

# Writing your PhD and the knowledge package

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[phd.stanford.edu/comics](http://phd.stanford.edu/comics)

# General writing things

- think about the structure well
- think about the notations, and stick to your choice
- do carefully the bibliography
- write proper french/english/?: have someone correct you, and learn from your mistakes
- combine intuition with technical accuracy (none should be missing)
- even when informal or intuitive, writing should be precise
- write as if you were telling a story (or tell a story!: try to keep the reader interested)
- do not assume anything from the reader

It is ~~important~~ **mandatory** to spend some energy in order to improve its own writing style / presentation style.

# Navigation

John Doe

[REDACTED]

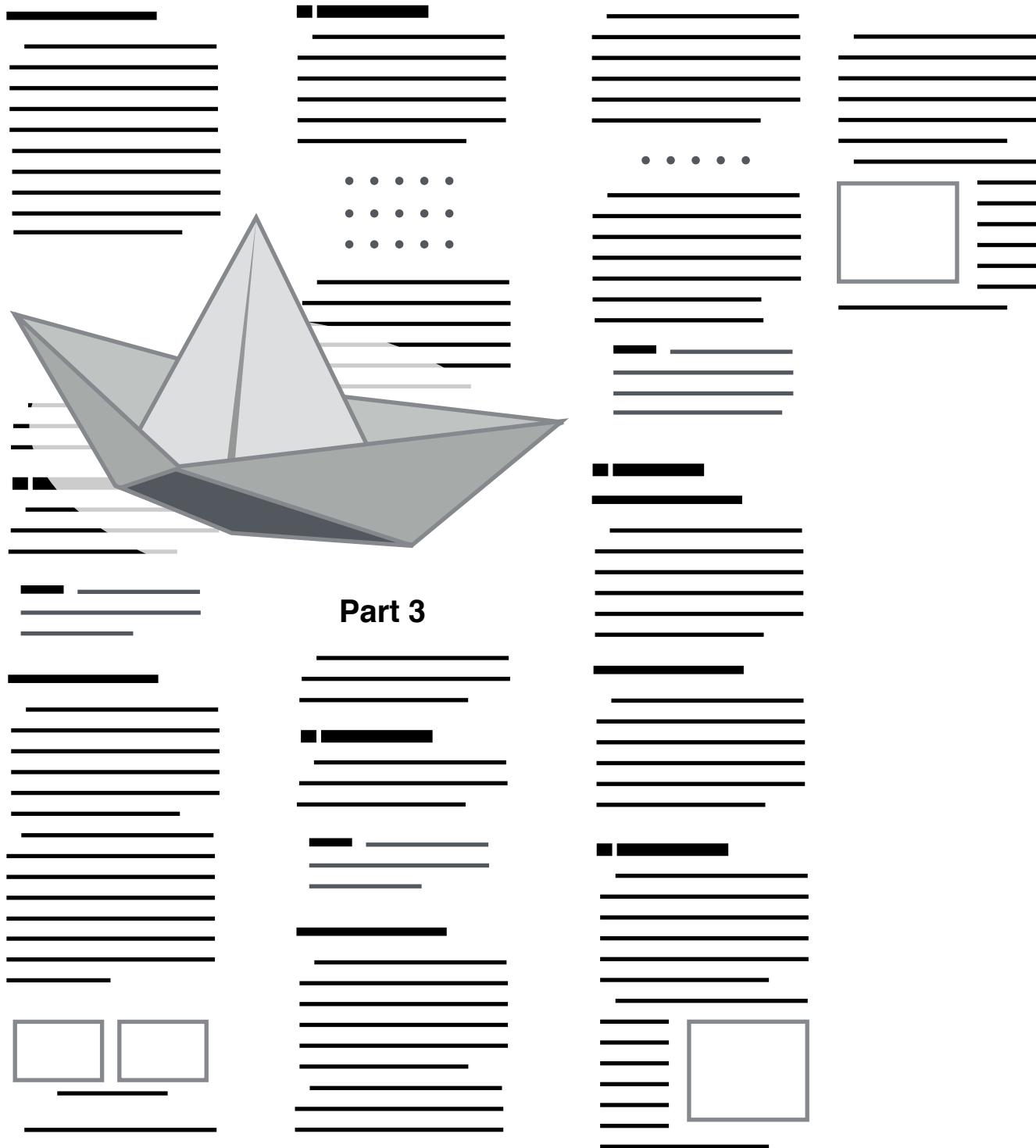
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



How do you  
navigate  
in a document?

