

LANGUAGE RESEARCH AS A MEANS OF UNDERSTANDING COGNITIVE CAPACITY

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ABSTRACT: The human mind is just as complex as the organs of the human body. It is ruled by principles which have been developed in thousands of years during the evolution, and by laws of which we have little (if any at all) knowledge. So how can we gain understanding of the way our mind works? Which are the right ways to examine it? My opinion is that one of the best ways to learn more about the human mind is to carry out thorough research on language and the intellectual functions that set the pattern for its use. To support this claim, I will present some of Noam Chomsky's arguments about the strong connection between mind and language.

KEYWORDS: Chomsky, language research, cognitive capacity, Universal Grammar, Piaget, human mind

This essay will consist of 8 sections, including: 1) a very short summary of some important contributions that Noam Chomsky made to cognitive psychology; 2) a small section devoted to Chomsky's idea about the special design of the human mind; 3) a concise explanation of why grammar research is so important; 4) a brief review of Chomsky's theory about Universal Grammar; 5) a few words about different rival theories, objections and criticism that the Universal Grammar (UG) theory has received over the years; plus two sections, 6) and 7), devoted entirely to Jean Piaget, whose theory about language and its connection to the human mind I strongly disagree with and find to be the complete opposite of Chomsky's ideas on the matter (which are, at least in my opinion, a lot more convincing and insightful); and finally a conclusion – 8).

1. Noam Chomsky and some of his contributions to psycholinguistics and to cognitive psychology in general.

In this section I will briefly outline some of Noam Chomsky's main ideas about the link between human cognitive capacity and the use of language. I will introduce the theory about human language as a "mirror" of the human mind.

Chomsky's approach to the study of human cognitive capacity is subordinate to one essential goal – to obtain an understanding about the psychological aspects of human nature. Chomsky opposes the widely spread idea that the content of the human mind is defined only by and dependent solely upon the senses. He disagrees with authors who view human nature solely as a result of historical circumstances and social factors and who oppose the idea that mental abilities can be inherited and psychological predispositions, etc., because he is convinced that they do not possess solid arguments for their claims. According to him the minds of all human beings have a similar set of innate properties that define the way we think and learn.

If Noam Chomsky is right, then language can be seen as a “mirror” of the mind that reflects many of its various important innate characteristics – for example, the capacity to obtain developed states of knowledge. This capacity is dependent on certain innate structures in our minds that facilitate the process of learning. In order to fully understand the human mind, we should be able to understand those innate structures. Obviously there is a connection between the principles that control the human mind and the principles by which the human mind directs the use of language. The structure of mind is such that it allows us to gain and use developed states of knowledge like the human languages, and it seems very likely to me that as human beings we may all possess similar innate characteristics which make us capable of that. Chomsky suggests that we should concentrate on examining those innate characteristics, if we want to understand the human mind. However, in order to get to them we would need to go through serious language research, since the use of language is one of the most important ways in which they manifest themselves.

Language is special, because it makes the human species unique, and it has probably played an important role in our evolution. It serves many purposes. Communication is only one of the functions that it has. Language is a property that only human beings possess, and according to Chomsky it plays a crucial part not only in our communication, but also in our thought processes and in the way we learn, the way we understand the world, etc. Without doubt it is deeply rooted in human thought.

However, language is not something that one might call a capacity. There is a distinction that should be made between the capacity (or ability) that we demonstrate when using a language, and the language itself. Language itself is not a capacity, but a

cognitive structure. As Chomsky states in the first chapter of his book “Reflections on Language”, we can even possess language as a cognitive structure, without having the ability to use it. Examples for this include certain cases of the disorder aphasia¹ in which the person suffering from this condition may understand a language very well, but is not able to speak it or write in it. This can only show that knowledge and understanding are not at the same level with capacity and should not be confused with it.

