What is a DSL?

Today’s themes: tradeoffs and gray areas
Today’s class: discussion questions

1. Groups of three
   - Discussion questions on handouts
   - Take notes
   - Take the full time

2. Highlight the insights / questions

3. Full-class discussion
   - We’ll revisit the questions, see where we (dis)agree

4. Info: critiques, schedule, grading, projects
What is a programming language?
DSL case studies
What is a DSL?
Highlight the insights / questions
Discussion Rules

- Everyone should participate equally
- Give your attention to the person who is speaking
- Yes, and… (build on discussion)
- Prof. Ben usually takes notes and talks last
- Hand off to the next person
What is a programming language?
What is a DSL?
What is a *Domain-Specific Language (DSL)*?

We should have good answers for all these questions:

1. Can it satisfy our definition of a *programming language*?
2. What does a program in this language **look** like? (syntax)
3. What happens when a program **runs**? (semantics)
4. What should be **easy, difficult, impossible** in this language?

The answers to these questions help us decide if it’s a DSL.
We should have good answers for all these questions

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The evolution of a DSL?

general-purpose
  - library
    - discover nouns & verbs
  - API
    - add fluency
  - internal
    - remove host flavor
  - external
    - tools & environments
domain-specific
general-purpose?

features
<table>
<thead>
<tr>
<th>Monday</th>
<th>Wednesday</th>
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<tbody>
<tr>
<td>(0) 08 · 29 (no class)</td>
<td>08 · 31 DBLs: What, why, and how? slides</td>
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<td>(1) 09 · 05 What is a DSL?</td>
<td>09 · 07 Fluency</td>
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<td>(2) 09 · 12 Finding problems, ignoring solutions class meets at the Hive</td>
<td>09 · 14 Language design</td>
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<td>(3) 09 · 19 Getting up and running in Scala</td>
<td>09 · 21 Scala tour</td>
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<td>(4) 09 · 26 Internal DSLs in Scala</td>
<td>09 · 28 Lab: internal control flow</td>
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<td>(5) 10 · 03 External DSLs in Scala language architecture &amp; parser combinators</td>
<td>10 · 05 Extensibility: traits</td>
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<td>(6) 10 · 10 Extensibility: the Expression Problem</td>
<td>10 · 12 Common patterns in ISLs</td>
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<td>(7) 10 · 17 Full Break (no class)</td>
<td>10 · 19 Lessons and plans</td>
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<td>(8) 10 · 24 critique</td>
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<td>(9) 10 · 31 critique</td>
<td>studio 11 · 02</td>
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<td>(10) 11 · 07 critique</td>
<td>studio 11 · 09</td>
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<td>(11) 11 · 14 critique</td>
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<td>(12) 11 · 21 critique</td>
<td>studio 11 · 23</td>
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<td>(13) 11 · 28 critique</td>
<td>studio 11 · 30</td>
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<td>(14) 12 · 05 critique</td>
<td>The end?! 12 · 07</td>
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Projects:

- Project: description and plan & repositories
  - Due: Sunday 10/15 at 11:59pm
  - Critique: Tuesday 11/1 at 11:59pm

- Project: design and implementation
  - Due / notebook: Sunday 11/6 at 11:59pm
  - Critique: Tuesday 11/8 at 11:59pm

- Project: prototype
  - Due / notebook: Sunday 11/23 at 11:59pm
  - Critique: Tuesday 11/25 at 11:59pm

- Project: preliminary evaluation
  - Due / notebook: Sunday 11/20 at 11:59pm
  - Critique: Tuesday 11/22 at 11:59pm

- Project: final product and writeup
  - Due: Friday 12/9 at 11:59pm
  - Project: demo / presentation
    - Wednesday 12/14, 8-9pm
Critiques

• Give yourself a budget of ~60 minutes

• Quality, not necessarily quantity
  Engage. Be intentional and specific. Small bite, long chew!

• Some useful critique prompts
  • Prompts from the assignment
  • If someone asks a question, attempt an answer
  • If someone asks for feedback, give it
  • “I hadn’t thought of that! Can I steal it?”
  • “You could also…”
  • “I found…”
  • “I could use this for…”
Projects

• It’s never too early to start

• Next week’s focus

• For now: play, percolate, talk to one another and me

• Look for something in every DSL class, every other class, your hobbies, your work…

• Possible outcomes
  • Make life easier for a group of people
  • Change the way someone sees the world
  • Reveal the way the world actually is
Before Wednesday

- Assignment 1
  critique due Tuesday

- Write up today’s class
  And everyone can / should contribute.

- Sign up to be scribe for a class

- Restore furniture

- Bring your computer on Wednesday (if you want)
  We’ll also have computers here