Discussion questions for *Frenetic: A Network Programming Language*

Comp 150PLD

November 5, 2014

1 Warm-ups

1. What is the domain of Frenetic?
2. What are the design goals of Frenetic?
3. Describe the architecture and components of OpenFlow networks.
4. What are the advantages of OpenFlow over the prior state of the art?
5. What are four weaknesses of OpenFlow identified in the paper? Give an example of each.

2 Design Evaluation

1. What abstractions and features does Frenetic provide?
2. Explain the code in the section ***A First Example*** on page 8.
3. What features of the language contribute to compositionality?
4. What features of the language contribute to a race-free semantics?
5. What is Frenetic's cost model?
6. What features of the language enable this cost model?
7. Describe how Frenetic is implemented.
8. How did the authors evaluate their language? How could the evaluation be improved?

3 Evaluating Frenetic as a Domain-Specific Language

1. What are the advantages and disadvantages of embedding Frenetic in Python?
2. Describe Frenetic's runtime system. How does it contribute to the goals of the language?
3. Describe Frenetic's type system. How does it contribute to the goals of the language?
4. Does Frenetic have or could it benefit from Frenetic-specific libraries? Explain.
5. Does Frenetic have or could it benefit from Frenetic-specific tool support? Explain.

6. Discuss to what extent Frenetic is a DSL.
7. Do you think it easier to write programs in Frenetic than in Nox? Justify your answer.
8. Do you think the language achieves its goals?
9. How might the design be improved?
10. Do you like the language? The paper?

4 More detailed questions.

These might help you answer the questions above or guide your understanding of the paper.

1. Be able to explain the various Frenetic code fragments in the paper.