

Still, we can end this review on a note conveying good news: *Estetika* has been translated into English and published by Rodopi in 2007.

Leonidas Donskis

Vytautas Magnus University

Peter Carruthers

The Architecture of the Mind: Massive Modularity and the Flexibility of Thought. Toronto and New York: Oxford University Press 2006.

Pp. 480.

CDN\$144.00/US\$139.50

(cloth ISBN-13: 978-0-19-920708-4);

CDN\$60.00/US\$60.00

(paper ISBN-13: 978-0-19-920707-7).

Recent cognitive developmental psychology lend support to the idea that the mind consists of distinct domain-specific modules (e.g., a folk physics, a folk biology, and a folk psychological mind-reading module), rather than a single all-purpose reasoning system. In evolutionary psychology, it is popular to assume that there are different cognitive modules which evolved as adaptations meeting different evolutionary problems (e.g., a mate recognition and a cheater detection module). Yet different notions of 'module' might be used by different cognitive scientists; and massive modularity — the idea that the whole mind consists of a large number of substantially dissociated modules — is quite controversial, and clearly denied, e.g., by proponents of distributed connectionism. In this book Carruthers offers a detailed defense of the massive modularity hypothesis, based on an impressive review of the literature in cognitive and evolutionary psychology. The book is divided into two parts. Chapters 1-3 lay out Carruthers' notion of module and argue that the mind is massively modular in this sense. Chapters 4-7 address how to account for the flexibility and creativity of human theoretical and practical reasoning. This is a major issue for any account of the mind, but flexibility is particularly challenging for a proponent of massive modularity, given the idea that a module can only hold content specific to its domain and has limited connections to other modules.

According to the influential work of Jerry Fodor, a module 1) is domain-specific, 2) is tied to particular brain-structures, 3) mandatorily processes appropriate input and cannot be turned off by voluntary control, 4) involves

internal processing inaccessible to other systems, 5) is informationally encapsulated (cannot draw on any information held external to it apart from its input), 6) produces non-conceptual output, and 7) is swift in its processing. This notion of a module is tied to perceptual systems, and cannot possibly be meant by a proponent of the idea that all cognitive systems are modules. Consequently, Carruthers puts forward a notion of 'module' that basically consists of the first four of the above properties (assuming that virtually all modules are domain-specific in the sense of being turned on by specific kinds of input). A variant of the fifth property may apply to many modules, in that while a module may query any possible information from other systems — though only a limited amount — it usually cannot be affected by most of the external information in one run (Chapter 1). Massive modularity in this sense is supported by two arguments. The argument from design is based on the idea that designed systems (including biological systems designed by evolution) that are complex are modular in their organization. The better supported argument from animals maintains that animal cognitive systems are organized modularly (Chapter 2), and the argument is that the additional cognitive features of humans consist of additional modules, rather a holistic general reasoning system (Chapter 3). Carruthers discusses in length evidence concerning memory and motivational systems, belief-desire and practical reasoning systems in animals, and additional cognitive systems in humans, e.g., mind-reading and linguistic abilities. This yields a detailed picture of cognitive architecture that clearly exhibits a good deal of modularity, at least in Carruthers' (admittedly) weak sense.

The second part of the book breaks new ground by proposing empirically grounded yet novel ideas about the relation of human reasoning systems and their processing in order to account for the creativity of human cognition (Chapter 5), the cognitive basis of scientific reasoning (Chapter 6) and distinctively human practical reasoning (Chapter 7). Carruthers distinguishes different ways in which cognition is flexible: flexibility of action, sensitivity to the environmental context, reasoning independent of external stimuli, and the ability to combine different contents (Chapter 4). He addresses each of these issues in turn. While it is impossible to present his insightful account and critique of alternative models in a few sentences, a major idea is that reasoning is organized in feedback loops where the output of some modules is 'globally broadcast', i.e., posted on a common bulletin board so that other modules can use some of it as input and globally broadcast their output. This is, among other things, crucial for the effective mental rehearsal of actions (including linguistic behaviour), which plays a central role in Carruthers' explanation of how creative reasoning is possible in a modular organization. This stimulating discussion goes a long way toward accounting for cognitive flexibility. However, I doubt the success of Carruthers' answer to the question of how distinct contents can be combined. Even if a complex content combining concepts specific to different domains (e.g., of the mind-reading and folk biology modules) is produced and globally broadcast, it does not seem possible that it could effect further cognitive processing as a combined

content, since each module can take only some of this domain-crossing content as its input.

