{\frac{x}{y}}</code>	$[\frac{x}{y}]$	$[\frac{x}{y}]$

Many other bracket-like, semantic commands are also available:

Description	Example	Text style	Display style
Absolute value	<code>\abs{\frac{x}{y}}</code>	$ \frac{x}{y} $	$ \frac{x}{y} $
Set	<code>\set{\frac{x}{y}, \frac{y}{z}}</code>	$\{\frac{x}{y}, \frac{y}{z}\}$	$\{\frac{x}{y}, \frac{y}{z}\}$
Floor	<code>\floor{\frac{x}{y}}</code>	$\lfloor \frac{x}{y} \rfloor$	$\lfloor \frac{x}{y} \rfloor$
Ceiling	<code>\ceil{\frac{x}{y}}</code>	$\lceil \frac{x}{y} \rceil$	$\lceil \frac{x}{y} \rceil$
Norm	<code>\norm{\frac{x}{y}}</code>	$\ \frac{x}{y}\ $	$\ \frac{x}{y}\ $
Inner product	<code>\inner{\frac{x}{y}}{\frac{y}{z}}</code>	$\langle \frac{x}{y}, \frac{y}{z} \rangle$	$\langle \frac{x}{y}, \frac{y}{z} \rangle$
Cardinality	<code>\card{\whA}</code>	$ \hat{A} $	$ \hat{A} $

The norm and inner product commands also have versions with a subscript argument:

Description	Example	Text style	Display style
Norm with subscript	<code>\normsub*{\frac{x}{y}}{2}</code>	$\ \frac{x}{y}\ _2$	$\ \frac{x}{y}\ _2$
Inner product with subscript	<code>\innersub*{\frac{x}{y}}{\frac{y}{z}}{2}</code>	$\langle \frac{x}{y}, \frac{y}{z} \rangle_2$	$\langle \frac{x}{y}, \frac{y}{z} \rangle_2$

2 L_p Spaces and Operators

Description	Example	Text style	Display style
L_p space	<code>\Lp{2}</code>	L_2	L_2
L_p space for specified measure	<code>\Lpmeas{2}{\hmu}</code>	$L_2(\hat{\mu})$	$L_2(\hat{\mu})$
	<code>\Lpmeas[\Big]{2}{\hmu}</code>	$L_2\left(\hat{\mu}\right)$	$L_2\left(\hat{\mu}\right)$
L_p norm	<code>\Lpnorm{\hGamma}{2}</code>	$\ \hat{\Gamma}\ _{L_2}$	$\ \hat{\Gamma}\ _{L_2}$
	<code>\Lpnorm*{\hGamma}{2}</code>	$\left\ \hat{\Gamma}\right\ _{L_2}$	$\left\ \hat{\Gamma}\right\ _{L_2}$
	<code>\Lpnorm*{\Gamma}{2}</code>	$\ \Gamma\ _{L_2}$	$\ \Gamma\ _{L_2}$
	<code>\left\Vert{\hGamma}\right\Vert_2</code>	$\left\ \hat{\Gamma}\right\ _2$	$\left\ \hat{\Gamma}\right\ _2$
	<code>\left\Vert{\Gamma}\right\Vert_2</code>	$\ \Gamma\ _2$	$\ \Gamma\ _2$
L_p norm for specified measure	<code>\Lpmeasnorm{\hGamma}{2}{\hmu}</code>	$\ \hat{\Gamma}\ _{L_2(\hat{\mu})}$	$\ \hat{\Gamma}\ _{L_2(\hat{\mu})}$
	<code>\Lpmeasnorm[\Big]{\hGamma}{2}{\hmu}</code>	$\left\ \hat{\Gamma}\right\ _{L_2(\hat{\mu})}$	$\left\ \hat{\Gamma}\right\ _{L_2(\hat{\mu})}$
L_p inner product	<code>\Lpinner{\hGamma}{\Gamma}{2}</code>	$\langle\hat{\Gamma},\Gamma\rangle_{L_2}$	$\langle\hat{\Gamma},\Gamma\rangle_{L_2}$
	<code>\Lpinner*{\hGamma}{\Gamma}{2}</code>	$\left\langle\hat{\Gamma},\Gamma\right\rangle_{L_2}$	$\left\langle\hat{\Gamma},\Gamma\right\rangle_{L_2}$
L_p inner product for specified measure	<code>\Lpmeasinner{\hGamma}{\Gamma}{2}{\hmu}</code>	$\langle\hat{\Gamma},\Gamma\rangle_{L_2(\hat{\mu})}$	$\langle\hat{\Gamma},\Gamma\rangle_{L_2(\hat{\mu})}$
	<code>\Lpmeasinner[\big]{\hGamma}{\Gamma}{2}{\hmu}</code>	$\left\langle\hat{\Gamma},\Gamma\right\rangle_{L_2(\hat{\mu})}$	$\left\langle\hat{\Gamma},\Gamma\right\rangle_{L_2(\hat{\mu})}$