2. The idea about special design of the human mind.

According to Chomsky’s ideas, human beings are more suitable for some types of intellectual tasks than for others. He explains this by stating that we have a kind of “special design” for certain types of intellectual work, and not for others. For example, language learning occurs fairly quick and easy for children, because all humans are biologically “programmed” to acquire this knowledge. Even though every language is a very complex cognitive structure, they somehow manage to obtain it for an impressively short period of time and without visible efforts. In other words, “the organism is so constituted that it acquires a system of language that includes meaning-determining rules”, like Chomsky writes on page 70 of his book “Reflections on Language”.

However, this is not the case with other types of knowledge – like physics or chess, for example. Tasks like playing chess are, according to Chomsky, “beyond our natural abilities”². While language is a “product of human intelligence, created anew in each individual by operations that lie far beyond the reach of will or consciousness”, playing chess presents a challenge to our mind, because it goes beyond our innate cognitive capacities. To say this in other words, we are not biologically “designed” to play chess, so we have to choose to make constant conscious efforts in order to do it.

Learning our native language, however, has absolutely nothing to do with choice (although once we have successfully acquired the system of language, we will be able

¹ Aphasia - Neurophysiological disorder which affects the ability to speak, write or understand language. In some of the most severe cases the person is completely unable to use language as a form of expression, even though she may have the necessary knowledge and understanding of it. These are exactly the type of cases that I am referring to in the example. For more information on aphasia and similar disorders, please visit the following website: <http://www.ninds.nih.gov/disorders/aphasia/aphasia.htm>

² See “Reflections on Language”, page 27.

to choose freely whether and how to use it). Chomsky explains that it does not have anything to do with reasons, practice or training either:

“We are dealing here with systems that develop in a natural way as a species of animal instinct, in Hume’s phrase, entirely without conscious choice, without reasons (for the organism), and certainly without any necessity for training and conditioning.”³

The whole process of acquiring language is, according to Noam Chomsky, biologically predetermined by our mind’s innate organization: “We are dealing here with systems that develop in a natural way as a species of animal instinct, in Hume’s phrase, entirely without conscious choice, without reasons (for the organism), and certainly without any necessity for training and conditioning.”⁴ The rules which govern our use of the language, for example, are not something which we consciously choose to accept. As a matter of fact, they are just developed in our minds when we have been exposed to certain circumstances. Chomsky states that this happens very much in the same way in which the organs of our bodies develop in the way nature intended, when they are given certain conditions.⁵

Most people would agree that an activity like chess does not come naturally to us, unlike language. For example, a young child will typically learn how to speak his or her native language quickly and without many difficulties, but will need a lot more work to learn how to play chess. Of course, the main difference between the two is the fact that language is a basic cognitive structure, which chess is not. Human languages are cognitive structures that play an important role not only in communicating and expressing thoughts, but also in the thought process itself. What is more, Chomsky says that language has “intimate relations to (...) “common-sense understanding”.⁶ I think that this is a good reason to accept his idea that language research may give us valuable insight as to how the human mind works.

³ See “Reflections on Language”, page 72.

⁴ See same page.

⁵ See “Reflections on Language”, page 76.

⁶ See “Reflections on Language”, page 123.

3. The importance of grammar research.

It may only be natural and reasonable to accept that there are similarities between the language faculty and other systems within the human cognitive capacity. This is why language research may give us understanding about the capacity to use cognitive structures and the way in which we exercise this capacity. Grammar is, according to Chomsky, an important source of knowledge about the use of language:

“Grammar should not be merely a record of the data of usage, but, rather, should offer an explanation for such data. It should establish general principles, applicable to all languages and based ultimately on intrinsic properties of the mind, which would explain how language is used...”

