

LANGUAGE AND THINKING: MOTIVES OF PINKER'S CRITICISM OF WHORFIAN LINGUISTIC RELATIVISM

In *The Language Instinct* (1995 [1994], henceforth: TLI), a book that despite its popular character has become virtually a classic in discussions concerning the innateness of language, Steven Pinker attacks the broadly understood “Whorfian” standpoint according to which human thinking is influenced in fundamental ways by one’s native language. Due to the status of the author and popularity of the book, it is an influential voice in the ongoing debate on the mutual relation between language and “thought.” Rather than joining this debate, in the present text I would like to examine the construction and integrity of Pinker’s argumentation in TLI. I suggest that this author’s attack on broadly understood interdependence of language and thought is motivated by his general theoretical commitments, rather than by independent evidence.

1. Introduction and the reconstruction of Pinker’s initial position

The best way of reconstructing Steven Pinker’s initial position is by situating his views in the general spectrum of approaches present in contemporary Cognitive Science. Pinker’s principal commitments appear to be evolutionary, which is visible in his popular reception, where he is recognised as an evolutionary psychologist much more readily than as a linguist or psycholinguist. Such a theoretical inclination often goes together with two general views: nativism and modularism; views that are separable, but related and mutually supporting. Steven Pinker is an advocate for both nativism and modularism with respect to language, as well as to cognition in general.

In crudest terms, **nativism** is a view according to which human knowledge (or, more generally, the content of the human mind) is in some vital part innate. Two remarks are in

order at this point. In the above context, “knowledge” need not be understood in the traditional philosophical way, i.e. as justified true belief, or even to have propositional format. “Knowledge” may instead comprise any kind of mental structures, such as representations, concepts, behavioural strategies or heuristics; and minimally, all mental mechanisms that are more specific than a “general learning mechanism.” Also, and quite obviously, “innate” does not mean “present at birth,” but rather “largely genetically predetermined,” or in more modern vocabulary that shuns binary nature/nurture distinctions, “having a relatively stable developmental path that leads to similar results over a large range of diverse environments.”

In discussions of nativism it is helpful to distinguish it from rationalism, of which nativism is a natural historical successor. While rationalist doctrines are by definition nativistic, this does not hold in reverse; in particular, the role of abstract reason by which “truths” (especially logico-mathematical truths) were deductible from the stock of basic innate “truths” is among principal rationalistic commitments that a nativist does not need to share (not to mention the appeals to the alleged supernatural sources of those innate ideas, common to some versions of rationalism). Nativism, at least such that is held by contemporary cognitivists, is a fully naturalistic standpoint whose principal inheritance from the earlier tradition is the commitment to the importance of innate, as opposed to environmentally supplied, factors in shaping human cognition.

Modern-day nativism was born as a reaction to an extremely empiricist doctrine of behaviourism, and is probably best described in opposition to empiricism¹. It is important not to misconstrue either position by crediting it with extreme and hence untenable claims. On all accounts, whether nativistic or empiricist, human development crucially involves interplay of both innate factors and environmental information acquired through the senses. However, the distinction between nativism and empiricism is genuine and not purely verbal, and the differences between their accounts are quite fundamental. Empiricism and nativism disagree on the extent and character of those factors’ relative contributions, which is reflected in their choice of different basic metaphors to describe development and learning. On the empiricist account, only the most basic mechanisms are laid down in isolation from environmental inputs; learning is conceptualised as accretion – a gradual construction of more and more

¹ To avoid confusion, it is useful to distinguish between empiricism as an epistemological as opposed to developmental position (cf. Botterill and Carruthers, 1999:50). This former sense of “empirical”, meaning “based on observation and experiment” is opposed to “speculative” and is unrelated to “developmental” empiricism that is opposed to nativism.

abstract structures from building blocks that are supplied by the senses. On the nativistic account, learning is compared to growing according to a pre-planned schedule; far from providing any materials from which to construct knowledge, environmental inputs are limited to acting as triggers to latent abilities, or to making selections within a scope of pre-specified solutions.

