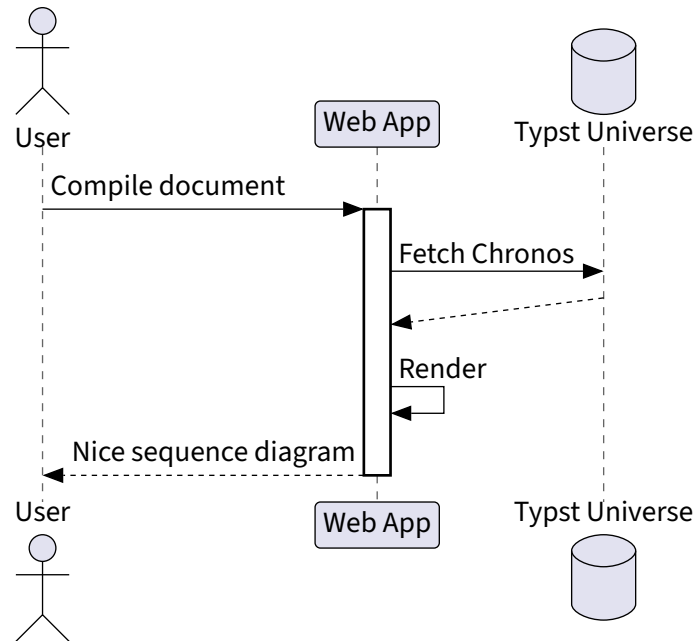


# Chronos

v0.2.1



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## 1 Introduction

This package lets you create nice sequence diagrams using the CeTZ package.

## 2 Usage

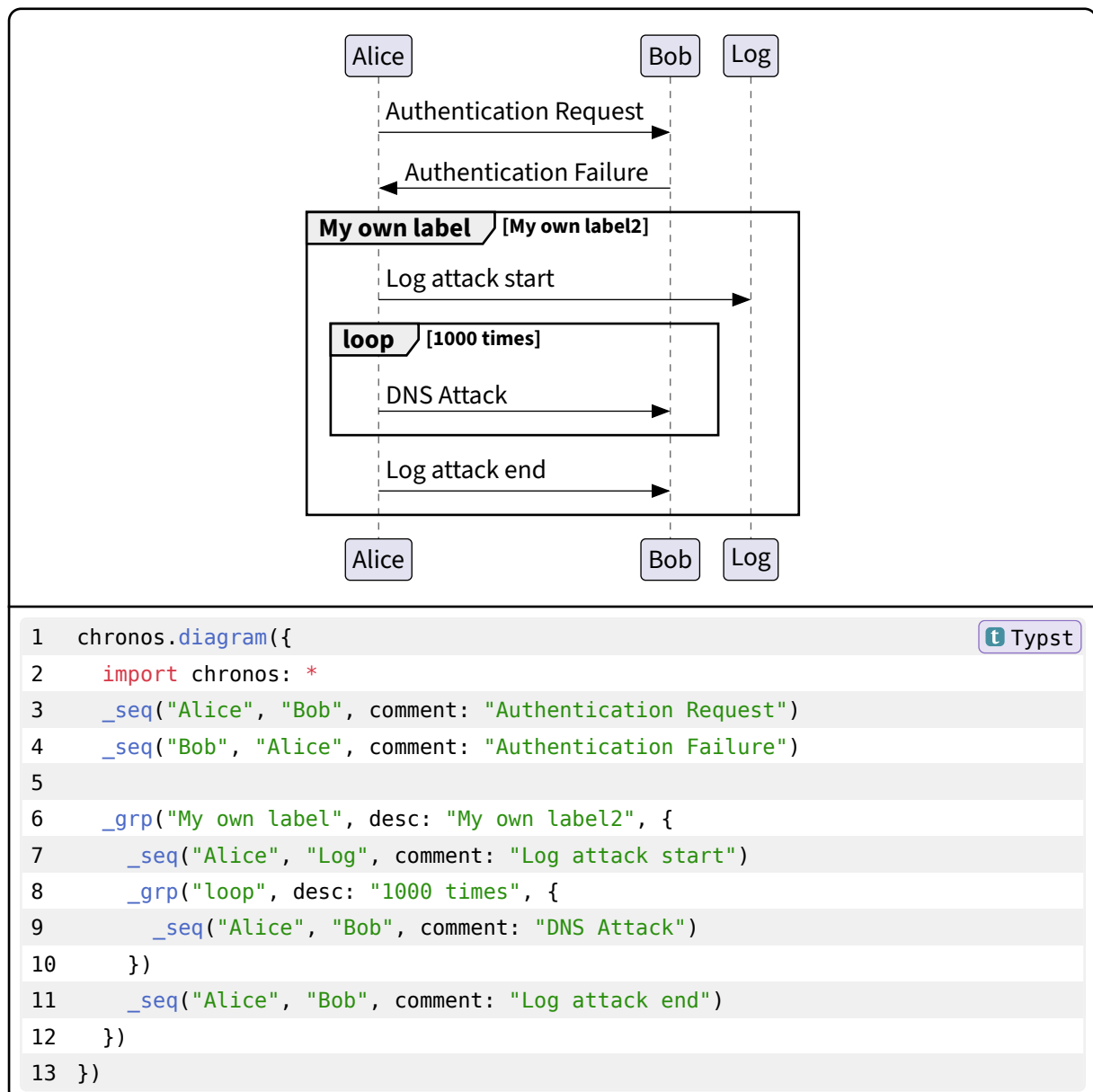
Simply import `chronos` and call the `diagram` function:

```
1 #import "@preview/chronos:0.2.1"
2 #chronos.diagram({
3   import chronos: *
4   ...
5 })
```