Chomsky has stated that “both a grammar of a particular language and a general theory of language are of interest primarily because of the insight they provide concerning the nature of mental processes, the mechanisms of perception and production, and the mechanisms by which knowledge is acquired”.⁷ He takes inspiration from the work of universal grammarians from the seventeenth and the eighteenth century. Their insightful observations on language have produced many ideas about the way abstract mental structures relate to speech – in other words, they have developed theories about the rules that today are known as “grammatical transformations”. Knowledge about grammatical transformations gives us understanding about the relations between deep structure and surface structure in language, i.e. between the thought patterns and speech itself. This is why grammar can (and should) offer us not just detailed reports and accounts of language use, but also information about:

- a) the structures of our mind which govern language use;
- b) the way those structures function.⁸

4. The Universal Grammar (UG) theory.

⁷ See “Chomsky: Selected Readings, page 6.

⁸ “Grammar should not be merely a record of the data of usage, but, rather, should offer an explanation for such data. It should establish general principles, applicable to all languages and based ultimately on intrinsic properties of the mind, which would explain how language is used...” (same source, page 1)

In this section I will present Noam Chomsky's definition of UG and his theory about UG as a property of the initial state of the human mind. I will also try to set out a summary of what Chomsky writes about the link between UG and "mental organs" in order to prove the point that UG is one of these "mental organs" and that research on UG may provide us with valuable insight for their functions and for the human mind in general. An essential element of the innate structure of human mind is the so-called Universal Grammar. Chomsky states that Universal Grammar (UG) is a system of "principles, conditions, and rules that are elements or properties of all human languages not merely by accident, but by necessity".⁹ He then proceeds to explain that it is a biological necessity that he means by this, and not logical necessity. He sees all languages as complying with the rules of Universal Grammar. In the human mind there is a system, thanks to which learning is made possible for us. This is the system of "pre-existent knowledge", and UG is a part of this system. In other words, UG is an essential characteristic and a property of the human mind.

Universal Grammar is the true basis of all human languages. It is their essence, so to speak. They differ, as Chomsky says, only in "other, accidental properties"¹⁰, but not in the way they are related to UG. This is why Chomsky suggests that studying UG is, in a way, studying the nature of human intellect itself, since the mechanisms involved in linguistic competence form an element of the system which makes all learning possible. We can deduce that those mechanisms are part of the initial state of the human mind by the fact that they appear to be present in all normal individuals and do not depend on experience. They cannot be learned or taught, so we have to accept that they are innate, much like our instincts.

Since the possession of a language is something which requires both a high degree of intelligence and a certain type of mental organization, it seems completely reasonable to believe Noam Chomsky when he states that researching the capacity to use human languages "may serve as a suggestive model for inquiry into other domains that are not quite so amenable to direct investigation".¹¹ In the second chapter of his book "Language and Mind" he explains that the study of Universal Grammar "examines the

⁹ See "Reflections on Language", chapter 1.

¹⁰ See "Reflections on Language", page 29.

¹¹ See "Reflections on Language", part 1.

innate organization that determines what counts as a linguistic experience and what knowledge of language arises on the basis of this experience”. Universal Grammar is, to him, a partial characterization of the initial state of mind common to all people.¹²

According to the explanations offered by Chomsky, the system of grammatical rules is, in fact, a sort of “mental organ” that has its own characteristics and functions, and it is in constant interaction with other “mental organs” that serve different functions and possess different properties: “The system of language is only one of a number of cognitive systems that interact in the most intimate way in the actual use of language. When we speak or interpret what we hear, we bring to bear a vast set of background assumptions about the participants in the discourse, the subject matter under discussion, laws of nature, human institutions and the like.”¹³

5. Objections, criticism and rival theories.

Although this theory about the system of grammatical rules as an innate “organ” of the human mind may sound completely convincing to me, there have been many authors who have presented arguments against it. One of them is that there is no need to posit such a thing as an innate linguistic knowledge to successfully explain the process of language learning. Another one is that we do not need a domain-specific mechanism in order to learn how to use a language, and that domain-general learning capacities are enough to help us in achieving this.

