1 Demo of proofAtTheEnd

NB: This file is just a demo of proofAtTheEnd. You can find the documentation, sources, and example of proofAtTheEnd at `https://github.com/leo-colisson/proofAtTheEnd`.

Theorem 1.1 (Yes I can have a title)**.** *Simplicity is luxury, I am a default theorem.*

Proof. Let's be simple. □

And I can refer to my theorems using classic labels, like in Theorem 1.1.

Theorem 1.2 (Different categories)**.** *You can also create several categories, and put the proofs in different sections.*

$$2\Delta = \Delta + \Delta$$

See proof on page 4

Theorem 1.3 (I am restatable)**.** *I am a restatable theorem, go in Appendix you will see ;-)*

Proof. I am a proof of a restatable theorem. □

Theorem 1.4. *You can easily turn it back into a normal theorem!*

Proof. And keep the proof with you! □

You can also put comments that appear only in the appendix.
Or that appears in both and with references Theorem 4.1!

Theorem 1.5. *And you can duplicate the proof, here AND in appendix ;)*

Proof. I am a proof that is everywhere, practical if you want to use synctex while you write the proof ;) □

Lemma 1.6. *You can mix it with lemmas... Or any other theorem-like environment easily!*

Proof. See, I'm the proof of a lemma! □

And also you can put both the theorem and the proof at the end, like for Theorem 4.1!
You can also remove the link to the theorem:

Theorem 1.7. *I don't like links in proofs.*

Proof. Yes, I like being lost, but not too lost, so I prefer to restate as well! □

Or keep the link, but remove the reference (practical for stared versions):

Theorem. *I don't like numbers.*

Proof. Yes, I hate numbers, but I like links. □

Theorem 1.8. *Change the text/languages of the link: Il est même possible de changer la langue du texte du lien!*

Proof. Si c'est pas beau ;) □

And of course it is easy to define custom shortcuts, using in prelude:

```
\NewDocumentEnvironment{frenchthm}{O{}+b}{%
  \begin{theoremEnd}[french]{thm}[#1]%
    #2%
  \end{theoremEnd}%
}
```

Theorem 1.9 (My own environment)**.** *You can then create your own environment from other styles using*

Proof. That's quicker :D □

Theorem 1.10 (My own environment)**.** *You can use options also with your custom environments.*

See proof on page 3

Theorem 1.11. *And you can remove the title and have options.*

See proof on page 3

Theorem 1.12 (Yes I can have no proof)**.** *Proof is useless. You can do do it. And see, I can include other environments inside me ;)*

A *B*
C *D*

Theorem 1.13 (Manual restate)**.** *A theorem can be manually restated*

Proof. Use restate command for that! (see section 6 for an example) □

Theorem 1.14. *I can also write a sketch of proof, and put the full proof in appendix.*

Proof. Hint: look at the alias options. □

Proof. You just use "see full proof" as an option □

2 Section with restate before theorem

Theorem 3.1 (Title)**.** *This theorem has been introduced in section 2 before the real definition, but the real definition is in section 3, more precisely here: Theorem 3.1.*

Theorem 2.1. *And this is a normal theorem*

Proof. With a normal proof □

3 Section with late theorems

Theorem 3.1 (Title)**.** *This theorem has been introduced in section 2 before the real definition, but the real definition is in section 3, more precisely here: Theorem 3.1.*

Proof. To state a theorem before the initial definition, use theoremEndRestateBefore environment where you first want to state the theorem, with a unique name in the second mandatory argument, and when you want to insert the theorem for the second time, use the usual theoremProofEnd command with the same unique name as before in place of the theorem definition and the "restated before" option. □

4 Section with standard proofs

Theorem 1.3 (I am restatable)**.** *I am a restatable theorem, go in Appendix you will see ;-)*

See, I am a simple comments with math $\delta = b^2 - ac$ and references Theorem 4.1. You can also use the environment syntax. Or that appears in both and with references Theorem 4.1!

Theorem 4.1. $\delta = b^2 - 4ac$ *You can also put theorems only at the end.*

Proof of Theorem 4.1. See, I'm the proof of a lemma that is only at the end! □

Theorem 1.7. *I don't like links in proofs.*

Proof of Theorem 1.10. That's quicker with the proof at the end :D □

Proof of Theorem 1.11. Just leave empty title. □

Theorem 4.2 (My second own environment)**.** *My normal theorem is moved at the end!*

Proof of Theorem 4.2. Custom environments are practical no ;) □

5 Section with important proofs only

Proof of Theorem 1.2. See, I am in another section! And I refer to Theorem 1.1 even in the proof. □

6 Section with manual restate

I like to manually restate theorems:

Theorem 1.13 (Manual restate)**.** *A theorem can be manually restated*