Meander User guide

Abstract

Meander implements a content layout algorithm to provide text threading (when text from one box spills into a different box if it overflows), uneven columns, and image wrap-around.

Feature requests

For as long as the feature doesn't exist natively in Typst (see issue: github:typst/typst #5181), feel free to submit test cases of layouts you would like to see supported by opening a new issue.

Versions

- dev
- 0.1.0

Lorem

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aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguique possit, augeri amplificarique non possit. At etiam Athenis, ut e patre audiebam facete et urbane Stoicos irridente,

statua est in quo a nobis philosophia defensa et collaudata est, cum id, quod maxime placeat, facere possimus, omnis voluptas assumenda est, omnis dolor repellendus. Temporibus autem quibusdam et aut officiis debitis aut rerum necessitatibus saepe eveniet, ut et voluptates repudiandae sint et molestiae non recusandae. Itaque earum rerum defuturum, quas natura non depravata desiderat. Et quem ad me accedis, saluto: 'chaere', inquam, 'Tite!' lictores, turma omnis chorusque: 'chaere, Tite!' hinc hostis mi Albucius, hinc inimicus. Sed iure Mucius.

Insum

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Stoicos irridente, statua est in quo a nobis philosophia defensa et collaudata est, cum id, quod maxime placeat, facere possimus, omnis voluptas assumenda est, omnis dolor repellendus. Temporibus autem quibusdam et aut officiis debitis aut rerum necessitatibus saepe eveniet, ut et voluptates repudiandae sint et

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A - Quick start

The main function provided is meander.reflow, which takes as input some content, and auto-splits it into "containers", "obstacles", and "flowing text". Obstacles are content that are placed on the page with a fixed layout. Containers are created by the function meander.container, and everything else is flowing text.

After excluding the zones forbidden by obstacles and segmenting the containers appropriately, the threading algorithm will split the flowing content across containers to wrap around the forbidden regions.

A.1 - A simple example

meander.reflow is contextual, so the invocation needs to be wrapped in a context { . . . } block. Currently multi-page setups are not supported, but this is definitely a desired feature.

1. Lorem

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aeque doleamus animo, cum corpore dolemus, fieri.

2. Ipsum

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infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguique possit, at ugeri amplificarique non possit. At etiam Athenis, ut e patre audicham facete et urbane Stoicos irridente, statua est in quo a nobis philosophia defensa et collaudata est, cum id, quod maxime placeat, facere possimus, omnis voluptas assumenda est, omnis dolor repellendus. Temporibus autem quibusdam et aut officiis debitis aut rerum necesitatibus saepe eveniet, ut et voluptates repudiandae sint et molestiae non recusandae. Itaque earum rerum defuturum, quas natura non depravata desiderat. Et quem ad me accedis, saluto: 'chaere,' inquam, 'Tite' lictores, turma omnis chorusque: 'chaere, Tite!' hine hostis mi Albucius, hine inimicus. Sed iure Mucius. Ego autem mirari satis non queo unde hoc sit tam insolens domesticarum rerum fastidium. Non est omnino hic docedni locus; sed ita prorsus existimo, neque eum Torquatum, qui hoc primus cognomen invenerit, aut forquem illum hosti detraxisse, ut aliquam ex eo est consecutus?' – Laudem et caritatem, quae sunt vitae.

3. Dolor

1

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Meander is expected to respect the majority of styling options, including headings, paragraph justification, font size, etc. If you find a discrepancy make sure to file it as a bug report if it is not already part of the known limitations.

Note: paragraph breaks may behave incorrectly. You can insert vertical spaces if needed.

A.2 - Multiple obstacles

meander.reflow can handle as many obstacles as you provide (at the cost of potentially performance issues if there are too many, but experiments have shown that up to ~100 obstacles is no problem).

```
#context meander.reflow[
   // Multiple obstacles
   #place(top + left, my-image-1)
   #place(top + right, my-image-2)
   #place(right, my-image-3)
   #place(bottom + left, my-image-4)
   #place(bottom + left, my-image-5,
        dx: 2cm)

#meander.container()
   #set par(justify: true)
   #lorem(500)
]
```

dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididun aliquam quaerat doleamus animo

2

tempor incididunt ut labore et dolore magnam aliquam quaerat volupitatem. Ut enim aeque doleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguique possit, augeri amplificarique non possit. At etiam Athenis, ut e patre audiebam faecte et