The first argument has typically been raised by authors such as Jean Piaget, who insist that the sociological aspects of language acquisition play a much bigger and more important role in the whole process of language learning than any presumable innate capacities. Of course, Jean Piaget came up with this theory many years before Noam Chomsky had published his own first works in the sixties. It is certain that Jean Piaget did not develop his theory about language as a reaction to Chomsky’s, to raise

¹² “We may suppose that there is a fixed, genetically determined initial state of the mind, common to the species with at most minor variation apart from pathology. The mind passes, through a sequence of states under the boundary conditions set by experience, achieving finally a “steady state” at a relatively fixed age, a state that then changes only in marginal ways. The basic property of this initial state is that, given experience, it develops to the steady state.” (see “Rules and Representations” – part II, chapter 5 – “On the biological basis of language capacities”, page 189)

¹³ See “Rules and Representations”, page 188.

objections to Chomsky's ideas about language or criticize them, because, in fact, Chomsky even had not yet started to write at this point. It was in the year 1955 that Chomsky started his work in the field of linguistic theory with a Ph. D. dissertation titled "Logical Structure of Linguistic Theory".

The reason why I choose to mention Jean Piaget here is that I think the theory about language he has developed in his earliest works like "Play, dreams and imitation in childhood" (originally published in the year 1945) is the exact opposite of everything that Chomsky tells us about language and language use, and thus provides a good offset to it. The contrast between the two allows for a more distinct and clear view on how insightful, profound and convincing Chomsky's theory is, compared to most typical sociocultural theories about language.

But let us go back to the criticism Chomsky's ideas have been receiving for years. The most criticized theory is the one for the innate linguistic knowledge, rejected by many. It seems to me that some of these authors neglect some very important facts about language acquisition when they come up with their arguments. For instance, authors like Piaget seem not to notice that it is very hard to imagine a learning process which requires absolutely no innate basic principles to guide it. I would like to ask how the learning process would function, if there was no innate structure to enable its functioning. Even if we accept that our knowledge is being passed to us from others through communication, we still have to admit that there must be a certain faculty of the mind that makes us capable of acquiring and using the knowledge we receive.

External factors like communication may be of great importance (as implied by Jean Piaget) when we are looking for an explanation about the sources where we gain our knowledge of language, but they are simply not enough when we have to explain something a lot deeper and more complicated – like the way our mind deals with obtaining and using a complex structure like that of a human language. Surely no one would deny that the human language is quite possibly the most complex structure that most of us acquire in our lives. The fact that this occurs at such a very young age, actually in the first years of our lives, should serve to us as a proof that there must be some kind of innate property of the mind that facilitates us in acquiring a language. Without it we would be unable to gain linguistic knowledge under any circumstances.

Moreover, it is very likely that without an innate “system of pre-existent knowledge” we would not possess the ability to use language in a creative way, because creative use of language requires a certain kind of aptitude or predisposition. Surely everyone would agree that it is not something which can be taught, learned, communicated, shown or given to someone in any way. I think that this fact serves as an irrefutable proof of the innate linguistic properties theory.

It should also be noted that language use depends on many systems in our mind, not just one.¹⁴ It is a result of the constant complex interactions between the various “mental organs” (or should we say the various cognitive structures) involved in it. So what follows from this is that language research does not just offer an explanation of the way our mind deals with the use of language. It offers so much more. Carried out in the right ways, it may give us a detailed account of how many of our other human “mental organs” function.

6. More on Jean Piaget’s ideas about language, intellect and the human mind.

Scientist Jean Piaget, famous for his research works in the field of developmental psychology and cognitive psychology, has dedicated much time to studying the way in which young children learn to use language.

Jean Piaget’s idea about learning and intellectual development is based on the assumption that human beings gain knowledge by participating actively in the world, i.e. creating and maintaining relationships with it. He is convinced that both action and communication play a crucial part in the process through which we acquire knowledge. This is to say that, according to him, everything that a certain person knows has been obtained through a process which in the beginning is of physical and active nature, but later on gains a mental pattern after going through internalization.

