subpar

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Create sub figures easily.

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https://github.com/tingerrr/subpar

SUBPAR provides easy to use sub figures with sensible default numbering and an easy-to-use no-setup API.

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Part I.
Manifest

SUBPAR aims to be:

- simple to use
  - ‣ importing a function and using it should be all that is needed
  - ‣ setup required to make the package work should be avoided
- unsurprising
  - ‣ parameters should have sensible names and behave as one would expect
  - ‣ deviations from this must be documented and easily accesible to Typst novices
- interoperable
  - ‣ SUBPAR should be easy to use with other packages by default or provide sufficient configuration to allow this in other ways
- minimal
  - ‣ it should only provide features which are specifically used for sub figures

If you think its behvior is surprising, you believe you found a bug or think its defaults or parameters are not sufficient for your use case, please open an issue at GitHub:tingerrr/subpar. Contributions are also welcome!

Part II.
Guide

II.1. Labeling

Currently to refer to a super figure the label must be explicitly passed to `super` using `label: <...>`.

II.2. Grid Layout

The default `super` function provides only the style rules to make sub figures correctly behave with respect to numbering. To arrange them in a specific layout, you can use any other Typst function, a common choice would be `grid`.

```
#subpar.super(
  grid(
    [#figure([a], caption: [An image]) <fig1a>],
    [#figure([b], caption: [Another image]) <fig1b>],
    figure([c], caption: [A third unlabeled image]),
    columns: (1fr,) * 3,
  ),
  caption: [A figure composed of three sub figures.],
  label: <fig1>,
)
We can refer to @fig1, @fig1a and @fig1b.
```

a	b	c
(a) An image	(b) Another image	(c) A third unlabeled image

Figure 1: A figure composed of three sub figures.

We can refer to Figure 1, Figure 1a and Figure 1b.

Because this quickly gets cumbersome, SUBPAR provides a default grid layout wrapper called `grid`. It provides good defaults like `gutter: 1em` and hides options which are undesireable for sub figure layouts like `fill` and `stroke`. To label sub figures simply add a label after a figure like below.

```
#subpar.grid(
  figure([a], caption: [An image]), <fig2a>,
  figure([b], caption: [Another image]), <fig2b>,
  figure([c], caption: [A third unlabeled image]),
  columns: (1fr,) * 3,
  caption: [A figure composed of three sub figures.],
  label: <fig2>,
)
We can refer to @fig2, @fig2a and @fig2b.
```

a	b	c
(a) An image	(b) Another image	(c) A third unlabeled image

Figure 2: A figure composed of three sub figures.

We can refer to Figure 2, Figure 2a and Figure 2b.

II.3. Numbering

subpar and grid take three different numberings:

numbering The numbering used for the sub figures when displayed or referenced.

numbering-sub The numbering used for the sub figures when displayed.

numbering-sub-ref The numbering used for the sub figures when referenced.

Similarly to a normal figure, these can be functions or string patterns. The numbering-sub and numbering-sub-ref patterns will receive both the super figure an sub figure number.

II.4. Supplements

Currently, supplements for super figures propagate down to super figures, this ensures that the supplement in a reference will not confuse a reader, but it will cause reference issues in multilingual documents (see subpar#4).

```
#subpar.grid(
  figure(```typst Hello Typst!```, caption: [Typst Code]), <sup-ex-code1>,
  figure(lorem(10), caption: [Lorem]),
  columns: (1fr, 1fr),
  caption: [A figure containing two super figures.],
  label: <sup-ex-super1>,
)
```

Hello Typst!	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.
(a) Typst Code	(b) Lorem

Figure 3: A figure containing two super figures.

When refering the the super figure we see "Figure 3", when refering to the sub figure of a different kind, we still see the same supplement "Figure 3a".

To turn this behavior off, set `propagate-supplement` to `false`, this will also resolve the issues from subpar#4.

```
#subpar.grid(
  figure(```typst Hello Typst!```, caption: [Typst Code]), <sup-ex-code2>,
  figure(lorem(10), caption: [Lorem]),
  columns: (1fr, 1fr),
  propagate-supplement: false,
  caption: [A figure containing two super figures.],
  label: <sup-ex-super2>,
)
```

<div align="center">

Hello Typst!
(a) Typst Code

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.
(b) Lorem

Figure 4: A figure containing two super figures.

