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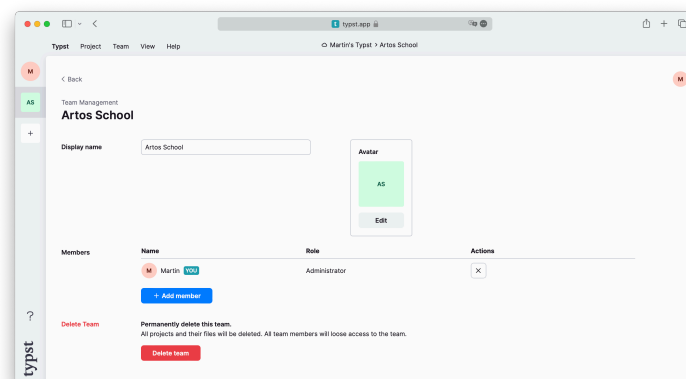
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# Advanced Styling

In the previous two chapters of this tutorial, you have learned how to write a document in Typst and how to change its formatting. The report you wrote throughout the last two chapters got a straight A and your supervisor wants to base a conference paper on it! The report will of course have to comply with the conference's style guide. Let's see how we can achieve that.

Before we start, let's create a team, invite your supervisor and add them to the team. You can do this by going back to the app dashboard with the back icon in the top left corner of the editor. Then, choose the plus icon in the left toolbar and create a team. Finally, click on the new team and go to its settings by clicking 'manage team' next to the team name. Now you can invite your supervisor by email.



Next, move your project into the team: Open it, going to its settings by choosing the gear icon in the left toolbar and selecting your new team from the owners dropdown. Don't forget to save your

[ON  
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changes!

Now, your supervisor can also edit the project and you can both see the changes in real time. You can join our [Discord server](#) to find other users and try teams with them!

## The conference guidelines

The layout guidelines are available on the conference website. Let's take a look at them:

- The font should be an 11pt serif font
- The title should be in 17pt and bold
- The paper contains a single-column abstract and two-column main text
- The abstract should be centered
- The main text should be justified
- First level section headings should be 13pt, centered, and rendered in small capitals
- Second level headings are run-ins, italicized and have the same size as the body text
- Finally, the pages should be US letter sized, numbered in the center of the footer and the top right corner of each page should contain the title of the paper

We already know how to do many of these things, but for some of them, we'll need to learn some new tricks.

## Writing the right set rules

Let's start by writing some set rules for the document.

```
#set page(
  paper: "us-letter",
  header: align(right)[
    A fluid dynamic model for
    glacier flow
  ],
  numbering: "1",
)
#set par(justify: true)
#set text(
  font: "Libertinus Serif",
  size: 11pt,
)

#lorem(600)
```

A fluid dynamic model for glacier flow

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aequi doleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si aliquid aeternum et infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguere 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, turba 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 Torquatium, qui hoc primum cognomen invenit, 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, Aristotelis, Theophrasti orationis ornamenta neglexerit. Nam illud quidem physici, credere aliquid esse minimum, quod profecto nunquam putavisset, si a Polyaeo, familiari suo, geometrica discere maluisset quam illum etiam ipsum dedocere. Sol Democrito magnus videtur, quippe homini erudito in geometriaque perfecto, huic pedalis fortasse; tantum enim esse omnino in nostris poetis aut inertissimae segnitiae est aut fastidii delicatissimi. Mihi quidem videtur, inermis ac nudus est. Tollit definitiones, nihil de dividendo ac partiendo docet, non quo ignoret vos arbitrer, sed ut ratione et via procedat oratio. Querimus igitur, quid sit extremum et ultimum bonorum, quod omnium philosophorum sententia tale debet esse, ut eius magnitudinem celeritas, diuturnitas allevatio consoletur. Ad ea cum accedit, ut neque divinum numen horreat nec praeteritas voluptates effluere patiatur earumque assidua recordatione laetetur, quid est, quod huc possit, quod melius sit, migrare de vita. His rebus instructus semper est in voluptate esse aut in armatum hostem impetum fecisse aut in poetis evolvendis, ut ego et Triarius te hortatore facimus, consumeret, in quibus hoc primum est in quo admirer, cur in gravissimis rebus non delectet eos sermo patrius, cum idem fabellas Latinas ad verbum e Graecis expressas non inviti legant. Quis enim tam inimicus paene nomini Romano est, qui Ennii Medeam aut Antiopeam Pacuvii spernat aut reiciat, quod se isdem Euripidis fabulis delectari dicat, Latinas litteras oderit? Synephebos ego, inquit, potius Caecilius aut Andriam Terentii quam utramque Menandri legam? A quibus tantum dissentio, ut, cum Sophocles vel optime scripserit Electram, tamen male conversam Atilii mihi legendam putem, de quo Lucilius: 'ferreum scriptorem', verum, opinor, scriptorem tamen, ut legendus sit. Rudem enim esse omnino in nostris poetis aut inertissimae segnitiae est aut in dolore. Omnis autem privatione doloris putat Epicurus terminari summam voluptatem, ut postea variari voluptas distinguere possit, augeri amplificarique non possit. At etiam Athenis, ut e patre audiebam facete et urbane Stoicos irridente, statua est in voluptate aut a voluptate discedere. Nam cum ignorantie rerum bonarum et malarum maxime hominum vita vexetur, ob eumque errorem et voluptatibus maximis saepe priventur et durissimis animi doloribus torqueantur, sapientia est adhibenda, quae et terrorum cupiditatibusque detractis et omnium falsarum opinionum temeritate derepta certissimam se nobis ducem praebeat ad voluptatem. Sapientia enim est una, quae maestitiam pellat ex animis, quae nos exhorrescere metu non sinat. Qua praeceptrice in tranquillitate vivi potest omnium.

