NOTAS CRÍTICAS

The Language of Thought: Still a Game in Town?¹
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LOT2 is a renewed presentation of Fodor’s epochal defense of a language of thought as the representational medium for our thinking. The book The Language of Thought [LOT]² was published in 1975 as an essay in “speculative psychology” (half theoretical psychology, half philosophy of psychology), with the goal of providing a theoretic ground for the new cognitive sciences that at that time were in the making. According to this theory, mental states are relations between organisms and syntactically structured mental representations, and mental processes are computations defined over such representations (taken together, these basic conditions define cognitivism in general). Thus, beyond a general commitment to a functionalist view of mental states, Fodor’s theory contends that the mental consists in computational processes over mental representations (“no computation without representation”, was the slogan in 1975’s LOT).

It is difficult to exaggerate the influence that such a view of mentality has exercised in the field, and in the philosophy of mind. In this regard, it was highly successful, and turned Fodor into a leading contemporary philosopher. Thirty five years after the original publication, it seems fair, and somehow timely, to raise the question of the continuing appeal of this programme, and to ponder to what extent this theoretical approach is still the most plausible or convenient programme in Cognitive Science: back in 1975, the language of thought was forcefully argued for by Fodor as “the only game in town”, through inference to the best explanation. So the question now is: is cognitivism still
“the only game in town”? And if the answer is negative, another one follows: Is it still an appealing “game in town”?

These are not, though, the kind of questions Fodor raises in this sequel to his influential book. LOT2 is not exactly a reflection on the current status of the Representational/Computational Theory of Mind (or cognitivism) as a general programme in Cognitive Science. It is rather an extended argument for a particular understanding of the language of the LOTH, among other versions, but surprisingly this time quite disconnected from current empirical research, and remarkably, disconnected from the many criticisms levelled against the LOTH and cognitivism in general as a viable research programme for Cognitive Science. While in 1975 it was this link to the empirical study of cognition that drove the argument, LOT2 is unfortunately silent in this respect, and silent about alternative programmes. In this sense, LOT2 cannot be seen as a work in the philosophy of psychology, or theoretical psychology (unlike Fodor, 2004, for instance), but rather a contribution in the philosophy of mind and language, and therefore, its potential influence in the field can only be dim, in contrast with the first LOT.

This is not the only change of focus in LOT2 vis-à-vis LOT. While back in 1975 the targeted adversaries were reductivist views of the mind (most notably behaviourism in their different guises), in LOT2 the adversary is pragmatism, in particular, concept pragmatism (as it has been consistently for Fodor at least since the nineties). This has to do with increasing attention being paid to the semantics of mental representation, a dimension of the cognitivist programme only mentioned, not even outlined, in LOT; here, another defence of Fodor’s genuine referentialist view of content, and of a causal, atomist, theory of reference, take center-stage. Other interesting changes of focus have to do with concept nativism, where an important twist to the antinomic argument in LOT is introduced; and with the acceptance of images (discretely called “iconic representations”) as a form of non-conceptual mental representation. Finally, there is an important change of argumentative “alter-voice”: the good-old-voice-of-common-sense “Granny” is here substituted by a “Shark”, whose role is that of a skeptical challenger of Fodor’s proposals. All in all, the book is deep as usual, and full of interesting arguments, stimulating digressions, and extremely amusing, Fodor-style, comments, even if more committed to the defense of an entrenched, barely plausible, position, than to show that position to be “the best explanation”, much less “the only game in town”. Fodor writes from the conviction that he is not riding the wave.

After an introductory chapter 1, where he retells the history of the LOTH and sets the goals for LOT2, chapter 2 offers a renewed attack against concept pragmatism (more particularly in the form of conceptual role semantics). Concept pragmatism, in general, drops the requirement of explicit representation of the corresponding rules for concept possession (the sort of task that in
LOT was attributed to “meaning postulates”). Just behaving according to the rules (finding some inferences “primitively compelling”, according to Peacocke’s version, for instance) is claimed to be enough to be granted concept possession: explicit representation is substituted by dispositional, tacit, knowledge of the rules. Fodor has repeatedly targeted such an approach, for violating compositionality and for being circular. I think Fodor’s got a point in insisting that conceptual role semantics lacks a principled account of what inferences are constitutive of the concept (what rules, or meaning postulates, are to be honoured to count as grasping the concept), but his rejection of dispositional rule-following is not so compelling. Fodor makes a very strong claim in this regard: “following R requires that one’s behaviour have a certain kind of etiology; roughly, that one’s intention that one’s behaviour should conform with R explains (or partly explains) why it does conform to R. A fortiori, you aren’t following R unless R is the ‘intentional object’ of one of your mental states” [pp. 37-38, Fodor’s emphasis] --, which in fact amounts to a rejection of such notions as tacit or implicit knowledge, know-how, practical knowledge, which were found instrumental at the Linguistics and Philosophy Department of MIT to account for our knowledge of grammar.