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omnis dolor repellendus. Temporibus autem quibusdam et aut officiis debitis aut rerum necessitatibus saepe eveniet, ut et voluptates repudiandae sint et molestiae non recusandae. Itaque earum rerum defuturum, quas natura non depravata desiderat. Et quem

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1

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ad me accedis, saluto: 'chaere,' inquam, 'Tite!' lictores, turma omnis chorusque:
'chaere, Tite!' hinc hostis mi Albucius, hinc inimicus. Sed iure Mucius. Ego autem
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est omnino hic docendi locus; sed ita prorsus existimo, neque eum Torquatum, qui
hoc primus cognomen invenerit, aut torquem illum hosti detraxisse, ut aliquam ex co
est consecutus? – Laudem et caritatem, quae sunt vitae sine metu degendae praesidia
firmissima. – Filium morte multavit. – Si sine causa, nollem me ab eo delectari, quod

5

ista Platonis, Aristoteli, Theophrasti orationis ornamenta neglexerit. Nam illud quidem physici, credere aliquid esse minimum, quod profecto numquam putavisset, si a Polyaeno, familiari suo, geometrica

discere maluisset quam illum etiam ipsum dedocere. Sol Democrito magnus videtur, quippe homini erudito in geometriaque perfecto, huic

A.3 - Columns

In order to simulate a multi-column layout, you can provide several container invocations.

They will be filled in the order provided.

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permagna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguique possit,

augeri amplificarique non possit. At etiam Athenis, ut e patre audiebam facete et urbane Stoicos irridente, statua est in quo a nobis

philosophia defensa et collaudata est, cum id, quod maxime placeat, facere possimus, omnis voluptas assumenda est, omnis dolor repellendus. Temporibus autem quibusdam et aut officiis debitis aut rerum necessitatibus saepe eveniet, ut et voluptates repudiandae sint et molestiae non recusandae. Itaque earum rerum defuturum, quas natura non depravata desiderat. Et quem ad me accedis, saluto: 'chaere,' inquam, 'Tite!' lictores, turma omnis chorusque: 'chaere, Tite!' hinc hostis mi Albucius, hinc inimicus, Sed iure Mucius, Ego autem mirari satis non queo unde hoc sit tam insolens domesticarum rerum fastidium. Non est omnino hic docendi locus: sed ita prorsus existimo, neque eum Torquatum, qui hoc primus cognomen invenerit, aut torquem illum hosti detraxisse, ut aliquam ex eo est consecutus? – Laudem et caritatem, quae sunt vitae sine metu degendae praesidia firmissima. - Filium morte multavit. - Si sine causa, nollem me ab eo delectari, quod ista

3

2

Platonis, Aristoteli, Theophrasti orationis ornamenta neglexerit. Nam illud quidem physici, credere aliquid esse minimum, quod profecto numquam

putavisset, si a Polyaeno, familiari suo, geometrica discere maluisset quam illum etiam ipsum dedocere. Sol Democrito magnus videtur, quippe

homini eru dito in geometriaque perfecto, huic pedalis fortasse; tantum enim esse omnino in nostris poetis aut inertissimae segmitiae est aut fastidii delicatissimi. Mihi quidem videtur, inermis ac nudus est. Tollit definitiones, nihil de dividendo ac partiendo docet,

1

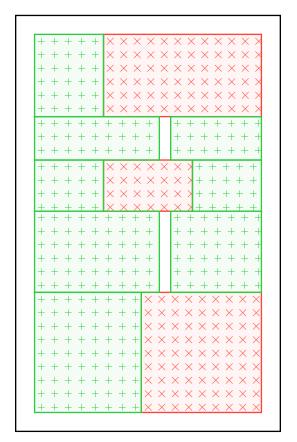
B - Understanding the algorithm

The same page setup as the previous example will internally be separated into

- obstacles my-image-1, my-image-2, and my-image-3. They are shown on the right in red.
- containers (x: 0%, y: 0%, width: 55%, height: 100%) and (x: 60%, y: 0%, width: 40%, height: 100%)
- flowing text lorem(600), not shown here.

Respecting the horizontal separations of the obstacles, and staying within the bounds of the containers, the page is split into the subcontainers shown to the right in green. These boxes will be filled in order, including heuristics to properly provide vertical spacing between these boxes.

This debug view is visible by simply replacing reflow with debug-reflow.



