Separation Logic

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Outline

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Brief recap: reasoning about code

- Program semantics described by logical conditions satisfied by language constructs
- Classical model, first put forward by Robert W. Floyd and Tony Hoare

Floyd-Hoare Logic in 1 slide

$$\{P\}S\{Q\}$$

- P : pre-conditions
- S : statement
- Q : post conditions

Partial correctness: **If the inital state fullfils pre-conditions and the statement terminates**, the final state satisfies the post conditions.

Total correctness: **If the initial state fullfils the pre-conditions** then the statement terminates and the final state satisfies the post-conditions.

Limitations

Does not work for non terminating programs

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Global view of state becomes a burden when introducing pointers(think of pointer aliasing..)

Motivating example

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