

Induction/Recursion

Which technique to use?

- Convince that every city on a map is drivable from Trenton
- Define the collection of all the stars gravitationally affected by the Sun
- Define a procedure to analyze the “satisfiability” of a FOL wff with respect to a certain structure
- Find out whether you would face difficult issues in your future

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Conclusion

Today

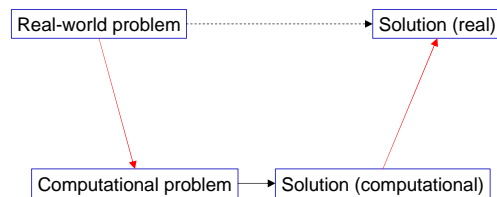
- Review the *logic-structure connection*
- Preview the next step

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Section 1

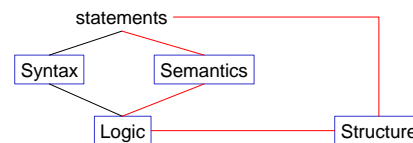
Domain of Our Work



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Logic-Structure Connection



- Structures **satisfy** logic (statements).
- Logic (statements) **specify** structures.

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Attempt in This Course

- Placed the materials more in context: **mathematical modeling**
- Introduced **logic-structure connection** as the core concept underlying the modeling process
 - Cf., any Disc Math course/textbook
- Expected that you would *forget* how to symbol manipulation techniques (thus, not emphasized)
- Expected that you could *retain* the attitude of analyzing real-world phenomena and turning to mathematical means when precision and conciseness are needed (with the help of references)

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Proverbs

- You can't just abstract ideas into concrete heads. [Goal 1]
- Say what you mean. [Goals 5(i), 2, 4, 3]
- Our words have wings but fly not where we would. [Goal 5(ii)]
- Appearances are deceiving. [Goal 5(ii), 4]
- Resembling the great in some ways does not make us equally great. [Goal 5(ii), 4]
- Reason succeeds where force fails. [Goal 6]

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Meta-Cognition

- Can you reflect on your thinking, activity, and evaluation?
- Do you see a change in yourself (during the semester or during your college life)?

For any activity...

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Section 2

Next Step

- Computer Science courses
 - Data Structures and Algorithms (230, 410)
 - Software Engineering (340)
 - Computer Architecture (325)
 - Operating Systems (330)
 - Compilers (434)
 - Networks (350)
 - Databases (446)
 - Artificial Intelligence (380)
 - Programming Languages (390)
 - ...
- Other fields
 - Mathematics, Natural Sciences, Engineering, Business, Philosophy, Psychology, Linguistics, ...

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This Course After Today (1)

- Take-home exercises
 - Evaluation sheet distributed on Tuesday (also on-line)
 - Read carefully
 - Due at the beginning of the final eval workshop
- Final Comprehensive Exercise
 - Available on-line
 - Ask questions
 - Due at the beginning of the final eval workshop
- Mini Project Completion
 - Due at the beginning of the final eval workshop

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Mini Project Completion

- Read the project page carefully
- Must be **word processed**
- Technical requirements
 - Theme
 - Uniqueness
 - Complexity
 - Completeness
 - Correctness
 - Connections
 - Clarity

Write your self-evaluation at the end of your project

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This Course After Today (2)

- Evaluation Workshop
 - Section 1: 8 a.m., Fri., Dec. 12, HH253
 - Section 2: 11 a.m., Fri., Dec. 12, HH253
- Office hours next week
 - Special OH: Mon., 2-5 p.m.; Regular OH: Thu., 9:30-11 a.m.
 - Out of town: Tue.-Wed., Dec. 9-10
- Course grades
 - E-mail will be sent, directing to the grade page
 - Contact by e-mail

Be on time

Survey & Course Eval

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