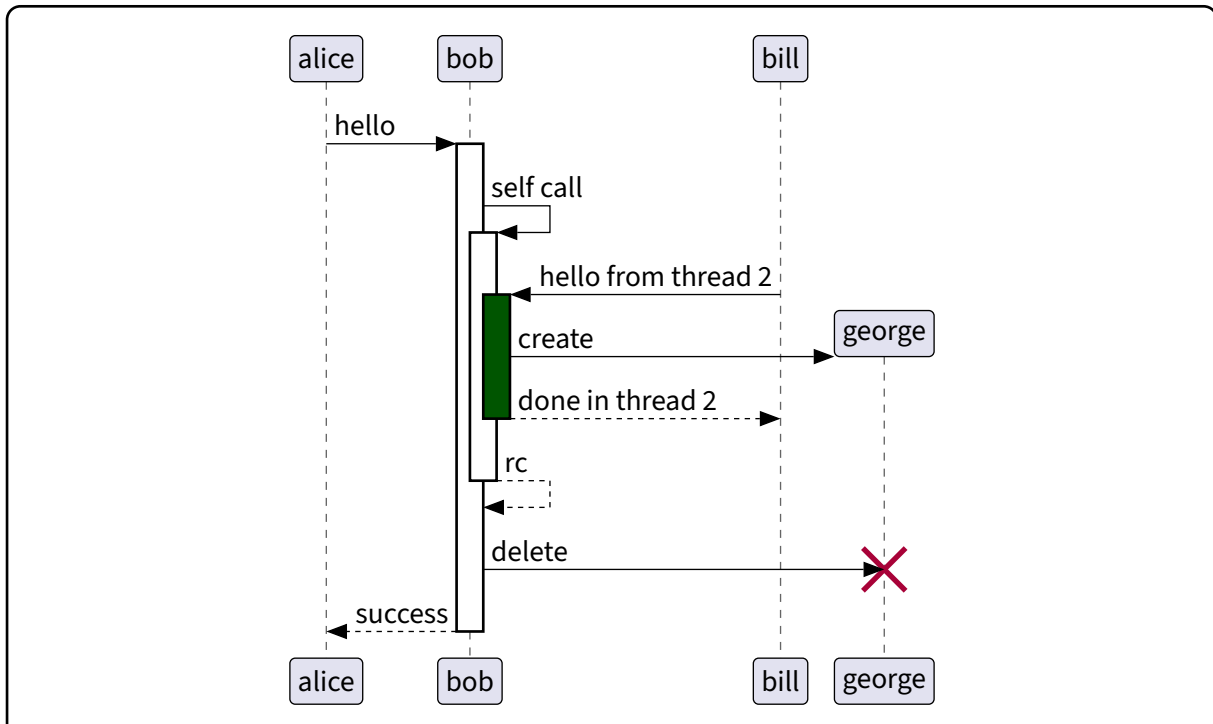
## 3 Examples

You can find the following examples and more in the [gallery](#) directory

### 3.1 Some groups and sequences



### 3.2 Lifelines

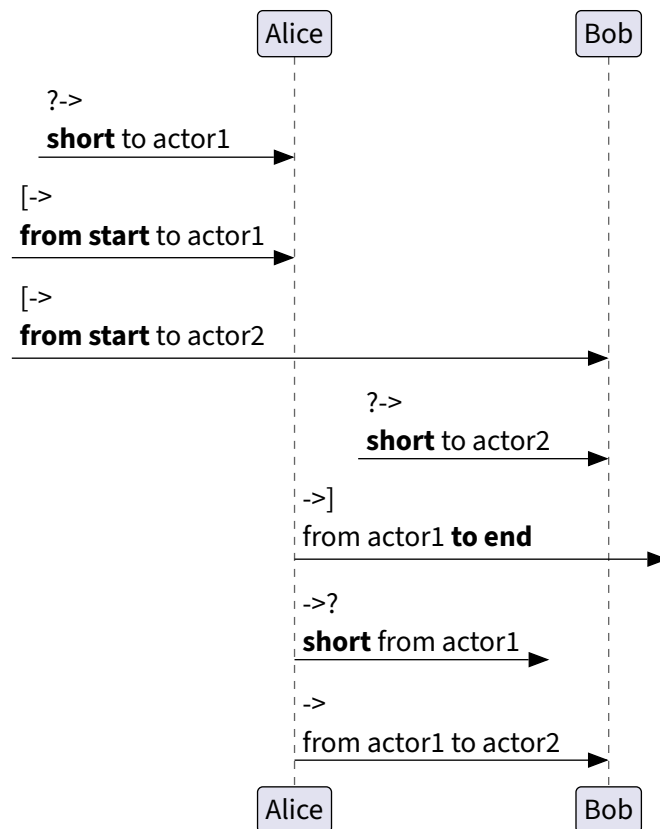


```

1  chronos.diagram({
2      import chronos: *
3      _seq("alice", "bob", comment: "hello", enable-dst: true)
4      _seq("bob", "bob", comment: "self call", enable-dst: true)
5      _seq(
6          "bill", "bob",
7          comment: "hello from thread 2",
8          enable-dst: true,
9          lifeline-style: (fill: rgb("#005500"))
10     )
11     _seq("bob", "george", comment: "create", create-dst: true)
12     _seq(
13         "bob", "bill",
14         comment: "done in thread 2",
15         disable-src: true,
16         dashed: true
17     )
18     _seq("bob", "bob", comment: "rc", disable-src: true, dashed: true)
19     _seq("bob", "george", comment: "delete", destroy-dst: true)
20     _seq("bob", "alice", comment: "success", disable-src: true, dashed: true)
21 })

```

### 3.3 Found and lost messages



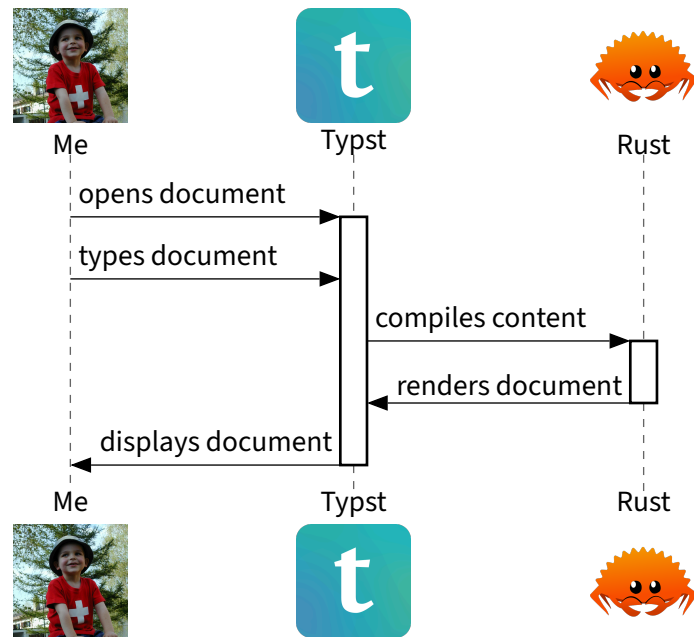
```

1  chronos.diagram({
2      import chronos: *
3      _seq("?", "Alice", comment: [?->\ *short* to actor1])
4      _seq("[", "Alice", comment: [\[->\ *from start* to actor1])
5      _seq("[", "Bob", comment: [\[->\ *from start* to actor2])
6      _seq("?", "Bob", comment: [?->\ *short* to actor2])
7      _seq("Alice", "]", comment: [->\]\ from actor1 *to end*)
8      _seq("Alice", "?", comment: [->?\ *short* from actor1])
9      _seq("Alice", "Bob", comment: [->\ from actor1 to actor2])
10 })

