

# Contribution Title

First Author<sup>1</sup>[0000–1111–2222–3333], Second Author<sup>2,3</sup>[1111–2222–3333–4444], and  
Third Author<sup>3</sup>[2222–3333–4444–5555]

<sup>1</sup> Princeton University, Princeton NJ 08544, USA

<sup>2</sup> Springer Heidelberg, Tiergartenstr. 17, 69121 Heidelberg, Germany  
`lncs@springer.com`

<http://www.springer.com/gp/computer-science/lncs>

<sup>3</sup> ABC Institute, Rupert-Karls-University Heidelberg, Heidelberg, Germany  
`{abc,lncs}@uni-heidelberg.de`

**Abstract.** Tableaux proof are used in automated "proofers" as (TODO), whereas sequent calculus proofs are used in proof assistants as (TODO). This work aims to present a systematic algorithm for translating tableaux proofs into sequent calculus proofs. It begins with an overview of the definitions underlying such translations in both intuitionistic and classical logic. It then shows a translation process in classical logic, along with its properties. Finally, potential extensions toward translations in intuitionistic logic are explored.

**Keywords:** Tableaux proof · sequent calculus · intuitionistic logic.

## 1 Underlying concepts

The syntax and semantics from both classical and intuitionistic logic is based on [2]. In this work, sentences won't have function symbols.

### 1.1 Language

#### Definition 1.

A *Language*  $\mathcal{L}$  is a set of symbols, including:

- *parentheses* ( and )
- *logical connectives*  $\neg, \wedge, \vee, \rightarrow$
- *variable symbols*  $x, y, z, \dots$
- *constant symbols*  $c_1, c_2, \dots$
- *function symbols*  $p, q, r, \dots$
- *quantifier symbols*  $\forall, \exists$
- *predicate symbols*  $P, Q, R, \dots$

( )Every predicate is a formula, and if )Sentences ...

**1.2 Truth in classical logic****1.3 Truth in intuitionistic logic****Kripke structures**

**Definition 2.** *A kripke structure is a s*

**Kripke Frames**

**Definition 3.** *Kripe*

**Table 1.** Table captions should be placed above the tables.

Heading level	Example	Font size and style
Title (centered)	<b>Lecture Notes</b>	14 point, bold
1st-level heading	<b>1 Introduction</b>	12 point, bold
2nd-level heading	<b>2.1 Printing Area</b>	10 point, bold
3rd-level heading	<b>Run-in Heading in Bold.</b> Text follows	10 point, bold
4th-level heading	<i>Lowest Level Heading.</i> Text follows	10 point, italic

Displayed equations are centered and set on a separate line.

$$x + y = z \tag{1}$$

Please try to avoid rasterized images for line-art diagrams and schemas. Whenever possible, use vector graphics instead (see Fig. 1).

.png

**Fig. 1.** A figure caption is always placed below the illustration. Please note that short captions are centered, while long ones are justified by the macro package automatically.

**Theorem 1.** *This is a sample theorem. The run-in heading is set in bold, while the following text appears in italics. Definitions, lemmas, propositions, and corollaries are styled the same way.*

*Proof.* Proofs, examples, and remarks have the initial word in italics, while the following text appears in normal font.

For citations of references, we prefer the use of square brackets and consecutive numbers. Citations using labels or the author/year convention are also acceptable. The following bibliography provides a sample reference list with entries for journal articles [3], an LNCS chapter [4], a book [5], proceedings without editors [6], and a homepage [7]. Multiple citations are grouped [3–5], [3, 5–7].

**Acknowledgments.** A bold run-in heading in small font size at the end of the paper is used for general acknowledgments, for example: This study was funded by X (grant number Y).

**Disclosure of Interests.** It is now necessary to declare any competing interests or to specifically state that the authors have no competing interests. Please place the statement with a bold run-in heading in small font size beneath the (optional) acknowledgments<sup>4</sup>, for example: The authors have no competing interests to declare that are relevant to the content of this article. Or: Author A has received research grants from Company W. Author B has received a speaker honorarium from Company X and owns stock in Company Y. Author C is a member of committee Z.

## References

1. Nerode, A., Shore, R.A.: Logic for Applications. 2nd edn. Texts in Computer Science. Springer, New York, NY (1997). <https://doi.org/10.1007/978-1-4612-0649-1>
2. Dummett, M.: Elements of Intuitionism. Oxford Logic Guides. Clarendon Press (2000). <https://books.google.fr/books?id=JVFzknGBVAC>
3. Author, F.: Article title. Journal **2**(5), 99–110 (2016)
4. Author, F., Author, S.: Title of a proceedings paper. In: Editor, F., Editor, S. (eds.) CONFERENCE 2016, LNCS, vol. 9999, pp. 1–13. Springer, Heidelberg (2016). <https://doi.org/10.1007/1234567890>
5. Author, F., Author, S., Author, T.: Book title. 2nd edn. Publisher, Location (1999)
6. Author, A.-B.: Contribution title. In: 9th International Proceedings on Proceedings, pp. 1–2. Publisher, Location (2010)
7. LNCS Homepage, <http://www.springer.com/lncs>, last accessed 2023/10/25

---

<sup>4</sup> If EquinOCS, our proceedings submission system, is used, then the disclaimer can be provided directly in the system.