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# Changing concepts of the nature-nature debate[1]

> ... and began to speak with other tongues,
> as the Spirit gave them utterance.
>
> ACT 2:5

## 1. Introduction

A friendly nature has provided us with the remarkable capacity to couple our thoughts, wishes and intentions with soundwaves and to transmit these to other human beings, who, with varying accuracy, are able to reconstruct these thoughts, wishes and intentions. We are able to speak, and we are able to understand. The view that we owe this talent to nature is not self-evident. For many centuries, people used to think that it was the Spirit that gave them language. We, however, share in the belief that this gift is part of our genetical endowment, the result of complex adaptive processes over millions of years. It is specific to our species - a claim that has occasionally been disputed, but never by a member of some other species. It is this capacity which allows human beings an orientation in their environment different from that of a monad in a world ruled by the laws of prestabilised harmony, different from that of a bee in a world governed by the rigid interaction principles of the bee hive. It is the verbal transmission of all kinds of theoretical and practical knowledge from one generation to the next, of rapidly changing situation-bound information from one individual to the other that set the stage for the particular kind of behaviour which human beings call human. It is language which makes possible all higher forms of cognition as well as that particular kind of interaction between members of a species which is characteristic of man and woman. It is language which renders the human being human.

But no one is born with a language in his or her head. When thrown into this world, the child is literally an ‘infans’ - someone who does not speak. But every new-born is able to learn Guughu Yimidhirr or Rossel, Tzeltal or Tamil, or any other language spoken in the social environment in which he or she happens to grow up. Thus, the individual’s capacity to speak and to understand, the *linguistic competence*, has two different but equally indispensable sources. These are the innate, genetically transmitted language capacity and the socially transmitted knowledge of what is particular to, for example, Italian as compared to any other language. The child’s innate language capacity has to be applied to a particular input - the structured and meaningful soundwaves produced by parents, siblings and other people in the social environment. Language has a biological side, and it has a social side.

[1]I wish to thank Steve Levinson for discussion and help.

There is no doubt that each of these components is equally necessary for the *infans* to become a *zoon logon echon*. Opinions vary, however, with respect to their precise nature and their relative weight.

The dispute is old, and it has been couched in various terms. Are words *physei* or *thesei*, is our behaviour, including verbal behaviour, determined by *race* or by *milieu*, is the adult's linguistic competence a biological or a cultural phenomenon? In Steve Levinson's words: '..., over two and half millenia of the Western intellectual tradition, views have oscillated between viewing language as a part of human nature, or alternatively, seeing language as essentially part of human culture. Although the twentieth century has seen a veritable explosion of human knowledge and theory in the language sciences, this particular ideological issue continues to dog us. We still have not found a satisfactory way to bridge the tired old Natur : Nurture issue.' (Levinson 1999: 3). He then notes that at the end of the millenium, the 'swing of the pendulum has the language sciences out on the Nature pole.' I am not sure that this observation is correct for the entire community of linguists. In their majority, linguists have no particularly outspoken view on this issue at all. They just do their research, and the outcome of this research is usually more or less compatible with either perspective on the Nature:Nurture debate. This, incidentally, may be one of various reasons why this debate does not seem to come to an end: there are many theoretical arguments, even more speculations, but no crucial empirical evidence. I agree with Levinson, however, in that there is an highly influential school of thought in linguistics which pushed the pendulum in this direction - Generative Grammar. Since its initiation by Noam Chomsky in the Fifties, the 'generative enterprise' has undergone many substantial changes. But one of its most stable ingredients is the notion of an innate 'language acquisition device' and, closely connected to this notion, of 'Universal Grammar'. Whereas generative grammarians focus on the form side of language and tend to avoid questions of semantics, there are a number of scholars who advocated the view that on the meaning side, too, there is a universal 'language of thought' (a term first intoduced by Jerry Fodor) or 'mentalese' (Steve Pinker's term, originally introduced by David Lewis as a joke) - a set of concepts which comes as part of our genetic endowment and underlies the semantics of all natural languages. It is these two notions which have given rise to what Levinson calls 'Simple Nativism': 'It holds that both in form (syntax) and content (semantics) language is essentially innate. Syntax is governed by an innate 'Universal Grammar', and the ideas encoded are just elements of the 'Language of Thought'.' (Levinson 1999: 1).