```

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### 3.4 Custom images



```

1  let load-img(path) = image(
2    path,
3    width: 1.5cm, height: 1.5cm,
4    fit:"contain"
5  )
6  let TYPST = load-img("../gallery/typst.png")
7  let FERRIS = load-img("../gallery/ferris.png")
8  let ME = load-img("../gallery/me.jpg")
9
10 chronos.diagram({
11   import chronos: *
12   _par("me", display-name: "Me", shape: "custom", custom-image: ME)
13   _par("typst", display-name: "Typst", shape: "custom", custom-image: TYPST)
14   _par("rust", display-name: "Rust", shape: "custom", custom-image: FERRIS)
15
16   _seq("me", "typst", comment: "opens document", enable-dst: true)
17   _seq("me", "typst", comment: "types document")
18   _seq("typst", "rust", comment: "compiles content", enable-dst: true)
19   _seq("rust", "typst", comment: "renders document", disable-src: true)
20   _seq("typst", "me", comment: "displays document", disable-src: true)
21 })

```

## 4 Reference

### 4.1 Participants

#### 4.1.1 `_par`

Creates a new participant

##### Parameters

```
_par(
  name: str,
  display-name: auto content,
  from-start: bool,
  invisible: bool,
  shape: str,
  color: color,
  line-stroke: stroke,
  custom-image: none image,
  show-bottom: bool,
  show-top: bool
) -> array
```

**name** `str`

Unique participant name used as reference in other functions

**display-name** `auto` or `content`

Name to display in the diagram. If set to `auto`, name is used

Default: `auto`

**from-start** `bool`

If set to true, the participant is created at the top of the diagram. Otherwise, it is created at the first reference

Default: `true`

**invisible** `bool`

If set to true, the participant will not be shown

Default: `false`

**shape** `str`

The shape of the participant. Possible values in [SHAPES](#)

Default: `"participant"`

### **color** `color`

The participant's color

Default: `rgb("#E2E2F0")`

### **line-stroke** `stroke`

The participant's line style (defaults to a light gray dashed line)

Default: (

```

    dash: "dashed",
    paint: gray.darken(40%),
    thickness: .5pt
)
```

### **custom-image** `none` or `image`

If shape is 'custom', sets the custom image to display

Default: `none`

### **show-bottom** `bool`

Whether to display the bottom shape

Default: `true`

### **show-top** `bool`

Whether to display the top shape

Default: `true`

## 4.1.2 `_col`

Sets some options for columns between participants

Parameters `p1` and `p2` MUST be consecutive participants (also counting found/lost messages), but they do not need to be in the left to right order

### Parameters

```

_col(
  p1: str,
  p2: str,
  width: auto int float length,
  margin: int float length,
  min-width: int float length,
  max-width: int float length none
)
```



**p1** `str`

The first neighbouring participant

**p2** `str`

The second neighbouring participant

**width** `auto` or `int` or `float` or `length`

Optional fixed width of the column

If the column's content (e.g. sequence comments) is larger, it will overflow

Default: `auto`

**margin** `int` or `float` or `length`

Additional margin to add to the column

This margin is not included in width and min-width, but rather added separately

Default: `0`

**min-width** `int` or `float` or `length`

Minimum width of the column

If set to a larger value than width, the latter will be overridden

Default: `0`

**max-width** `int` or `float` or `length` or `none`

Maximum width of the column

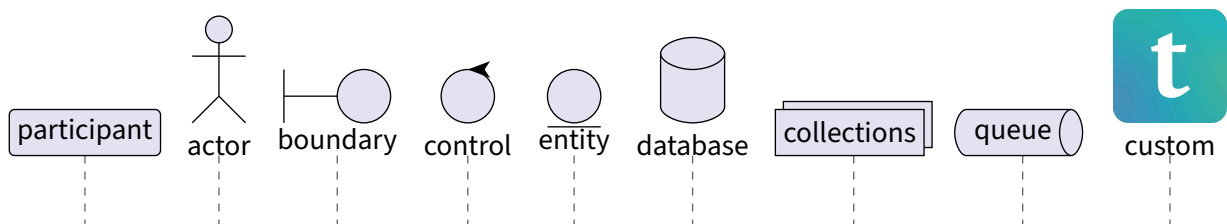
If set to a lower value than width, the latter will be overridden

If set to none, no restriction is applied

Default: `none`

#### 4.1.3 SHAPES

Possible participant shapes



## 4.2 Sequences

### 4.2.1 \_evt

Manually adds an event to the given participant

#### Parameters

```
_evt(
    participant: str,
    event: str
)
```

**participant** `str`

The participant concerned by the event

**event** `str`

The event type (see [EVENTS](#) for ccepted values)

### 4.2.2 \_seq

Creates a sequence / message between two participants

#### Parameters

```
_seq(
    p1: str,
    p2: str,
    comment: none content,
    comment-align: str,
    dashed: bool,
    start-tip: str,
    end-tip: str,
    color: color,
    flip: bool,
    enable-dst: bool,
    create-dst: bool,
    disable-dst: bool,
    destroy-dst: bool,
    disable-src: bool,
    destroy-src: bool,
    lifeline-style: auto dict,
    slant: none int
) -> array
```

**p1** `str`

Start participant

**p2** `str`

End participant

**comment** `none` or `content`

Optional comment to display along the arrow

Default: `none`

**comment-align** `str`

Where to align the comment with respect to the arrow (see [comment-align](#) for accepted values)

Default: `"left"`

**dashed** `bool`

Whether the arrow's stroke is dashed or not

Default: `false`

**start-tip** `str`

Start arrow tip (see [tips](#) for accepted values)

Default: `" "`

**end-tip** `str`

End arrow tip (see [tips](#) for accepted values)

Default: `">"`

**color** `color`

Arrow's color

Default: `black`

**flip** `bool`

If true, the arrow is flipped (goes from end to start). This is particularly useful for self calls, to change the side on which the arrow appears

Default: `false`

**enable-dst** `bool`

If true, enables the destination lifeline

Default: `false`

**create-dst** `bool`

If true, creates the destination lifeline and participant

Default: `false`

**disable-dst** `bool`

If true, disables the destination lifeline

Default: `false`

**destroy-dst** `bool`

If true, destroys the destination lifeline and participant

Default: `false`

**disable-src** `bool`

If true, disables the source lifeline

Default: `false`

**destroy-src** `bool`

If true, destroy the source lifeline and participant

Default: `false`

**lifeline-style** `auto` or `dict`

Optional styling options for lifeline rectangles (see CeTZ documentation for more information on all possible values)

