Understanding & Creating Proofs
CSE 191

William J. Rapaport

Department of Computer Science & Engineering,
Department of Philosophy, Department of Linguistics,
and Center for Cognitive Science

University at Buffalo *The State University of New York*

rapaport@cse.buffalo.edu
http://www.cse.buffalo.edu/~rapaport

3 Writing Tasks

1. Read the following story & answer the questions:

    - John went to a restaurant for dinner.
      He ordered a steak.
      When he was finished, he paid the bill & left.

Q1: Who is the main character?

Q2: Did he eat dinner?

(easy & straightforward)

2. Write a brief e-mail message (4–5 sentences) about what you did on vacation.

(easy; but requires a bit of thinking)

3. Write a beautiful, original poem about your favorite thing. It must rhyme. If it is publishable, it will make you famous.

(hard; lots of pressure on you)

3 Tasks of Language Ability

1. Understanding (listening, reading)

    - Relatively easy (with practice)

2. Generation (speaking, writing)

    - Much more difficult

3. Creative language use
    (writing creative prose, poetry)

    - Hard!

3 Tasks of Proof Ability ("Mathematical Maturity")

1. Understanding (& verifying) proofs
   - Easy:
     - Use Rapaport's "slow reading" technique

2. Generating proofs
   - Harder
     - But there are algorithms & heuristics

3. Creating new proofs
   - Beyond our scope!