3 annotation commands

<code>\barA</code>	\bar{A}
<code>\bara</code>	\bar{a}
<code>\bA</code>	\bar{A}
<code>\bB</code>	\bar{B}
<code>\balpha</code>	$\bar{\alpha}$
<code>\bGamma</code>	$\bar{\Gamma}$
<code>\mcA</code>	\mathcal{A}
<code>\hmcA</code>	$\hat{\mathcal{A}}$
<code>\mfA</code>	\mathfrak{A}
<code>\mfa</code>	\mathfrak{a}
<code>\bmfa</code>	\mathfrak{A}
<code>\bmfa</code>	\mathfrak{a}
<code>\hA</code>	\hat{A}
<code>\ha</code>	\hat{a}
<code>\halpha</code>	$\hat{\alpha}$
<code>\hGamma</code>	$\hat{\Gamma}$
<code>\bhA</code>	\hat{A}
<code>\bha</code>	\hat{a}
<code>\bhalpha</code>	$\hat{\alpha}$
<code>\bhGamma</code>	$\hat{\Gamma}$
<code>\whA</code>	\hat{A}
<code>\wha</code>	\hat{a}
<code>\tdA</code>	\tilde{A}
<code>\tda</code>	\tilde{a}
<code>\tdalpha</code>	$\tilde{\alpha}$
<code>\tdGamma</code>	$\tilde{\Gamma}$
<code>\btdA</code>	\tilde{A}
<code>\btda</code>	\tilde{a}
<code>\btdalpha</code>	$\tilde{\alpha}$
<code>\btdGamma</code>	$\tilde{\Gamma}$
<code>\biA</code>	\mathbf{A}
<code>\bia</code>	\mathbf{a}
<code>\bhiA</code>	$\hat{\mathbf{A}}$
<code>\bhia</code>	$\hat{\mathbf{a}}$

4 new approach to annotation commands

Out of the box we can get all sorts of cool fonts in math mode using `\f[<fontcodestring>]A`. For the time being I only implemented 2 fonts and 1 accent. These can be expanded once everything else is set. We see the effect of single font codes:

```

\fbA  A
\fkA   $\mathbb{A}$ 
\fhA   $\hat{A}$ 

```

And multiple font codes:

```
\f[bh]A   $\hat{\mathbf{A}}$ 
\f[hb]A   $\hat{\mathbf{A}}$ 
\f[hk]A   $\hat{\mathbf{A}}$ 
\f[kh]A   $\hat{\mathbf{A}}$ 
```

Note that these are expanded in the reverse of the order they appear: the font code furthest to the right is applied first. This matches the order that the corresponding commands would appear in TeX code.

We can also avoid typing [] for some combinations of font codes we sue frequently. To do this, use `\parsefontstylesstrings{\{<fcstr1>\},\{<fcstr2>\},...\}\{<alphabet>\}` as demonstrated below. For “ease of use” we have implemented `\upperCaseRomanLetters` and `\lowerCaseRomanLetters`

```
\parsefontstylesstrings{\{hb\},\{hk\}}{ABCDEFGF}  ...
\parsefontstylesstrings{\{hb\},\{hk\}}{\lowerCaseRomanLetters}  ...
\fhbA   $\hat{\mathbf{A}}$ 
\fhkB   $\hat{\mathbb{B}}$ 
\fhbx   $\hat{\mathbf{x}}$ 
\fhby   $\hat{\mathbf{y}}$ 
\fhkz   $\hat{\mathbf{f}}$ 
```

Since `\mathbb<lowercaseletter>` is defined to give weird characters, our macros do the same.