Levinson challenges 'Simple Nativism' on this second field - the way in which meanings are encoded across languages. Semantical differences between languages are by far too substantial to justify a universal and innate 'Language of Thought'. He does not scrutinize this notion itself - in fact, it is not easy to understand what such a 'Language of Thought' could look like. Instead, he examines three examples, the expression of space, the expression of colour, and the expression of kinship relations, that clearly involve universal components of the *condition humaine*. Physically, we all live in the same kind of space. Physiologically, we have the same kind of visual system. Biologically, we have the same kind of relatives. Hence, these three areas are good candidates for universal concepts and conceptualisation. Still, there is massive cultural variation, reflected in linguistic form and content. Levinson's case is convincing, and I can't but express my agreement.

This is the worst that can happen to the discussant of a paper. So, all I can do is to wonder how someone with a different view would try to escape the conclusion. In principle, it can be challenged on empirical or on conceptual grounds. I do not think that an attack on the empirical side would lead very far. Even if further research showed that the analyses

pressented by Levinson are false or incomplete - there is still overwhelming evidence that different languages encode space, colour and kinship in very different ways. I do believe, however, that there are problems on the conceptual side. They are not specific to Levinson's claim but characteristic of the entire Nature:Nurture debate over the millenia, and they are due to the fact that the underlying concepts are so ill-defined. When we ask whether language is primarily part of human nature, or primarily part of human culture - then it should be clear what 'language' is and what 'nature' and 'culture' are. I do not believe that they are sufficiently clear.

2. What is 'culture', what is 'nature', what is 'language' - what is the issue?

The "Encyclopedia Britanica" defines Culture as:

> the integrated pattern of human knowledge, belief and behaviour. Culture thus defined consists of language, ideas, beliefs, customs, taboos, codes, institutions, tools, techniques, works of art, rituals, ceremonies, and other related components.

This definition does not strike us by its conciseness or clarity; in fact, no defintion of culture I have ever read does this. But it is surely useful in that it lists a number of things which, in one way or the other, everybody associates with culture. But it is also clear that each element of this list is brought about by the particular mental and physical capacities of the human species, and hence is a result of our biological nature. **Human culture is a product of human nature**. This view is not self-evident. If we assume, as most of mankind has always done and still does, that human knowledge is a gift of God, or of the gods, then there is another source of culture - in the sense defined above - than our biological nature. If we do not assume this, however, then the opposition between 'culture' and 'nature' is somehow misplaced. Where else should all of this knowledge, belief and behaviour come from if not from our little grey cells and perhaps other parts of our body? All what is left is an opposition between 'cultural' and 'non-cultural' aspects of our biological nature, where the former include such things as ceremonies and works of art and algebra, whereas the latter includes things such as the fact that we have a collar-bone and blood and no wings. It is Nature, and only Nature, which has created our biological nature, and it is this biological nature which has created human culture.

But what is Nature? The 'Encyclopedia Britannica' does not venture a definition of this notion. Is it everything that surrounds us? But what surrounds us are trees and stones and clouds, or rather entities which we identify as such. What surrounds us is oxygen and helium and silicon and carbon, or what certain analytic procedures thought out by the human mind have revealed as such. It is protons and neutrons and electrons, or what other analytic procedures thought out by our mind have made us to believe. Or is Nature not just these entities but rather the interrelationship between them, as the ingeniousness of Hooke and Huyghens, Lavoisier and Heisenberg has uncovered it? What we consider to be Nature is a product of the human mind. This does not mean, of course, that the trees and stones and clouds, the elements of which they consist as well as the relations which obtain between them would not exist within the human mind. But our notion of Nature is a product of our mind. It is a very vague concept and of hardly any interest to those who investigate it. Physics is the study of *physis*, but what physicicst really study is the attraction between bodies or the refraction of the light. Speaking of Nature is just a *façon de parler* to talk about the unknown with which we have to deal.

