Semantics SV1

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November 2023

This set of work was partly adapted from David Berry's supervision questions.

1 'Philosophical' questions

Do not answer these questions in writing. Think about them and be ready to discuss during supervisions.

1. Discuss briefly the importance of semantics in the study and use of programming languages.
2. What differences/simplifications are useful to make in a semantics compared to a concrete implementation of a language?
3. Does Safety guarantee termination of programs? Why (not)?
4. What could be included in a configuration for a semantics for Java?
5. Why is determinacy a useful property for languages? Why might determinacy not hold for a programming language?
6. What advantages and disadvantages are there in using a typed semantics compared to an untyped semantics?

2 Exam questions

1. 2013P6Q9
2. 2015P6Q9

3 Open-ended

In this section, some questions are intentionally vague. Please list your assumptions when answering them.

1. Create a calculator language which can handle integer addition, subtraction, multiplication and division. Specify its syntax.
2. Specify an operational semantics.
3. Specify a type system.
4. Prove it is type-safe, or give a counter example and think about how you would make it type-safe.
5. (Optional) Implement your operational semantics and your type system with your favourite **functional** language.