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## **SR, informal communication and problem-solving**

The present short note is intended to offer a theoretical perspective, linking (sometimes loosely and sometimes tightly) SRT to cognitive sciences.

The key idea is that a given SR can be formally treated as a solution to an ill-defined problem. In other words, SR are responses to ill-defined classes of situations. The main advantage of this conception is to stress both the functional (adaptive) value of SR and their cognitive functioning.

But what is an ill-defined problem ?

We first have to refer to *Minsky's criterion*.

According to this criterion, a problem is said to be “well-defined” when every tentative solution can receive one of the two logical values “True” or “False”. Another way for saying the same thing is that a problem is well-defined if and only if it is possible in principle to set up an algorithm of demonstration (either of confirmation or infirmation). In all other cases, the problem will be said “ill-defined”. Then, a tentative solution is not true or false, right or wrong, but only more or less convenient, attractive, creative, expensive, and so on.

We are facing the same reality with a SR : it fits *relatively*. It always requires to be mended, adjusted, revisited, etc. And this is too, by very definition, one of the main properties of a rumour : its genetic instability, as classically shown in Allport and Postman's paradigm.

However, the distinction between well- and ill-defined problems is not so well-defined itself. This question has been discussed by H.A. Simon two or three years before he won his Nobel Prize.

His conclusions are, first, that it exists a continuum of degrees from the well-defined to the ill-defined ends of the problem spectrum ; and second, that one always has to take into account the power and characteristics of the problem-solving system (individual, small group, institution or machine). Concerning these two points, Simon underlines the theoretical importance to replace “notions of computability in principle” by “notions of practicable computability” (p. 321).

Let us summarize, with the necessary short-cuts :

- a) a “solution”, in our field, is a decision, a statement, a choice, etc. (see the empirical device) ;
- b) the central core of the SR gives the criteria for solution acceptance and/or relevance ;
- c) between acceptance and rejection, it exists a wide range of conditionality (“If... then...” ; “It depends upon...”) ;
- d) if we know the solution, we can identify the problem such as it has been perceived.

## APPLICATION

In the example of rumours (as I have tried to show : see a report in the *I ESS*, Elsevier, 2001 ed.), four criteria have to be, and effectively are, satisfied :

- reinforcement of social belonging
- reinforcement of social differentiation
- providing a naive explanation of the unfamiliar
- exemplifying a pragmatic value (the “lesson of the story”).

Simon, H.A. (1973), *Artificial Intelligence*, 4, 181-201.