It is not accidential that the notions of Culture and of Nature are so hard do define. They are not definable; they are clouds. This does not mean that they are useless. They serve as initial labels for sets of phenomena which await concrete analysis. As such, they are convenient to begin with, also appropriate for after-dinner conversation, but most confusing when taken too seriously. Does this mean that the entire old debate between the 'culture side' and the 'nature side' of language is meaningless? I think it lost a great deal of its meaning at the very moment when we - that is the minority of enlightened scholars who no longer believe in spiritual beings - gave up the notion that there might be entities *beyond* nature to whom we could owe part of what we are and what we know. But I also think that it still makes scientific sense to the extent to which we are able to couch it in terms of the concrete processes which bring language about.

But what then is 'language'? Even a first glance in a comprehensive dictionary rapidly shows that this word is used in many divergent ways. Language, too, is another one of those convenient labels which allow global reference to a interrelated set of phenomena that seem worth to be investigated. If this investigation is to become concrete, we must look at specific linguistic phenomena, not at language. Ever since Ferdinand de Saussure at the beginning of this century, linguists distinguish at least three types of linguistic facts. There are, first, those which characterise the *ability* to learn and to use particular languages - the *faculté de langage* or simply *langage*, as Saussure said. It is this capacity with which any normal human being is born. This fact is beyond doubt, just as the fact that it must somehow be part of our nervous system. But there are also a number of open questions that are accessible to empirical investigation, such as

- is it fully there from birth, or does it need some time to develop?
- does it deterioriate with age, and in which way?
- is it specific to our species, or is also found in other animals, for example higher primates? And if so, why don't they use it normally?
- is it 'domain-specific', i.e., is it just a special instantiation of human memory and cognition in general, or is it a separate 'module' in our brain?

to mention but a few. These questions are not easy to answer, but they are sufficiently clear to be scientifically investigated.

There is no cultural component in this mere capacity. It is just part of our genetic endowment. But the capacity as such does not suffice: what the child, and the adult under appropriate circumstances, has to do is to learn a particular language such as Spanish, Bengali or Kpelle - a *langue*, as Saussure said. A langue is a system of expressions with specific properties. Linguists disagree to some extent on what these properties are and how such a system should be analysed. But they agree on two points. First, a linguistic expression is a particular combination of a *form* - usually a sequence of sounds - and a *meaning*. Second, there are elementary expressions ('words') and complex expressions formed by certain morphological and syntactical operations ('phrases, sentences, texts'). In a nutshell, every language has a lexicon - this is the inventory of elementary expressions, and it has a grammar - these are the rules according to which words can be modified and put together. Again, there is a number of obvious question which concern properties of these systems, such as

- what does the English expression which is written *nature* mean?
- what does the expression *the* - the most-frequent word of the most-spoken language of the world - mean?

- how does the meaning of the complex expression *the only book* result from the meaning of its part?
- why is possible to say *the only book* but not *an only book* or *three only books*?
- what is the function of case marking?

and so on. It is these questions to which the linguist's daily efforts are mostly devoted. Some of them have found good answers - temporary answers, as usual in research, but still good answers, and others are completely opaque. Worldwide, there are several thousands of such systems, and they differ considerably. This variation does not exclude, however, that there are commonalities, as well. There may even be properties which are found in any such pairing of sounds and meanings - linguistic universals, and for these universals, it might make sense to assume that they are part of our genetic endowment.

The third set of linguistic facts is related to what Saussure called *parole* - the actual communication between human beings in a given situation, such as chatting, cursing and praying, telling a joke, giving route directions, describing the *Mona Lisa*, arguing about nature and culture, singing in the rain. As a rule, linguistic communication involves more than one participant, but there are also atypical cases, such as writing a diary that is intended for noone else. Typical questions about this type of linguistic phenomena are

- which other components of the human mind beyond the particular sound-meaning coupling used play a role in communication - such as memory, reasoning and intentions?
- how does the form of communication interact with the social structure of the community in which it is used?
- how does communication via sound-meaning coupling interact with other forms of human communication, such as facial expression, gestures and similar ones?
- how does human communication differ from communication among dogs, dolphins or lobsters?

and so on. Again, these are difficult questions; but they are accessible to empirical investigation, and much has been found out about them. But it is also clear that this type of linguistic phenomena is by far the most difficult to study, for the simple reason that involves so many interacting factors. It has physical components, such as the acoustics of the room or the properties of the paper on which something is written; it has biological components, such as the voice properties of the participants, it has social components, such as the personal relations between speakers, it has cognitive components, such as the spatial knowledge necessary to give route directions.

