CS/ENGRI 172, Fall 2003: Computation, Information, and Intelligence 8/29/03: Newell and Simon's Turing Award Lecture

Allen Newell and Herbert A. Simon. Computer science as empirical inquiry: symbols and search. Communications of the ACM 19(3), March 1976. Available on the web at the ACM Digital Library site, to which Cornell University has access (linked on the course webpage). There are a few typos, which may have been introduced during scanning.

Reading Assignments:

9/1/03: Introduction and section I. Symbols and Physical Symbol Systems (pp. 113-120) 9/3/03: section II. Heuristic Search (pp. 120-126)

Notes

While for the most part this class deals with technical material, we will begin our explorations by first looking at this overview of computer science and artificial intelligence written for a somewhat broad audience. Read carefully as preparation for what is ahead: later on we will "co-opt" terms from ordinary English by giving them precise technical definitions, and experience shows that not being careful about definitional distinctions often leads to problems.

Also, bear in mind that this paper was written thirty years ago. Much has changed since then, but much has also remained constant. We will find that many of the questions raised by this paper will reappear throughout this class.

In terms of content, focus on the following:

- Arguments regarding whether "computer science" is a science.
- Computer science's history.
- How the postulation of the physical symbol system hypothesis fits in with the previous issue (don't get bogged down in the particular details of the PSS itself).
- What evidence would *prove* the PSSH.
- Problem solving and its relation to "general intelligent action".