Chapter 3 offers an updated version of Fodor’s referential semantics, and his way to deal with Frege cases, without appealing to Fregean senses; for Fodor, the psychological differences regarding co-referential expressions are due, not to semantic differences in the contents of those mental states (all there is to semantics is reference), but to “formal” differences in the syntactic vehicles of this content, the language of thought expressions that express the same content. Fodor examines two cases: a) The two co-referential expressions differ in complexity: one is a primitive (“simple” in classical empiricist terminology) expression, one is a complex, structured one; in this case, the linguistic difference is assumed to correspond with a difference at the language of thought level. b) Both expressions are “primitive”: this is the difficult case, because he should provide a principled account for individuating mental symbols that goes beyond content (because in terms of content alone they are identical), to syntactic form, but if both symbols are primitive they appear to be also syntactically equivalent (in terms of the well-formed formulas they can be part of). Thus, Fodor exploits the analogy to language once more, and resorts to a sort of “orthographic” [p.80] difference between them at the level of the language of thought, thus implying that the “syntactic properties” depend on something intrinsic to each representation. However this is unsatisfactory, because what he needs is a difference in inferential role between both primitive expressions in virtue of their form; his account is either circular, or the individuation of primitive mental state types depends not just on semantics but also on inferential role: a version of conceptual role semantics, which he is at pains to avoid. The problem lies in that the account lacks a principled account of mental symbol [Schneider (2009)].
In chapter 4, the well-known problems of cognitivism with central cognition are rehearsed once more. LOTH establishes that mental processes must depend on local properties of representations, but that’s not the case with belief fixation and many other cognitive processes, which are sensitive to relevance and simplicity considerations. While it is not raised here, Fodor position has been over the years that LOTH is just valid for modular processes, which would characterize input systems; however, there is a growing consensus that input systems are not modular in that sense either, because they are not derivational (not even inferential). On the other hand, the non-locality of mental processes has been Fodor’s master argument against adaptationist Evolutionary Psychology’s contention to the effect that central processing doesn’t make evolutionary sense, and against the latter alliance to “massive modularity” as a way out of such problems. Therefore, if modular processes are not derivational, as required by the locality constraint, massive modularity is a non-starter as an account of mental processes.

In this regard, though, it is somehow disappointing that after so many years, Fodor doesn’t reach, by “inference to the best explanation”, the conclusion that seems more plausible: if cognitive processes exhibit non-locality (as “inference to the best explanation” itself shows), then cognitive processes are not representational-computational, as claimed by the LOT. Intentional realism needs another strategy to get vindicated. In other words, Fodor keeps providing the best reasons to be skeptical of his own proposal, but somehow he manages to view such reasons as an anomaly that can be isolated within the programme.

The next chapter is on concept nativism, probably the most striking feature in LOT. There the argument was quite simple: if concepts are learned by hypothesis generation and testing, then a vehicle to express the hypotheses about their content is required in the first place, to represent the conditions under which the concept applies; and this representational medium cannot be learned, on pain of a regress; hence, all concepts are innate. This argument took center-stage back in 1975, and did more evil than good to Fodor, in making him a “wild rationalist”; the argument was inspired by the classical philosophical discussion in Modern Philosophy on a priori knowledge and the limits of empiricism to account for the modal force of logical and mathematical knowledge; in the hands of Fodor, it generalized to all concepts (like a Platonist). In LOT2, the novelty in this regard lies in the reformulation of his point; it is not anymore claimed that “all lexical concepts are innate”, but rather that “concept learning as hypothesis testing” is a mess; therefore, there is no need for the conclusion that “all concepts are innate”, for two reasons. First, he’s become aware that “non-learnt” is not the same thing as “innate”: as it has been convincingly argued [for instance, Bateson (1996)], “innate” has been used with six meanings: present at birth, a behavioural difference caused by a genetic difference, adapted over the course of evolution; un-
changing throughout development, shared by all members of a species; and non-learned. Fodor does not distinguish in all these different ways to understand what “innate” may mean; he just acknowledges that “non-learned” doesn’t equals “innate”. The important thing to underline is that these different meanings of “innate” are not co-extensive: a feature or behaviour may be properly termed “innate” according to one of these notions, but “not innate” according to another.