Modularism is a view according to which the mind has a modular structure, that is, it is a collection of functional parts that work in relative isolation from one another. Consequently, the (human) mind is not simply a uniform general purpose computer that is equally efficient at (and equally suited to) processing any type of information by the application of the same general computational mechanisms to all kinds of data on all levels. Modularistic approaches construe the mind as a collection of elements that operate largely independently from one another, each being responsible for processing a specific kind of information according to its own, often idiosyncratic, mechanism. Two best known conceptions of modularity are Fodorian modularity and “massive modularity” proposed by evolutionary psychologists. Those two conceptions, although often conflated, differ in important points and must be clearly distinguished.

On Fodor’s (1983, 2000) account, the number of modules is low, possibly limited to basic-level sensory input systems and language. Modules are characterised (at least, to quote Fodor, “to some interesting extent”) by a set of properties, including domain specificity, mandatory operation, rapidity of operation, narrow cerebral localisation, and fixed developmental paths. However, the most fundamental and indeed defining property of modules is their *informational encapsulation*, i.e. their having no access to any information that is external to the module. Informational encapsulation ensures the local character of computations performed by modules; they are impenetrable even by potentially relevant information from outside, which makes their operation fast and automatic. By contrast, “central cognition,” that is, higher-level processes such as belief fixation and decision making, is entirely nonmodular. Central cognitive processes are global and holistic, as they may be influenced by any bit of information from “anywhere” in our cognition (e.g. my decision to go to the party might depend on my present mood, amount of free time, expected company, and countless other conscious and non-conscious considerations). This nonmodular and holistic nature is precisely what makes central cognition so difficult to describe computationally, which is reflected in the problems of Artificial Intelligence.

Evolutionary psychology (e.g. Cosmides and Tooby, 1997; Pinker, TLI; 1997) maintains that it is central cognition that has a modular structure. An often used metaphor is that of a Swiss army knife that is equipped with a large number of distinct parts, each of which is best suited for a fairly narrow class of tasks. Similarly, the human mind is proposed to incorporate a number of considerably independent high-level mechanisms that specialise in particular functions (such as cheater detection, mate selection, social calculus, etc.), having been shaped by selection pressures in our species' evolutionary history. Note that the above thesis, sometimes referred to as “massive modularity,” stands in clear contrast to Fodor's proposition and has been targeted for criticism by this author (Fodor, 2000). Steven Pinker has consistently subscribed to the version of modularity championed by evolutionary psychology (Pinker, TLI; 1997).

Although modularism and nativism are natural allies and are often discussed and defended as a package, it should be noted that not all versions of modularism need automatically imply strong nativism; see Karmiloff-Smith (1994).

2. Consequences of the postulated modular nature of language

For Pinker, language is one of a number of the mind's modules. Classifying language as a module bears the following consequences:

- it is (in some substantial part) independent from other cognitive capacities,
- it is innate, in the sense of “innate” described above,
- (according to “massive modularity”) it is an adaptation, i.e. has been formed in the process of natural selection in the evolutionary history of our species,

Note that the above theses are falsifiable, at least in principle:

- “*independence*” predicts the existence of double dissociations between language and the rest of cognition, i.e. situations where language impairment is found to coexist with wholly preserved

other cognitive capacities, and vice versa, where language is spared despite a general-cognitive impairment. Such cases have indeed been recorded. Examples include Specific Language Impairments (e.g. Gopnik, 1997), aphasic patients, and “wolf children” in the former case, and isolation syndrome², hydrocephaly and Williams syndrome in the latter. However, closer studies often reveal that the dissociation, although present, is not complete.

- “*innateness*” in the above sense predicts the existence of hereditary selective language impairments (SLIs) and genes “responsible for” language. In this respect, empirical confirmations have also been found (SLIs as mentioned above; the damage to FOXP2 gene has been found to underlie a number language related deficits, e.g. Marcus and Fisher, 2003).

Innateness of language also suggests a certain inflexibility of the developmental path, which has been supported by cross-cultural developmental data: despite dramatic cultural differences, and differences in sorts and amounts of linguistic input received by children, very similar patterns of language acquisition have been observed, with the presence of characteristic critical periods. Arguments from the poverty of stimulus have been the traditional linchpin of nativistic theories and although nonempirical, such arguments can provide strong support for language innateness (e.g. Chomsky, 1986).

- *adaptiveness* is difficult to prove empirically; however, that language is adaptive follows directly from our recognition of language as a complex functional biological system. The only known biological mechanism capable of producing complex functional systems is natural selection³. There are standpoints that deny or question the adaptive nature and origin of language (S.J. Gould, N. Chomsky, possibly J. Fodor – see Pinker and Bloom, 1990, for an extensive review and refutation), but they are in the minority.

