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### **Essentially social.**

#### **On the origin of linguistic knowledge in the individual.**

The mind, that ocean where each kind  
Does straight its own resemblance find.  
Yet it creates, transcending these  
Far other worlds and other seas,  
Annihilating all that's made  
To a green thought in a green shade.

Andrew Marvell

#### 1. Introduction

Within that chorus of mental capacities whose harmonies and dissonances constitute the human mind, language plays a primary as well as a secondary role. It is secondary because language crucially depends on the presence and functioning of other mental capacities, partly shared with other species, such as perception, memory, the capacity to develop associations, various types of reasoning, and perhaps others; in a way, language is parasitic on these parts of the mind. It is primary, first, because the language capacity is unique to the human mind. It has occasionally been claimed that other species possess the linguistic faculty, as well. Bees, monkeys, and dolphins have been mentioned in this connection. But so long as this claim is only put forward by human beings and not by a spokesperson of these species themselves, we probably need not take it too seriously. It is also primary because it is the language capacity which renders possible all "higher forms" of cognition as well as that particular kind of interaction between members of a species which we feel to be characteristic of human beings. We may be able to imagine a "mind" without language but surely not a human mind without language. We may imagine a society without language but surely not a human society. In that sense, the language capacity is not only a social phenomenon, it is an **essential social** phenomenon: What is social with humans is based on language. It is quite a different question, though, whether this capacity is an **essentially social** phenomenon. Is it a genetically transported gift

of nature to our species which allows us to act together in a particular way, such as the capacity to walk erect or to use our ten fingers, or does language in some way **result** from the interaction of minds among each other? This is the question which I would like to address in this paper.

It is not a trivial question. Most linguists would be inclined to say that there is something deeply social in language. But first, such a view is vague, and second, not all linguists share it. Noam Chomsky, for example, probably the best-known linguists of our days, explicitly denies that its communicative and hence social function is particularly relevant to the nature of the human language capacity. It is a part of our genetic endowment, just as the hands, the liver or the cerebellum are, and just like other parts of our genetic endowment, language may serve social functions; but it is not socially constituted. We may use our hands to hit or to caress someone; but the anatomy and physiology of the human hand is not, or at least not in an essential way, the result of hitting and caressing.

It is not a new question, either. In fact, one may say that the major ways of conceptualising the object of linguistic investigation center around the question of whether this object is a "social phenomenon" or an "individual phenomenon". This will be briefly illustrated in section 2. In section 3, I will sort out several understandings of what "essentially social" means with regard to language. Section 4, the main section of this paper, is devoted to the ontogenesis of language and the relative weight of social versus genetic factors in this process. The final section is devoted to some general conclusions.

## 2. An old debate

It is with a peculiar mixture of admiration and condescension that the modern linguist tends to look at what the 19th century has achieved in the field of language studies: admiration, because a great deal of the "lexicon-proof" knowledge about the world's major languages - that knowledge which you expect in a reliable encyclopedia - we owe to the work of 19th century scholars; condescension because it is felt that the real job has still to be done - to uncover the general principles behind all of these empirical facts and findings. This attitude is not entirely false; our predecessors showed a certain preference for little facts compared to big theories, and this balance has definitely shifted. But a mere characterisation of this period as the age of hunting and gathering in linguistics would not do justice to it. The title of Hermann Paul's influential "Principien der Sprachgeschichte", one of the masterpieces of 19th century linguistics, is quite telling: It was the **principles** of historical linguistics - and that means, of any systematical study of language - he was after, not individual facts. Paul's book first appeared in 1880. It was reprinted several times and soon translated into English and other languages. To the fourth edition, which appeared in 1909, Paul added a new preface which starts as follows:

Von der neuen Auflage wird man vor allem eine Auseinandersetzung mit dem ersten Bande von Wundts Völkerpsychologie (Leipzig 1900, <sup>2</sup>1904) erwarten. Leider kann ich mich diesem Werke gegenüber, so viele Anregungen es auch im einzelnen bringt, doch in den

Hauptpunkten nur ablehnend verhalten.(...)

Der Gegensatz zwischen Wundt und mir beruht nicht so sehr darauf, daß ich mich an die Psychologie Herbart's angelehnt habe (...) während Wundt sein eigenes System zugrundelegt (...) eine viel tiefere und breitere Kluft trennt uns, die sich auf keine Weise überbrücken lässt, in Folge der beiderseitigen Stellung zur sogenannten Völkerpsychologie.

