

CL 2002:

Computational Logic

(Lecture 9)

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November 19, 2002

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This lecture plan

1. Emulated lambda-abstraction and beta-reduction in combinatory logic.
2. Untyped combinatory logic. Infinite reduction trees.
3. Simply typed lambda-calculus. Substitution (the example given was in fact untyped, but this did not matter for the substitution purposes). Natural and sequent formulations.
4. Curry-Howard isomorphism of natural derivations and typed lambda-terms.
5. Beta and eta reductions. Church-Rosser property and strong normalization.
6. Untyped lambda-calculus. Church numerals and representation of all computable functions.