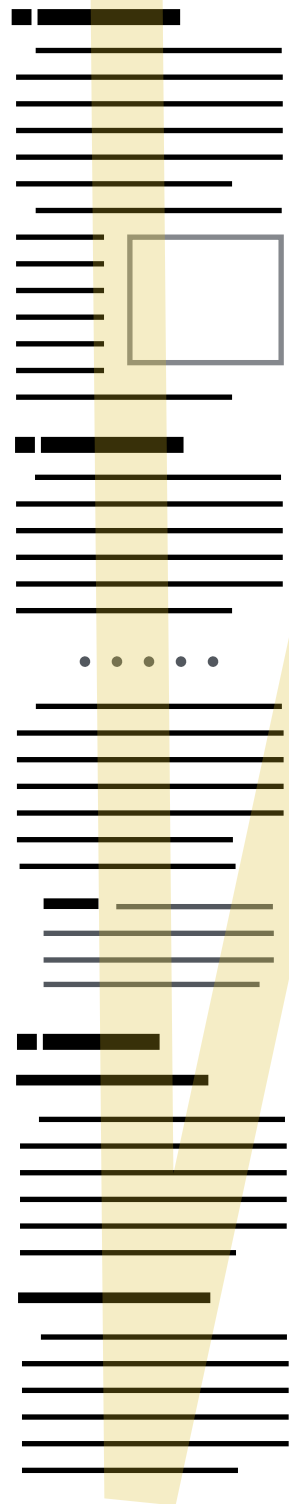
(and how others do?)

# How do we read a document ?

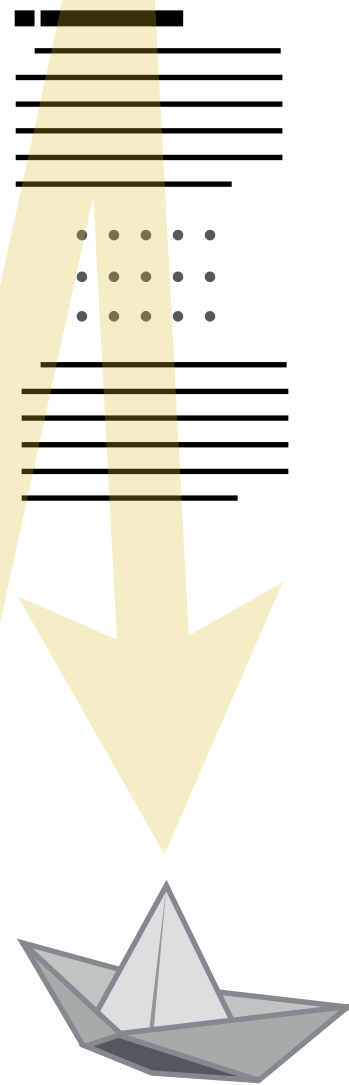
**My PhD**

John Doe

## Part 1



## Part 2



Like a novel...