Even more to the point, the right conclusion of his former argument, he now realizes, is that the model of concept learning as “hypothesis formation and testing” is confused, also a welcome conclusion for those [like Gomila (1991)] that reacted to his argument by pointing out precisely that concept learning required an alternative model. Back in the nineties, an alternative model was already offered by the new connectionist models, where no explicit representation of anything is required, an approach that has become mainstream [Rosch (1999)]. In LOT2, Fodor still resists such models as accounts of concept learning, and offers instead a mystery theory of concept acquisition through stereotype learning from which somehow the brain magically acquires the concept (a modern exemplification of an “ad hoc” hypothesis); in other words, he proposes that concept acquisition cannot be explained as a psychological process, but as a neurological one: once we get enough information about an area of experience, our brain manages to create “the right concept” about such area of experience. This is not very satisfactory, and not very convincing, and not in tune with the best empirical models: Fodor is well aware of that. His resistance to accept current models of concept acquisition goes back to his rejection of conceptual role semantics, and Fodor thinks that prototype theory is a form of conceptual role semantics, which doesn’t guarantee compositionality as an account of the systematicity of thinking. It also may have to do with his atomism about concept individuation, which requires a sort of metaphysical necessity connecting properties with mental types, even when such nomological connections are mediated by complex epistemic states. But here, as in concept individuation, he wants to keep such mediating states out of the content of the concept identity, which at the same time causes problems for mental symbol individuation, because of the possibility of two mental types with the same content. Again, it is not inference to the best explanation, or simplicity that is driving Fodor’s reasoning, but rather the commitment to some basic philosophical assumptions.

Chapter 6 offers a vindication of non-conceptual content and non-conceptual mental representation, which in fact amounts to a partial withdrawal of Fodor’s attack against iconic representation, which was one of the strands in LOT in his case for a language-like kind of mental representation. Iconic representations are still kept out of the realm of conceptual thinking, but they are accepted as “the data” which support conceptual content. Fodor’s case for non-conceptual content is an empirical argument that appeals to psy-
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Psychological experiments on very early perceptual processing, which show that we are able to retain visual or auditory information as sensory stimulation, for less than 2 seconds. Non-conceptual content, for Fodor, contributes to a view of the connection between experience and thought that is Kantian in flavour, basically to oppose McDowell’s hyper-rationalism, according to which we are always within “the space of reasons”. Non-conceptual content, on the contrary, makes possible a causal link with the reality. The problem, to insist, is that this is combined with a strong realist view of concept individuation, which claims a mysterious coupling of world and mind, cancelling out the mediating processes that make possible such a coupling.

This strong realism comes center-stage in chapter 7, where a new defense of the causal theory of reference is offered. It may be an anecdote, but in this version, he makes a remarkable use of Davidson’s notion of triangulation (introduced to account for our experience of a common, objective world), to answer the classical objection against causal-informational theories: which causal-informational link is the one that counts to fix the reference of a mental state, of all those that intervene in any informational chain. Of course, Fodor is at pains to insist that his use of this notion in no way commits him to a social conception of objective thought, even if his account of the causal-informational relations that fix the content of a mental state requires some sort of social interaction, plus an indefinite number of mediating epistemic states.

After going through the book, it’s now time to raise the legitimate questions concerning Fodor’s theory: is it still “the only game in town” for Cognitive Science? The answer, it seems to me, is clearly no. Research in perception, decision-making, or linguistic processing (the three fields of research singled out in LOT as exemplifying the “rules and representations” approach that the book systematizes), no longer assume an inferentialist, syntactical, view of such processes as symbol-crunching. In most areas, connectionist models have taken the lead, and associative explanations have the upper hand [O’Reilly & Munakata (2000); Mareschal et al. (2007)]. Dual theories still try to allow for some kind of rule-governed patterns in effortful, time-consuming, high-level processes, besides the basic intuitive, emotionally biased, quick and automatic processes that barely take time [Evans & Frankish (2009)]. But even for such theories, rules are not supposed to be explicitly represented in any way, but pragmatist accounts of rule-following are assumed [Gomila (2002)]. Even people committed to some form of innatism (like the “core-knowledge” view of infant cognitive development; vid. Spelke (2002)), assume concept possession not as explicit representation but in terms of behaviourally honouring “proper transitions”. Not to mention clear alternatives, such as dynamicism [Spivey (2007)], that contends that the prima facie evidence of symbolic representation in the mind is due to the methodological paradigms used, that elicit discrete responses that stop the cognitive process-
ing, instead of focusing on continuous processing as it naturally happens. Motor learning and motor control, sensory-motor coordination, development,... are examples of phenomena for which the dynamic explanations are clearly superior [Calvo y Gomila (2008)].