C - Advanced techniques

Here is a way to achieve a complex outline:

```
#context meander.reflow[
  // Draw a half circle of empty boxes
  // that will count as obstacles
  #let vradius = 45%
  #let vcount = 50
  #let hradius = 60%
  #for i in range(vcount) {
    let frac = 2 * (i+0.5) / vcount - 1
    let width = hradius *
      calc.sqrt(1 - frac * frac)
    place(left + horizon,
      dy: (i - vcount / 2) *
        (2 * vradius / vcount)
    )[#box(width: width,
      height: 2 * vradius / vcount
  }
  // Then do the usual
  #meander.container()
  #set par(justify: true)
  #lorem(400)
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aeque doleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguique possit, augeri amplificarique non possit. At etiam Athenis, ut e patre audiebam facete et urbane Stoicos irridente, statua est in quo a nobis philosophia defensa et collaudata est, cum id, quod maxime placeat, facere possimus, omnis voluptas enda est, omnis dolor repellendus. Temporibus autem quibusdam et aut officiis debitis aut rerum necessitatibus saepe eveniet, ut et voluptates repudiandae sint et molestiae non recusandae. Itaque earum rerum defuturum, quas natura non depravata desiderat. Et quem ad me accedis, saluto: 'chaere,' inquam, 'Tite!' lictores, turma omnis chorusque 'chaere Tite!' hinc hostis mi Mucius. Ego autem mirari satis Mucius. Ego autem mirari saus non queo unde hoc sit tam insolens domesticarum rerum fastidium. Non est omnino hic docendi locus; sed ita prorsus existimo, neque eum Torquatum, qui hoc primus cognomen invenerit, aut torquem illum hosti detraxisse, ut aliquam ex eo est consecutus? – Laudem et caritatem, quae sunt vitae sine metu degendae praesidia firmissima. – Filium morte multavit. – Si sine causa, nollem me ab eo delectari, quod ista Platonis, Aristoteli, Theophrasti orationis ornamenta neglexerit. Nam illud quidem physici, credere aliquid esse minimum, quod profecto numquam putavisset, si a Polyaeno, familiari geometrica discere maluisset quam illum etiam ipsum dedocere. Sol Democrito

There are limits to this technique, and in particular increasing the number of obstacles will in turn increase the number of boxes that the layout is segmented into. This means

- performance issues if you get too wild (though notice that having 50 obstacles in the previous example went fine)
- text that doesn't fit in the boxes at all, in particular if you don't give them any vertical space to grow because they are bounded on both sides.

In short, stay reasonable with this and don't try to add hundreds of obstacles of 1mm height each.

D - Modularity (WIP)

Because meander is cleanly split into three algorithms (content segmentation, page segmentation, text threading), there are plans to provide

- configuration options for each of those steps
- the ability to replace entirely an algorithm by either a variant, or a user-provided alternative that follows the same signature.

E - Module details

E.1 - Geometry (geometry.typ)

Generalist functions for 1D and 2D geometry.

- clamp()
- between()
- intersects()
- resolve()
- align()

clamp

Bound a value between min and max. No constraints on types as long as they support inequality testing.

Parameters

```
clamp(
  val: any,
  min: any none,
  max: any none
) -> any

val any
Base value.
```

```
min any or none

Lower bound.

Default: none
```

```
max any or none
Upper bound.
Default: none
```

between

Testing a <= b <= c, helps only computing b once.

Parameters

```
between(
    a: length,
    b: length,
    C: length
) -> bool
```

```
a length
```

Lower bound.

```
b length
```

Tested value.

```
c length
```

Upper bound. Asserted to be \geq c.

intersects

Tests if two intervals intersect.

Parameters

```
intersects(
  i1: (length, length),
  i2: (length, length),
  tolerance: length
)
```

```
i1 (length, length)
```

First interval as a tuple of (low, high) in absolute lengths.

```
i2 (length, length)
```

Second interval.

```
tolerance length

Set to nonzero to ignore small intersections.

Default: Opt
```

resolve

Converts relative and contextual lengths to absolute. The return value will contain each of the arguments once converted, with arguments that contain 'x' or start with 'w' being interpreted as horizontal, and arguments that contain 'y' or start with 'h' being interpreted as vertical.

```
#context resolve(
   (width: 100pt, height: 200pt),
    x: 10%, y: 50% + 1pt,
   width: 50%, height: 5pt,
)
(x: 10pt, y: 101pt, width: 50pt, height: 5pt)
```

Parameters

```
resolve(
    size: (width: length, height: length),
    ..args: dictionary
) -> dictionary

size (width: length, height: length)
Size of the container as given by the layout function.
```

align

Compute the position of the upper left corner, taking into account the alignment and displacement.

Parameters

```
align(
  alignment: alignment,
  dx: relative,
  dy: relative,
  width: relative,
  height: relative
) -> (x: relative, y: relative)
```

```
alignment alignment
```

Absolute alignment.