Default: `auto`

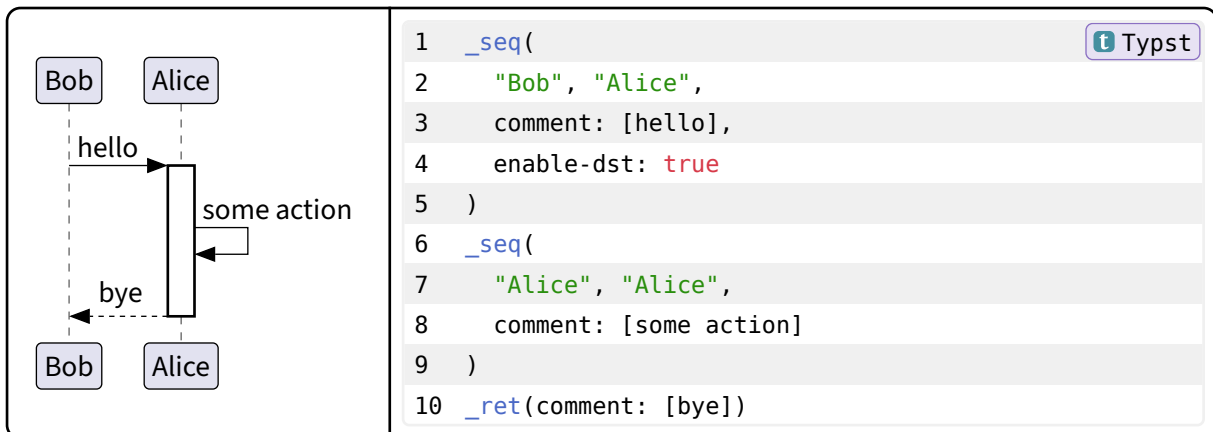
**slant** `none` or `int`

Optional slant of the arrow

Default: `none`

### 4.2.3 `_ret`

Creates a return sequence



#### Parameters

`_ret`(comment: none content)