If it’s not “the only game in town”, is the LOTH still a “game” that counts? The answer, it seems to me, is “yes, to some extent”, but in a trend of decreasing relevance. On the one hand, there are all the classical problems, well detected at least since the early 80s, for which cognitivism has no satisfactory answer yet: the grounding problem, the frame problem, the affective dimension of emotions, consciousness... In fact, Fodor was well aware of the limits of his programme, already in 1975 (in the conclusion), and has been combining his defense of the LOTH with skepticism about its scope in a consistent manner. In LOT2 the “original sin” of cognitivism is described as the problem of the non-locality of mental processes (chapter 4). Hence, it turns out that, while Fodor himself provides one of the strongest arguments against the language of thought hypothesis, he refuses to accept the consequences that follow. Of course, they are not deductive consequences; but given his emphasis on inference to the best explanation, the most reasonable option is to look for a model of mental processes that can account for such non-locality.

On the other hand, the LOTH is still alive through the continuing relevance of the systematicity and productivity of thought arguments, for which it is contended to be the best explanation. But this is also problematic, for several reasons. On the one hand, it is not clear that thought is systematic in the way Fodor conceives of systematicity, as algebraic combinatorial possibilities. Thus, Fodor keeps insisting in his “pet example” of what systematicity is: “brown cow” involves the tokening of these two symbols “brown” and “cow”, and its meaning is the algebraic intersection of the cows and the brown things. But as “pet example” illustrates, this is not how words, and meanings, compose (a “pet example” is not the intersection of pets that happen to be examples): meanings compose in a rather context-dependent way. Not in this case, but in general; take any example you can think of: “cupboard”, “tea cup” “brown orange” or “winter garden”...; in each case, the way the basic meanings compose is variable, dependent on the lexical context, the analogies chosen by the speakers, and the very component meanings involved, to the extent that it is not true that, if one understands “X” and “Y”, one will also understand the combination “XY”, as required by systematicity (a well studied phenomena, cf. Estes & Glucksberg (2000); Costello & Keane, (2000)).

Secondly, and even more to the point, there is no evidence for the systematicity and productivity of thought before the development of language, at the end of the second year. According to the “core knowledge” view of development [Spelke (2002)], for instance, babies come equipped with modular
packs of knowledge of specific contents (numerical, physical, biological, intentional), but such knowledge does not combine productively; it is rather encapsulated and context-dependent. The role of language in development, for this approach, consists in making possible the interaction among the different modules [Carruthers (2006)].

This evidence suggests that it is language that provides our thinking abilities with new expressive powers [Gomila (2008)]. The order of explanation, accordingly, should not be the one proposed by Fodor, of accounting for the systematicity and productivity of language in terms of those same properties at the thinking level, but rather the other way around: the recursive mechanism that evolved for making possible the expression of an infinite number of thoughts through a finite number of elements [Hauser, Chomsky, Fitch (2002)], provides also the key to its parallel power in thought. As a matter of fact, longitudinal studies of language development clearly show such a “phase change” at around 25 months: up to that moment, infants proffer restricted lexical combinations, and thus, suddenly, they being to productively and systematically combine the lexical items learnt, as if they grasped the rules of syntactic combination [Ninio (2006)]; and that’s the first evidence of systematic and productive thought. Remember also that the way Fodor argued for the language of thought was by assuming such parallelism with language. It was the model he assumed for learning the language, as hypothesis testing, that required a medium of representation for the hypotheses to be expressed, but once such a model of concept learning is avoided, what follows from assuming it is no longer relevant. Attention should also be paid to the fact, overlooked by Fodor, that our language is not fully systematic and compositional, even in the context-dependent way suggested, as the phenomenon of opacity reveals.

It remains to be seen, though, whether dynamicist models can account for the systematicity and productivity of thought, even when it is restricted to linguistic beings, with distributed representations, or with attractor states which can barely be called “symbolic representations” in any substantial sense [Calvo (2008)]. Or whether it is better to opt for “hybrid” architectures, that combine connectionism processing at the basic level, with fake symbolic processing at a higher level [Sun (2002)]. The fate of Fodor’s language of thought seems linked to the fate of such hybrid architectures.