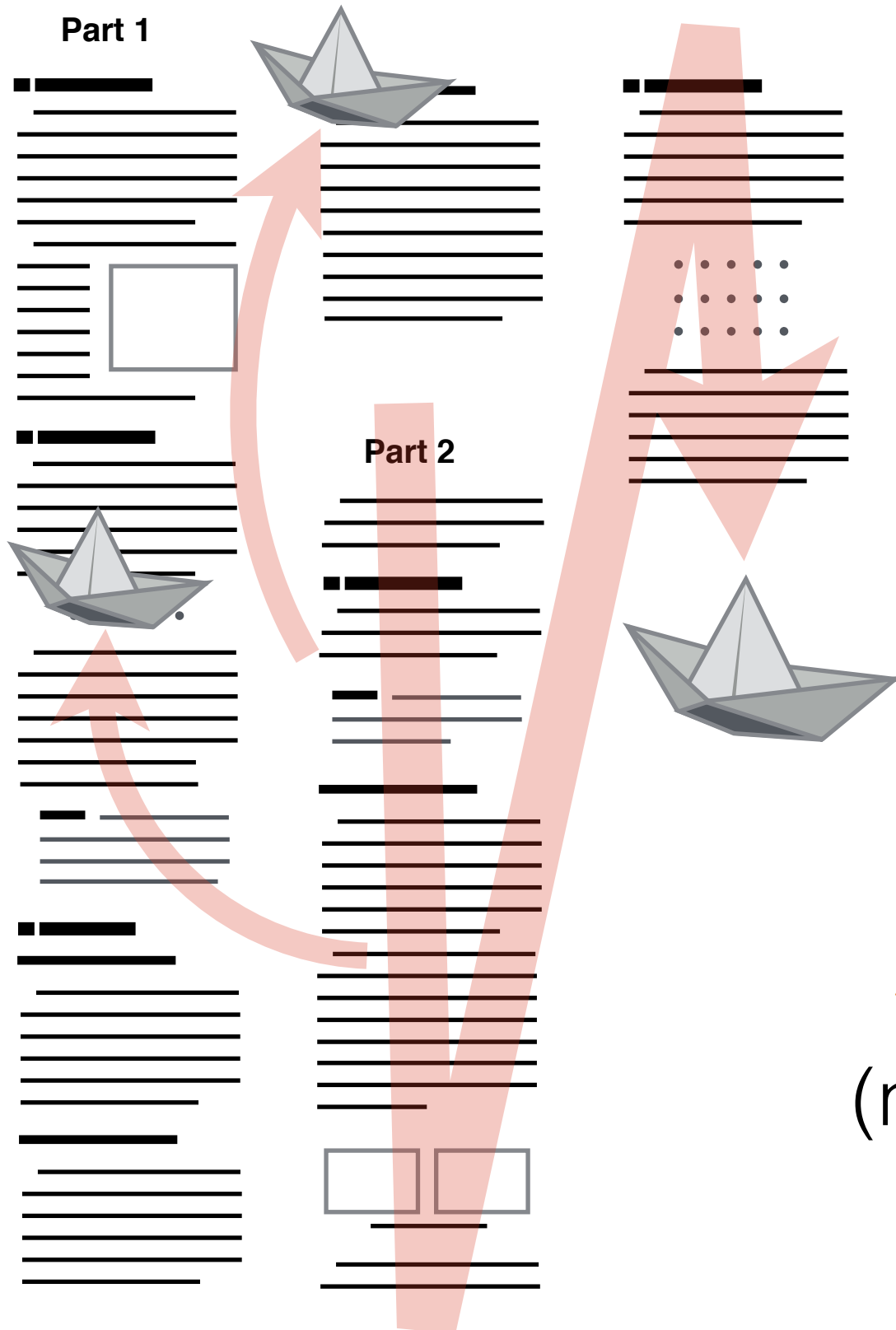
- The reader reads every line in the proper order.
- It is expected that there are no future dependencies (or these should be rare and very explicit).
- most notations should be introduced as recently as possible (for the resource consumption of reader's registers).

# How do we read a document ?

**My PhD**

John Doe

**Part 1**



Like a collection of a short stories

- The reader reads the part he is interested in.
- She/he has to be able to resolve dependencies and find missing definitions.

