Computable Functions

Formal Descriptions

Turing machines, λ-calculus, partial recursive functions

Operational Semantics

$$f(a) \longrightarrow \textbf{result}$$

Denotational Semantics Program phrases interpreted as elements of some suitable mathematical structure.

Programming Language

λ-calculus $\xrightarrow{\text{types, other features}}$ the programming language ML
Milner, Tofte, 1980s

Summary of Course

The λ-calculus

equality and reduction

representing simple data types

recursive equations

λ-calculus and the (total) recursive functions

simple type theory

Implementation methods

ISWIM $\longrightarrow$ λ-calculus $\longrightarrow$ SECD machine

λ-calculus $\longrightarrow$ de Bruijn notation

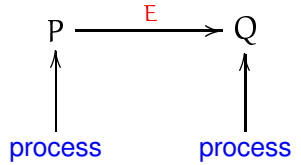
λ-calculus $\longrightarrow$ combinators $\longrightarrow$ graph reduction

Interaction continued

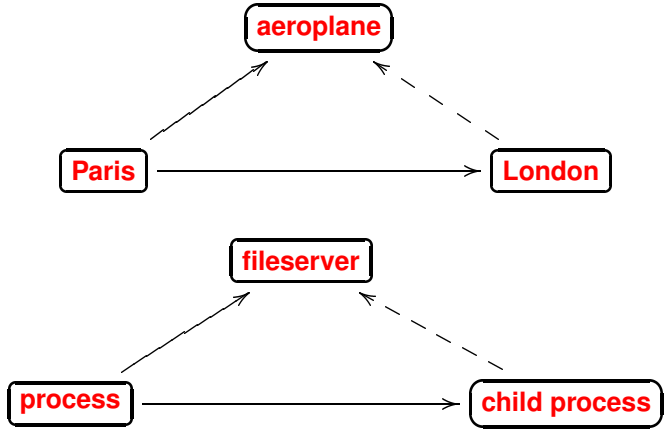
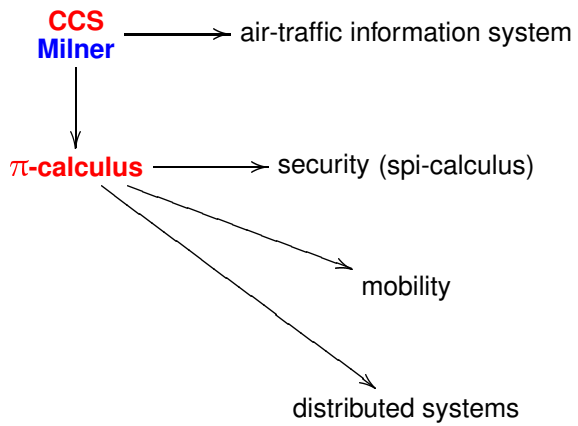
Formal description

π-calculus **Milner, 1980s**

Operational Semantics



Interaction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