Clearly, any debate on the balance between 'nature' and 'culture' in 'language' is pointless so long as we talk about 'language' without any further differentiation. It is obvious that the *faculté de langage* is part of our genetic endowment. It is also obvious that *parole* involves all sorts of factors, and their weight in concrete cases varies considerably. In what follows, we will only deal with *la langue* - that is, with the knowledge which the mature speaker has about the particular sound-meaning coupling in 'his language' and the ways in which elementary expressions can be turned into more complex ones. There is massive variation across linguistic systems, hence this knowledge as a whole cannot be part of the genetic endowment: it is cultural. But this does not include that parts of it are universal, and hence possibly innate: these parts are 'nature'. But when the issue is stated this way, we run in precisely the conceptual problems discussed above. Instead, we should look at the concrete processes which bring about the speaker's knowledge of his or her system.

## 4. Genetical and experiental transmission of linguistic knowledge

Within the limits to human perfection, the Queen of England is a perfect speaker of English. She was not born with this knowledge, but with the capacity to acquire it, and now she knows the particular sound-meaning coupling of elementary expressions as well as the rules according to which these can be combined such as to form larger meaningful expressions. The Queen of England also knows many other things, such as how to use this knowledge in order to achieve certain aims; but these aspects do not interest us here: we are only interested in her 'linguistic knowledge' in the sense just explained. This knowledge is somewhere stored in her royal brain. How did it get there?

Nature has provided her, as anybody else, with two ways to pass on information - by means of the genetic code, and by means of whatever is perceived by the sensory organs and further processed by the brain. I shall call the former, genetic transmission, and the latter, experiential transmission. Genetic transmission is a relatively stable process, robust, and with very limited - - but potentially important - possibilities of variation. We know of no way in which acquired information could be genetically transmitted. Experiental transmission is less robust, but much more flexible. In particular, it allows the transport of information which an individual has gained by experience to some other individual, and thus the increase of the amount of knowledge available to everybody. All of this is not new, but it should be kept mind in what follows.

The use of a language in a particular social situation is the most important way to transmit information from the mind of one individual to the mind of others. But this concerns the experiential transmission of some information of whatever sort **by means of language**. But how is the individual's linguistic knowledge itself transmitted - genetically or experientially? I can state my view on this as follows:

> **Genetic as well as experiental transmission of information plays a role in the creation of linguistic knowledge in the individual; but whatever is specific to linguistic knowledge comes from other individuals by experiential transmission.**

This is a hypothesis, at variance with what many linguists believe (see the brief discussion in section 1). Given the present state of knowledge on the origins of language in the individual, it can neither be proven nor refuted at this point. But there are some elementary armchair considerations that might shed light on it. What belongs to a perfect speaker's linguistic knowledge? Usually, linguists divide it into four components (there are more refined distinctions, and there is perhaps some overlap - but this does not affect the argument): knowledge of lexical items, knowledge of phonology, of morphology and of syntax. Let us briefly consider these in turn.

LEXICAL KNOWLEDGE includes, for example, that the sound sequence /buk/ is paired with the meaning 'book'. This knowledge cannot be genetically transmitted, since it varies from language to language: more or less the same meaning is paired with /bu:x/ in German, with /kniga/ in Russian, with /liber/ in Latin, and so on. In fact, there is probably no sound sequence which is coupled with the same meaning in all languages of the world (perhaps with the exception of /koka kola/). Lexical knowledge in its entirety must be experientially

transmitted - and konwledge of words is by far the most important component in linguistic knowledge. If you were to know all elementary sound-meaning pairs of Chinese, but not a single grammatical rule, you were a much better speaker of Chinese than someone who knows the entire grammar of Chinese but not a single word.

