

Science of Computational Logic

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Problem 8.1

Specify an abductive framework $\langle \mathcal{F}, \mathcal{F}_A, \mathcal{I} \rangle$ and an observation G , such that the observation can be explained according to the satisfiability view in a way that is not available by the theoremhood view.

Problem 8.2

Assume that you have the data structure `char` of ASCII characters available.

1. Define the data structure `string` according to the following specification:
A string may be empty or may be obtained by adding an ASCII character to the end of a string.
Which are the constructors? Which are the selectors?
2. Express explicitly the following conditions that the data structure `string` should satisfy:
 - (a) Different constructors produce different objects;
 - (b) Constructors of arity > 0 induce injective mappings on the set of constructor ground terms;
 - (c) Each constructor ground terms can be represented as an application of some constructor to the results of application of selectors, if any applicable selectors exists;
 - (d) Each selector is 'inverse' to the constructor it belongs to;
3. Write a program \mathcal{F}_{Trans} that defines the function $Trans$ over non-empty strings, which transforms any string into a string of the same length containing only the character 'a'.