```
dx relative

Horizontal displacement.

Default: Opt
```

```
dy relative
```

Vertical displacement.

Default: Opt

```
width relative
```

Object width.

Default: Opt

```
height relative
```

Object height.

Default: Opt

E.2 - Tiling (tiling.typ)

Page splitting algorithm.

- separate()
- container()
- pat-forbidden()
- pat-allowed()
- forbidden-rectangles()
- tolerable-rectangles()
- debug-reflow()

separate

Splits content into obstacles, containers, and flowing text.

An "obstacle" is any content inside a place at the toplevel. It will be appended in order to the placed field as content.

A "container" is a box(place({})). Both box and place are allowed to have width, height, etc. parameters, but no inner contents. It will be appended in order to the free field as a block, i.e. a dictionary with the fields x, y, width, height describing the upper left corner and the dimensions of the container. See the helper function container that constructs a container directly.

Everything that is neither obstacle nor container is flowing text, and will end in the field flow.

```
#separate[
  // This is an obstacle
  #place(top + left, box(width: 50pt, height: 50pt))
  // This is a container
  #box(height: 50%, place({}))
  // This is flowing text
```

```
#lorem(50)
]

Parameters
  separate(ct: content) -> (containers: (..block,), obstacles: (..content,), flow: content)
```

container

Creates a standard container. This is not obscure, it's simply a box(place({})), which is by convention recognized by separate as a container.

Parameters

```
container(..args: args) -> content
```

```
..args args
Accepts the parameters:
alignment (positional, default top + left), passed to place
dx: relative (named, default 0%), passed to place
dy: relative (named, default 0%), passed to place
width: relative (named, default 100%), passed to box
height: relative (named, default 100%), passed to box
```

pat-forbidden

Pattern with red crosses to display forbidden zones.

Parameters

```
pat-forbidden(sz) -> pattern
```

 \mathbf{SZ}

Size of the tiling

pat-allowed

Pattern with green pluses to display allowed zones.

Parameters

```
pat-allowed(sz) -> pattern
```

SZ

Size of the tiling

forbidden-rectangles

From a set of obstacles (see separate: an obstacle is any placed content at the toplevel, so excluding places that are inside box, rect, etc.), construct the blocks (x: length, y: length, width: length, height: length) that surround the obstacles.

The return value is as follows:

- rects, a list of blocks (x: length, y: length, width: length, height: length)
- display, show this to include the placed content in the final output
- debug, show this to include helper boxes to visualize the layout

Parameters

```
forbidden-rectangles(
  obstacles: (..content,),
  margin: length,
  size: (width: length, height: length)
) -> (rects: (..block,), display: content, debug: content)

obstacles (..content,)

Array of all the obstacles that are placed on this document.
```

```
margin length

Add padding around the obstacles.

Default: Opt
```

```
size (width: length, height: length)
Dimensions of the parent container, as provided by layout.
Default: none
```

tolerable-rectangles

Partition the complement of avoid into containers as a series of rectangles.

The algorithm is roughly as follows:

```
for container in containers {
  horizontal-cuts = sorted(top and bottom of zone for zone in avoid)
  for (top, bottom) in horizontal-cuts.windows(2) {
    vertical-cuts = sorted(
      left and right of zone for zone in avoid
      if zone intersects (top, bottom)
    )
    new zone (top, bottom, left, right)
  }
}
```

The main difficulty is in bookkeeping and handling edge cases (weird intersections, margins of error, containers that overflow the page, etc.) There are no heuristics to exclude zones that are too small, and no worries about zones that intersect vertically. That would be the threading algorithm's job.

Blocks are given an additional field bounds that dictate the upper limit of how much this block is allowed to stretch vertically, set to the dimensions of the container that produced this block.

Parameters

```
tolerable-rectangles(
  containers,
  avoid,
  size
) -> (rects: (..block,), debug: content)
```

debug-reflow

Debug version of the toplevel reflow, that only displays the partitioned layout.

Parameters

```
ct content
Content to be segmented and have its layout displayed.
```

E.3 - Bisection (bisect.typ)

Content splitting algorithm.

- fits-inside()
- default-rebuild()
- take-it-or-leave-it()
- has-text()
- has-child()
- has-children()
- is-list-item()
- is-enum-item()
- has-body()
- dispatch()
- push-linebreak-if-fits()
- fill-box()

fits-inside

Tests if content fits inside a box.

WARNING: horizontal fit is not strictly checked

The closure of this function constitutes the basis of the entire content splitting algorithm: iteratively add content until it no longer fits-inside, with what "iteratively add content" means being defined by the content structure. Essentially all remaining functions in this file are about defining content that can be split and the correct way to invoke fits-inside on them.