The first of the above three theses is particularly relevant to the controversy about the relation between language and thought and sets the stage for Pinker’s attack. If language is a module – one of many component parts of a modular mind – it must be largely dissociable and

² In classical “isolation syndrome” patients have relatively well preserved traditional “language areas” – Broca’s and Wernicke’s areas together with the connection between them (arcuate fasciculus) – still, as a result of damage to other connections those areas remain isolated from the rest of the brain. Such patients do not initiate behaviour (including language behaviour) but are capable of repeating expressions that they hear (without signs of comprehension) and even of correcting mistakes present in such expressions (Whitaker, 1975:38).

³ Note that this is by no means equal to the statement that natural selection was *the only* evolutionary mechanism that was active throughout the evolution of language. That latter statement would be untenable panadaptationism (Gould and Lewontin, 1979). Many evolutionary mechanisms might have played a role (and probably did play a role) in the evolution of language; however, the relatively most important of them must have been natural selection, since no other mechanism (or combination of mechanisms) has a remote probability of producing a very complex functional system.

independent from other component parts. An advocate of the modular nature, innateness and “uniqueness” (unquestionable species-specificity) of language is ipso facto obliged to prove that language is in important respects autonomous from other cognitive functions. If, however, language cannot be disentangled from such functions, claims to modularity become diluted or altogether invalidated. This dependency is reflected in quotation from Pinker (1995):

A famous hypothesis, outlined by Benjamin Whorf (1956), asserts that the categories and relations that we use to understand the world come from our particular language, so that speakers of different languages conceptualize the world in different ways. Language acquisition, then, would be learning to think, not just learning to talk.

More interestingly, Pinker resolves the above difficulty in one sentence, by a controversial claim that verges on usurpation:

This is an intriguing hypothesis, but virtually all modern cognitive scientists believe it is false.

3. Language and thought, thought and language

In order to begin a more detailed analysis of specific arguments deployed in Pinker’s TLI, we need to specify in some detail the notion of “thinking,” from which language is supposed to be something radically different. It is both possible and common to classify only a certain subset of all mental processes as “thinking;” most often, processes that operate on distinct (=discrete) units (individual “thoughts” or “concepts”) in an ordered way that abides by at least some logical principles, such as productivity and systematicity. However, a fully viable alternative that seems to be in accordance with some of Pinker’s examples would be a broader treatment of thinking, with a conscious nature as the only major constraint, along the lines of the description below:

thinking – the totality of conscious mental processes

“Conscious” admits of diverse interpretation that have profound definitional consequences in other respects, e.g. in considering thinking to be uniquely human or (when conscious is equal to “awake,” “not in the state of unconsciousness”) granting it to higher animals; however, the choice of interpretation at this point has no significant impact of the rest of argumentation.

Under all interpretations, thinking as defined above is manifestly broader than thought processes that have structure isomorphic with linguistic constructions. There are countless mental operations (for example, receiving proprioceptive inputs) that are being executed when we are awake and that in principle cannot be adequately described in language, as their “resolution” is much below the level of verbal description, i.e. words are too abstract and generic to capture certain subtle distinctions. The identification of thinking/understanding solely with the manipulation of linguistic symbols or mental representations for them faces another difficulty that has become obvious since the arrival of Elisa-type programmes, capable of “talking,” but certainly not thinking. (I do not cite Searle’s Chinese Room argument, since it illustrates a related, but different problem). As shown by Harnad (1990), symbol systems do not have meanings in and of themselves, but acquire them only when grounded in sensorimotor contents.

