

**The Acquired Language of Thought Hypothesis (ALOT)
(Long abstract)**

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Dual process theories of human reasoning and rationality are theories about cognitive architecture. One step in understanding this architecture is determining how the distinct serial and parallel processing systems interact. My thesis about the nature of this interaction falls under the cognitivist conception of the connection between language and thought (Carruthers and Boucher 1998). In particular, I contend that the common vehicles of thought, the basic representations over which these systems operate, are the words of our natural languages. In short, our lexicon is the bridge that makes the dual processes, processes of the same mind.

The structure for which I am arguing is that of an interconnected network of natural language words. This, of course, is hardly a new claim; something along these lines is a cornerstone of associationism and is even endorsed by the archenemy of associationism: Jerry Fodor. “Suppose the mental lexicon is a sort of connected graph, with lexical items at the nodes and with paths from each item to several others” (Fodor 1983, 80). What is importantly new about my proposal is how the lexicon is situated in the overall architecture.

I claim that the lexicon is not part of a language faculty in the way that linguists have understood it to be. While the data from aphasics do not yet admit of

uncontroversial interpretations, there is some evidence that general cognitive abilities dissociate more from grammatical than verbal abilities (Varley 1998) and there is also evidence of dissociations between grammatical and lexical competencies, supporting my position. The alternative to a modularized lexicon that I am proposing is that as we learn words of our natural language they are encoded into our brain at interface sites between modules. Activity in a number of modules can token a word. Words are also connected to each other, thereby *creating* a centralized cognitive domain in which activation of any word has the potential to cause the activation of any other word. Furthermore, since they are words of a natural language, having the requisite syntactic features, words can be operated on by the modular grammatical processors that linguists have identified. Thus parallel processing provides novel content to a serial processing system that is compositional. An example will help make the proposed structure more concrete.

David Milner and Melvin Goodale (1995, 1998, 2004) propose a dual route model of vision. The older dorsal stream is involved in action. It helps us respond to the real time dynamics of our environment, allowing us to duck, grasp, reach, etc. This stream can be thought of as a modular sensory-motor system that does not involve higher cognitive processing. The more recently evolved ventral stream is involved in object recognition. When we do recognize an object we are in a position to recall past encounters with the object, or objects of the same type, we are prepared to make certain inferences about it, and to behave in a number of relevant ways in response to it. In order to call up relevant memories, make appropriate inferences, and behave appropriately, the visual system has to interface with other systems. We are committed to the existence of these interface sites independently of any claims about dual processes of human

reasoning. I am claiming that our neural encoding for natural language words exploits these interface sites. The ventral stream's role in our recognizing a dog *qua* dog is to produce signals that will activate appropriate cognitive and motor responses. My view is that the word "dog" is encoded in our brain so that when it is tokened the same cognitive and motor responses are activated as would be by visual (or auditory or olfactory) recognition of a dog and in this way the word stands in for what it represents. Learning words gives us new access to the pre-existing interface between modularized systems.

Once words are encoded in the system they can be associated with each other to form a lexical network. While it is possible that we possess some kind of innate representational system that mediates the learning of words, such as Fodor (1975) suggests, for several reasons it is not plausible that those representations are interconnected in the way that our natural language words must be. First, many associations are culturally mediated and so cannot be innate, such as 'salt' with 'pepper', 'cup' with 'saucer', or 'Jack' with 'Jill'. Second, it is more conservative to impose structure on newly encoded representations, leaving our innate system intact, which has the advantage of not compromising existing cognitive abilities. Finally, priming effects show that words can be connected in a variety of ways, some of which depend on the physical properties of the words themselves, such as pronunciation or spelling, which innate representations are not likely to share.

My position deviates from standard dual process theories in that the parallel processing operations of the interconnected lexicon are higher cognitive functions. However, I do not deny that other higher cognitive functions are serial because I do not deny the existence of a language faculty much as linguists have described it. It is possible

that many different mechanisms can operate on the lexicon, each being sensitive to specific features of lexical entries. For example, phonological processing is sensitive only to phonological features and ignores many other syntactic features of a lexical entry. The lexicon does not have to be part of a language module in order for there to be a language faculty—so my view does not conflict with at least the spirit of linguistic theories¹—and much of this processing is serial. My emphasis in this paper is how words of our natural languages provide the common ground over which these two systems operate, thereby facilitating their interaction. Since the lexicon of a natural language plays this crucial role in our ability to reason, I call this position the acquired language of thought hypothesis or ALOT.

References

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¹ It is interesting to note in Minimalism how much is built into the lexicon.