You are already familiar with most of what is going on here. We set the text size to **11pt** and the font to Libertinus Serif. We also enable paragraph justification and set the page size to US letter.

The header argument is new: With it, we can provide content to fill the top margin of every page.

In the header, we specify our paper's title as requested by the conference style guide. We use the `align` function to align the text to the right.

Last but not least is the `numbering` argument. Here, we can provide a [numbering\\_pattern](#) that defines how to number the pages. By setting into to `"1"`, Typst only displays the bare page number. Setting it to `"(1/1)"` would have displayed the current page and total number of pages surrounded by parentheses. And we could even have provided a completely custom function here to format things to our liking.

## Creating a title and abstract

Now, let's add a title and an abstract. We'll start with the title. We center align it and increase its font weight by enclosing it in `*stars*`.

```
#align(center, text(17pt)[
  *A fluid dynamic model
  for glacier flow*
])
```

**A fluid dynamic model for  
glacier flow**

This looks right. We used the `text` function to override the previous text set rule locally, increasing the size to 17pt for the function's argument. Let's also add the author list: Since we are writing this paper together with our supervisor, we'll add our own and their name.

```
#grid(
  columns: (1fr, 1fr),
  align(center)[
    Therese Tungsten \
    Artos Institute \
    #link("mailto:tung@artos.edu")
  ],
  align(center)[
    Dr. John Doe \
    Artos Institute \
    #link("mailto:doe@artos.edu")
  ]
)
```

## A fluid dynamic model for glacier flow

Therese Tungsten  
Artos Institute  
tung@artos.edu

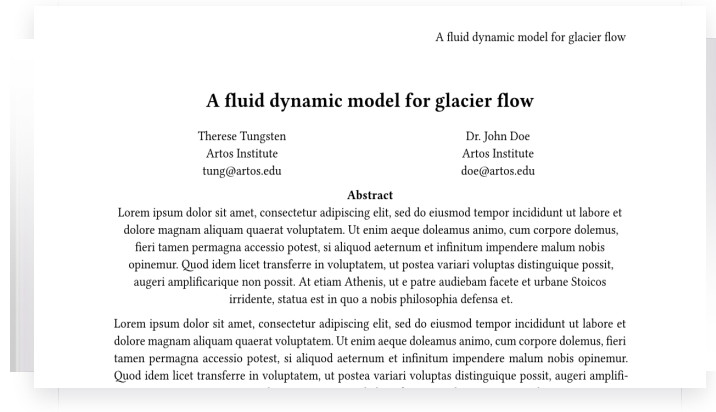
Dr. John Doe  
Artos Institute  
doe@artos.edu

The two author blocks are laid out next to each other. We use the `grid` function to create this layout. With a grid, we can control exactly how large each column is and which content goes into which cell. The `columns` argument takes an array of [relative lengths](#) or [fractions](#). In this case, we passed it two equal fractional sizes, telling it to split the available space into two equal columns. We then passed two content arguments to the grid function. The first with our own details, and the second with our supervisors'. We again use the `align` function to center the content within the column. The grid takes an arbitrary number of content arguments specifying the cells. Rows are added automatically, but they can also be manually sized with the `rows` argument.

Now, let's add the abstract. Remember that the conference wants the abstract to be set ragged and centered.

```
...

#align(center)[
  #set par(justify: false)
  *Abstract* \
  #lorem(80)
]
```



Well done! One notable thing is that we used a set rule within the content argument of `align` to turn off justification for the abstract. This does not affect the remainder of the document even though it was specified after the first set rule because content blocks scope styling. Anything set within a content block will only affect the content within that block.

Another tweak could be to save the paper title in a variable, so that we do not have to type it twice, for header and title. We can do that with the `let` keyword:

```

#let title = [
  A fluid dynamic model
  for glacier flow
]

...

#set page(
  header: align(
    right + horizon,
    title
  ),
  ...
)

#align(center, text(17pt)[
  *#title*
])

...