```
#let dims = (width: 100%, height: 50%)
#box(width: 7cm, height: 3cm)[#layout(size
=> context {
  let words = [#lorem(12)]
  [#fits-inside(dims, words, size: size)]
  linebreak()
  box(..dims, stroke: 0.1pt, words)

})]
```

true

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor.

```
#let dims = (width: 100%, height: 50%)
#box(width: 7cm, height: 3cm)[#layout(size
=> context {
  let words = [#lorem(15)]
  [#fits-inside(dims, words, size: size)]
  linebreak()
  box(..dims, stroke: 0.1pt, words)
})]
```

false

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore.

Parameters

```
fits-inside(
  dims: (width: relative, height: relative),
  ct: content,
  size: (width: length, height: length)
) -> bool
```

```
dims (width: relative, height: relative)
```

Maximum container dimensions. Relative lengths are allowed.

```
ct content
```

Content to fit in.

```
size (width: length, height: length)
```

Dimensions of the parent container to resolve relative sizes. These must be absolute sizes.

Default: none

default-rebuild

Destructure and rebuild content, separating the outer content builder from the rest to allow substituting the inner contents. In practice what we will usually do is recursively split the inner contents and rebuild the left and right halves separately.

Inspired by wrap-it's implementation (see: _rewrap in github:ntjess/wrap-it)

```
#let content = box(stroke: red)[Initial]
#let (inner, rebuild) = default-rebuild(
  content, "body",
```

```
Content: #content \
Inner: #inner \
Rebuild: #rebuild("foo")
```

```
Content: Initial
Inner: Initial
Rebuild: foo
```

```
#let content = [*_Initial_*]
#let (inner, rebuild) = default-rebuild(
   content, "body",
)

Content: #content \
Inner: #inner \
Rebuild: #rebuild("foo")
```

```
Content: Initial
Inner: Initial
Rebuild: foo
```

```
#let content = [a:b]
#let (inner, rebuild) = default-rebuild(
   content, "children",
)

Content: #content \
Inner: #inner \
Rebuild: #rebuild(([x], [y]))
```

```
Content: a:b
Inner: ([a], [:], [b])
Rebuild: xy
```

Parameters

```
default-rebuild(
  ct: content,
  inner-field: string
) -> (dictionnary, function)
```

```
inner-field string
What "inner" field to fetch (e.g. "body", "text", "children", etc.)
```

take-it-or-leave-it

"Split" opaque content.

Parameters

```
take-it-or-leave-it(
  ct: content,
  fits-inside: function
) -> (content?, content?)
```

```
ct content
```

This content cannot be split. If it fits take it, otherwise keep it for later.

fits-inside function

Closure to determine if the content fits (see fits-inside above).

has-text

Split content with a "text" main field. Strategy: split by " " and take all words that fit.

Parameters

```
has-text(
  ct: content,
  split-dispatch: function,
  fits-inside: function,
  cfg: dictionary
)
```

ct content

Content to split.

split-dispatch function

Recursively passed around (see split-dispatch below).

fits-inside function

Closure to determine if the content fits (see fits-inside above).

cfg dictionary

Extra configuration options.

has-child

Split content with a "child" main field. Strategy: recursively split the child.

Parameters

```
has-child(
  ct: content,
  split-dispatch: function,
  fits-inside: function,
  cfg: dictionary
)
```

```
ct content
```

Content to split.

```
split-dispatch function
```

Recursively passed around (see split-dispatch below).

```
fits-inside function
```

Closure to determine if the content fits (see fits-inside above).

```
cfg dictionary
```

Extra configuration options.

has-children

Split content with a "children" main field. Strategy: take all children that fit.

Parameters

```
has-children(
  ct: content,
  split-dispatch: function,
  fits-inside: function,
  cfg: dictionary
)
```

ct content

Content to split.

```
split-dispatch function
```

Recursively passed around (see split-dispatch below).

```
fits-inside function
```

Closure to determine if the content fits (see fits-inside above).

```
cfg dictionary
```

Extra configuration options.

is-list-item

Split a list.item. Strategy: recursively split the body, and do some magic to simulate a bullet point indent.

Parameters

```
is-list-item(
  ct: content,
  split-dispatch: function,
  fits-inside: function,
  cfg: dictionary
)
```

```
ct content
```

Content to split.

