Preface

WHERE DOES *I* COME FROM?
Subjectivity and the Debate over Computational Cognitive Science

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1.1. Purpose

For centuries, philosophers studying the great mysteries of human subjectivity have focused on the mind/body problem and the difference between human beings and animals. Now a new ontological question takes center stage: to what extent can a manufactured object (a computer) exhibit qualities of mind? There have been passionate exchanges between those who believe that a "manufactured mind" is possible and those who believe that mind cannot exist except as a living, socially situated, embodied person.

As with earlier arguments, this one shows no sign of being resolved. But the fight over computationalism (the belief that all mental processes can be generated by computer programs) has immediate, "hard" consequences for technological research and development, social- and cognitive-science methodology, and for our everyday experience of the world and ourselves.

This special issue consists of papers presented at a conference of the same title held at the Center for Cognitive Science at the University at Buffalo, 22–23 May 1990. The authors come from a variety of disciplinary backgrounds (Computer Science, Linguistics, Philosophy, Psychology, Sociology, etc.), and bring a wide variety of perspectives to the topic.

1.2. Description

The ancient doctrine of the Great Chain of Being holds that there are four levels of being: the level of matter (e.g., rocks, water), the level of life (e.g., plants), the level of sentience (animals), and the level of self awareness (humans). Each subsequent level is seen as emerging out of those before it and of consisting of these "lower" levels in a new form of organization. Thus, animals consist of matter and life, but in a different and higher form of organization than that of

plants. According to this philosophy, no higher level of being can exist without also "being" all the lower levels, and, therefore, mind cannot exist without also "being" life and animal sentience.

One of the premises of artificial intelligence (AI) is that all intentional processes are computational, and that the kind of "matter" that does the computing is quite incidental. The new field of cognitive science is based on the idea that the human mind is a computer, or at least that it can be simulated computationally, and that we can learn about how our minds work by building and studying computational models of minds. Thus, these new fields challenge the notion that animate life is a necessary basis for mind. They assert that a manufactured object without special material properties can produce (or reproduce, simulate, or model) all the qualities of intentionality, including believing, wishing, and understanding. According to this view, there is no theoretical reason why matter cannot "be" mind without "being" life.

The claims of AI and cognitive science have disturbed those who believe that mind cannot be separated from its originality in bodily experience and social relations. But when those who dispute computationalism have tried to find theoretical models of mind that support their point of view, they have gotten little help from experimental psychology or social science, since these disciplines, in the interests of long-held notions of scientific validity, have largely excluded from their methods and theories such ontological considerations as experiencing and its possible role in the nature of mind. The case against AI has up till now been argued most visibly by philosophers such as ordinary-language philosopher John Searle and existential phenomenologist Hubert Dreyfus, whose objections are based on the claim that externally structured programs can never create such essentially internal (that is, subjective) and unformalizable processes as understanding and experience.

The pro- and anti-computationalist forces have had passionate exchanges, but these have largely had the quality of religious arguments, based on thought experiments or metaphors that, according to those on the other side, beg the questions at issue. Each side sees the same evidence in an entirely different light and grants legitimacy to a different range of evidence. Each side sees the other as mystical and dogmatic.

Recent developments in social science inject new energy into this impasse. Subjectivity is becoming recognized in some areas of social science as crucial to the description of social phenomena. As methodologies become "fleshed out", concepts of human functioning and experience become more problematic, but also unavoidable. Approaches that reflect this trend include Lakoff and Johnson's experientialism, ecological theories of language, pragmatics, ethnographic research, *Verstehen* hermeneutics, and Eugene Gendlin's empiricist phenomenology. These approaches emphasize the origin and embeddedness of thinking, understanding, and social reality in the "preconceptual" experience of the human body and in social/physical praxis, and dispute the notion of thinking and language as primarily formal/logical constructs.

In this collection, we hear from proponents of various schools of thought on the nature of human experiencing, and consider the implications of these ideas for the project of the social sciences as well as that of AI, and for the fundamental definition of cognitive science. What categories are needed for an adequate scientific model of human experience? What is the role of human experience in cognition? Is the ontological divide between objects and human subjects a matter of bridgeable degrees or a gap unbridgeable except by biological evolution? Is the "medium" of computation irrelevant, as the functionalists say, or do living organisms have special causal properties necessary to intentionality? If the latter, which AI and cognitive science projects are "wrong", and why? Are the projects themselves misconceived, or is the problem only with the "prose" descriptions by which they enter the popular imagination? What counts as evidence in these arguments, and what evidence has been gathered?