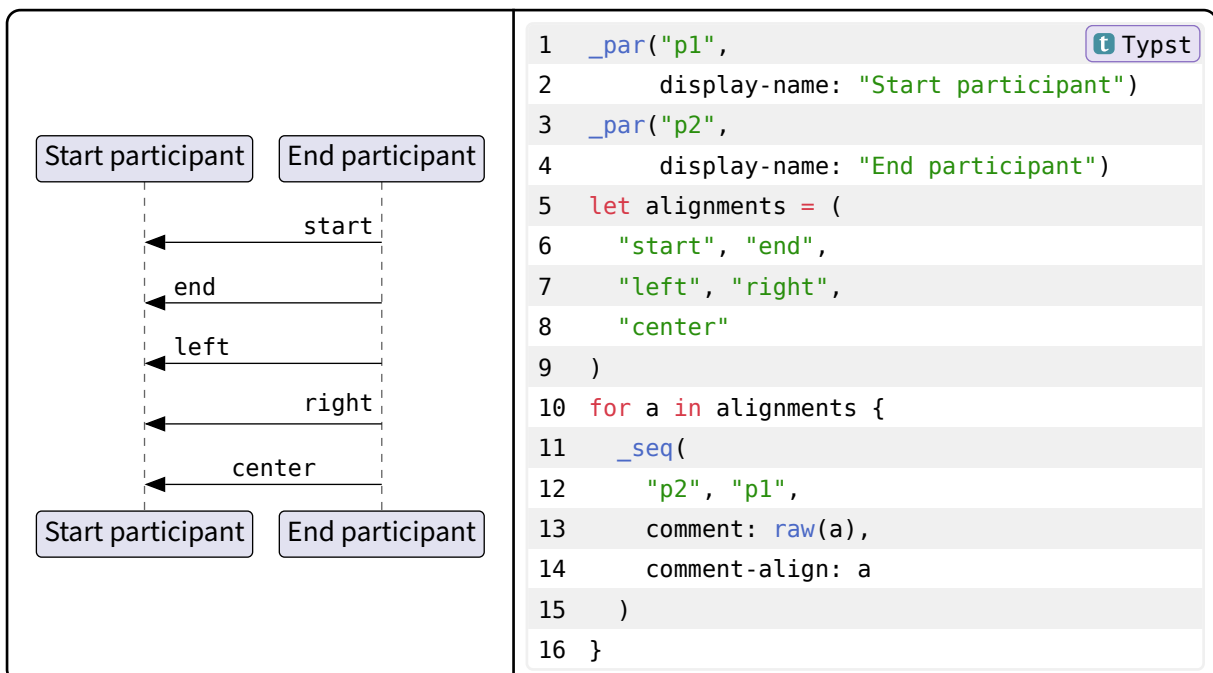
**comment** none or content

Optional comment to display along the arrow

Default: none

### 4.2.4 `comment-align`

Accepted values for `comment-align` argument of `_seq()`



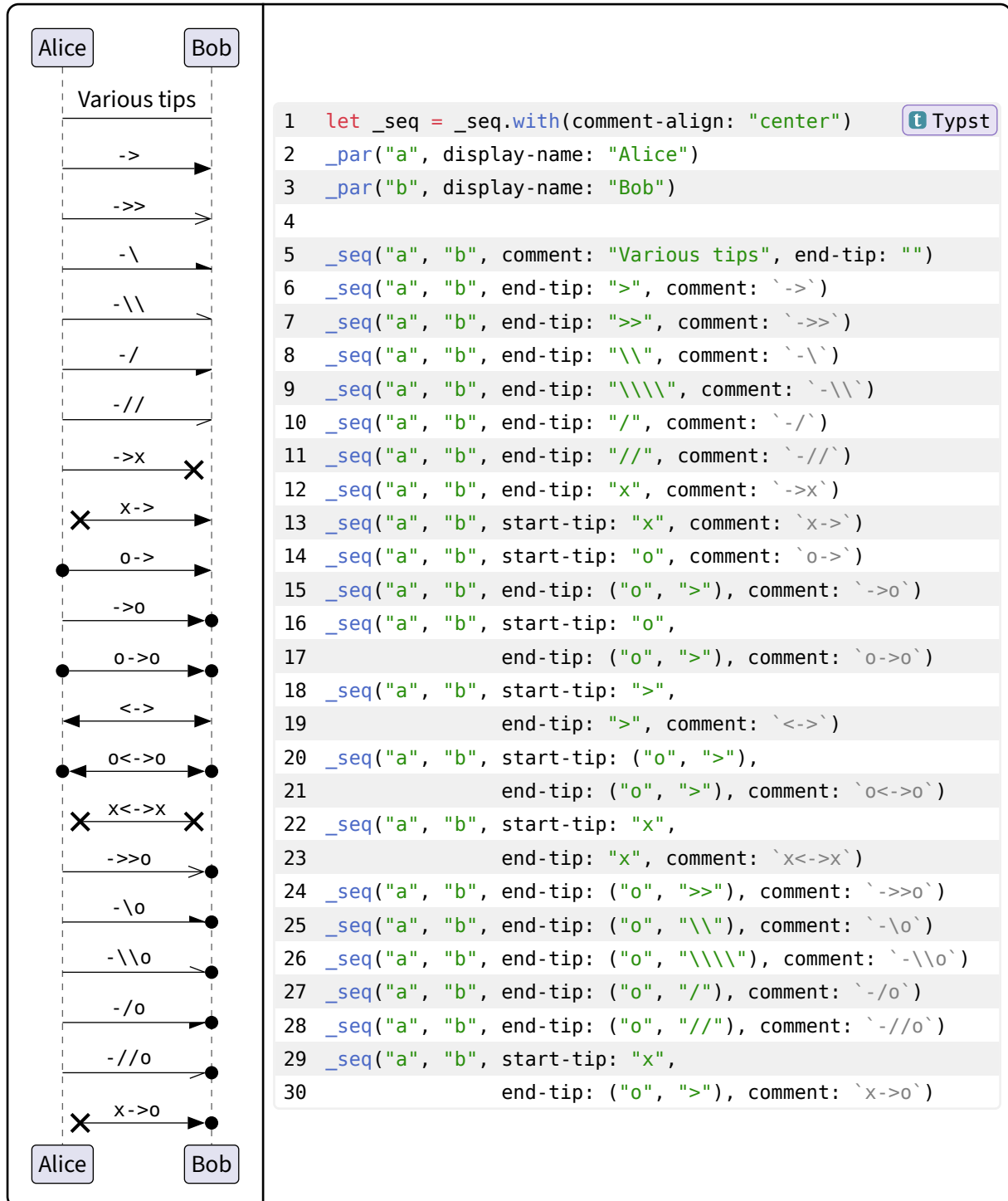
## 4.2.5 EVENTS

Accepted values for event argument of `_evt()`

EVENTS = ("create", "destroy", "enable", "disable")

## 4.2.6 tips

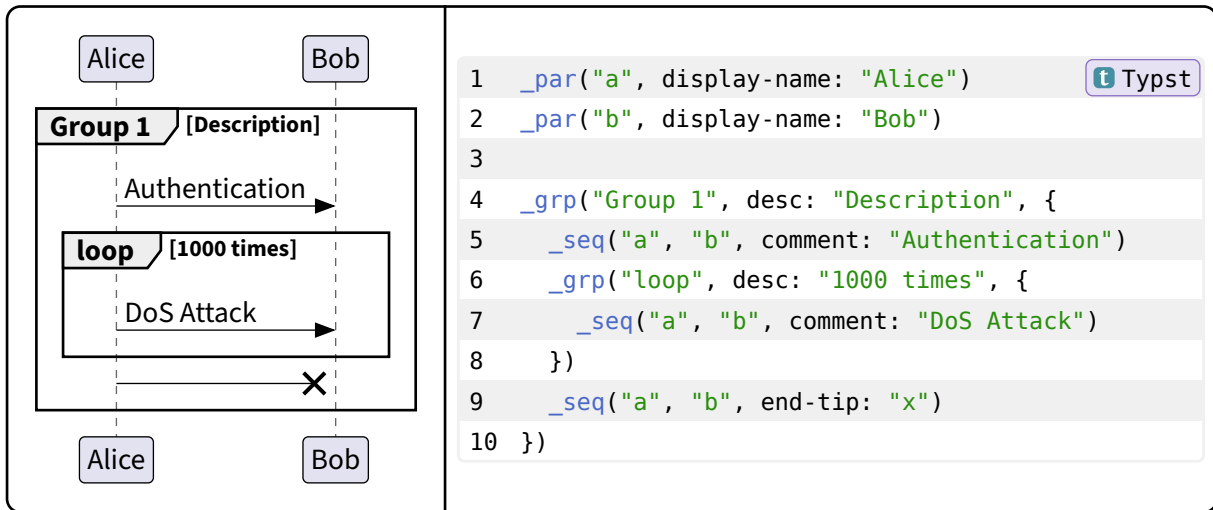
Accepted values for start-tip and end-tip arguments of `_seq()`



## 4.3 Groups

### 4.3.1 \_grp

Creates a group of sequences



#### Parameters

```

_grp(
  name: content,
  elmts: array,
  desc: none | content,
  type: str
)

```

**name** `content`

The group's name

**elmts** `array`

Elements inside the group (can be sequences, other groups, notes, etc.)