Pinker vigorously adduces additional evidence against the possibility of thinking being performed in linguistic constructions:

- neonates – newborn babies are capable of advanced mental operations long before they utter their first words (TLI: 68-69)
- animals – minimally, gregarious monkeys and apes, although having no language, cannot be doubted to execute highly complex mental processes; such processes are not only of perceptual nature, but also apply to the domain of social cognition (TLI: 69-70)
- mental rotation – mental rotation and similar operations have been empirically confirmed to involve processing that is not linguistic, but imagistic in nature (TLI: 71-73)
- the private feeling of incapability of framing one’s message in words (TLI: 70-71)

This list can be easily extended:

- Mary, the colour scientist (Jackson 1982) – a classic philosophical argument for the conclusion that a person’s knowledge cannot be limited to conceptual knowledge; this is related to the problem of qualia

- emotions, feelings and moods – cannot be fully and adequately expressed in words
- intuition – our capability for making very fast and usually correct decisions without being able to justify them, even after a painstaking *post factum* analysis
- spiral and similar examples – certain words that are notoriously hard to describe in words can be much more effectively conveyed by a simple picture or gesture

Another, and stronger, claim that thinking is *literally* performed in language in real time (i.e. thinking is “talking to oneself in thought,” combining words without making sounds) would be patently untenable, because another argument against it, in addition to all of the above, would be its slowness. To name just one difficulty, figures, charts and other graphic aids would be useless since they would have to be translated into verbal format in real time.

3.1. Orwell’s problem⁴.

An extreme understanding of Orwell’s famous suggestion, i.e. that by the elimination of a given word from a language it is possible to eliminate from a language the corresponding meaning is not so much hard to defend as simply preposterous. The meaning of a symbol is by definition independent from the symbol’s shape, because symbols refer to their meanings in an arbitrary way. In order to eliminate the meaning of e.g. the word “dog,” one would have to effectively eliminate from a language all of the language’s actual and possible symbols, because any of them could start referring to whatever the symbol “dog” previously referred (or, to use a different vocabulary, to function in a very similar way, in a very similar kind of language games), for example, “pies,” “chien,” “domesticatedwolf,” “god,” “ggg,” “xyz.”

Similarly, an extreme formulation of linguistic determinism, such as e.g. “*distinct natural languages create in their users <worldviews> so different that mutually untranslatable*” is clearly groundless. Here, as in other previously mentioned cases, elementary arguments are fully sufficient to discredit such a view, a trivial example being the very possibility of making good translations between languages (TLI: 58). Relevant here is Davidson’s (1974) insight that it is very hard or impossible to pinpoint such untranslatable differences in worldviews

⁴ Although Notes on Orwell’s Problem is the title of a chapter of Chomsky 1986, it is unrelated to the present concerns.

that would have any practical manifestation; in other words, extreme linguistic relativism either does not lead to any specific hypotheses or the hypotheses it leads to are false.

4. What is the actual scope of Pinker's arguments?

Refuting the strong formulation of the relation between language and thought is therefore unproblematic, but it is so only if an extreme interpretation is assumed, such as: "the totality of a human's conscious mental processes is run in his/her native tongue". It is doubtful whether such a thesis requires a refutation at all, since, being trivially false, such a thesis does not seem to have any proponents. In the context of Pinker's conclusions, his strategy has all the hallmarks of a strawman argument.

Problem 1: *Mentalese*.

Having deposed language as a candidate for the vehicle of one's thinking, Pinker proposes that this function is in fact performed by *mentalese* – a language of thought common to all humans. The motives of such a move are unclear. Pinker's discussion of mentalese is framed in a context suggesting that mentalese is an element of the representational theory of mind, which Pinker rightly characterises as the unquestionable cornerstone of contemporary Cognitive Science. It is, however, worth noting that the hypothesis of language of thought is much narrower than the representational theory of mind and does not necessarily follow from the latter (although this holds in reverse, that is, mentalese assumes the representational theory of mind). In other words, one can participate in the efforts of Cognitive Science and be a supporter of the representational theory of mind without at the same time embracing the hypothesis of language of thought.

Problems with introducing language of thought are twofold. Firstly, the logical character of mentalese is a mixed blessing. The hypothesis of language of thought is indeed capable of accounting for the fundamental fact that sentences:

Sam sprayed paint onto the wall.

Sam sprayed the wall with paint.

Paint was sprayed onto the wall by Sam.

The wall was sprayed with paint by Sam.

have – in important respects – the same meaning (TLI: 80). However, in other important respects the above four sentences are different: being different construals of the scene, they highlight different inferences and thus convey different meanings. An adequate explanation of those differences is unproblematic for accounts that postulate different types of mental representation (in particular, Langacker's [1987] cognitive grammar), but pose serious difficulties for the hypothesis of language of thought.

