Automatization technology for analysis of phycolinguistic experiments

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Constructing of cognitive models is the task, first of all, of philosophy, secondly, Artificial Intelligence. Cognitive Sciences can be presented as intersection of different disciplines [1]. If you are interested in these models, acquaint yourself with works of Follmer, Lorentz, Bateson, Popper, Hofstadter or Dennett. Investigation of cognitive models, besides fundamental purposes, could be applied to increase capabilities of automatized systems, modernize of teaching methodology, create more natural human-machine interfaces. Theoretic models have high abstraction level, but they must have empirical acknowledgement to be measured and verified. Daniel Dennett [2] suggests linguistic experiment as the most appropriate method for empirical research of consciousness. It can be managed in laboratory or natural environment. This point of view is common for many specialists in this field, so, we can conclude importance of verbal phycolinguistic experiments for cognitive sciences. Models of verbal thought represent processes of human verbal activity: perception and production of text. Existed models has specific and narrow aim areas. Two types of thought are shown in [3]:

1. Logical thought with cognitive units in terms of symbolic system;

2. Associative image-bearing thought. Most likely, this mechanism processes task in parallel way. "It works without evident aim, without purpose-driven planning or concrete sequence of steps. In this machine flow continuous processes, like wave processes, so result has probability nature. It never fixed in certain essence. Today, we don't have technical realization of right-side machine (analogy with right cerebral hemisphere, interpreter notice). We don't know, how to model it and we know very little about its operation." [3, p. 7].

Traditionally, we associate thought with syllogistics of Aristotle, extended by probability derivation and fuzzy logic. This caused by practical applications of automatized systems, computational systems architecture and low maturity of associative, parallel thought algorithms. As an example of such model you may consider artificial neural net. The main difficult in it is getting an explanation of computational results and creative, non-formal nature of design.

In this abstract we introduce automatized simulation system of verbal consciousness, with association as the most general thought operation.

Object of research is associative and cognitive experiments. Research is carried out within the framework of leading scientific school "Russian verbal personality" [4].

Target of research is automatized simulation system of verbal consciousness based on associative and cognitive experiments.

Actuality of research is contained in developing of methods and algorithms for associative and cognitive experiments investigation, based on scientific school "Russian verbal personality" and creating corresponding software.

Aim of research is construction verbal activity simulation model of russian native speaker.

Tasks:

1. Analysis of existing cognitive linguistic systems.

2. Storing heterogeneous linguistic data in relational database.

3. Lemmatization of associative net.

4. Analysis of natural language statistic models.

5. Construction of simulation model based on experimental data.

6. Developing software realization of methods and algorithms.

References

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