At this point, though, it could be argued, as Fodor does in LOT2, that his interest is in “personal psychology”, rather than in cognitive psychology, or cognitive science in general. Remember that the Representational-Computational view of the mind was also an attempt to “save” folk, belief-desire, psychology, our standard attribution of propositional attitudes, and our standard way to explain rational human action. Such attitudes were analyzed as triadic relations, that involve the organism, a mental representation, and a particular computational relation to such mental representation, which was
explained in functional terms, through the metaphor of different “boxes” in the mind: the belief box, the desire box ... Thus, it could be said that, even if most cognitive processes cannot be seen as rational or personal, but intuitive and associative (in fact, this is probably the best “motto” to summarize the last decades of research in psychology), and hence, its symbolic-computational character can be called into question, it is still possible to keep the language of thought as the medium of rational thinking and rational decision-making, at the personal level. In fact, Fodor proposes in some passages of LOT2 something similar. This is a complex issue that would require an extended treatment, but concerning Fodor’s proposal, he is in a desperate position, given his own arguments showing that personal processes do not honour the locality constraint that his purported medium of representation requires. In other words, personal processes cannot be accounted for by computational processes that take place in virtue of the syntactic form of the propositional representations, as the language of thought hypothesis requires, because they are typically not local.

In conclusion, LOT2 is useful in making clear the relevant issues, but Fodor is getting cornered in a desperate position: central, personal, processes cannot be accounted for in terms of the Representational-Computational theory of the mind, because they are not local; on the other hand, modular, automatic, processes, which seem to be local, are mostly associative rather than inferential: cognitivism seems to lose ground on both counts. Fodor, though, avoids the big issues and pays attention to mostly semantic (and some epistemic) issues within the philosophical community, but even there without much success. Of the three big issues in the philosophy of mind – consciousness, intentionality/semantics, and rationality/intelligence [Gomila (2007)] –, LOT was promisory for the last two, but LOT2 is only concerned with the second, and far from the mainstream. In terms of Lakatos, Fodor’s has become a regressive research programme.

In part at least, this situation is due to the basic philosophical commitments of Fodor: rationalism vs. empiricism, realism vs. anti-realism. Unfortunately for Fodor, these two lines of confrontation do not always coincide, but rather generate a kind of tragic conflict (not just for Fodor): rationalism, in stressing the role of the synthetic and productive spontaneous activity of the subject, ends up in idealism and pragmatism, that is, forms of anti-realism. As a matter of fact, Fodor appeals more to Kant than to Descartes in his deployment of classical anti-associative, anti-empiricist, arguments, which point out the role of the subject in the configuration of its psychological experience; it is clearly Kant who inspires his central discussion of concept acquisition, and how to conceive of the connection between experience and thought. Nevertheless, Fodor avoids the epistemological and ontological consequences that this subject psychology involves, sticking to such views as naïve realism and truth as correspondence, so that his semantics is equally
naïve and tautological (the word “cat” means CAT), just as a logical semantics, where properties and individuals are postulated for each linguistic term. No big deal and far from the ambitions of the programme.

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NOTES

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2 LOT will refer to Fodor (1975) and LOT2 to Fodor (2008). To avoid confusion, I will use LOTH to refer to the language of thought hypothesis in general.

3 There is a third basic commitment, his anti-Darwinism, which deserves a special treatment. Thus, What Darwin got wrong [Fodor & Piatelli-Palmarini (2010)], goes beyond the typical anti-adaptationist arguments against evolutionary psychology, to become a full-fledged attack against Darwin’s natural selection as an explanatory mechanism of evolutionary change.

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RESUMEN
La recensión del libro de Fodor LOT2, una puesta al día de su hipótesis de “el lenguaje del pensamiento”, brinda la ocasión de evaluar su relevancia en el presente. Se afirma que no sólo no es “the only game in town”, sino también que su condición no es demasiado prometedora. Fodor parece haber escrito LOT2 desde su convicción de que ya no está en la cresta de la ola.

PALABRAS CLAVE: Fodor, LOT, lenguaje del pensamiento, sistematicidad.

ABSTRACT
The review of Fodor’s LOT2 update on his “language of thought” hypothesis, is the occasion for an exercise in pondering its current relevance. It is claimed that, not only it is not “the only game in town”, but that it is not in a very promissory condition. Fodor seems to write LOT2 from the conviction that he is no more riding the wave.

KEYWORDS: Fodor, LOT, Language of Thought, Systematicity.
Philipp Blom

Años de vértigo
Cultura y cambio en Occidente, 1900-1914

ANAGRAMA
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