Secondly, and more importantly, most argument against “thinking in words” summoned by Pinker (TLI: 70-73; see section 3. above) become counterexamples against thinking in mentalese. TLI does not offer any hints how imagistic thinking or other nonpropositional kinds of thought could be realised in mentalese. This is understandable, considering that (Aydede, 2005):

LOTH [*language of thought hypothesis* - SW] is an hypothesis about the nature of thought and thinking with propositional content. As such, it may or may not be applicable to other aspects of mental life. Officially, it is silent about the nature of some mental phenomena such as experience, qualia, sensory processes, mental images, visual and auditory imagination, sensory memory, perceptual pattern-recognition capacities, dreaming, hallucinating, etc.

To recapitulate, language of thought, at least such as is proposed by Pinker, is tenable only as a description of a particular type of human mental activity, that is, only of a subset of processes that can legitimately be called thinking. Pinker's argumentation can be made coherent by assuming a narrower definition of thinking, limited to processes of a propositional nature that are subject to the rules of logic. This is consistent with his statement that the vehicle of human thinking is not one's native language, but a more basic, innate, species-specific language of thought. But such an interpretation bears a number of disturbing consequences. Not only is it incompatible with some of Pinker's examples, but also admits, in addition to mentalese, other forms of thinking whose relation to language remains unexplained. On the basis of arguments presented by Pinker it is impossible to rule out the influence of language on broadly defined thinking, and *vice versa*.

Problem 2: language determinism and language relativism

The consequences of Pinker's attack on strong language determinism are not as far-reaching as the author of TLI assumes them to be. Demonstrating that natural languages are not the source of untranslatable or dramatic differences in between the worldviews prevailing in different cultures is not equivalent to demonstrating a stronger claim that they are not the source of any (appreciable) differences. I will limit my discussion to two most prominent examples cited in TLI. On page 63, Pinker quotes Ekkehart Malotki to discredit the famous statement by Whorf regarding the alleged absence of the concept of time in the Native Americans of the Hopi tribe. In fact, Ekkehart Malotki, while refuting Whorf, does admit that for the Hopi time is a phenomenon that is experienced in a different, more "organic and natural" way (after: Alford, 2002). The second example involves categorisation of colours. Pinker concedes that experimental data have documented differences in subjects' performance in colour categorisation and memory tasks, as predicted by either presence or absence of a given term in the subjects' native languages. Pinker downplays the importance of those differences, ascribing them to the existence of two separable memory systems (verbal and non-verbal) that need not influence one another (TLI: 65-66). Nevertheless, this interpretation is too weak to account for more recent data (e.g. Davidoff, 2001), for which a more relativistic interpretation is required.

Arguably, everyone is prepared to agree that one's native language exerts *some* influence on one's "worldview," considering that one's worldview is undeniably influenced by factors such as sex, education and profession. This, however, is a truistic claim of little theoretical value. The problem of Whorfian linguistic relativism/determinism suffers from inherent vagueness⁵; the evaluation of it depends on how it is operationalised. It appears that the debate on Whorf is inconclusive and has a character of a clash of theoretical outlooks, rather than of an empirical question (since it is difficult to think of a methodologically viable experimental construction that would single out one's native language out of other variables and quantify "differences in worldviews"). In other words, the Whorfian stance is impossible

⁵ In most debates, only the following legendary quotation Whorf is provided, being considered the most illustrative (1956: 213): "We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds – and this means largely by the linguistic systems in our minds. We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way – an agreement that holds throughout our speech community and is codified in the patterns of our language."

to operationalise in a way that could falsify or verify it *tout court*. Nevertheless, one can safely state that this debate is very far from being as one-sided as is claimed by Pinker.

Problem 3: *language versus a language.*

The most significant defect of the third chapter of TLI, however, is the lack of a clear distinction into a particular natural language (one's native language, e.g. English as opposed to Polish or Japanese) and language in general (species-specific means of, and capacity for, communicating in words). Let us remind that Whorfian linguistic relativism/determinism, whose strong formulation is targeted by Pinker, regards the dependence of a worldview on a particular natural language. Still, the author of TLI glosses over the above important difference to make more general statements concerning the lack of any fundamental relation between thinking and the general ability to speak *some* natural language. This step from the negation of the role of a language to the negation of the role of language is crucial for Pinker's overall conclusion; however, it is a *non sequitur*. Even if we accept an unproblematic assumption that there exist nonverbal kinds of thinking as well as a much more problematic assumption that conceptual systems of speakers of two distinct languages do not differ in important ways, we still have no basis for the claim that the ability and practice of using language has no significant influence on thought.