PHONOLOGICAL KNOWLEDGE is probably less varied, since there is considerable overlap in the phonological systems of individual languages. But for genetical transmission of phonology, overlap and similarities are not enough: it is only possible when the relevant properties are found in *all* languages of the world. But clearly, English has sounds which, for example, German or French do not have. As any other English child, the Queen of England had to learn experientally that there is a sound spelled 'th' - in fact, two such sounds -, whereas French or German kids do not learn this so long as they only learn French or German. Hence, the phonological subsystem can not be genetically transmitted, either.

What could be innate, however, are more abstract properties of sounds. There is some reason to assume that the number of phonetic features used in the sound systems of languages is limited to a small class, as defined by the potential of the human auditory and articulatory systems. These systems, in turn, are genetically determined; but they are not part of linguistic knowledge itself. This raises an interesting possibility. It may well be that experiental and genetical transmission of linguistic properties, here the properties of sound systems, operate on different levels of 'granularity'. What is genetically given are elementary properties such as 'lips are closed' or 'vocal cords vibrate', and what has to learned from other speakers via experiential transmission are specific clusters of these properties. But it is these clusters which define a speaker's knowledge of his or her language.

MORPHOLOGICAL KNOWLEDGE is extremely varied again. In German, the plural of *Lamm* is *Lämmer*, the plural of *Haus* is *Häuser*, the plural of *Tor* is *Tore* or *Toren*, the plural of *Stuhl* is *Stühle*, the plural of *Fernseher* is *Fernseher*, the plural of *Radio* is *Radios*. No other language has such a morphological system (in fact, some languages, such as Chinese, have no inflectional morphology at all). Hence, this knowledge cannot be genetically transmitted. German kids must learn it by analysing utterances which they hear in their social environment, in a word: morphological knowledge is experientially transmitted.

This leaves us with SYNTACTICAL KNOWLEDGE, that is, knowledge of the rules how expressions can be put together to form more complex expressions. This is the realm of linguistic knowledge in which the Generative School - that influential school in linguistics which has pushed the pendulum very much towards the nature side (cf. section 1) - has mainly been looking for universal and innate principles. The agenda is not closed here; but two things are clear. First, those syntactic properties which are normally dealt with in descriptive grammars must be learned by social interaction and input analysis. These are properties such that in English, the definite article precedes its noun, in languages such as Rumanian, it follows it, and in still other languages such as Latin, there is no definite article at all. In English, the direct object normally follows the lexical verb (*John bought a book*), in French, this depends on whether the direct object is a pronoun or a lexical noun (*Jean achetait un livre, Jean l'achetait*), and in German, there are numerous possibilities (*Hans kaufte ein Buch, Hans hat ein Buch gekauft, Ein Buch hat Hans gekauft, Gekauft hat Hans ein Buch*). This knowledge cannot be genetically transmitted. Second, it is not to be excluded that there are universal constraints on syntactic rules; but so far, any attempts to identify these have not been very successful. Still, the possibility exists and should be kept in mind. But is

clear that the bulk of a speaker's syntactical knowledge must be experientially transmitted: it does not come from the genes, it comes from interaction with the social environment.

Summing up, it appears that almost everything the Queen of England knows about English does not come from the genes of her noble ancestry: she had to learn it by using her eyes and ears and tongue and cheeks as well as selected parts of her nervous system. Does this mean that genetic transmission plays no role at all? Surely not: our genes provide us with the capacity to acquire linguistic knowledge - but they do not give us this knowledge.

## 5. Conclusion

As was said in the first section, I essentially share Levinson's views - there is enormous cultural variation across languages, and this fact reduces the possibility of a Universal Grammar and a universal 'language of thought' - whatever this may mean - beyond comparatively trivial constraints, such that all language languages allow their speakers to express spatial relations, or that words are linearly ordered. There may be more interesting universal constraints, but their existence remains to be shown. Other than Levinson, however, I do not think these facts should be seen as a step towards repositioning the pendulum of the Nature:Nurture debate. At the turn of the millenium, we should put an end to this perennial debate and turn to concrete issues.

## References

Levinson, Stephen C. 1999. Language as Nature and Language as Art. This volume.