Wundt stellt, wie schon der Gesamttitel seines grossen Werkes zeigt, die Völkerpsychologie neben die Individualpsychologie. (...) Die Veränderungen der Sprache erfolgen nach ihm durch Veränderungen in der Volksseele, nicht durch solche in den Einzelseelen. Das Problem, welches für mich im Mittelpunkt der Untersuchung steht, die Frage, wie sich die Wechselwirkung der Individuen unter einander vollzieht, ist für Wundt überhaupt kein Problem.(...) Auf diese Weise kann meiner Überzeugung nach kein volles Verständnis der Sprachentwicklung gewonnen werden.<sup>1</sup>As the general title of his great work indicates, Wundt places Völkerpsychologie side by side with individual psychology (...) According to him, language change is a change in the collective mind ("Volksseele"), rather than a change in the individual mind ("Einzelseele"). The problem which for me is at the very heart of the investigation, the question of how the individuals interact among each other, is no issue for Wundt.(...) I do not believe that this can lead to a full understanding of linguistic development.

What exactly is the target of this attack? This is best explained by a citation from Wundt's book - in fact, the first paragraph of the entire work:

Die Psychologie in der gewöhnlichen und allgemeinen Bedeutung dieses Wortes sucht die Tatsachen der unmittelbaren Erfahrung, wie sie das subjektive Bewußtsein uns darbietet, in ihrer Entstehung und in ihrem wechselseitigen Zusammenhang zu erforschen. In diesem Sinn ist sie **Individualpsychologie**. Sie verzichtet durchgängig auf eine Analyse jener Erscheinungen, die aus der geistigen Wechselwirkung einer Vielheit von Einzelnen hervorgehen. Eben deshalb aber bedarf sie einer ergänzenden Betrachtung, die wir der **Völkerpsychologie** zuweisen. Demnach besteht die Aufgabe dieses Teilgebiets der Psychologie in der Untersuchung **derjenigen psychischen Vorgänge, die der allgemeinen Entwicklung menschlicher Gemeinschaften und der Entstehung gemeinsamer geistiger Erzeugnisse von allgemeingültigem Wert zugrundeliegen**. (Wundt 1904, 1; bold passages spaced in original).<sup>2</sup>

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<sup>1</sup> In first place, the reader will expect from this new edition a discussion of the first volume of Wundt's "Völkerpsychologie" [i.e., the volume dedicated to language, WK]. I am sorry to say that, despite many stimulating details which this work contains, my attitude with regard to the main points cannot be but negative. (...)

The opposition between Wundt and me has not so very much to do with the fact that I adopted Herbart's psychology (...) whereas Wundt relies on his own system.(...) There is a much deeper and broader gap which separates us and which cannot be bridged in any way, and this is a consequence of our respective positions towards so-called "Völkerpsychologie".

<sup>2</sup> Psychology in the usual and general meaning of this term tries to investigate the facts of immediate experience, as presented to us by subjective consciousness, in their origin and their mutual relationship. In this sense, it is **individual psychology**. It completely dispenses with an analysis of those phenomena which result from the interaction of a multitude of individuals. Precisely for this reason, it is in need of a complementary perspective which we assign to "**Völkerpsychologie**". Accordingly, the task of this subdomain of psychology is the study of **those psychic processes on which the common development of human communities and the origin of joint mental**

Wundt elaborates on this idea, but the basic point is perfectly clear: There is the individual mind, and it is the task of "Individualpsychologie" - psychology in the common sense of the word - to study the properties of this individual mind with the methods of experimental psychology. But there are also psychological facts beyond the realm of the individual - those phenomena which result from the mental interaction of many individual minds. These facts constitute the "collective mind", the "Volksseele", and the "joint mental products of general validity" are, as Wundt says, primarily **Sprache, Mythos, Sitte**. Origin, development and characteristic properties of, for example, the religious beliefs, scientific ideologies, moral norms or legal systems of some group of people transcend the individual mind. Consequently, they cannot be adequately studied by the experimental methods of individual psychology, as initiated by Fechner and Wundt himself. The range of these methods is confined to what Wundt calls "elementare Bewußtseinsprozesse". This does not exclude particular aspects of language use from being studied with experimental methods, such as, for example, articulatory processes, sound perception or word recognition - in short, all those low-level processes which occur in the individual. But the way in which a language categorises and encodes time and space, marks plurality or definiteness, or expresses reference to persons, objects, and events - all of this goes beyond what the individual mind does when using language in a particular situation, and hence is beyond the methods of experimental psychology, at least beyond the methods available in Wundt's days. But it is these features which characterise language, and not the individual use made of it by a particular person on a particular occasion. Language, as Wundt understands it, is **essentially social**, and its individual side is marginal. To use the words of Andrew Marvell: It is not the individual mind which creates far other worlds and seas, but the collective mind, or, as one might say as well, the joint activity of many individual minds.