Roughly said, Jean Piaget’s view (at least in his earlier writings like the book “Play, dreams and imitation in childhood”) is that language has importance only in so far as it serves human beings as a means of communication. He does not see it as a

¹⁴ “Continuing to think of the system of grammatical rules as a kind of “mental organ”, interacting with other mental organs with other functions and properties...” (see Noam Chomsky’s “Rules and Representations”, page 188)

demonstration of a specific faculty of the human mind, but more as a necessity or as a result of a necessity to act and to relate to the world. He bases this view on the fact that language use is conventional and depends on common agreement. What is more, Piaget attributes the maintenance of this common agreement or convention to the functions of language. He sees language as a way to keep the balance between symbolic schemes and what action schemas:

“Complete reversibility presupposes symbolism, because it is only by reference to the possible evocation of absent objects that the assimilation of things to action schemes and the accommodation of action schemes to things reach permanent equilibrium and thus constitute a reversible mechanism. The symbolism of individual images fluctuates far too much to lead to this result. Language is therefore necessary, and thus we come back to social factors.”¹⁵

But do social factors really precede linguistic knowledge? Do we have to assume that linguistic knowledge comes when we become part of some type of social chain that needs language to keep its links connected? And should we accept that linguistic knowledge is just as unlikely to be innate as knowledge social factors themselves? As far as I am concerned, the answer to all these three questions is negative. Although Piaget emphasizes a lot on the role of social factors, the truth is that social factors cannot be used to interpret everything. They cannot explain, for example, the similar linguistic capacities of all people (with the exception of pathological cases, of course). It can only be explained with some sort of “pre-existent knowledge”, like the type that Chomsky writes about:

“On the assumption of uniformity of language capacity across the species, if a general principle is confirmed empirically for a given language and if, furthermore, there is reason to believe that it is not learned (and surely not taught), then it is proper to postulate that

¹⁵ See “Logical operations and social life” in “Sociological Studies”, edited by L. Smith, Routledge, 1995, page 154.

the principle belongs to universal grammar, as part of the system of “pre-existent knowledge” that makes learning possible.”¹⁶

I think that language and our innate ability to use it reside far deeper in the human mind than Piaget would ever admit. Yes, language is necessary as a communication instrument for our social contacts. But is that all it is – a connection? It appears that to Piaget language is a sociocultural factor, and therefore he has a social approach to it, not a psychological or a biological one. But this approach poses limits to his understanding of language and language use, and thus prevents him from acquiring a more accurate view on the faculties of mind that determine language use.

Piaget is, without doubt, very concerned with explaining the ways in which knowledge of language is transferred, but in my opinion he does not pay enough attention to another equally important thing – how language is acquired. There are many examples which show that young children are constantly learning their native language latently. They do not need to engage in conversations about language use, ask for instructions or be told in order to learn what different expressions mean, how to pronounce various sounds, how to conjugate the verbs properly, etc. In other words, they do not need to study actively nor even be conscious of the process of learning¹⁷ – this would only be necessary if they started learning a second, foreign language (or at least a foreign language which is too different from their native language). But Jean Piaget’s theory about knowledge implies that all types of knowledge are acquired through one’s active participation and relating to the world around us. It therefore also implies that linguistic knowledge acquisition possesses active nature. I can only ask then why and how there is such an enormous difference between a person’s level of proficiency in her native language and in her second language?

Even though a person may live in a foreign country for many years and use its official language hundreds of times a day on different occasions, she will never have the exact

¹⁶ See “Reflections on Language”, page 118

¹⁷ See “Reflections on Language”, page 72 – “We are dealing here with systems that develop in a natural way as a species of animal instinct, in Hume’s phrase, entirely without conscious choice, without reasons (for the organism), and certainly without any necessity for training and conditioning.”