</div>

Now when refering the the super figure we see still see "Figure 4", but when refering to the sub figure of a different kind, we the inferred supplement "Listing 4a".

II.5. Appearance

The `super` and `grid` functions come with a few arguments to control how super or sub figures are rendered. These work similar to show rules, i.e. they receive the element they apply to and display them.

show-sub   Apply a show rule to all sub figures.

show-sub-caption   Apply a show rule to all sub figures' captions.

```
#subpar.grid(
  figure(lorem(2), caption: [An Image of ...]),
  figure(lorem(2), caption: [Another Image of ...]),
  numbering-sub: "1a",
  show-sub-caption: (num, it) => {
    it.supplement
    [ ]
    num
    [: ]
    it.body
  },
  columns: 2,
  caption: [Two Figures],
)
```

<div align="center">

Lorem ipsum.   Lorem ipsum.
Figure 5a: An Image of ...   Figure 5b: Another Image of ...
Figure 5: Two Figures

</div>

Unfortunately, to change how a super figure is shown without changing how a sub figure is shown you must use a regular show rule and reconstruct the normal appearance in the sub figures using `show-sub`. Subpar provides a default implementation for this: `subpar.default.show-figure`, it can be passed directly to `show-sub`.

Part III.
Reference

III.1. Subpar

The package entry point.

```
#grid()                    #super()
```

```
#super(
  ⟨kind⟩: "image",
  ⟨numbering⟩: "1",
  ⟨numbering-sub⟩: "(a)",
  ⟨numbering-sub-ref⟩: "1a",
  ⟨supplement⟩: auto,
  ⟨propagate-supplement⟩: true,
  ⟨caption⟩: none,
  ⟨placement⟩: none,
  ⟨gap⟩: 0.65em,
  ⟨outlined⟩: true,
  ⟨outlined-sub⟩: false,
  ⟨label⟩: none,
  ⟨show-sub⟩: auto,
  ⟨show-sub-caption⟩: auto,
  ⟨body⟩
) → content
```

Creates a figure which may contain other figures, a *super*figure. For the meaning of parameters take a look at the regular figure documentation.

See `#grid()` for a function which places its sub figures in a grid.

Argument

`⟨kind⟩: "image"`   `str` | `function`

The image kind which should be used, this is mainly relevant for introspection and defaults to `image`. This cannot be automatically resovled like for normal figures and must be set.

Argument

`⟨numbering⟩: "1"`   `str` | `function`

This is the numbering used for this super figure.

Argument

`⟨numbering-sub⟩: "(a)"`   `str` | `function`

This is the numbering used for the sub figures.

---- Argument --

⟨`numbering-sub-ref`⟩: `"1a"`   `str` | `function`

This is the numbering used for *references* to the sub figures. If this is a function, it receives both the super and sub figure numbering respectively.

---- Argument --

⟨`supplement`⟩: `auto`   `content` | `function` | `auto` | `none`

The supplement used for this super figure *and* the sub figures when referenced.

---- Argument --

⟨`propagate-supplement`⟩: `true`   `bool`

Whether the super figure's supplement should propagate down to its sub figures.

---- Argument --

⟨`caption`⟩: `none`   `content`

The caption of this super figure.

---- Argument --

⟨`placement`⟩: `none`   `alignment` | `auto` | `none`

The float placement of this super figure.

---- Argument --

⟨`gap`⟩: `0.65em`   `length`

The gap between this super figure's caption and body.

---- Argument --

⟨`outlined`⟩: `true`   `bool`

Whether this super figure should appear in an outline of figures.

---- Argument --

⟨`outlined-sub`⟩: `false`   `bool`

Whether the sub figures should appear in an outline of figures.

---- Argument --

⟨`label`⟩: `none`   `label` | `none`

The label to attach to this super figure.

---- Argument --

⟨`show-sub`⟩: `auto`   `function` | `auto`

A show rule override for sub figures. Recevies the sub figure.