Hermann Paul, the linguist, sees no point in this notion. He explicitly states that linguistics is a part of psychology - but of individual psychology:

(Es ist eine) **Tatsache von fundamentaler Bedeutung, die wir niemals aus dem Auge verlieren dürfen, daß alle rein psychische Wechselwirkung sich nur innerhalb der Einzelseele vollzieht. Aller Verkehr der Seelen untereinander ist nur ein indirekter, auf physischem Wege vermittelter**. Es bleibt also dabei, es kann nur eine individuelle Psychologie geben, der man keine Völkerpsychologie oder wie man es sonst nennen mag gegenüber stellen darf.<sup>3</sup> (Paul 1909, p. 12s; bold parts spaced in original)

In other words: All mental phenomena, and in particular language, are in the individual mind. There is interaction between individual minds, but this interaction is merely physical, and thus not a matter of

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**products of general validity is based.** (It should be stressed that this translation is very approximate, and misses a great deal of the original flavour; a more accurate translation would require many comments on the choice of terms).

<sup>3</sup> (It is a) **fact of fundamental importance, always to be kept in mind, that all purely psychological reciprocal action exclusively occurs within the individual mind. Any interrelation among minds is indirect, mediated by physical means.** It is as it is, there can only be

psychology.

Wundt was a psychologist. In fact, he is often considered to be the founding father of modern psychology. Paul was a linguist. But it appears to me that in modern psychological thinking, Paul's view has become the dominant one. But is he right? And how is this in modern linguistic thinking? I shall leave the first question open for the moment and return to it in section 4.

As for the second question, 20th century linguistics shows a very mixed picture. This is not the place for a detailed discussion, but in a nutshell, linguistic thinking in this century has been dominated by two fundamentally different ways to conceptualise its object - language.

There is, firstly, the structuralist tradition, usually traced back to Ferdinand de Saussure, according to which the core object of linguistic investigation is an abstract social system, a fait social, the langue, more or less shared by the individual speaker. Language is social, is beyond the individual. What is individual, is (a) the faculté de langage, i.e. the innate capacity to learn and to use a language to some extent, and (b) the particular use made of it on a particular occasion for particular purposes (the parole). This tradition dominated the first half of our century, and is still vivid, in more or less varied forms, among many linguists.

The second tradition is the one initiated mainly by Noam Chomsky in the Fifties. In this "generative view", it is the knowledge of the individual which constitutes the core object of linguistic investigation. In a often quoted passage, Chomsky writes:

Linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (randomly or characteristic) in applying his knowledge of the language in actual performance. (Chomsky 1965, p.3).

The object of linguistic investigation is the knowledge of the individual speaker. The question whether this knowledge serves interactive purposes or, more importantly, whether it comes about by interaction is not of central concern, if it is interesting at all. Note, however, that Chomsky also assumes that there is something like "the language of a community" which is perfectly reflected in the individual speaker's mind. Hence, there is a social entity called language, but only its reflex in the individual is of real interest to linguistics. In later work, this position is somewhat radicalised. In Chomsky (1985) a distinction is made between "external language" and "internal language". The latter is (basically) the grammatical knowledge of the individual speaker, and the former is some ill-defined and ontologically doubtful entity, hardly accessible to serious scientific investigation. Not all authors in this tradition are that radical. In fact, most authors in either this or the structuralist tradition hardly ever take an explicit stand on this issue. Sometimes, they express some more or less ritual commitment to a particular position. But it does not really affect their concrete work. In other words, the issue is not settled, and although there may be some tilt towards the "individualistic position", opinions among linguists differ.

In what follows, I shall not try to deepen this picture but return to the core question: Is language

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individual psychology, not to be paralleled by a "Völkerpsychologie", or whatever you may call it.

genuinely social, or, in Wundt's terms: Does it belong to the "collective mind", or is it just a matter of the individual mind?

### 3. What is a "genuinely social entity"?

What does it mean to say that the linguistic knowledge of the individual is a social phenomenon? I think this question can be understood in at least four ways - with respect to functionality, (cultural and social) relativity, (partial) storage, and ontogenesis. These will now be discussed in turn.

