Component-based semantics for Caml Light

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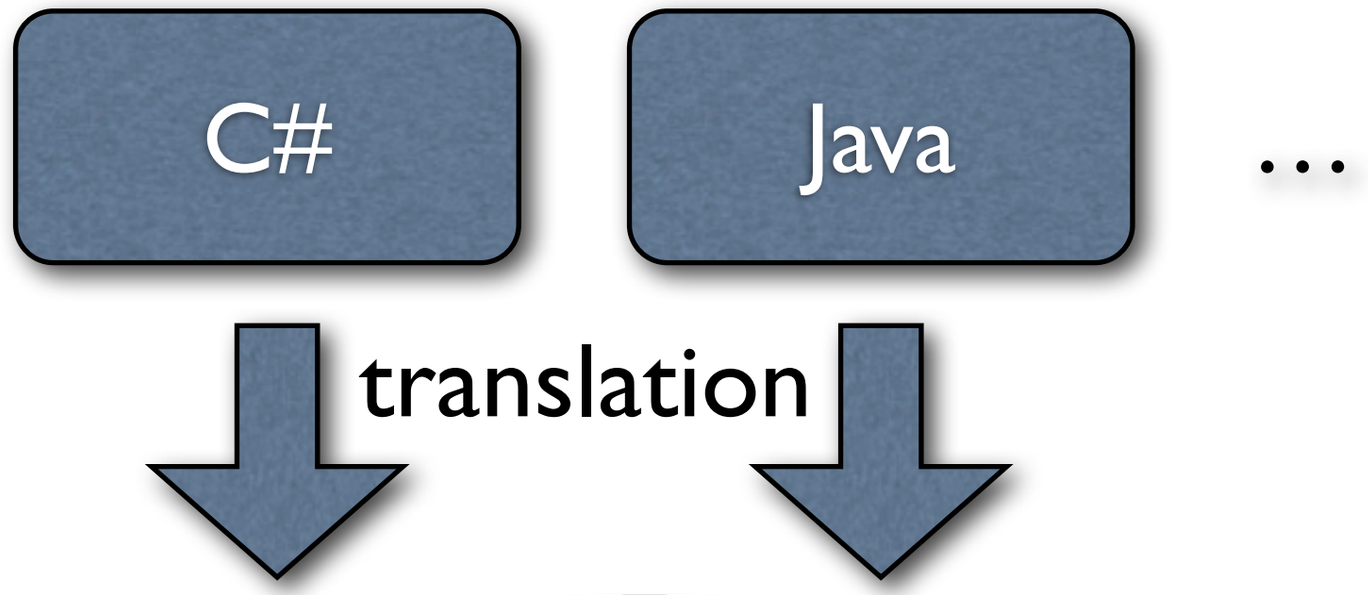
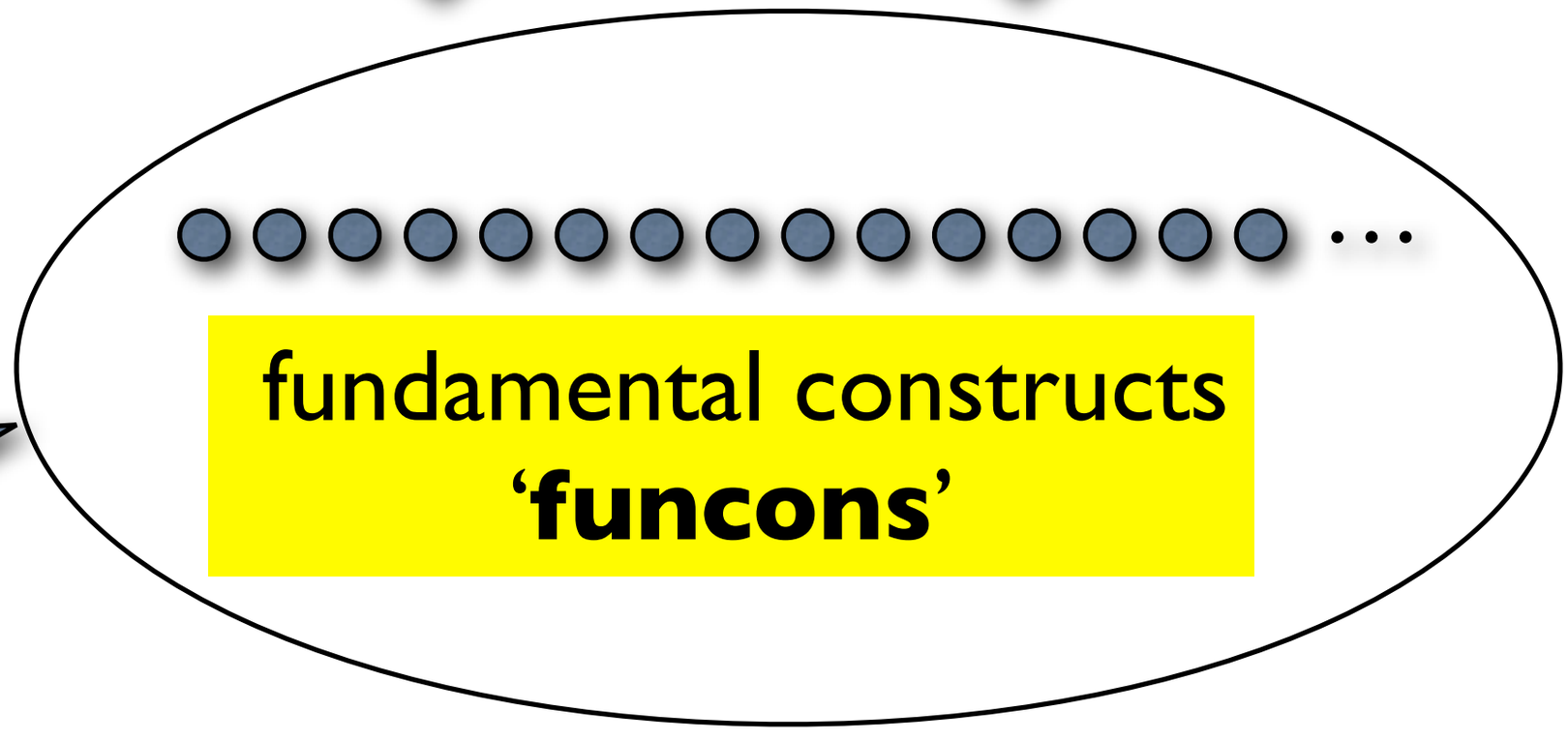
PLANCOMPS

