1 Sets

1.1 Different kind of sets

1.1.1 Sets vs braces

Example of use #1

```
A set of beautiful numbers : $\geneset{1 ; 3 ; 5}$ .
```

A set of beautiful numbers : $\{1;3;5\}$.

Example of use #2

```
Choose your team :
$\displaystyle \geneset{\frac{1}{3} ; \frac{5}{7} ; \frac{9}{11}}$
or
$\displaystyle \geneset*{\frac{1}{3} ; \frac{5}{7} ; \frac{9}{11}}$ .
```

Choose your team : $\left\{\frac{1}{3};\frac{5}{7};\frac{9}{11}\right\}$ or $\{\frac{1}{3};\frac{5}{7};\frac{9}{11}\}$.

Technical IDs

`\geneset (1 Argument)`
`\geneset* (1 Argument)`

— `Argument:` the definition of the set.

1.1.2 Sets for geometry

Example of use #1

```
You can semantically write $\geoset{C}$, $\geoset{D}$ and $\geoset{d}$ but you can
not write things like \verb+$\geoset{ABC}$+.
```

You can semantically write $\mathscr{C}$, $\mathscr{D}$ and $\mathscr{d}$ but you can not write things like `$\geoset{ABC}$`.

Example of use #2

```
Subscripts can be used like in $\geoset*{C}{1}$, $\geoset*{C}{2}$, \dots
```

Subscripts can be used like in $\mathscr{C}_1$, $\mathscr{C}_2$, ...

Technical IDs

`\geoset (1 Argument)`

— `Argument:` one single `ASCII` letter indicating a geometrical set.

`\geoset* (2 Arguments)`

— `Argument #1:` one single `ASCII` letter indicating $\mathscr{U}$ in the name $\mathscr{U}_d$ of a geometrical set.

— `Argument #2:` one text indicating d in the name $\mathscr{U}_d$ of a geometrical set.

1.1.3 Sets for probability

Example of use #1

```
You can semantically write $\probaset{E}$ and $\probaset{G}$ but you can not write
things like \verb+$\probaset{ABC}$+.
```

You can semantically write $\mathcal{E}$ and $\mathcal{G}$ but you can not write things like `$\probaset{ABC}$`.

Example of use #2

```
Subscripts can be used like in $\probaset*{E}{1}$, $\probaset*{E}{2}$, \dots
```

Subscripts can be used like in $\mathcal{E}_1$, $\mathcal{E}_2$, …

Technical IDs

`\probaset (1 Argument)`

— `Argument:` one single upper `ASCII` upper letter indicating a probabilistic set.

`\probaset* (2 Arguments)`

— `Argument #1:` one single `ASCII` letter indicating $\mathcal{U}$ in the name $\mathcal{U}_d$ of a geometrical set.

— `Argument #2:` one text indicating d in the name $\mathcal{U}_d$ of a geometrical set.

1.1.4 Sets for rings and fields theory

Example of use #1

```
You can semantically write $\fieldset{A}$, $\fieldset{K}$, $\fieldset{h}$ and
$\fieldset{k}$, but you can't write things like \verb+$\fieldset{ABC}$+.
```

You can semantically write $\mathbb{A}$, $\mathbb{K}$, $\mathbb{h}$ and $\mathbb{k}$, but you can't write things like `$\fieldset{ABC}$`.

Example of use #2

```
Subscripts can be used like in $\fieldset*{k}{1}$, $\fieldset*{k}{2}$, \dots
```

Subscripts can be used like in $\mathbb{k}_1$, $\mathbb{k}_2$, ...

Technical IDs

`\fieldset (1 Argument)`

— `Argument:` either one of the letters `h` and `k`, or one single upper `ASCII` letter indicating a field or ring like set.

`\fieldset* (2 Arguments)`

— `Argument #1:` one single `ASCII` letter indicating $\mathbb{U}$ in the name $\mathbb{U}_d$ of a geometrical set.

— `Argument #2:` one text indicating d in the name $\mathbb{U}_d$ of a geometrical set.

1.1.5 Classical sets

```
You can directly use $\nullset$, $\NN$, $\ZZ$, $\DD$, $\QQ$, $\RR$, $\CC$, $\HH$
and $\OO$.
```

You can directly use $\varnothing$, $\mathbb{N}$, $\mathbb{Z}$, $\mathbb{D}$, $\mathbb{Q}$, $\mathbb{R}$, $\mathbb{C}$, $\mathbb{H}$ and $\mathbb{O}$.

1.1.6 Classical sets with suffixes

```
It is easy to type $\RRn$, $\RRp$, $\RRs$, $\RRsn$ and $\RRsp$.
```

It is easy to type $\mathbb{R}_-$, $\mathbb{R}_+$, $\mathbb{R}^*$, $\mathbb{R}^*_-$ and $\mathbb{R}^*_+$.

We have used suffixes `n` for `Negative`, `p` for `Positive`, and `s` for `@star` with the additional composite suffixes `sn` et `sp`.

Note that you can't use `$\CCn$` for $\mathbb{C}_-$ because the set $\mathbb{C}$ doesn't have any standard powerful ordered structure. Take a look at the next section to see how to write $\mathbb{C}_-$ if you need it.

Remark. The table 1, see on page 8, shows allowed associations between classical sets and suffixes.

1.1.7 Suffixes on demand

Example of use

```
You can indeed write things like $\specialset{\CC}{n}$ or $\specialset{\HH}{sp}$.
There is also $\specialset*{\probaset{P}}{n}$ with another formatting.
```

You can indeed write things like $\mathbb{C}_-$ or $\mathbb{H}^*_+$. There is also $\mathcal{P}_{\leq 0}$ with another formatting.

Table 1: Suffixes

	n	p	s	sn	sp
N			×		
Z	×	×	×	×	×
D	×	×	×	×	×
Q	×	×	×	×	×
R	×	×	×	×	×
C			×		
H			×		
O			×		

Technical IDs

`\specialset (2 Arguments)`
`\specialset* (2 Arguments)`

— `Argument #1:` the set to be "suffixed".

— `Argument #2:` one of the suffixes `n`, `p`, `s`, `sn` and `sp`.