

C1ick \wp c \otimes LLec \perp

Interactive linear logic prover

Etienne CALLIES

etienne.callies@ens-lyon.fr

Olivier LAURENT

olivier.laurent@ens-lyon.fr

TLLA 2021

1. Motivations
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3. Next steps

1. MOTIVATIONS

A linear logic tool for both
beginners & experts

- Intuitive UI
- Faster than writing a proof by hand
- Reliable
- Basic & advanced features

Derivation rules

$$\frac{}{\vdash A, A^\perp} ax$$

$$\frac{}{\vdash 1} 1$$

$$\frac{\vdash \Gamma, \Delta}{\vdash \Gamma, \perp, \Delta} \perp$$

$$\frac{}{\vdash \Gamma, \top, \Delta} \top$$

$$\frac{\vdash \Gamma, A \quad \vdash B, \Delta}{\vdash \Gamma, A \otimes B, \Delta} \otimes$$

$$\frac{\vdash \Gamma, A, B, \Delta}{\vdash \Gamma, A \wp B, \Delta} \wp$$

$$\frac{\vdash \Gamma, A, \Delta \quad \vdash \Gamma, B, \Delta}{\vdash \Gamma, A \& B, \Delta} \&$$

$$\frac{\vdash \Gamma, A, \Delta}{\vdash \Gamma, A \oplus B, \Delta} \oplus_1$$

$$\frac{\vdash \Gamma, B, \Delta}{\vdash \Gamma, A \oplus B, \Delta} \oplus_2$$

$$\frac{\vdash ?\Gamma, A, ?\Delta}{\vdash ?\Gamma, !A, ?\Delta} !$$

$$\frac{\vdash \Gamma, \Delta}{\vdash \Gamma, ?A, \Delta} ?w$$

$$\frac{\vdash \Gamma, A, \Delta}{\vdash \Gamma, ?A, \Delta} ?d$$

$$\frac{\vdash \Gamma, ?A, ?A, \Delta}{\vdash \Gamma, ?A, \Delta} ?c$$

$$\frac{\vdash \Gamma, A \quad \vdash A^\perp, \Delta}{\vdash \Gamma, \Delta} cut$$

2. Demo !

Connectives:

$A \otimes A^\perp$

$A \otimes B \vdash A \otimes B$

$\top, 0$

$1, ?A$

$A, B, A^\perp \otimes B^\perp, \perp$

cut

Provability check & auto-prover:

$1 \oplus \perp, 1, 1$

$1 \oplus \perp, 1, ?1$

$1 \oplus \perp, 1, 1, ?1$


Notations:

A, B

integers

3. NEXT STEPS

- Proof transformations :
 - axiom expansion
 - cut elimination
 - focusing

- Visit our github 

Thank you!

<https://click-and-collect.linear-logic.org/>

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