

REDO — Redesigning Logical Syntax

- *What is it about ?*

Proofs are everywhere! — We are trying to improve them.

- *What is the problem ?*

Remove bureaucracy but keep the computational content.

- *Our tools:*

deep inference, proof nets, focussing, games semantics, . . .

- *An example:*

$$\begin{array}{c} \text{id} \frac{}{\vdash a, a^\perp} \quad \text{id} \frac{}{\vdash a^\perp, a} \\ \otimes \frac{}{\vdash a, a^\perp \otimes a^\perp, a} \\ \text{exch} \frac{}{\vdash a, a, a^\perp \otimes a^\perp} \\ \text{id} \frac{}{\vdash a^\perp, a} \quad \wp \frac{}{\vdash a, a \wp(a^\perp \otimes a^\perp)} \\ \otimes \frac{}{\vdash a^\perp, a \otimes a, a \wp(a^\perp \otimes a^\perp)} \\ \wp \frac{}{\vdash a^\perp \wp(a \otimes a), a \wp(a^\perp \otimes a^\perp)} \end{array} \rightarrow \begin{array}{c} \text{id} \frac{}{\vdash a, a^\perp} \quad \text{id} \frac{}{\vdash a^\perp, a} \\ \otimes \frac{}{\vdash a, a^\perp \otimes a^\perp, a} \\ \text{exch} \frac{}{\vdash a, a, a^\perp \otimes a^\perp} \\ \text{id} \frac{}{\vdash a^\perp, a} \quad \wp \frac{}{\vdash a, a \wp(a^\perp \otimes a^\perp)} \\ \otimes \frac{}{\vdash a^\perp, a \otimes a, a \wp(a^\perp \otimes a^\perp)} \\ \wp \frac{}{\vdash a^\perp \wp(a \otimes a), a \wp(a^\perp \otimes a^\perp)} \end{array} \rightarrow \begin{array}{c} \vdash a^\perp \wp(a \otimes a), a \wp(a^\perp \otimes a^\perp) \\ \xrightarrow{\quad} \\ \begin{array}{c} a^\perp \quad a \\ \diagdown \quad \diagup \\ \otimes \\ \diagup \quad \diagdown \\ a \quad a^\perp \end{array} \quad \begin{array}{c} a \quad a^\perp \\ \diagup \quad \diagdown \\ \otimes \\ \diagup \quad \diagdown \\ a^\perp \quad a \end{array} \end{array}$$

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- *Participating groups:* INRIA Saclay – Île-de-France (EPI Parsifal)
INRIA Nancy – Grand Est (EPI Calligramme, EPI Pareo)
University of Bath (Computer Science Department)
- *16 researchers:* 8 senior researchers and 8 PhD students
- *Webpage:* <http://www.lix.polytechnique.fr/Labo/Lutz.Strassburger/orgs/redo.html>
- *Related Projects:* ANR Infer: <http://www.lix.polytechnique.fr/Labo/Lutz.Strassburger/orgs/infer.html>
ANR Démosthène: <http://demosthene.loria.fr/>
- *Events:* 26–29 May 2009: First REDO Meeting at LIX, Palaiseau
20–24 July 2009: Workshop “Structures and Deduction’09” at ESSLLI’09, Bordeaux