Past, Present and Future of ICKEPS

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Competition

- Benefits
  - Drives the state-of-the-art
  - Framework for comparison
  - Generates test-cases/benchmarks
- Problems
  - Sets an agenda
  - Tends to be an internal focus

Mitigating the Problems

- Rotating chairs
- Try not to let the competitor base stagnate
- Moving targets
- Encourage external participation in setting benchmarks

ICKEPS

- Problems:
  - Critical mass of researchers to make competition work
  - Evaluation framework
  - Standard for benchmarks

KE for PS

- Planning KR vs Programming
  - Rival paradigms/languages/philosophies
    - Action-centred or Timeline-based ~ Object-oriented or Functional
    - PDDL or ANML or NDDL ~ Java or C++ or OCAML
    - Control-knowledge or not ~ Procedural or declarative
  - Tools for KR ~ Software Development Support?
- Successful programming competitions – what can we learn?

Observations

- Programming problems specified in natural language and elements of discrete mathematics….

Example Problem

British Informatics Olympiad Final
28 - 30 March, 2008
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Noitargetni

Noitargetni, a rather backwards type of integration, consists of taking the smallest value in a sequence and multiplying it by the length of the sequence. For example, applying noitargetni to the sequence 5 8 7 2 3 4 gives 12 (6 2). When applying noitargetni to a contiguous subsequence (i.e. a block of adjacent numbers) we use the length of the subsequence, so 5 8 7 would give 15 and 8 7 would give 14.

For any sequence we can calculate the largest value obtainable by noitargetni applied to that sequence, or one of its contiguous subsequences.

Write a program that inputs a sequence of positive integers (all between 1 and 212 inclusive) and outputs a single integer, the largest value obtainable by noitargetni. Each of the integers in the input will appear on a separate line and there will be no more than 220 lines. The input sequence will be terminated by a line containing the single number -1.

Sample Input
5
8
7
2
3
4
-1

Sample Output
15

Observations

- Programming problems specified in natural language and elements of discrete mathematics….
- ….but, evaluation uses very precise check of output against a known correct answer
- Programmers are not (usually) language designers
- Languages and support tools are only evaluated by second-order effects
  - Contribution to making programmers faster, more efficient and less error-prone

ICKEPS Future

- Reconsider the evaluation framework: specify what will be a valid plan
- Apply time constraints to the modelling process
  - Rely on second-order effects to demonstrate benefits of using a language/support tool
- Encourage broader participation (outside community) and offer all the tools without bias