```

A fluid dynamic model for glacier flow

## A fluid dynamic model for glacier flow

Therese Tungsten  
Artos Institute  
tung@artos.edu

Dr. John Doe  
Artos Institute  
doe@artos.edu

### Abstract

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aequaeque doleamus animo, cum corpore dolemus, fieri tamen peragna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguere possit, augeri amplificari non possit. At etiam Athenis, ut e patre audiebam facete et urbane Stoicos irridente, statua est in quo a nobis philosophia defensa et.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aequaeque doleamus animo, cum corpore dolemus, fieri tamen peragna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguere possit, augeri amplificari 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 primum cognomen invenit, 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 Polyano, familiari suo, geometrica discere maluisset quam illum etiam ipsum dedocere. Sol Democrito magnus videtur, quippe homini erudito in geometriaque perfecto, huic pedalis fortasse; tantum enim esse omnino in nostris poetis aut inertissimae segnitiae est aut fastidii delicatissimi. Mihi quidem videtur, inermis ac nudus est. Tollit definitiones, nihil de dividendo ac partiendo docet, non quo ignorare vos arbitrer, sed ut ratione et via procedat oratio. Quaerimus igitur, quid sit extremum et ultimum bonorum, quod omnium philosophorum sententia tale debet esse, ut eius magnitudinem celeritas, diuturnitas allevatio consoletur. Ad ea cum accedit, ut neque divinum numen horreat nec praeteritas voluptates effluere patiat eorumque assidua recordatione laetetur, quid est, quod huc possit, quod melius sit, migrare de vita. His rebus instructus semper est in voluptate esse aut in armatum hostem impetum fecisse aut in poetis evolendis, ut ego et Triarius te hortatore facimus, consumeret, in quibus hoc primum est in quo admirer, cur in gravissimis rebus non delectet eos sermo patrius, cum idem fabellas Latinas ad verbum e Graecis expressas non inviti legant. Quis enim tam inimicus paene nomini Romano est, qui Ennii Medeam aut Antipam Pacuvii spernat aut reiciat, quod se isdem Euripidis fabulis delectari dicat, Latinas litteras oderit? Synephebos ego, inquit, potius Caecilius aut Andriam Terentii quam utramque Menandri legam? A quibus tantum dissentio, ut, cum Sophocles vel optime scripserit Electram, tamen male conversam Atilii mihi legendam putem, de quo Lucilius: 'ferreum scriptorem', verum, opinor, scrip-

After we bound the content to the title variable,

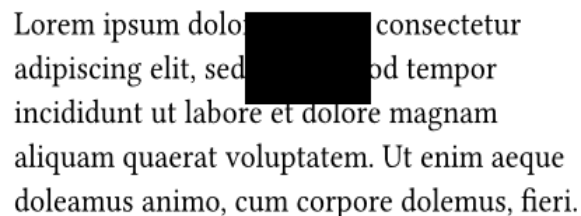
we can use it in functions and also within markup (prefixed by #, like functions). This way, if we decide on another title, we can easily change it in one place.

## Adding columns and headings

The paper above unfortunately looks like a wall of lead. To fix that, let's add some headings and switch our paper to a two-column layout. Fortunately, that's easy to do: We just need to amend our page set rule with the `columns` argument.

By adding `columns: 2` to the argument list, we have wrapped the whole document in two columns. However, that would also affect the title and authors overview. To keep them spanning the whole page, we can wrap them in a function call to `place`. `place` expects an alignment and the content it should place as positional arguments. Using the named `scope` argument, we can decide if the items should be placed relative to the current column or its parent (the page). There is one more thing to configure: If no other arguments are provided, `place` takes its content out of the flow of the document and positions it over the other content without affecting the layout of other content in its container:

```
#place(  
  top + center,  
  rect(fill: black),  
)  
#lorem(30)
```



Lorem ipsum dolor consectetur  
adipiscing elit, sed od tempor  
incididunt ut labore et dolore magnam  
aliquam quaerat voluptatem. Ut enim aequ  
doleamus animo, cum corpore dolemus, fieri.

If we hadn't used `place` here, the square would be in its own line, but here it overlaps the few lines of



text following it. Likewise, that text acts like as if there was no square. To change this behavior, we can pass the argument `float: true` to ensure that the space taken up by the placed item at the top or bottom of the page is not occupied by any other content.

```
#set page(  
  paper: "us-letter",  
  header: align(  
    right + horizon,  
    title  
  ),  
  numbering: "1",  
  columns: 2,  
)  
  
#place(  
  top + center,  
  float: true,  
  scope: "parent",  
  clearance: 2em,  
)[  
  ...  
  
  #par(justify: false)[  
    *Abstract* \  
    #lorem(80)  
  ]  
)  
  
= Introduction  
#lorem(300)  
  
= Related Work  
#lorem(200)
```

A fluid dynamic model for glacier flow

## A fluid dynamic model for glacier flow

Therese Tungsten  
Artos Institute  
tung@artos.edu

Dr. John Doe  
Artos Institute  
doe@artos.edu

### Abstract

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguere 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.