same level of knowledge of it that she has of her native language. If the social factor was everything, then this would not be happening to millions of people around the world. Yet it happens. The reason behind this is that there is a certain faculty of mind that directs language use and language acquisition, and this faculty of mind changes with age. Like many other human abilities, it goes through various phases and levels in our lives. Or, as Noam Chomsky writes: “We may suppose that there is a fixed, genetically determined initial state of the mind, common to the species with at most minor variation apart from pathology. The mind passes, through a sequence of states under the boundary conditions set by experience, achieving finally a “steady state” at a relatively fixed age, a state that then changes only in marginal ways. The basic property of this initial state is that, given experience, it develops to the steady state. Correspondingly, the initial state of the mind might be regarded as a function, characteristic of the species, that maps experience into the steady state.”¹⁸

Even if an author has never imagined, or does not agree that various innate mechanisms underlie the process of language acquisition, she should still give some sort of account exactly

what makes language learning possible, if she is trying to come up with a sufficiently developed theory about language use. While Piaget does not provide such an account, Chomsky does:

“On the assumption of uniformity of language capacity across the species, if a general principle is confirmed empirically for a given language and if, furthermore, there is reason to believe that it is not learned (and surely not taught), then it is proper to postulate that the principle belongs to universal grammar, as part of the system of “pre-existent knowledge” that makes learning possible.”¹⁹

This is why I find Chomsky’s theory to be more solid and trustworthy than Piaget’s. While Piaget concentrates only on the social aspects of intellectual activity and language use when he theorizes, Chomsky goes deeper in a search of the very roots of human intellectual development. It seems to me that when Piaget writes about

¹⁸ See “Reflections on Language”, page 189

¹⁹ See “Reflections on Language”, page 118

consistency and the acquisition and development of language, what he actually does is to change the places of cause and effect. In my opinion the consistency that Jean Piaget describes, or the logical necessity that links symbols and meanings, is not something which we acquire and develop in the process of socialization, but a necessary condition for this process. I think that in the human mind there must be some sort of intellectual faculty which provides the basis for consistency, and that therefore consistency is not acquired, taught, shown or developed through social mechanisms, but is a very fundamental characteristic of the human mind. It is linked to a basic mental ability which acts through it, allowing us to use symbols consistently.

In Piaget's opinion (if I understand him correctly, which may or may not be the case) this consistency has to be established in the mind through the conventional use of symbols accepted in a certain social environment. He considers conceptual thinking to be impossible without spoken language's conventional signs used and acquired in the acts of social communication. But I do not agree with this view. In fact, I am almost convinced that it is the other way round and that language use is based on conceptual thinking, for which we possess some sort of innate aptitude and inclination.

I think that Chomsky has a much better and more solid grasp of the difference between the faculties of mind and their putting into practice. For instance, he makes a sharp distinction between a speaker's competence and his performance:

“A distinction must be made between what the speaker of a language knows implicitly (what we may call his *competence*) and what he does (his *performance*). A grammar, in the traditional view, is an account of competence. It describes and attempts to account for the ability of a speaker to understand an arbitrary sentence of his language and to produce an appropriate sentence on a given occasion.”²⁰

7. The Chomsky-Piaget debate.

A debate was held between Noam Chomsky and Jean Piaget in October 1975. In the year 1983 a book edited by Massimo Piattelli-Palmarini and devoted to the Chomsky-Piaget

²⁰ See “Chomsky: Selected Readings”, page 7

debate was published as an account of it. The book was called “Language and Learning: the debate between Jean Piaget and Noam Chomsky” and it also contained reviews on various points made by Piaget and Chomsky. Using the information from this book, I will try to show only the most important points of the debate with regards to the present essay.²¹

The debate with Jean Piaget is perhaps the most famous of Chomsky’s debates and it was intended to be some sort of a comparison between the two authors’ theories. They had to sort out on what they agreed and disagreed. In the very beginning of the dispute, they accepted that human beings possessed some kind of “fixed nucleus”. But their main source of disagreement was (quite unsurprisingly) the question if this “fixed nucleus” was innate or not. Noam Chomsky believed that the “fixed nucleus” was innate, and that it was the universal grammar system. Jean Piaget, however, had quite a different idea. He seemed to agree with Chomsky that the “fixed nucleus” was some sort of cognitive structure, but he definitely rejected its innateness. Piaget was also uncertain of its nature – whether it was a more general or a more specific kind of cognitive structure.