**desc** `none` or `content`

Optional description

Default: `none`

**type** `str`

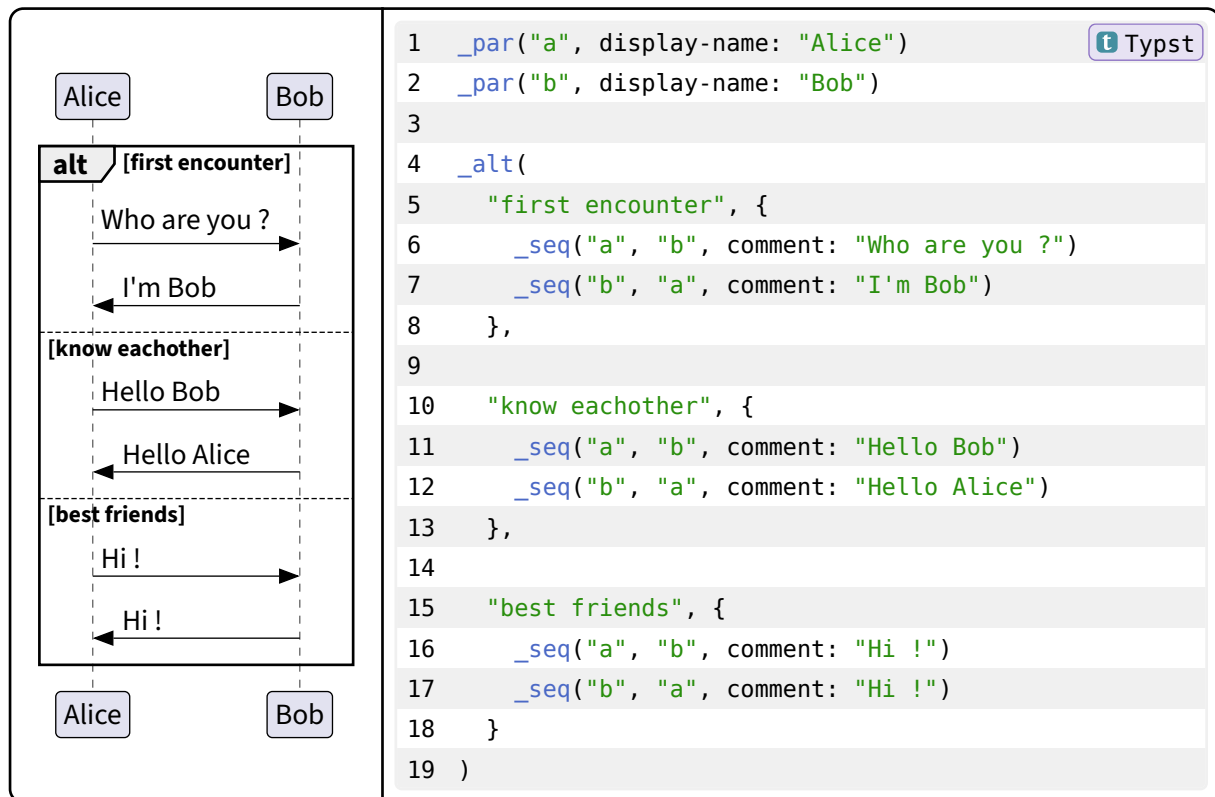
The groups's type (should only be set through other functions like `_alt()` or `_loop()` )

Default: `"default"`

### 4.3.2 `_alt`

Creates an alt-else group of sequences

It contains at least one section but can have as many as needed



#### Parameters

```

_alt(
  desc: content,
  elmts: array,
  ..args: content array
)

```

**desc** `content`

The alt's label

**elmts** `array`

Elements inside the alt's first section

**..args** `content` or `array`

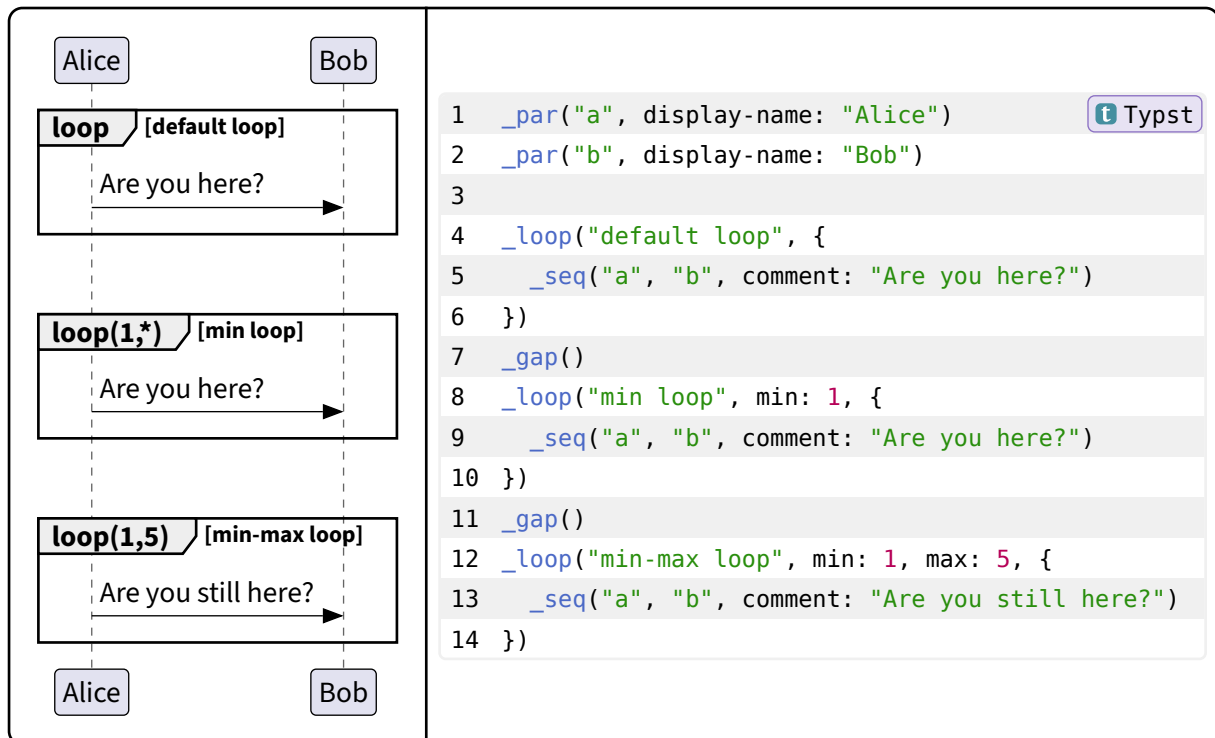
Complementary "else" sections.

You can add as many else sections as you need by passing a content (else section label) followed by an array of elements (see example)



### 4.3.3 `_loop`

Creates a looped group of sequences



#### Parameters

```

_loop(
  desc: content,
  elmts: array,
  min: none or number,
  max: auto or number
)
  
```

**desc** `content`

Loop description

**elmts** `array`

Elements inside the group

**min** `none` or `number`

Optional lower bound of the loop

Default: `none`

**max** `auto` or `number`

Upper bound of the loop. If left as `auto` and `min` is set, it will be infinity (`'*'`)

Default: `auto`

#### 4.3.4 `_sync`

Synchronizes multiple sequences

All elements inside a synchronized group will start at the same time

```

1  _par("alice", display-name: "Alice")
2  _par("bob", display-name: "Bob")
3  _par("craig", display-name: "Craig")
4
5  _seq("bob", "alice") // Unsynchronized
6  _seq("bob", "craig") // "
7  _sync({
8    _seq("bob", "alice") // Synchronized
9    _seq("bob", "craig") // "
10 })
11 _seq("alice", "bob") // Unsynchronized
12 _seq("craig", "bob") // "
13 _sync({
14   _seq("alice", "bob") // Synchronized
15   _seq("craig", "bob") // "
16 })

```

##### Parameters

`_sync`(`elmts`: array)

**elmts** array

Synchronized elements (generally sequences or notes)

