

Jerry Fodor

The Mind Doesn't Work That Way: The Scope and Limits of Computational Psychology

Cambridge, MA: The MIT Press/A Bradford Book, 2000, 126 pp., \$22.95, ISBN 0-262-06212-7 (hbk).

Published in Journal of Consciousness Studies, 8, 8, pp. 75-76 (August 2001).

© Josh Weisberg

Over the last quarter century or so, no one has done more to shape debate in the philosophy of mind and cognitive science than Jerry Fodor. He is best known for championing the Computational Theory of Mind (CTM), the view that thinking consists of computations over syntactically structured mental representations (Fodor, 1975). He has also developed the idea that the mind is partially made up of isolated mechanisms called “modules” that employ innate databases informationally encapsulated from the rest of the mind (Fodor, 1983).

Recently in cognitive science a “New Synthesis” has emerged that combines the CTM and an evolutionary view of modularity. Stephen Pinker and Henry Plotkin, for example, have argued that the New Synthesis can provide a relatively complete picture of the mind's functioning (Pinker, 1997; Plotkin, 1997). But despite his spirited defense of the CTM and modularity, Fodor's slim new volume The Mind Doesn't Work That Way argues that the combined theses cannot explain some of the mind's most important features.

The problem lies in the way the CTM construes computation. The theory holds that mental representations are syntactically structured like words in a grammatical sentence, and that computations are driven exclusively by syntax. Only local, invariant syntactic properties determine how representations behave in computation, and these properties are not sensitive to shifts in context. But, Fodor argues, there are a variety of significant mental processes that rely on context-sensitive, global features of representations, features that can't be accessed by syntactic computation. These global processes include judging the comparative simplicity of beliefs relative to a set of background assumptions, determining the relative centrality of beliefs in a theory, and figuring out which factors are relevant in inferring to the best explanation.

There are two main suggestions on offer in cognitive science for dealing with this problem: the heuristics approach and connectionism. Fodor rejects both proposals. According to the heuristics approach, the mind avoids global processes by employing local heuristic procedures amenable to syntactic computation. But determining which heuristic to invoke is itself a global process, so the problem remains. Connectionism falls short because connectionist nets can't make comparative judgments of beliefs across belief systems. Connectionism individuates belief states by their particular surrounding

connections, so there is no way to hold a belief fixed and vary the surrounding context, as the procedures in question require.

This is where Pinker and Plotkin's New Synthesis enters the picture. They propose that there are no truly global processes because cognition is fully accomplished by isolated modules. Each module evolved as a separate, domain-specific organ designed by evolution to complete one set of tasks. The modules' inner workings can be explained computationally; consequently, there are no mental processes that outrun syntactic computation. We know how computation works in modules, so we know how the mind works.

The central point of Fodor's book is that the mind is not "massively modular" in the manner demanded by the New Synthesis. A module is engaged when it receives the appropriate type of representation as input. But selecting which representations to input to a module requires a more general sorting of inputs. Perhaps this can also be done by a module. But then this new module will require a sorting of inputs, and so on, until at some stage there must be a domain-general process that sorts inputs, on pain of a regress. Thus, the mind can't be completely modular.

It may be argued, however, that perceptual processes can provide the initial sorting of representations, by detecting features that trigger the modules. Fodor responds that this is empirically implausible for many of the modules posited by the New Synthesis. What, for example, are the perceptual features that mark off social situations where cheating might occur? The "cheater detection module" is one of the paradigm examples cited by friends of the New Synthesis, yet its operation apparently requires the presence of a domain-general process.

There is an additional line of argument that allegedly offers support to the New Synthesis. It is claimed that massive modularity is the only biologically plausible explanation of the complex functions of the mind. Adaptations evolve because they solve particular problems in the organism's environment. There is no environmental pressure that could shape the evolution of an all-purpose problem solver. The existence of a domain-general device goes against the pattern of evolutionary explanation, while the gradual compilation of modules explains the complexity of the mind in a Darwinian manner. Evolutionary biology seems to recommend the massive modularity demanded by the New synthesis.

Fodor replies that our lack of knowledge about how the mind supervenes on the brain precludes us from making such a priori claims about the mind's evolution. It is an open possibility that small changes in brain physiology might have had a large effect on mental functioning, creating the global processes in question. Furthermore, the evolution of a truth-seeking, domain-general device is not implausible from a biological point of view. The device may not appear adaptive in isolation, but coupled with a creature's desires and the means for

achieving those desires, it could indeed promote the fitness of the organism. Figuring out what's true can help you get what you want (and need).

Fodor's book is concise and tightly argued, and it is graced by his fine writing style and sharp wit. It's also refreshing to hear Fodor arguing for the limitations of the CTM, rather than just for its virtues. He remains committed to the idea that the CTM is "the only game in town" when it comes to explaining the mind, but he acknowledges that the view cannot adequately address some of the main puzzles of cognition. Global processes are central to human thought, and the CTM's failure to explain them limits the only game in town to a rather small playing field.

I believe, in conclusion, that Fodor's arguments against the New Synthesis lay down a sizable challenge for the view. Its proponents must explain how inputs to modules are sorted without invoking domain-general, global processes. Identifying and elucidating how this might be done is not a trivial task. Furthermore, they must argue empirically for their claims about how the mind evolved, given that we know very little about how the brain works and what pressures influenced its evolution. These may not be insurmountable problems, but prior to their solution, it's premature to claim that we know how the mind works.

Josh Weisberg

CUNY Graduate Center

REFERENCES

- Fodor, J. A. (1975) The Language of Thought, New York: Crowell.
Fodor, J. A. (1983) The Modularity of Mind, Cambridge, MA: Bradford Books, MIT Press.
Pinker, S. (1997) How the Mind Works, New York: Norton.
Plotkin, H. (1997) Evolution in Mind, London: Alan Lane.