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Computationally Inspired Cognitive Modeling.

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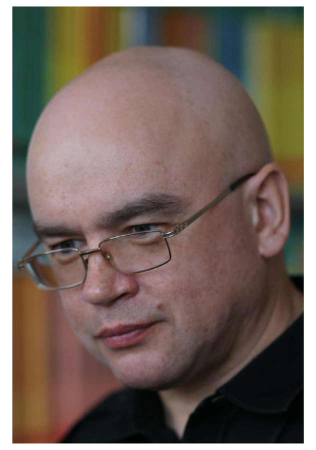
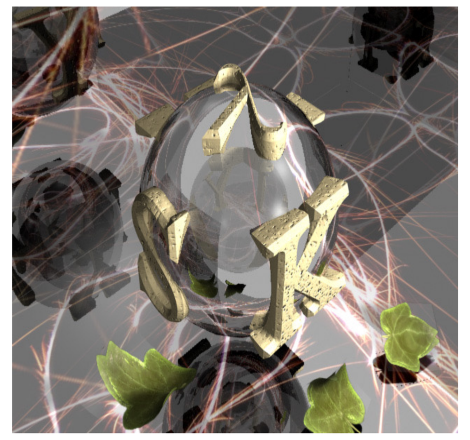

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SUMMARY

A computational approach to cognitive modeling is proposed. The computational model is a parametric construction that takes into account cognitive stages and transitions between them.

INTRODUCTION

The cognitive model enables the idea of information processes, from their birth and appearance in a scope, evolution and canceling out their existence and disappearing from the scope. Process habitats are Lawvere's variable domains; inter-transition is based on the notion of channeled spreading of processes.

The current explosion in cyberattacks in the form of malware, spam and intrusion has had dire consequences for society. For organizations and government structures, the main concern has become the security of cyberspace. Traditional machine learning (ML) methods are unlikely to model correlations between real cyber entities, which exhibit high variability. In recent years, graph analysis methods, including knowledge graphs, have become widespread, and many researchers have begun to study and develop these methods.

APPROACH

We will present an approach and providing a model structure for graph mining, suitable for the needs of cognitive modeling and cybersecurity. These include entanglement problems, typical conceptual dependency analysis methods, and a general process for applying them based on the systematic use of computational thinking principles. For each task, we study the appropriate methods and highlight the types of graphs, approaches to graphs and levels of tasks in their modeling.

METHODS

Four parts of Computational Thinking are determined now. Wether computational thinking is used in computer science or another subject area, the process of computational thinking can be broken down into four parts or steps.

1. Decomposition: to solve a complex problem, you must first break it down into smaller,

2.Pattern recognition: It is the process of identifying patterns or connections between different parts of a larger problem.