#### 4.3.5 `_opt`

Creates an optional group

This is a simple wrapper around `_grp()`

##### Parameters

```

_opt(
  desc: content,
  elmts: array
)
```

**desc** content

Group description

**elmts** array

Elements inside the group

#### 4.3.6 `_break`

Creates a break group

This is a simple wrapper around `_grp()`

##### Parameters

```
_break(  
  desc: content,  
  elmts: array  
)
```

**desc**    `content`

Group description

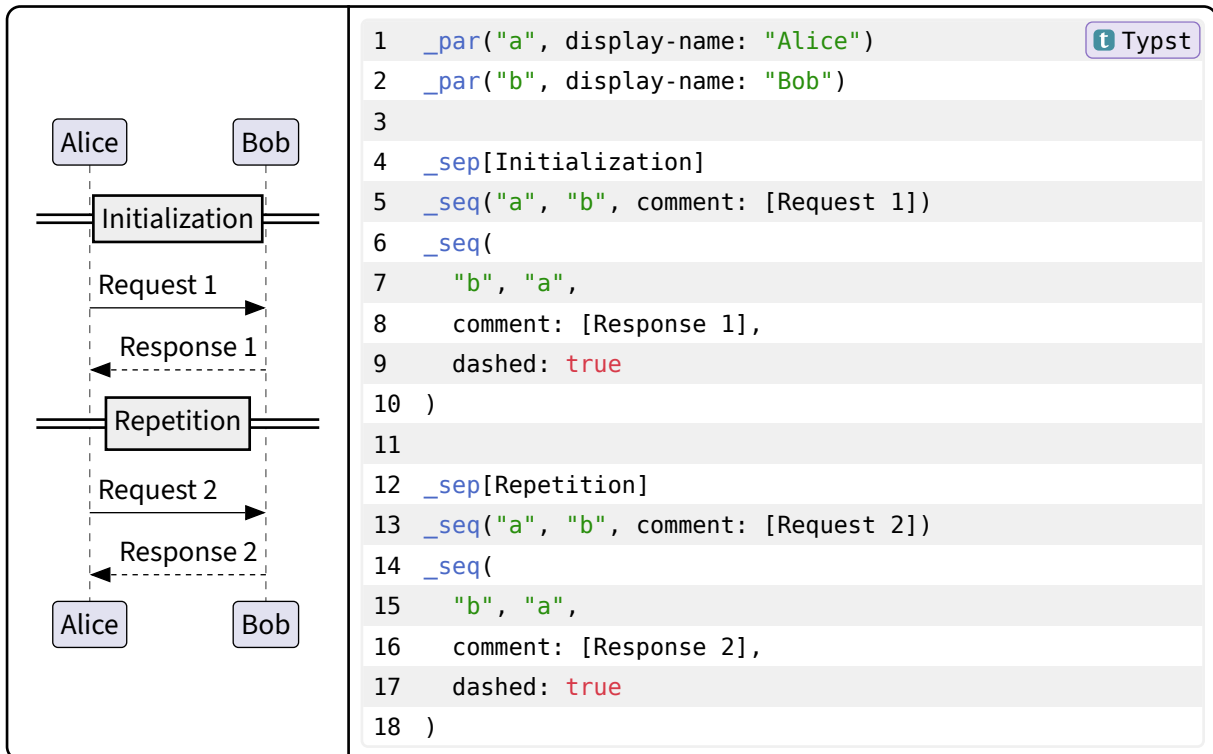
**elmts**    `array`

Elements inside the group

## 4.4 Gaps and separators

### 4.4.1 `_sep`

Creates a separator before the next element



#### Parameters

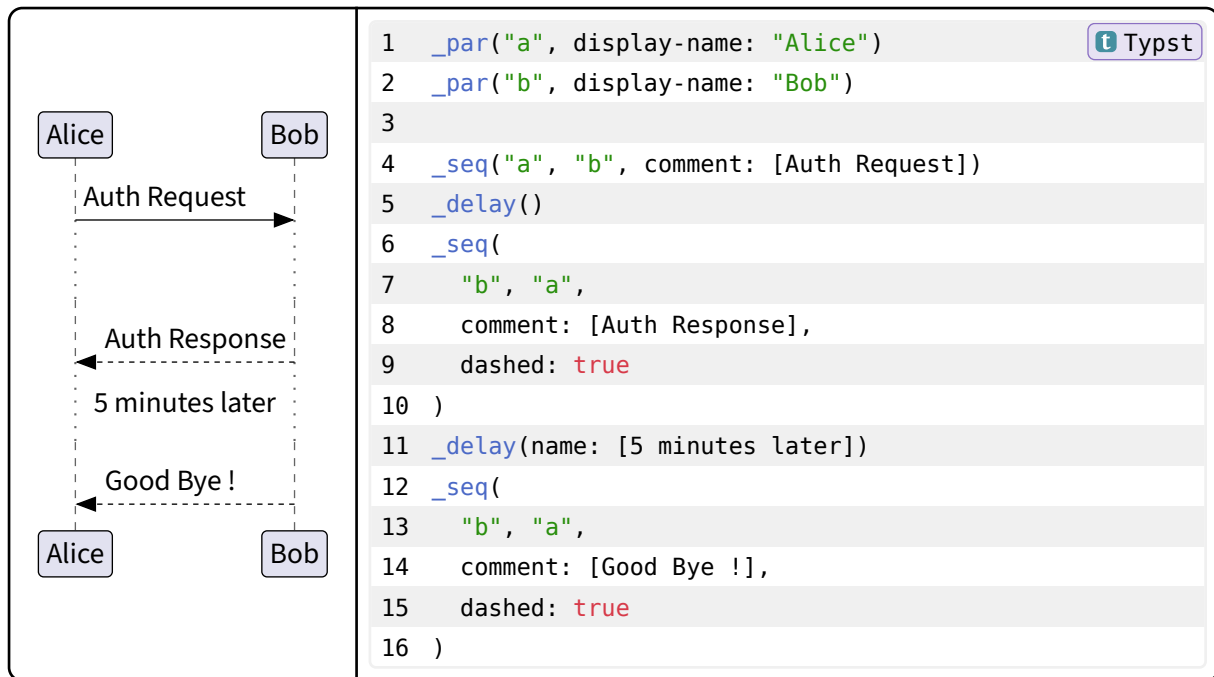
`_sep`(`name`: `content`)

