Parsing Composed Grammars with Language Boxes

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Our problem

Titian: Sisyphus

Designing a perfect programming language
Our problem

Designing a perfect programming language

Titian: Sisyphus

Software Development Team
http://soft-dev.org/
We want **better** programming languages
We want **better** programming languages

But better always seems to end up **bigger**
A solution?

Titian: Pesaro Madonna

Language composition as salvation?

http://soft-dev.org/
A solution?

Language composition as salvation?

Titian: Pesaro Madonna
A solution?

Language composition
≜
mixing languages together
Roadmap

Language composition

Here and now
Roadmap

Language composition

Editing  

Here and now

Running
Language composition

Here and now

Editing

Running
Parsing composition

Should be easy
• 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

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Feel of traditional text editing + SDE-like functionality
What's next

Language composition

Editing  

Running  

Here and now
What’s next

Language composition

Editing  

Running  

Here and now  

Useability
What’s next

Language composition

Editing

Useability

Here and now

Meta-tracing

Running
What's next

Language composition

Editing

Here and now

Running

Useability
Oracle Labs

Meta-tracing
EPSRC Cooler
Thank you for listening

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