Examples of how to use `shortex.sty`

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Updated February 3, 2023

1 Brackets and bracket-like functions

You can specify a bracket size using $-1, \ldots, 4$, where -1 uses `\left` and `\right`, 0 uses nothing, and positive numbers use increasingly large fixed sizes. The default behavior is 0 when in text mode and -1 when in display mode.

Description	Example	Text style	Display style
Regular brackets (parentheses)	`\rbra{\frac{x}{y}}`	$(\frac{x}{y})$	$\left(\dfrac{x}{y}\right)$
Curly brackets	`\cbra[2]{\frac{x}{y}}`	$\left\{\frac{x}{y}\right\}$	$\left\{\dfrac{x}{y}\right\}$
Square brackets	`\sbra[4]{\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}}`	$\left\|\frac{x}{y}\right\|$	$\left\|\dfrac{x}{y}\right\|$
Set	`\set{\frac{x}{y}, \frac{y}{z}}`	$\{\frac{x}{y}, \frac{y}{z}\}$	$\left\{\dfrac{x}{y}, \dfrac{y}{z}\right\}$
Floor	`\floor{\frac{x}{y}}`	$\lfloor\frac{x}{y}\rfloor$	$\left\lfloor\dfrac{x}{y}\right\rfloor$
Ceiling	`\ceil{\frac{x}{y}}`	$\lceil\frac{x}{y}\rceil$	$\left\lceil\dfrac{x}{y}\right\rceil$
Norm	`\norm{\frac{x}{y}}`	$\left\|\frac{x}{y}\right\|$	$\left\|\dfrac{x}{y}\right\|$
Inner product	`\inner{\frac{x}{y}}{\frac{y}{z}}`	$\langle\frac{x}{y}, \frac{y}{z}\rangle$	$\left\langle\dfrac{x}{y}, \dfrac{y}{z}\right\rangle$
Cardinality	`\card{\whA}`	$|\widehat{A}|$	$\left|\widehat{A}\right|$

Some examples of each size option:

	-1	0	1	2	3	4
`\abs{\frac{x}{y}}`	$\left\|\frac{x}{y}\right\|$	$\|\frac{x}{y}\|$	$\left\|\frac{x}{y}\right\|$	$\left\|\frac{x}{y}\right\|$	$\left\|\frac{x}{y}\right\|$	$\left\|\frac{x}{y}\right\|$
`\floor{\frac{x}{y}}`	$\left\lfloor\frac{x}{y}\right\rfloor$	$\lfloor\frac{x}{y}\rfloor$	$\left\lfloor\frac{x}{y}\right\rfloor$	$\left\lfloor\frac{x}{y}\right\rfloor$	$\left\lfloor\frac{x}{y}\right\rfloor$	$\left\lfloor\frac{x}{y}\right\rfloor$
`\norm{\frac{x}{y}}`	$\left\|\frac{x}{y}\right\|$	$\|\frac{x}{y}\|$	$\left\|\frac{x}{y}\right\|$	$\left\|\frac{x}{y}\right\|$	$\left\|\frac{x}{y}\right\|$	$\left\|\frac{x}{y}\right\|$

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}`	$\left\|\frac{x}{y}\right\|_2$	$\left\|\dfrac{x}{y}\right\|_2$
Inner product with subscript	`\innersub{\frac{x}{y}}{z}{2}`	$\langle\frac{x}{y}, z\rangle_2$	$\left\langle\dfrac{x}{y}, z\right\rangle_2$

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[1]{2}{\hmu}`	$L_2(\hat{\mu})$	$L_2(\hat{\mu})$
L_p norm	`\Lpnorm{\hGamma}{2}`	$\|\hat{\Gamma}\|_{L_2}$	$\left\|\hat{\Gamma}\right\|_{L_2}$
	`\Lpnorm[-1]{\hGamma}{2}`	$\left\|\hat{\Gamma}\right\|_{L_2}$	$\left\|\hat{\Gamma}\right\|_{L_2}$
L_p norm for specified measure	`\Lpmeasnorm{\hGamma}{2}{\hmu}`	$\|\hat{\Gamma}\|_{L_2(\hat{\mu})}$	$\left\|\hat{\Gamma}\right\|_{L_2(\hat{\mu})}$
	`\Lpmeasnorm[1]{\hGamma}{2}{\hmu}`	$\|\hat{\Gamma}\|_{L_2(\hat{\mu})}$	$\|\hat{\Gamma}\|_{L_2(\hat{\mu})}$
L_p inner product	`\Lpinner{\hGamma}{\Gamma}{2}`	$\langle \hat{\Gamma},\ \Gamma \rangle_{L_2}$	$\left\langle \hat{\Gamma},\ \Gamma \right\rangle_{L_2}$
	`\Lpinner[-1]{\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}`	$\langle \hat{\Gamma},\ \Gamma \rangle_{L_2(\hat{\mu})}$	$\left\langle \hat{\Gamma},\ \Gamma \right\rangle_{L_2(\hat{\mu})}$
	`\Lpmeasinner[1]{\hGamma}{\Gamma}{2}{\hmu}`	$\langle \hat{\Gamma},\ \Gamma \rangle_{L_2(\hat{\mu})}$	$\left\langle \hat{\Gamma},\ \Gamma \right\rangle_{L_2(\hat{\mu})}$

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`	$\hat{\boldsymbol{\Gamma}}$
`\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`	$\tilde{\boldsymbol{\Gamma}}$
`\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`	$\hat{A}$

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	$\widehat{\mathbf{A}}$
\fhkB	$\widehat{\mathbb{B}}$
\fhbx	$\widehat{\mathbf{x}}$
\fhby	$\widehat{\mathbf{y}}$
\fhkz	$\widehat{F}$

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