```
split-dispatch function
```

Recursively passed around (see split-dispatch below).

```
fits-inside function
```

Closure to determine if the content fits (see fits-inside above).

```
cfg dictionary
```

Extra configuration options.

is-enum-item

Split an enum.item. Strategy: recursively split the body, and do some magic to simulate a numbering indent.

Parameters

```
is-enum-item(
  ct: content,
  split-dispatch: function,
  fits-inside: function,
  cfg: dictionary
)
```

```
ct content
```

Content to split.

```
split-dispatch function
```

Recursively passed around (see split-dispatch below).

fits-inside function

Closure to determine if the content fits (see fits-inside above).

```
cfg dictionary
```

Extra configuration options.

has-body

Split content with a "body" main field. There is a special strategy for list.item and enum.item which are handled separately. Elements strong, emph, underline, stroke, overline, highlight are splittable, the rest are treated as non-splittable.

Parameters

```
has-body(
  ct: content,
  split-dispatch: function,
  fits-inside: function,
  cfg: dictionary
)
```

ct content

Content to split.

split-dispatch function

Recursively passed around (see split-dispatch below).

fits-inside function

Closure to determine if the content fits (see fits-inside above).

```
cfg dictionary
```

Extra configuration options.

dispatch

Based on the fields on the content, call the appropriate splitting function. This function is involved in a mutual recursion loop, which is why all other splitting functions take this one as a parameter.

Parameters

```
dispatch(
  ct: content,
  fits-inside: function,
  cfg: dictionary
)

ct  content
Content to split.
```

```
fits-inside function
```

Closure to determine if the content fits (see fits-inside above).

```
{\color{red} cfg} \quad \text{dictionary}
```

Extra configuration options.

push-linebreak-if-fits

Attempt to push a linebreak with the justification of the paragraph.

If the content has not reached the end of the box, we try to see if it will accept a linebreak, and we give that linebreak the same justification as the paragraph so that even boxes cut in many pieces are correctly justified.

Parameters

```
push-linebreak-if-fits(
  dims: (width: length, height: length),
  ct: content,
  size: (width: length, height: length)
)

dims (width: length, height: length)

Dimensions of the container
```

```
ct content
Content to fit
```

```
size (width: length, height: length)
Size of the parent, as given by layout
Default: none
```

fill-box

Initialize default configuration options and take as much content as fits in a box of given size. Returns a tuple of the content that fits and the content that overflows separated.

Parameters

```
fill-box(
  dims: (width: length, height: length) ,
  ct: content,
  Size: (width: length, height: length) ,
  cfg: dictionary
) -> (content, content)
dims
          (width: length, height: length)
Container size.
      content
ct
Content to split.
        (width: length, height: length)
size
Parent container size.
Default: (:)
       dictionary
cfg
Configuration options.
• list-markers: (..content,), default value ([•], [•], [-], [•], [-]). If you
  change the markers of list, put the new value in the parameters so that lists are correctly
  split.
• enum-numbering: (..str,), default value ("1.", "1.", "1.", "1.", "1.", "1."). If you
  change the numbering style of enum, put the new style in the parameters so that enums are
  correctly split.
```

E.4 - Threading (threading.typ)

Filling and stretches boxes iteratively.

• smart-fill-boxes()

Default: (:)

• reflow()

smart-fill-boxes

Thread text through a list of boxes in order, allowing the boxes to stretch vertically to accommodate for uneven tiling.

```
Parameters
```

```
smart-fill-boxes(
  body: content,
  avoid: (..block,),
  boxes: (..block,),
  extend: length,
  Size: (width: length, height: length)
) -> (..content,)
body
         content
Flowing text.
          (..block,)
avoid
Obstacles to avoid. A list of (x: length, y: length, width: length, height: length).
Default: ()
boxes
          (..block,)
Boxes to fill. A list of (x: length, y: length, width: length, height: length, bound:
block).
bound is the upper limit of how much to stretch the container, i.e. also (x: length, y: length,
width: length, height: length).
Default: ()
extend
           length
How much the baseline can extend downwards (within the limits of bounds).
Default: 1em
        (width: length, height: length)
size
Dimensions of the container as given by layout.
```

reflow

Segment the input content according to the tiling algorithm, then thread the flowing text through it.

Parameters

Default: none

```
reflow(ct: content) -> content
```

ct content

See module tiling for how to format this content.