Parsing Composed Grammars with Language Boxes

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2013-08-24
Our problem

Titian: Sisyphus
Designing a perfect programming language
We want **better** programming languages
Our problem

We want better programming languages

But better always seems to end up bigger
A solution?

Titian: Pesaro Madonna

Language composition as salvation?
A solution?

Language composition as salvation?
Language composition \( \triangleq \) mixing languages together
Language composition

Here and now
Roadmap

Language composition

Editing

Running

Here and now
Should be easy
Parsing composition

- LR
- Earley
- PEG
• **LR** composition undefined (in general).
• Earley

• **PEG**
- **LR** composition undefined (in general).
- **Earley** composition ambiguous (in general).
- **PEG**
- LR composition undefined (in general).
- Earley composition ambiguous (in general).
- PEG composition can shadow (in general).
The only choice?

SDE
Challenge: SDE’s power + a text editor feel?
Designing a perfect programming language
Language composition as salvation?
Summary

Parsing: problematic
Summary

Parsing: problematic

SDE: intolerable
Incremental parsing + language boxes
Incremental parsing +
language boxes
\[ \triangleq \]
Feel of traditional text editing +
SDE-like functionality
What’s next

Language composition

Editing  Running

Here and now
What's next

Language composition

Useability

Editing → Running

Here and now
What’s next

Language composition

Editing — Meta-tracing

Useability — Here and now

Running
Language composition

Here and now

Editing

Running

Useability

Oracle Labs

Meta-tracing

EPSRC Cooler

What’s next

Software Development Team

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http://soft-dev.org/
Thank you for listening

http://soft-dev.org/