**An index is absolutely mandatory.**

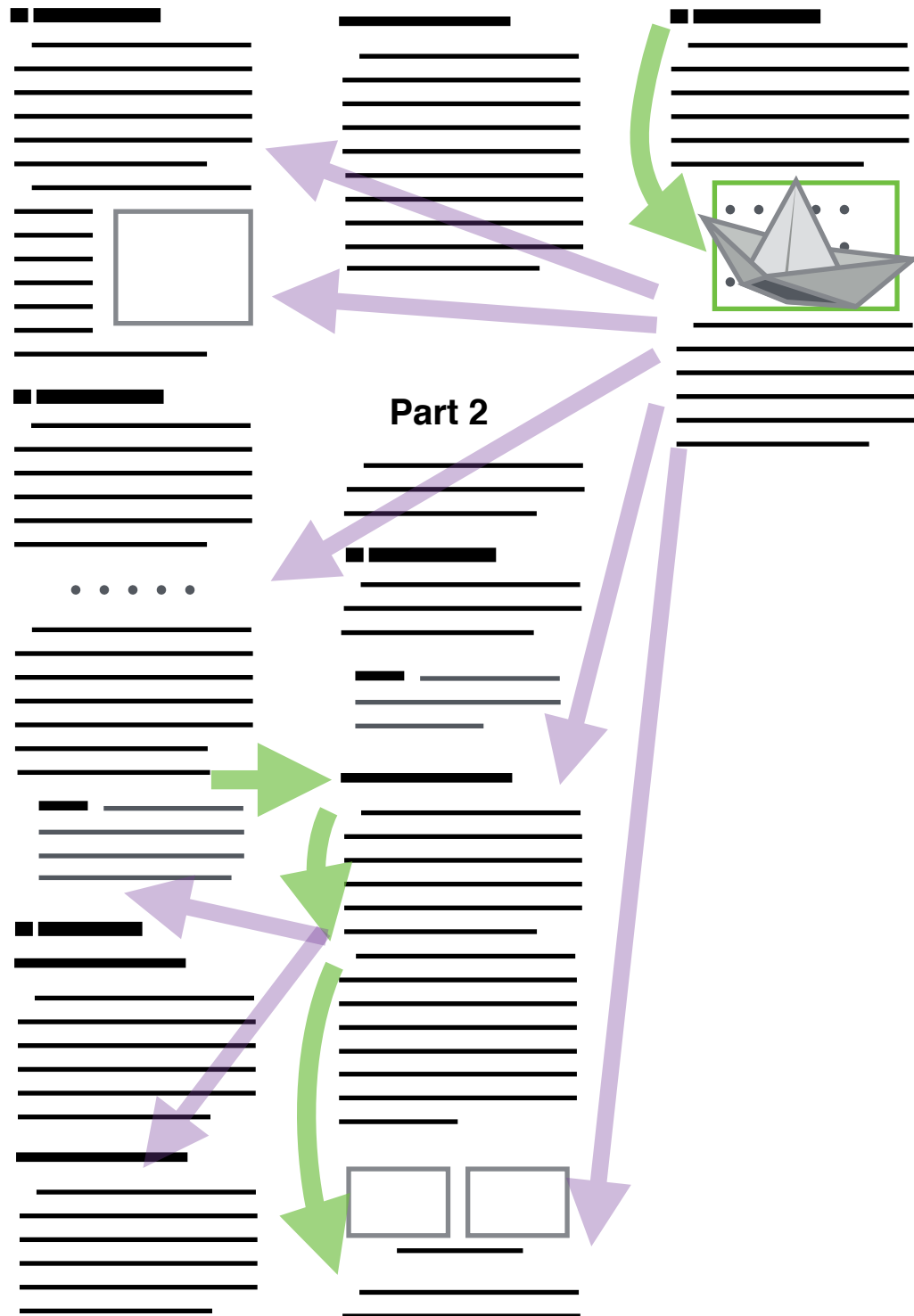
(note that an index has to be done **while writing**, not after)

# How do we read a document ?

**My PhD**

John Doe

## Part 1



Searching for something

Browse through the content

- The reader starts somewhere.
- She/he jumps from block to block.
- And goes backward or forward for gaining understanding.

**An index is absolutely mandatory.**

**A table of contents is absolutely mandatory.**



Part 1

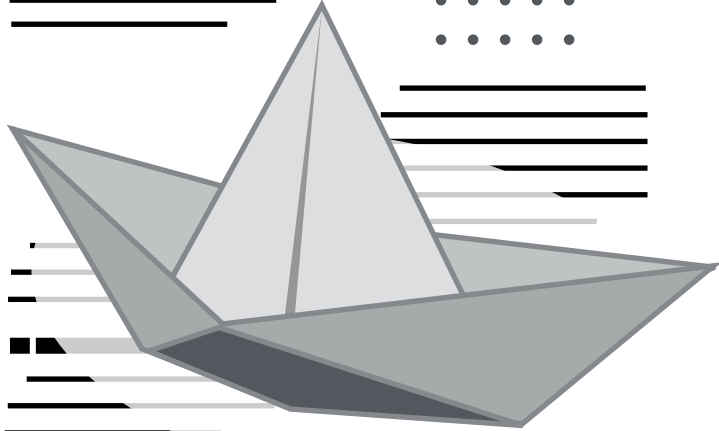
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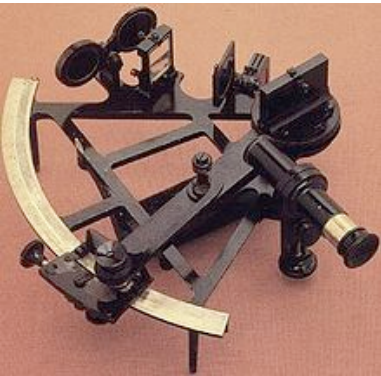


Part 3

[Redacted text block]

[Redacted text block]

[Redacted text block]

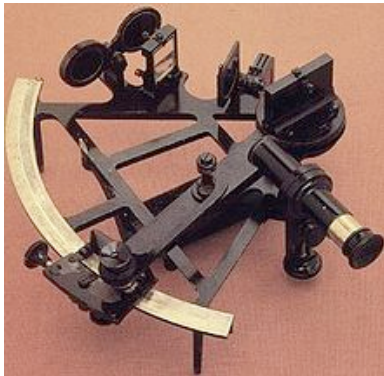


You should help the reader to navigate.