3.Abstraction: extracting the most relevant information

4. **Algorithmic thinking**: determining a step-by-step solution

RESULTS

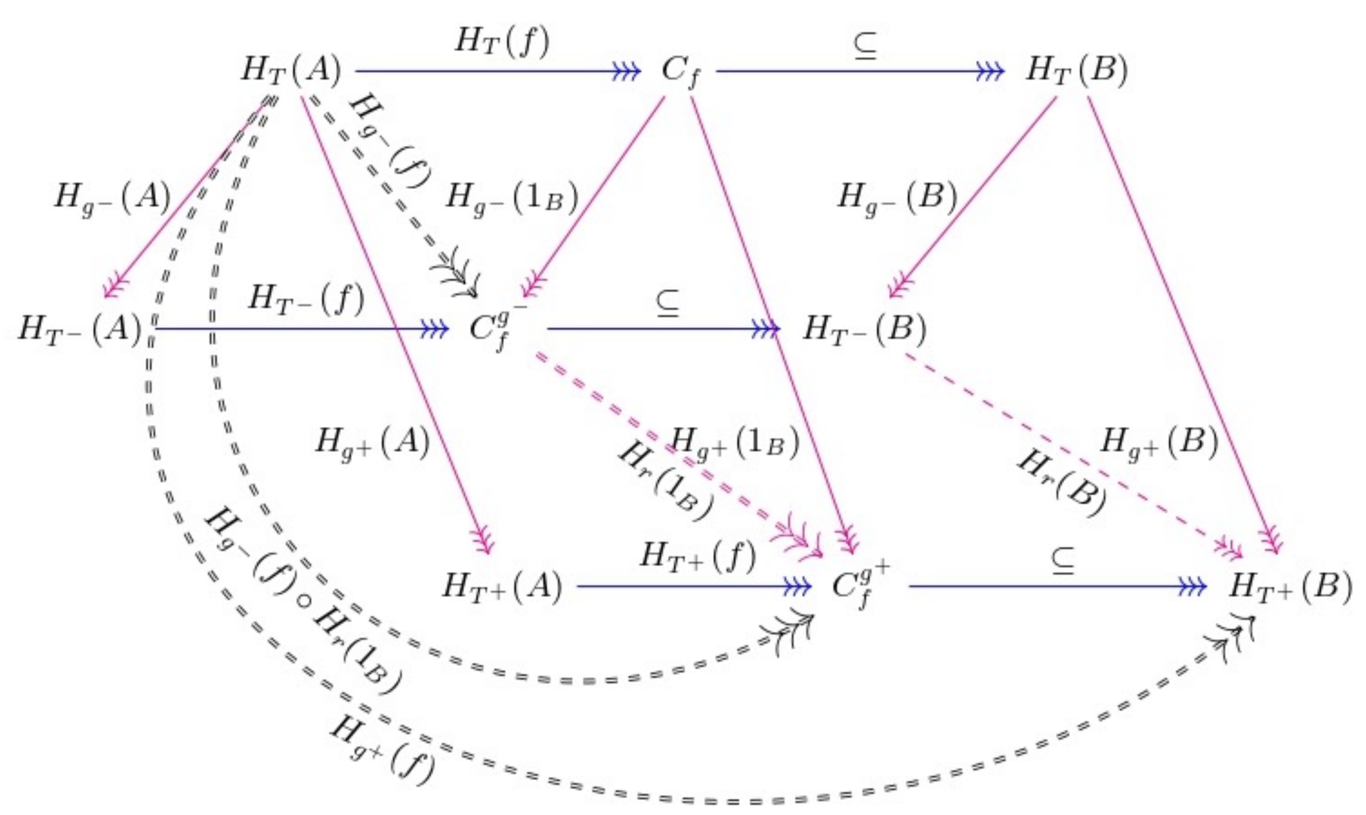

Fig. 6. Agile Smith. Step 3.

ANALYSIS

In fact, let's try to build ideas in such a way that retains the advantages of both approaches to solving AI problems – cognitive modeling and computational thinking. The necessary generality, as it turns out, is achieved when, as is customary in computing, we consider information processes – their emergence, development and distribution, as well as interaction. This would require areas where processes can 'live' – domains or even variable domains. In addition, there are channels through which processes are distributed from region to region.

DISCUSSION

Why semantic information can be destroyed? As we noted the individuals in the theory are not the individual constants but are assumed as processes. To illustrate the idea we use the 'Agile Smith task'. A person Smith when identified is perceived as a process because of possible variability of his properties. There is some difficulty to describe him in, say, database system without violation of integrity constraints. There is a strict chance to to retrieve some other person, say, Jones with the same properties as 'later' described Smith ('later' here means 'at other stage of knowledge'). A sample diagram reflects possible entanglement

CONCLUSIONS

1.An effort has been made to characterize computational thinking. Notable points are ordered and emphasized in a slightly different way so that the connection with cognitive modeling becomes more tangible. This is thaks of conceptual mathematics.

2.The conceptual transform of computational thinking generates a completely meaningful cognitive model of what is happening

ACKNOWLEDGMENTS