I take issue with Carruthers' employment of innateness and evolutionary psychology. It has been pointed out repeatedly that uses of 'innate' typically conflate quite distinct developmental or evolutionary properties, e.g., a trait being insensitive to the environment in its development, a trait being an evolutionary adaptation, a trait being universal within a species. While Carruthers officially endorses Richard Samuels' definition according to which an innate feature is a cognitively primitive feature (that cannot be explained psychologically), his discussion sometimes moves freely among other properties tied to this notion (161, 346), illustrating again how entrenched the meaning of 'innate' is and how likely its use is to continue prompting fallacious inferences. Moreover, rigorous evolutionary biology first establishes the existence of a feature in extant species, and then works toward an evolutionary explanation of this fact. Yet Carruthers follows the dubious practice of some evolutionary psychologists of using evolutionary ideas to postulate ('predict') modules in extant humans, rather than of establishing their existence by experimental evidence, thereby misusing evolution in an attempt to compensate for his hypothesis about cognitive structure being insufficiently supported by psychological experiments (198).

Given the gargantuan effort of laying out an overall architecture of the mind, not every one of Carruthers' hypotheses can be sufficiently backed by argument combined with existing experimental evidence. Yet even if one disagrees with his overall tenet — massive modularity — this book offers a well-grounded account of the structure and relations of several cognitive systems, which should also intrigue cognitive scientists and trigger critical responses. The philosophical reader will receive, among other things, grounds for expecting continuing fruitful interaction between philosophers and scientists, and be prompted to look forward to future empirical research on the mind.

Ingo Brigandt

University of Alberta

Alfred Claassen

An Inquiry into the Philosophical Foundations of the Human Sciences.

New York: Peter Lang 2007.

Pp. 277.

US\$39.95 (paper ISBN-13: 978-0-8204-8179-1).

In this book, Claassen attempts to re-engage the project of foundational accounts of the sciences, in this case, the human sciences. He breaks down his examination of the foundations of the human sciences into three sections. In the first, he examines what he terms the four 'basic' dimensions of 'the human', which, we are informed, is one of three fundamental realms of reality, inert things and living things being the other two. Having laid the groundwork of the four basic human dimensions — reflexivity, consummatory/instrumental, ideal/real, individuality/collectivity — Claassen introduces the 'complex' dimensions in the second section. These are represented overall as a tension between universalism and sectoralism. Claassen then proceeds to delineate the nature and forms of the universal. The third section continues this characterization of the universal, with a focus on the 'epistemics of the human sciences'.

Let us consider some of these terms in greater detail, to see what they mean and how the book's argument goes. First, the basic dimensions. Reflexivity here means roughly what it means in general: thought thinking itself. A reflexive capacity to form representations of oneself in self-consciousness, and to govern one's behavior with self-control, surely does capture something of human being, as does the contrast with nonreflexive thought and behavior. But as Claassen points out, since there is no limit in principle to reflection, there are levels of double reflexivity, or self-consciousness of self-consciousness. The increasing levels of reflexivity correspond, he seems to suggest, to a hierarchy of needs in the style of Maslow. Next, the human is structured by the opposition between the consummatory and the instrumental, or ends-in-themselves and means to ends. To this initially non-illuminating characterization, he adds the following oppositions: emotional vs. rational (respectively), spontaneous vs. deliberate, present-oriented vs. future-oriented, unconscious vs. conscious. These distinctions, he asserts, runs through all human phenomena such as perception, thought and action.

At this point, in order to illustrate the way these basic dimensions combine into more elaborate phenomena, Claassen introduces Freudian terminology. The id is consummatory and the ego instrumental, but both are nonreflexive at the initial level. The superego is reflexive and instrumental, but Claassen goes on to introduce not only a 'superid', but super-superegos and super-superegos, to correspond to the doubly reflexive levels. He follows a similar course with Tönnies' distinction between community and association, introducing super and super-super levels of each to cover levels of reflexivity. Again the motivation is to show the combination of the consummatory (community) and the instrumental (association) with multiple levels of reflexivity.