#### **Functionality**

Language serves social functions<sup>4</sup>. It allows the individual to express thoughts, feelings, wishes, and to transmit these to others. It makes it possible to coordinate actions in a maximally flexible way; without language, joint human action would be reduced to the coordination principles of an anthill. It also makes it possible to create and apply systems of legislation or infinitesimal calculus, to play chess or video games, to build a Porsche 911 or the neutron bomb, to think up value added tax and to impose it on people. In a word, language is at the very heart of all social and cultural achievements of mankind. In that sense, language is not only a social phenomenon, it is the basis of all societal behaviour.

That should make the linguist proud to deal with such a distinguished subject of research. But does it also mean that language in itself is socially constituted? If we had no hands, probably all of the achievements mentioned above would be impossible, too. Nevertheless, we would not say that hands are in any significant sense "socially constituted". They are part of our genetic endowment, and they are used to serve social functions. But they are not brought about by the interaction of the individual with other individuals. In much the same sense, one might argue that language is part of the individual's genetic endowment, just like memory or perception. Metaphorically speaking, it is "an organ of the brain" which permits us to behave socially and to create a culture, or cultures. But it is not brought about by the interaction with other minds.

There is one crucial difference, though: Hands and feet, memory and perception are there from birth, and although their development is not entirely independent of the interaction of the individual with other individuals, this interaction seems to influence their properties only to a minimal extent. They grow naturally, and although we can intervene in this process by bandaging the feet of girls or by taking memory training classes, they would also grow without this intervention. Language does not grow within the human mind without interaction with other minds. But this concerns the **ontogenesis** of language in the individual, a point to which we will return shortly.

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<sup>4</sup> The literature on the social functions of human language is vast, and what can be done here, is just to allude to some of these functions. Clark (1992), for example, gives a good impression of this

## Cultural and social relativity

There is not one language all over the world but many languages. They share a number of properties, but they also vary in a number of respects - from society to society, from culture to culture.<sup>5</sup> In fact, there is also considerable linguistic variation within a society or culture. This variation affects all aspects of linguistic knowledge, such as

- pragmatics: languages have very different forms of address, different ways to perform particular speech acts such as making promises, offending people or telling stories; they have different rules of verbal politeness, etc.

- semantics: languages exhibit very different ways of conceptualising spatial and temporal relations and of encoding them by linguistic means. In the Indo-European languages, for example, each finite sentence inevitably includes a time marking which comes with the verb form, irrespective of whether the speaker wants to mark time or not; many languages encode spatial relations relative to the position of the speaker, as reflected in deictical words such as here, there, left, right; other languages do not have such a "deictic rooting" of spatiality, and so on.

- syntax: Some languages place the finite verb at the end of the sentence, some between subject and object, still others at the beginning; some languages have all possibilities. German has it in second position in the main clause and in final position in the subordinate clause. Some languages have case marking, others don't, and those which have case marking sometimes use the same forms for all nouns, others vary from noun to noun. English has the object after the finite verb, German has it before or after the verb, and French has it after the verb when it is lexical and before the verb when it is a (unstressed) pronoun - and so on and so on.

- phonology: although the repertoire of clearly distinguishable sounds which can be produced by the articulatory organs are within a definable biological range, and although the acoustic features exploited to that purpose all over the languages in the world is quite limited, the individual use made of these possibilities varies from language to language.

- lexicon: This is perhaps the domain which exhibits the highest range of variation: there is no word which is used in all languages of the world, with the possible exception of Coca Cola; but even that is pronounced differently.

All of this variation does not exclude common features - linguistic universals - as well. But it is clear that whenever languages differ with respect to some property, then this property cannot be innate: it

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dimension of language.

<sup>5</sup> The study of culture-specific variability of language has a long tradition in linguistics, represented by names such as Humboldt, Sapir, Whorff. Gipper (1972) gives a good survey of this work. A representative recent investigation in this tradition is Lucy (1992).

must have been learned from the social environment during language acquisition.<sup>6</sup> But again, this is a matter of ontogenesis, to which we will return in a moment.

Do social and cultural variation as such show that language is socially constituted? We could imagine that, due to some political or social development, all languages might die out except Chinese (or Spanish, the most expansive language these days). Then, variation across languages would disappear. Would the fact that only one language is left change anything substantial in the nature of this language? If the notion that language is socially constituted is dependent on the existence of variation, then the answer should be "yes". But even then, it cannot be innate that a book should be called shu, or that perfectivity has to be marked by adding the particle le to the non-finite verb. All of these properties have to be learned from the social environment, and hence by social interaction. In other words, although the social and cultural variation which we observe across languages could be accidental and hence not constitutive for the nature of language, the social interaction which typically, though perhaps not necessarily, leads to this variation, again, is not. But this is a matter of the ontogenesis of language.