---- Argument --

⟨`show-sub-caption`⟩: `auto`   `function` | `auto`

A show rule override for sub figure's captions. Receives the realized numbering and caption element.

```
#grid(
  ⟨columns⟩: auto,
  ⟨rows⟩: auto,
  ⟨gutter⟩: 1em,
  ⟨column-gutter⟩: auto,
  ⟨row-gutter⟩: auto,
  ⟨align⟩: bottom,
  ⟨inset⟩: "(:)",
  ⟨kind⟩: "image",
  ⟨numbering⟩: "1",
  ⟨numbering-sub⟩: "(a)",
  ⟨numbering-sub-ref⟩: "1a",
  ⟨supplement⟩: auto,
  ⟨propagate-supplement⟩: true,
  ⟨caption⟩: none,
  ⟨placement⟩: none,
  ⟨gap⟩: 0.65em,
  ⟨outlined⟩: true,
  ⟨outlined-sub⟩: false,
  ⟨label⟩: none,
  ⟨show-sub⟩: auto,
  ⟨show-sub-caption⟩: auto,
  ..⟨args⟩
) → content
```

Provides a convenient wrapper around `#super()` which puts sub figures in a grid.

Argument

⟨columns⟩: auto   `auto` | `int` | `relative` | `fraction` | `array`

Corresponds to the grid's `columns` parameter.

Argument

⟨rows⟩: auto   `auto` | `int` | `relative` | `fraction` | `array`

Corresponds to the grid's `rows` parameter.

Argument

⟨gutter⟩: 1em   `auto` | `int` | `relative` | `fraction` | `array`

Corresponds to the grid's `gutter` parameter.

Argument

⟨column-gutter⟩: auto   `auto` | `int` | `relative` | `fraction` | `array`

Corresponds to the grid's `column-gutter` parameter.

Argument

⟨row-gutter⟩: auto   `auto` | `int` | `relative` | `fraction` | `array`

Corresponds to the grid's `row-gutter` parameter.

Argument

⟨`align`⟩: `bottom`   `auto` | `array` | `alignment` | `function`

Corresponds to the grid's `align` parameter.

Argument

⟨`inset`⟩: `"(:)"`   `relative` | `array` | `dictionary` | `function`

Corresponds to the grid's `inset` parameter.

Argument

⟨`kind`⟩: `"image"`   `str` | `function`

Corressponds to the super figure's `kind`.

Argument

⟨`numbering`⟩: `"1"`   `str` | `function`

Corressponds to the super figure's `numbering`.

Argument

⟨`numbering-sub`⟩: `"(a)"`   `str` | `function`

Corressponds to the super figure's `numbering-sub`.

Argument

⟨`numbering-sub-ref`⟩: `"1a"`   `str` | `function`

Corressponds to the super figure's `numbering-sub-ref`.

Argument

⟨`supplement`⟩: `auto`   `content` | `function` | `auto` | `none`

Corressponds to the super figure's `supplement`.

Argument

⟨`propagate-supplement`⟩: `true`   `bool`

Corressponds to the super figure's `propagate-supplement`.

Argument

⟨`caption`⟩: `none`   `content`

Corressponds to the super figure's `caption`.

Argument

⟨`placement`⟩: `none`   `alignment` | `auto` | `none`

Corressponds to the super figure's `placement`.

Argument

⟨`gap`⟩: `0.65em`   `length`

> Corressponds to the super figure's `gap`.

Argument

⟨`outlined`⟩: `true`   `bool`

> Corressponds to the super figure's `outlined`.

Argument

⟨`outlined-sub`⟩: `false`   `bool`

> Corressponds to the super figure's `outlined-sub`.

Argument

⟨`label`⟩: `none`   `label` | `none`

> Corressponds to the super figure's `label`.

Argument

⟨`show-sub`⟩: `auto`   `function`

> Corressponds to the super figure's `show-sub`.

Argument

⟨`show-sub-caption`⟩: `auto`   `function`

> Corressponds to the super figure's `show-sub-caption`.

#**sub-figure-counter**

> The counter used for sub figures.

III.2. Default

Contains default implementations for show rules to easily reverse show rules in a scope.

> #`show-figure`()

#**show-figure**()[⟨**self_**⟩] ⟶ `content`
> The default figure show rule. The active set rules will be used.
>
> This function is contextual.

Argument

⟨**self_**⟩   `content`

> The figure to show using the defualt show rule.

Part IV.
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