Programming Languages (incl. DSLs)



Components and their Specifications

reusable



Component-based specifications

Syntax (concrete, abstract)

- BNF + regular expressions

Semantics (static, dynamic)

- context-free translation to funcons

Funcons

- Modular SOS rules
- modular bisimilarity theory

Caml Light

OCaml (Objective Caml, F#)

- a popular OO functional language

Caml Light

- a pedagogical sublanguage of **Caml** ~ Core SML
- **OCaml Light** defined in SOS using Ott by Scott Owens [ESOP 2009]
- **Caml Light** defined in Pretty-Big-Step SOS by Arthur Charguéraud usng Coq [ESOP 2013]

Funcon specifications

Structural Operational Semantics?
Reduction Semantics?

- non-modular ☹

Modular SOS?

- modular ☺, but requires *explicit* labels ☹

Implicitly-Modular SOS?

- modular ☺, and labels are left *implicit* ☺

Preliminary tool support

Editing language specifications :

- **Spoofax/Eclipse**

Parsing, translation to funcons :

- **ASF+SDF** (migrating to **Spoofax**)

Funcon interpretation :

- **Prolog**

Interactive

PLANCOMPS

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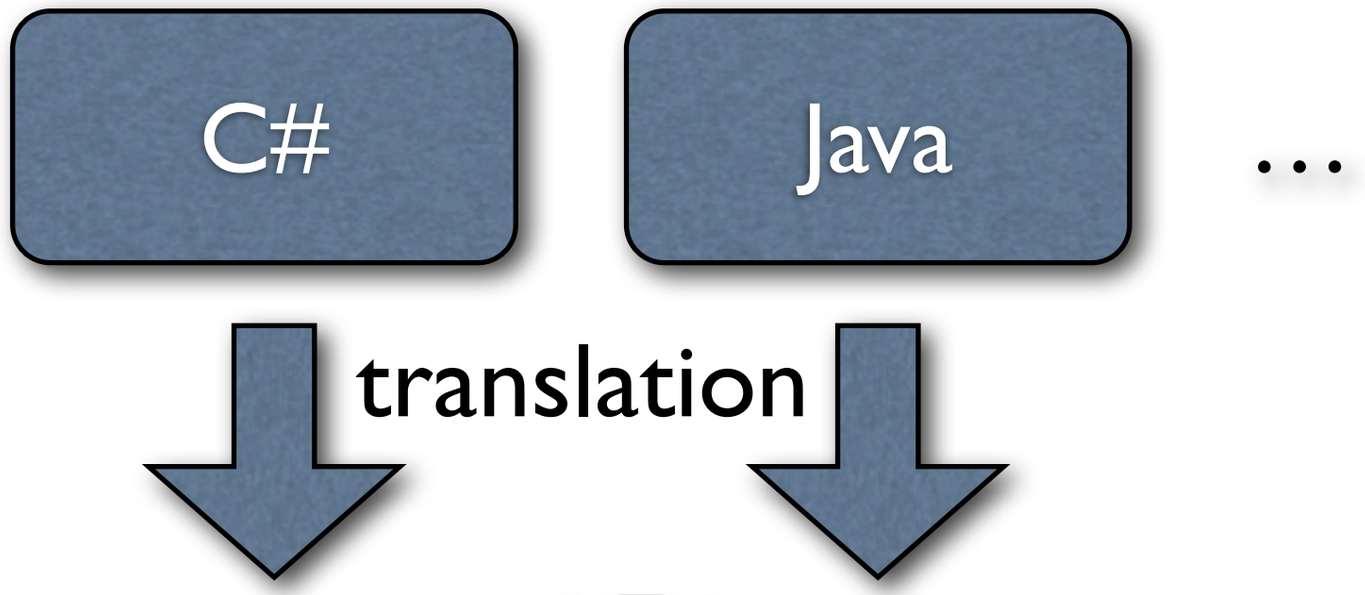

Components and their Specifications

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