# In a few words



The reader should always know where she/he is.

Every part of the structure of the document should have clear purpose.



The reader needs to know precisely where to go.

Some examples

## The main definition



## The logic FO[wheel]



Every part of the structure of the document should have clear purpose.

- titles of subsections/sections have to be explicit  
Hence looking at the TOC helps easy navigation

The reader should be aware that it would not be possible to use pullbacks for the purpose of our theory. Thus we define *a carrot* as a directed limit of cabbages.



The reader should be aware that it would not be possible to use pullbacks for the purpose of our theory. This justifies the following definition.

We define *a carrot* as a directed limit of cabbages.



Every part of the structure of the document should have clear purpose.

→ paragraphs are ‘**typed**’ (definition/part of a proof/statement/comment) for instance, a definition should not appear in a comment-type block (the reader searching for a definition would skip the block).

## **Some results**

Lemma ...

Proposition ...



## **Some results**

In this section, we provide a list of results describing the properties of cauliflowers.

Our first result ...

Lemma ...

Our second result ...

Proposition ...



The reader should always know where she/he is.

Every part of the structure of the document should have clear purpose.

In this chapter, we prove our main result: it states that all the pineapples form a meaningful concept.



In this chapter, we prove our main result, Theorem 3.4 (page 456): it states that the pineapples form a meaningful concept.



The reader needs to know precisely where to go.

- it is not obvious from a description to find the corresponding statement. It is time and energy consuming for the reader.
- The document should provide the navigation information.

## Some results

The goal of this section if to  
prove Lemma 3.2, ...

[...]

Lemma 3.2 ...

[...]

Proposition 3.3 ...



## Some results

The goal of this section if to  
prove Lemma 3.2 and  
Proposition 3.3, ...

[...]

Lemma 3.2 ...

[...]

Proposition 3.3 ...



The reader should always know where she/he is.

Every part of the structure of the document should have clear purpose.

→ A result that is not announced is as good as non-existing.  
(the reader searching for it will skip the section)



# The knowledge package

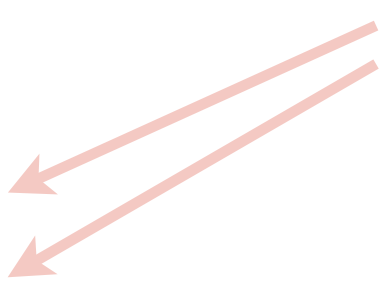
# The knowledge package

A package designed for **LaTeX** available in (all ?) distributions.

Used for easing:

- indexing
- adding internal hyperlinks
- adding external hyperlinks
- handling high level notions

Interesting for producing documents read on a computer.



Meant to be **non-interfering** with the writing itself .

Documentation is on your computer:

```
> texdoc knowledge
```

I am doing the customer service.

# The knowledge package

because features  
are enabled by  
other packages

already in your distribution,  
or use the file  
knowledge.sty

```
\documentclass{...}  
\usepackage{xcolor}  
\usepackage{hyperref}  
\usepackage{makeidx}  
\usepackage[notion,quotation,composition]{knowledge}  
...
```

this is a convenient  
configuration for scientific  
documents

to change to  
- paper, or  
- electronic  
when the document is ready.

# Writing the document

`\begin{document}`

The document is written as usual.

But sometimes one introduces ""concepts"",  
that are indicated by double quotes.

[...]

And later in the document, one can use  
a "concept" using simple quotes.

During this phase, the document can be compiled  
as usually. This should have required almost zero  
overhead at this time.

`\end{document}`

# Using knowledge

`\knowledge{notion,index=concept}`

- | concept
- | concepts
- | Concepts

Add commands in the index for telling what to do with the pieces of knowledge.

`\begin{document}`

The document is written as usual.

But sometimes one introduces `"concepts"`, that are indicated by double quotes.

[...]

And later in the document, one can use a "concept" using simple quotes.

During this phase, the document can be compiled as usually. This should have required almost zero overhead at this time.

Read the file

**filename.diagnose**  
in order to see all the unknown knowledges.

`\makeindex`

`\end{document}`

In this case, the use of concept will point to the definition, and the index will keep track of all uses.

# Some more stuff

- the command `\AP` helps precise target links in a pdf
- quotes/doublequotes are abbreviations for `\kl` and `\intro`
- quotations can be explicitly or automatically deactivated when needed.
- the `@` notation allows links **The main "object@group" of this section...**
- `@@` allows contextual notions
- ...

The end (for now)