Examples of how to use `shortex.sty`

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$$
\begin{aligned}
&|asdf| \\
&|\sum_{n=1}^{N} f(n)| \\
&\|asdf\| \\
&\|\sum_{n=1}^{N} f(n)\| \\
&|asdf| \\
&\|\sum_{n=1}^{N} f(n)\| \\
&|asdf| \\
&\left\|\sum_{n=1}^{N} f(n)\right\|
\end{aligned}
$$

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)	`\rbra{\frac{x}{y}}`	$(\frac{x}{y})$	$(\dfrac{x}{y})$
Curly brackets	`\cbra*{\frac{x}{y}}`	$\left\{\frac{x}{y}\right\}$	$\left\{\dfrac{x}{y}\right\}$
Square brackets	`\sbra[\bigg]{\frac{x}{y}}`	$\left[\frac{x}{y}\right]$	$\left[\dfrac{x}{y}\right]$

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

Description	Example	Text style	Display style
Absolute value	`\abs{\frac{x}{y}}`	$\lvert\frac{x}{y}\rvert$	$\lvert\dfrac{x}{y}\rvert$
Set	`\set{\frac{x}{y}, \frac{y}{z}}`	$\{\frac{x}{y}, \frac{y}{z}\}$	$\{\dfrac{x}{y}, \dfrac{y}{z}\}$
Floor	`\floor{\frac{x}{y}}`	$\lfloor\frac{x}{y}\rfloor$	$\lfloor\dfrac{x}{y}\rfloor$
Ceiling	`\ceil{\frac{x}{y}}`	$\lceil\frac{x}{y}\rceil$	$\lceil\dfrac{x}{y}\rceil$
Norm	`\norm{\frac{x}{y}}`	$\lVert\frac{x}{y}\rVert$	$\lVert\dfrac{x}{y}\rVert$
Inner product	`\inner{\frac{x}{y}}{\frac{y}{z}}`	$\langle\frac{x}{y}, \frac{y}{z}\rangle$	$\langle\dfrac{x}{y}, \dfrac{y}{z}\rangle$
Cardinality	`\card{\whA}`	$\lvert\widehat{A}\rvert$	$\lvert\widehat{A}\rvert$

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

Description	Example	Text style	Display style
Norm with subscript	`\normsub*{\frac{x}{y}}{2}`	$\left\lVert\frac{x}{y}\right\rVert_2$	$\left\lVert\dfrac{x}{y}\right\rVert_2$
Inner product with subscript	`\innersub*{\frac{x}{y}}{z}{2}`	$\left\langle\frac{x}{y}, z\right\rangle_2$	$\left\langle\dfrac{x}{y}, z\right\rangle_2$

2 L_p Spaces and Operators

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

3 annotation commands

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

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:

`\f[b]A`	$\mathbf{A}$
`\f[k]A`	$\mathbb{A}$
`\f[h]A`	$\widehat{A}$

And multiple font codes:

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

Note that these are expanded in the reverse of the order they appear: the font code furthest to the right is applied first. This natches 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}}{ABCDEFG}                    ...
\parsefontstylesstrings{{hb},{hk}}{\lowerCaseRomanLetters}     ...
\fhbA                                                          Â
\fhkB                                                          B̂
\fhbx                                                          x̂
\fhby                                                          ŷ
\fhkz                                                          f̂
```

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