On pages 67-68 Pinker cites the case, originally described by Susan Schaller, of a deaf, "languageless" adult, who was able to use diverse forms of abstract thinking, and after having been taught sign language "conveyed" to Schaller parts of his life story. However, it is interesting to examine two fragments of text (bold fonts – SW):

*„Even more pertinent are the deaf adults occasionally discovered who **lack any form of language whatsoever – no sign language, no writing, no lip reading, no speech..** In her recent book *A Man Without Words*, Susan Schaller tells the story of Ildefonso (...);” (s.68)
“Soon he [Ildefonso] was able to convey to Schaller parts of his life story: how as a child he had **begged** his desperately poor parents to **send him to school** (...).”*

It is inconceivable to question the contribution of language as such to the totality of one's cognitive functioning. Categorisation of objects (e.g. Medin and Waxman, 1998:172-3) or shaping of abstract notions (e.g. Luria and Judowicz, after: Kaczmarek 1986:11-12) are among many examples of ways in which language bootstraps and enriches early cognitive

development. Furthermore, a considerable number of technical and scientific as well as everyday notions can make sense only when embedded in a rich network of related terminology and cannot be conveyed in any other medium besides language. Consequently, it is not the trivial fact of existence of a relation between language and thought that is problematic, but rather its scope and nature. The proper question should be formulated as: “in what ways does language impact the development and functioning of mental operations that take place in our minds?” Still, such a formulation is inconvenient for Pinker, since, as we have noted, it considerably weakens the isolation of language from other cognitive processes and in consequence undermines its modular and innate nature.

5. Concluding remarks

A certain option for defending the autonomy of language against the entanglement in the above dependencies is defining it more narrowly. Generativism proves to be a natural ally of the nativistic perspective. From the standpoint of generative grammar, and from the Chomskyan standpoint in particular, language is construed as a set of internalised rules that enable every native speaker to generate an arbitrary number of grammatically well-formed sentences (subject to limitations of performance). The central component of language is syntax, and its most important, and in fact definitional, feature is its generativity, that is, the capacity for producing a potentially infinite number of sentences from a finite number of words and expressions.

Often employed by nativists are variants of “poverty of stimulus” argument by which it can be demonstrated that a child’s language competence is underdetermined by the data available to them; with limited input that typically lacks corrective feedback children would not be able to acquire language basing solely on general-purpose learning mechanisms, but some rules must be pre-programmed genetically. Admittedly, such arguments are indeed convincing.

However, examples given by generativists almost exclusively concern the acquisition of morphosyntax; semantics, if mentioned at all, is limited to basic logical relations (negation, quantification) (e.g. Piattelli-Palmarini 1989, 1994). Pragmatic competence and competence related to more broadly defined semantics, including acquisition of words meanings, are usually totally neglected.

It might be maintained that such areas, being notoriously resistant to formalisation, are less theoretically interesting and occupy the peripheries of the linguistic study proper. The limitation of the focus of linguistic inquiry to the morphosyntactic dimension would also allow to better integrate some of the empirical data mentioned in section 2: in SLIs and the best known type of aphasia, Broca's aphasia, it is syntax that primarily becomes damaged; similarly, critical periods in language acquisition mostly relate to syntax and phonology, while the acquisition of vocabulary does not seem to be appreciably affected. In my opinion, however, this is tantamount to usurpation. Of course, this is a matter of definitional arrangements; a linguist is entitled to defining his object of study in such a way that maximises rigour and fruitfulness. Nevertheless, one must bear in mind that in other subdisciplines of Cognitive Science and, especially, of philosophy, language can be and is treated in a much broader way.

Hence, claims to innateness and modularity of language made on the basis of the evidence quoted above are empty unless they are supplemented by appropriate terminological commentaries. Better still, instead of using those expressions, the proponents of nativism and modularism should speak of innateness and modular nature of certain aspects of language or, simply, of innateness and modularity of syntax. Quite obviously, such a wording sounds strikingly less attractive – which probably constitutes the most important reason against its adoption.

Works Cited:

Pinker, S. *The Language Instinct: The New Science of Language and Mind*. Harmondsworth: Penguin Books, 1995 [1994].