Even though there were a lot of other things discussed during the debate, the debate’s core remains the initial problem about innateness. Piaget was, on the whole, very much against any speculations about the innateness of cognitive structures. He insisted that “the functioning of intelligence alone is hereditary”. But my opinion is that the two assumptions are very closely related. I feel the need to make a comment on that.

I believe that admitting that the functioning of intelligence is hereditary is the first step to accepting that the cognitive structures are also hereditary. Cognitive structures are crucial for the functioning of intelligence and it seems unreasonable to me when someone makes a claim that intelligence precedes them, when in fact it is a lot more likely to be founded on them.

So why was Jean Piaget so convinced that cognitive structures could not be innate? Why was he so unwilling to accept that there might be hereditary fundamental knowledge,

²¹ See Massimo Piattelli-Palmarini (1983) “Language and Learning: the debate between Jean Piaget and Noam Chomsky”, Routledge,

be it linguistic or another? What is more, why was he so unwilling to see that language use itself can be taken as a proof for this?

For me the answer is that he was too influenced by his own theory – the developmental stage theory which relied on the assumption that all knowledge is constructed by humans (and therefore we are not born with it, but instead we acquire it gradually during our life-time, mostly through the communication with others).

8. Conclusion + a few more words about Chomsky, Piaget and my impression by Chomsky.

My overall conclusion is that the UG theory deserves a lot more praise than it actually receives. Is it not true that under normal circumstances all people born in this world, even without receiving education, grow up able to make a clear distinction between, let us say, verbs and nouns? Is it not true that we all possess an identical ability – the ability to operate with linguistic data in pretty much the same way? In my opinion it does not really matter how we will name this universal faculty of mind which directs our understanding and use of language, as long as we recognize that it exists in all of us.

Piaget states that “the fundamental relationship that constitutes all knowledge is not ... a mere “association” between objects, for this notion neglects the active role of the subject, but rather the “assimilation” of objects to the schemes of that subject. ... [...], but ... adaptation does not exist in a “pure” or isolated state, since it is always the adaptation of an assimilatory scheme. ...The role of assimilation is recognized in the fact that an “observable” or a “fact” is always interpreted from the moment of its observation, for this observation always and from the beginning requires the utilization of logico-mathematical frameworks...”²² But I have two objections to this.

First of all, according to my way of understanding this statement, if it was valid for language, then there would be no explanation for the disorder aphasia. People who suffer from it do not experience problems with the utilization of logico-mathematical frameworks, yet they still cannot re-acquire their lost knowledge of language use.

²² See “Language and Learning: the debate between Jean Piaget and Noam Chomsky”, page 24

Therefore apparently we cannot ascribe all knowledge (and especially linguistic knowledge) to logico-mathematical frameworks, observation, etc.

Second of all, I think that it is not the language itself, but the knowledge how to acquire it, that is innate to us. And that overall we have the innate knowledge to acquire and use knowledge (I would even go as far as to say that this is a definition of intelligence). I see absolutely no problem about people having this in the so-called “pure” state of complete isolation, I am even convinced that they have it. I think that Jean Piaget would not be able to prove the opposite without risking to contradict himself (like I mentioned in section 8. of the essay, he claims that intelligence is hereditary).

I would say that a lot more objections can be directed at Jean Piaget’s theory, than at Noam Chomsky’s. Piaget’s theory bears a lot of inconsistencies and lacks experimental confirmation. Chomsky’s theory on the other hand provides us with an interesting way of seeing the human mind through language. It is inspiring to think about all the possibilities language research can offer us for understanding human cognitive capacity. After all, language is the greatest difference between humans and all other living things. It may as well be the key to explaining the similarity between human minds and their most important feature – the capacity to gain knowledge.

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