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INTRODUCTION

Abstract. The problem of interfield integration in cognitive science has three closely connected aspects; they are to do with: a) the interdependencies between the levels of organization of cognitive systems (the substantive aspect), b) the intertheoretic connections between the subdisciplines of cognitive science (the methodological aspect), and c) the organization of research and interdisciplinary research projects conducted by scientists from different disciplines who employ a variety of research methods (the institutional aspect).

Keywords: interfield integration, cognitive science, cognitive philosophy, cognitive logic, methodology of cognitive science.

On September 22–24, 2016, the 11th Conference of the Polish Association of Cognitive Science was held at the University of Bialystok. The main theme of the conference was interfield integration in cognitive science. Participants included leading cognitive scientists from Poland and guests from abroad. The principal aim of the conference was to offer a multifaceted analysis of the problems of unification and integration of the various fields comprising cognitive science, such as artificial intelligence, cognitive neuroscience, cognitive psychology, cognitive linguistics, cognitive logic, cognitive anthropology, cognitive social science, philosophy of mind, and epistemology. The analysis was guided by the following questions: Do contemporary cognitive sciences form a loose coalition of independent disciplines or can they be integrated? And if the latter is the case, then what does interfield integration in cognitive science amount to and what is its substantive and methodological basis?

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Cognitive science, when looked upon from a very general point of view, is sometimes characterized as a multidisciplinary patchwork, a loose coalition or conglomerate of theories and approaches that belong to a wide range of scientific disciplines (including the exact, natural, and social sciences, as well as the humanities). Hence, the following questions arise: What is the basis of the relative unity of this methodologically heterogenous group of disciplines? Is there a model of knowledge integration that adequately captures the relations holding between the subdisciplines of cognitive science? Should the concepts of the unity of science and interfield integration be understood along reductionist lines or in terms of the recently developed network model of the structure of science? These issues are further complicated by the existence of a number of distinct theoretical approaches (paradigms), such as classical computational cognitive science (associated with logic, information theory, and artificial intelligence), cognitive neuroscience (inspired by the development of new brain imaging techniques), evolutionary cognitive science (associated with evolutionary psychology and the evolutionary account of cognitive systems), and the cognitive science of the "new generation", concerned with studying embodied and embedded cognition.

When viewed up-close, cognitive science exhibits a complicated network of relations obtaining between what used to be regarded as autonomous fields of study. A careful analysis of the relations between the disciplines and theories that make up cognitive science also reveals the existence of specialized interdisciplinary research projects pursued within computational neuroscience, cognitive neuroscience, cognitive social science, embodied and embedded artificial intelligence, etc. From this point of view, a full characterization of cognitive science must go beyond a simple enumeration of its constituent fields and include a description of the multitude of connections that obtain between those fields. In this context, questions about interfield integration in cognitive science are questions about the nature of the relations holding between the different levels of organization of cognitive systems (ranging from the molecular level, to the neurobiological, computational, and social levels) as well as between the different levels of description of these systems.

In the contemporary methodology of interdisciplinary research (which goes beyond the methodology of cognitive science), the reductionist model

of the unity of science is gradually being superseded by the network model, which does not see all the theories (disciplines) as reducible to a single fundamental theory (discipline), but instead treats particular scientific theories (disciplines) as nodes in a complicated network of interdependencies and connections. This raises the following questions: How well does the network metaphor apply to the description and analysis of interfield relations in cognitive science? What are the main assumptions of the network model? What are the assumptions of the alternative models?

This volume contains a selection of papers presented at the conference.

Part I comprises articles in *the philosophy and methodology of cognitive science*. The papers in this part discuss: unification strategies in cognitive science (Marcin Miłkowski), the role of the notion of information in the scientific worldview (Paweł Stacewicz), the evolution of the concept of computing (Paweł Polak), and the role of simulation in modeling complex systems (Max Urchs).

Part II contains papers in *cognitive logic and artificial intelligence*. The papers in this part are concerned with: logic in the light of cognitive science (Jan Woleński), the criteria and limitations of artificial intelligence (Kazimierz Trzęsicki), the Turing machine and evolutionary processes (Radosław Siedliński), a proposed system of cognitive logic (Tomasz Jarmużek), artificial intelligence as a means of moral enhancement (Michał Klincewicz), and cognitive aspects of research into technological interfaces (Piotr Laskowski).

Part III is devoted to selected problems of *comparative and cognitive psychology*: the socio-cultural determinants of mindreading (Arkadiusz Gut, Robert Mirski), prosocial choices from the perspective of comparative psychology and cognitive ethology (Julia Sikorska, Maciej Trojan, Anna Jakucińska, Dominika Farley), the methodology of research on thought suppression (Aneta Niczyporuk), and the role of emotions in the formation of delusions (Adrianna Smurzyńska).

Part IV, the final part of the volume, contains papers in *cognitive philosophy*, focusing on problems in epistemology, philosophy of mind, and philosophy of language: the problem of self-knowledge and consciousness (Anita Pacholik-Żuromska), the relations between language and consciousness (Piotr Konderak), and the rationalist philosophy of mind and philosophy of language (Halina Święczkowska, Beata Piecychna).