Isabelle document preparation with Springer LaTeX LNCS style

Makarius Wenzel[0000−0002−3753−8280]

Augsburg, Germany
https://sketis.net

Abstract. Isabelle is a formal document preparation system. This example shows how to use it together with the Springer LaTeX LNCS style. See https://www.springer.com/gp/computer-science/lncs/conference-proceedings-guidelines for further information.

Keywords: Document preparation

1 Some section

1.1 Some subsection

1.2 Some subsubsection

Some subsubsubsection

A paragraph. Informal bla bla.

definition *foo* = *True* — side remark on *Document.foo*

definition *bar* = *False* — side remark on *Document.bar*

lemma *foo* ⟨*proof*⟩

Another paragraph. See also [1, §3].

2 Formal proof of Cantor's theorem

Cantor's Theorem states that there is no surjection from a set to its powerset. The proof works by diagonalization. E.g. see

- http://mathworld.wolfram.com/CantorDiagonalMethod.html
- https://en.wikipedia.org/wiki/Cantor%27s%5fdiagonal%5fargument

theorem *Cantor*: $\nexists f :: 'a \Rightarrow 'a\ set.\ \forall A.\ \exists x.\ A = f\ x$
proof
  assume $\exists f :: 'a \Rightarrow 'a\ set.\ \forall A.\ \exists x.\ A = f\ x$
  then obtain $f :: 'a \Rightarrow 'a\ set$ **where** $*$: $\forall A.\ \exists x.\ A = f\ x$ **..**
  let *?D* $= \{x.\ x \notin f\ x\}$
  from $*$ **obtain** a **where** *?D* $= f\ a$ **by** *blast*
  moreover have $a \in$ *?D* $\longleftrightarrow a \notin f\ a$ **by** *blast*
  ultimately show *False* **by** *blast*
qed

2.1 Lorem ipsum dolor

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec id ipsum sapien. Vivamus malesuada enim nibh, a tristique nisi sodales ac. Praesent ut sem consectetur, interdum tellus ac, sodales nulla. Quisque vel diam at risus tempus tempor eget a tortor. Suspendisse potenti. Nulla erat lacus, dignissim sed volutpat nec, feugiat non leo. Nunc blandit et justo sed venenatis. Donec scelerisque placerat magna, et congue nulla convallis vel. Cras tristique dolor consequat dolor tristique rutrum. Suspendisse ultrices sem nibh, et suscipit felis ultricies at. Aliquam venenatis est vel nulla efficitur ornare. Lorem ipsum dolor sit amet, consectetur adipiscing elit.

Acknowledgments. Isabelle/Scala was of great help to assemble the `llncs` system component; see also `~~/src/Pure/Admin/component_llncs.scala` and `$ISABELLE_LLNCS_HOME`.

Disclosure of Interests. I have a long-standing interest in the wealth and prosperity of the Isabelle open-source project.

References

1. Wenzel, M.: The Isabelle System Manual, `https://isabelle.in.tum.de/doc/system.pdf`