### Introduction

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguere possit, augeri amplificarique non possit. At etiam Athenis, ut e patre audiebam facete et

nollem me ab eo delectari, quod ista Platonis, Aristoteli, Theophrasti orationis ornamenta neglexerit. Nam illud quidem physici, credere aliquid esse minimum, quod profecto nunquam putavisset, si a Polyano, familiari suo, geometrica discere maluisset quam illum etiam ipsum dedocere. Sol Democrito magnus videtur, quippe homini erudito in geometriaque perfecto, huic pedalis fortasse: tantum enim esse omnino in nostris poetis aut inertissimae segnitiae est aut fastidii delicatissimi. Mihi quidem videtur, inermis ac nudus est. Tollit

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 Albius, 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 primum 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,

definitiones, nihil de dividendo ac partiendo docet, non quo ignorare vos arbitrer, sed ut.

#### Related Work

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aequaleam 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 distinguere possit, augeri amplificarique non possit. At etiam Athenis, ut e patre audiebam facite 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

In this example, we also used the `clearance` argument of the `place` function to provide the space between it and the body instead of using the `y` function. We can also remove the explicit `align(center, ...)` calls around the various parts since they inherit the center alignment from the placement.

Now there is only one thing left to do: Style our headings. We need to make them centered and use small capitals. Because the `heading` function does not offer a way to set any of that, we need to write our own heading show rule.

```
#show heading: it => [  
  #set align(center)  
  #set text(13pt, weight: "regular")  
  #blocksmallcaps(it.body))  
]  
  
...
```

## INTRODUCTION

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua quaerat voluptatem. Ut enim aequaleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si.

## MOTIVATION

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua quaerat voluptatem. Ut enim aequaleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem.

This looks great! We used a show rule that applies to all headings. We give it a function that gets passed the heading as a parameter. That parameter can be used as content but it also has some fields like `title`, `numbers`, and `level` from which we can compose a custom look. Here, we are center-aligning, setting the font weight to "regular" because headings are bold by default, and use the `smallcaps` function to render the heading's title in small capitals.

The only remaining problem is that all headings look the same now. The "Motivation" and "Problem Statement" subsections ought to be italic run in headers, but right now, they look indistinguishable from the section headings. We can fix that by using a where selector on our set rule: This is a [method](#) we can call on headings (and other elements) that allows us to filter them by their level. We can use it

to differentiate between section and subsection headings:

```
#show heading.where(  
  level: 1  
) : it => block(width: 100%)[  
  #set align(center)  
  #set text(13pt, weight: "regular")  
  #smallcaps(it.body)  
]  
  
#show heading.where(  
  level: 2  
) : it => text(  
  size: 11pt,  
  weight: "regular",  
  style: "italic",  
  it.body + [.] ,  
)
```

## INTRODUCTION

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua quaerat voluptatem. Ut enim aequi doleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si.

*Motivation.* Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua quaerat voluptatem. Ut enim aequi doleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem.

This looks great! We wrote two show rules that each selectively apply to the first and second level headings. We used a where selector to filter the headings by their level. We then rendered the subsection headings as run-ins. We also automatically add a period to the end of the subsection headings.

Let's review the conference's style guide:

- The font should be an 11pt serif font ✓
- The title should be in 17pt and bold ✓
- The paper contains a single-column abstract and two-column main text ✓
- The abstract should be centered ✓
- The main text should be justified ✓
- First level section headings should be centered, rendered in small caps and in 13pt ✓
- Second level headings are run-ins, italicized and have the same size as the body text ✓
- Finally, the pages should be US letter sized, numbered in the center and the top right corner of each page should contain the title of the paper ✓

We are now in compliance with all of these styles and can submit the paper to the conference! The finished paper looks like this:



## Review

You have now learned how to create headers and footers, how to use functions and scopes to locally override styles, how to create more complex layouts with the [grid](#) function and how to write show rules for individual functions, and the whole document. You also learned how to use the [where selector](#) to filter the headings by their level.

The paper was a great success! You've met a lot of like-minded researchers at the conference and are planning a project which you hope to publish at the same venue next year. You'll need to write a new paper using the same style guide though, so maybe now you want to create a time-saving template for you and your team?

In the next section, we will learn how to create templates that can be reused in multiple documents. This is a more advanced topic, so feel free to come back to it later if you don't feel up to it right now.



Formatting

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Mastodon  
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