CS 349
15 Specifying Interaction

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Language

- Natural Languages
- Formal Languages
- Dilemma

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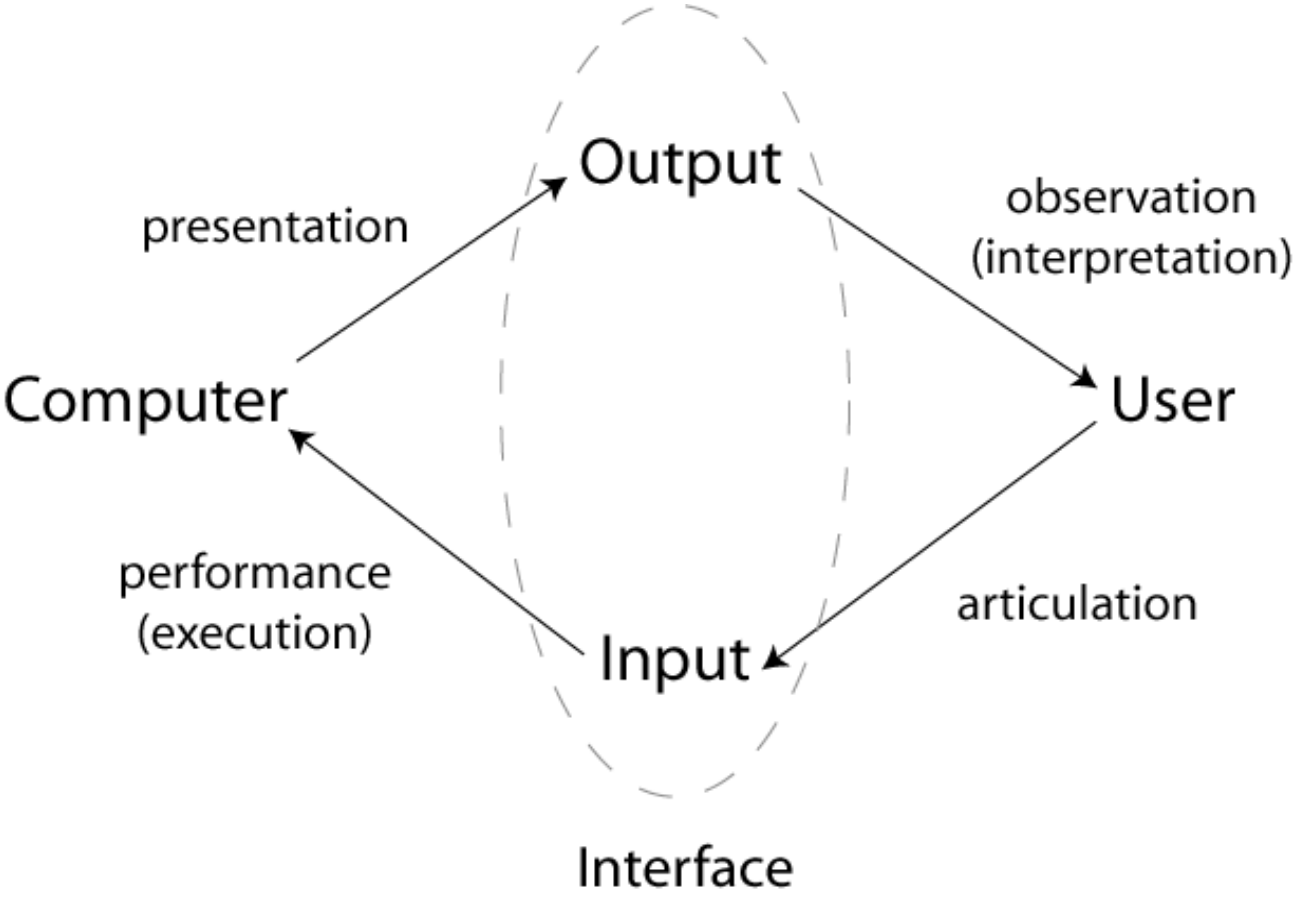
Central Tension



From Dix, Finlay, Abowd, & Beale (2004)

Criteria for UI Descriptions

- Understandable by users
- Easily converted into implementations
- Precise enough to settle arguments
- Able to facilitate answering interesting questions
  - observability
  - controllability
  - pathologies

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Options for Descriptions

- Code
- Scenarios
- Finite State Machines
- Post Production Systems

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Scenarios

Finite State Machines

- Interesting complexity for UIs is different
- Develop a sample FSM
- Evaluation
  - Understandable
  - Convertable to an implementation
  - Precise
  - Interesting questions: observability, controllability, pathologies
  - Lots of interesting theorems already proven
  - But…
    - exceptions
    - too much work
    - timing issues
    - state explosion

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Post Production Systems

- History
- Overview:
  - <conditions> --> <actions>
  - all conditions evaluated for each user input
  - all productions where all conditions are met are fired in parallel
- Two parts:
  - Definitions: non-formal, natural language
  - Productions: formal sets of conditions and actions

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Production System Syntax

Type	Description	Example
Variables/State	Enumeration of model state	location{in, out}
Input Events	User action from controller	{*mousePress, *mouseRelease}
Questions/ Input Modifiers	Query the view/ controller	?CtrlKey{up, down} ?validPassword{T, F}
Actions	Action in view/ controller	!drawButtonUp !setBase(size)
Side Effects	An action with effects outside the system	DispenseMoney>
Program Inputs	Input from outside the system	>DepositEnvelope

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