**name** `content`

Name to display in the middle of the separator

### 4.4.2 `_delay`

Creates a delay before the next element



### Parameters

```

_delay(
  name: content or none ,
  size: int
)

```

**name**    content or none

Name to display in the middle of the delay area

Default: none

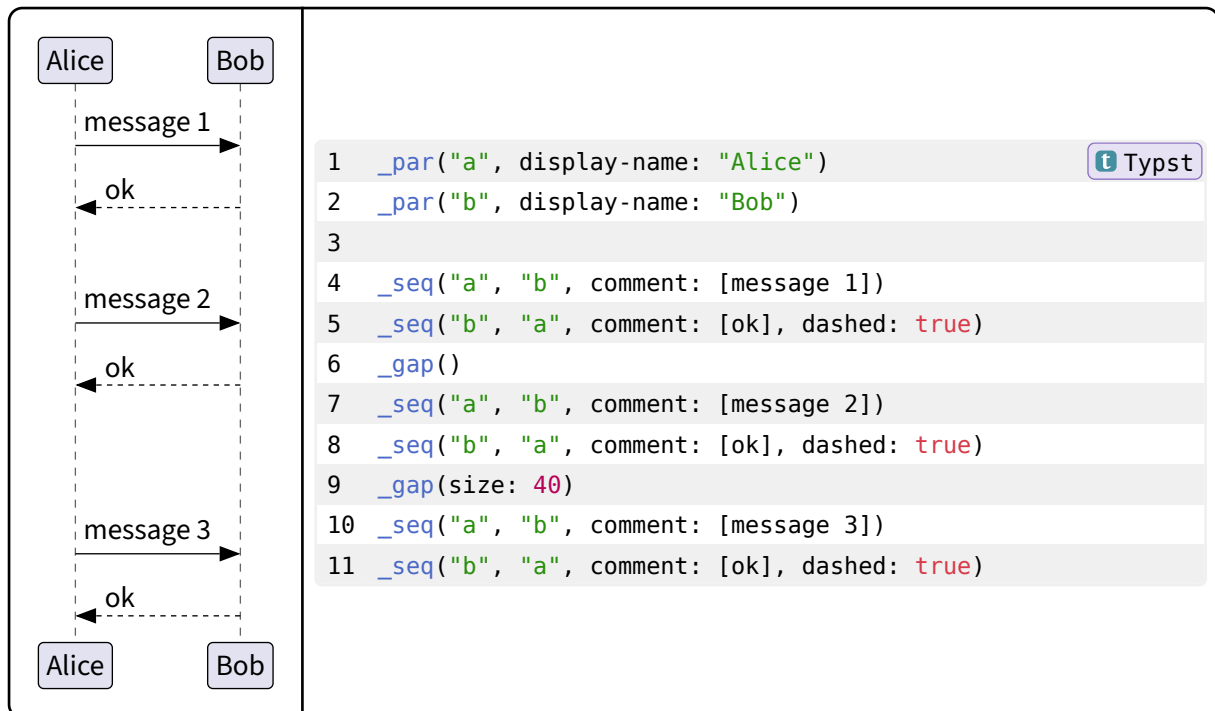
**size**    int

Size of the delay

Default: 30

### 4.4.3 \_gap

Creates a gap before the next element



### Parameters

`_gap(size: int)`

**size** `int`

Size of the gap

Default: `20`

## 4.5 Notes

### 4.5.1 `_note`

Creates a note

#### Parameters

```
_note(
    side: str,
    content: content,
    pos: none | str | array,
    color: color,
    shape: str,
    aligned: bool
)
```

**side**    `str`

The side on which to place the note (see [SIDES](#) for accepted values)

**content**    `content`

The note's content

**pos**    `none` or `str` or `array`

Optional participant(s) on which to draw next to / over. If side is "left" or "right", sets next to which participant the note is placed. If side is "over", sets over which participant(s) it is placed

Default: `none`

**color**    `color`

The note's color

Default: `rgb("#FEFFDD")`

**shape**    `str`

The note's shape (see [SHAPES](#) for accepted values)

Default: `"default"`

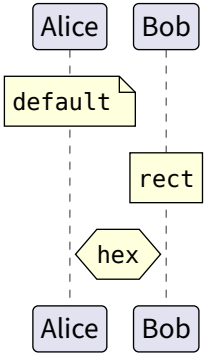
**aligned**    `bool`

True if the note is aligned with another note, in which case side must be "over", false otherwise

Default: `false`

### 4.5.2 SHAPES

Accepted values for shape argument of `_note()`



```

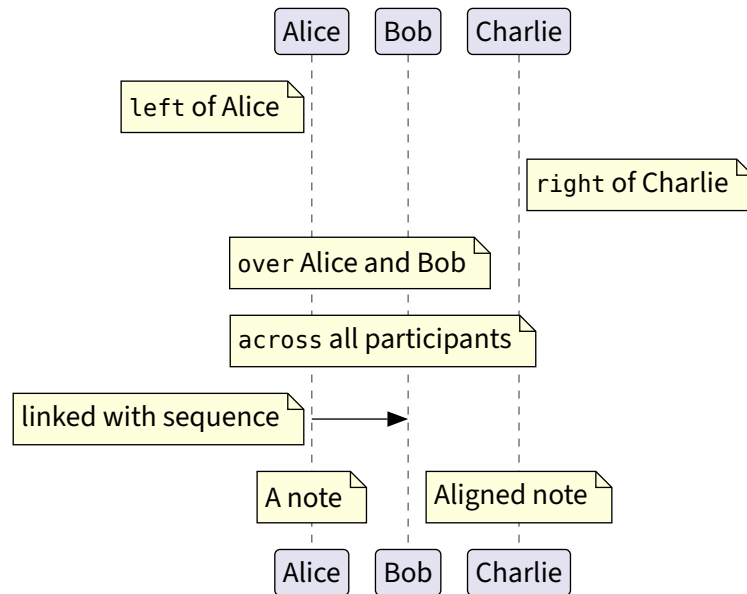
1 _par("alice", display-name: "Alice")
2 _par("bob", display-name: "Bob")
3 _note("over", `default`, pos: "alice")
4 _note("over", `rect`, pos: "bob", shape: "rect")
5 _note("over", `hex`, pos: ("alice", "bob"), shape: "hex")

```

### 4.5.3 SIDES

Accepted values for side argument of `_note()`





```

1  _par("alice", display-name: "Alice")
2  _par("bob", display-name: "Bob")
3  _par("charlie", display-name: "Charlie")
4  _note("left", [`left` of Alice], pos: "alice")
5  _note("right", [`right` of Charlie], pos: "charlie")
6  _note("over", [`over` Alice and Bob], pos: ("alice", "bob"))
7  _note("across", [`across` all participants])
8  _seq("alice", "bob")
9  _note("left", [linked with sequence])
10 _note("over", [A note], pos: "alice")
11 _note("over", [Aligned note], pos: "charlie", aligned: true)

```

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