Other Works Cited:

Alford, D. „The Great Whorf Hypothesis Hoax,” *The Secret Life of Language*. 2002.

URL = <http://www.enformy.com/dma-Chap7.htm> ED=09.05.2005

Aydede, M. “The Language of Thought Hypothesis.” Zalta.

URL = <http://plato.stanford.edu/entries/language-thought/> ED=22.05.2005

Bartsch, R. and Theo Vennemann, eds. *Linguistics and Neighbouring Disciplines*. Amsterdam: North-Holland Publishing Company, 1975.

Bechtel, W. and George Graham, eds. *A Companion to the Cognitive Science*. Oxford: Blackwell Publishers, 1998.

- Botterill, G. and Peter Carruthers. *The Philosophy of Psychology*. Cambridge, UK: Cambridge University Press, 1999.
- Carroll J. B., ed. *Language, thought, and reality: Selected writings of Benjamin Lee Whorf*. Cambridge, MA: MIT Press, 1997.
- Chomsky, N. *Knowledge of Language*. New York: Praeger, 1986.
- Cosmides, L. and John Tooby. *Evolutionary Psychology: a Primer*. 1997
URL = <http://www.psych.ucsb.edu/research/cep/primer.html> ED=11.06.2005
- Davidoff, J. "Language and perceptual categorisation," *TRENDS in Cognitive Sciences* 5 (9) (2001): 382-387.
- Davidson, D. "On the Very Idea of a Conceptual Scheme" in: *Proceedings and Addresses of the American Philosophical Association*, 47 (1974): 5-20.
- Fodor, J. *The Modularity of Mind. An Essay on Faculty Psychology*. Cambridge, MA: MIT Press, 1983.
- Fodor, J. *The mind doesn't work that way: the scope and limits of computational psychology*. Palatino: MIT Press, 2000.
- Gopnik, M. "Language deficits and genetic factors," *TRENDS in Cognitive Sciences* 1 (1997): 5-9.
- Gould, S. J. and Richard C. Lewontin. "The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme," *Proceedings of the Royal Society of London* 205 (1979): 281-288.
- Harnad, S. "The Symbol Grounding Problem," *Physica D* 42 (1990): 335-346.
- Jackson, F. "Epiphenomenal Qualia," *Philosophical Quarterly* 32 (1982): 127-136.
- Kaczmarek, B. *Mózgowe mechanizmy formowania wypowiedzi słownych*. Lublin: Uniwersytet Marii Curie Skłodowskiej, 1986.
- Karmiloff-Smith, A. "Precis of *Beyond modularity: A developmental perspective on cognitive science*," *Behavioral and Brain Sciences* 17 (4) (1994): 693-745.
- Langacker, R.W. *Foundations of Cognitive Grammar. Vol. I. Theoretical Foundations*. Stanford, California: Stanford University Press, 1987.
- Marcus, G. and Simon Fisher. "FOXP2 in focus: what can genes tell us about speech and language?," *TRENDS in Cognitive Sciences* 7 (6) (2003): 257-262.
- Medin, D. and Sandra Waxman. "Conceptual Organization." Bechtel and Graham, 167-175.
- Piattelli-Palmarini, M. "Evolution, selection and cognition: from <learning> to parameter setting in biology and in the study of language," *Cognition* 31 (1) (1989), 1-44.
- Piattelli-Palmarini, M. "Ever since language and learning: afterthoughts on the Piaget-Chomsky debate," *Cognition* 50 (1994), 315-346.
- Pinker, S. "Language Acquisition". 1995.
URL = <http://cogsci.soton.ac.uk/~harnad/Papers/Py104/pinker.langacq.html> ED=22.05.2005
- Pinker, S. *How the Mind Works*. New York: Norton, 1997.
- Pinker, S. and Paul Bloom. "Natural language and natural selection," *Behavioral and Brain Sciences* 13 (4) (1990), 707-784.
- Whitaker, H. A. "Linguistics and Neurology." R. Bartsch and Th. Vennemann, eds.
- Whorf, B. L. "Science and linguistics." Carroll, 207-219.
- Zalta E.N., ed. *The Stanford Encyclopedia of Philosophy* (Spring 2005 Edition)
URL = <http://plato.stanford.edu/>