### **Partial storage**

One problem with Wundt's notion of the collective mind and its possible emanations is their doubtful ontological status. Where is the collective mind, if not in the brain of the individual? Where is language, if not in the head of those who are able to speak and to understand it? Exactly this problem was one of Paul's major concerns, and this concern equally applies to the Saussurian notion of langue in the sense of a "fait social", the core notion of structural linguistics. What we have, what we can put our hands on, is the **linguistic knowledge of the individual speaker**, as stored in the speaker's brain cells. Exactly this is what is meant by the Chomskyan notion of **linguistic competence**. Chomsky and his followers do not say that linguistic competence is part of the brain: It is a mental, not a physical, entity. When you look into the individual speaker's brain, you cannot see language. But somehow it must be stored there, and it is the only place where it is stored. The linguist's major tasks are to study the nature of this knowledge and the principles which govern it, and the way in which it gets there where it is stored.

Wundt as well as Saussure were well aware of the somewhat dubious ontological status of their notions as well of the empirical problems in investigating them. Their point was simply that there is a difference between language, on the one hand, and whatever a particular speaker knows of it, on the other. Equating these two things would have been as absurd to them as equating algebraic topology with what a particular person knows about it. Although there is no place where algebraic topology is to be found except in the mind of people who think about it, no one would confuse the study of

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<sup>6</sup> This does not mean, of course, that biological processes of reproduction exclude variation. In fact, Darwinism is based on this notion. What I mean is simply that language-specific properties, such as those mentioned above, cannot be innate: it cannot be innate that a rose is called "rose", or that the determiner follows the noun, or that unvoiced stops are aspirated.

algebraic topology with the study of what some particular person at some particular time knows about it.

No individual speaker knows the English language in its entirety. All entries in Webster's belong to the English language. There is no one on earth who knows all of them. The same point can be easily made for syntactic constructions as well as for pragmatic knowledge about the use of English in specific communicative situations. What we find in the individual speaker's mind is not the English language but that particular knowledge of the English language which the individual in question happens to have learned about English and has stored there. This knowledge is always selective, and the storage in the brain is always partial. Hence, it makes perfect sense to clearly distinguish between the individual's linguistic knowledge, or linguistic competence, on the one hand, and language itself, on the other. That both normally do not collapse is not a matter of philosophy, it is simply an empirical fact. In one word, language transcends the individual mind, it belongs to the "collective mind", and in this sense, it seems "genuinely social".

But is the empirical fact that the individual's knowledge of language is only partial in any way constitutive of what we understand by language? We could easily imagine that one of the many languages in New Guinea is spoken by only a few speakers whose knowledge is more or less the same, or even entirely the same. Would we then say that, under these particular circumstances, language is no longer essentially social but simply a matter of the individual mind? Probably not. It seems therefore, that, on the one hand, we must clearly distinguish between language itself and whatever the individual knows about it, but that, on the other hand, the mere fact that this knowledge is normally selective and incomplete is not the defining criterion for social constituency of language. Chomsky's notion of the "ideal speaker-hearer who lives in a homogeneous speech community and knows its language perfectly well" is an idealisation and as such as unrealistic as any idealisation. But unless one is interested in those particular aspects of language from which it explicitly abstracts away, I do not think that it does not do justice to the explicandum of linguistics.

Summing up the discussion so far, I believe that factors such as the functionality of language, its usual cultural and social variation as well as the normal discrepancy between language and what an individual speaker knows about it all constitute important social dimensions of language. But I am not convinced that they are constitutive for that particular faculty which distinguishes our mind - or our minds - from that of all other species. This leaves us with one last factor - the way in which linguistic knowledge comes about.

### **Ontogenesis**

We do not know how mankind came to language, or language to mankind. The issue excited and still excites so much speculation that I will here obey article 2 of the "Société linguistique de Paris" which, when it was founded in 1866, explicitly forbade any discussion of this question. Let us suppose therefore, that at least one language exists already, English, and that it is partially stored in the mind

of its speakers. How did this knowledge in an individual speaker, say Queen Elizabeth, come about? First, there must be a biological component in the ontogenesis of language. Queen Elizabeth's horses did not learn English, although they may have heard almost as much as she did. Second, there must also be some external stimulus from the social environment. Even a member of the Royal Family would not learn English when locked in a room from birth, without any verbal contact to human society. But this fact as such is perhaps not too revealing. A child raised in complete darkness from birth could never learn to see; similarly, a child who gets no speech input could never learn a language. In much the same way as it would seem strange to say that the characteristics of the human visual system - compared with those of the fly, for example - are derived from what catches the child's eye, it would be strange to assume - one might argue - that linguistic knowledge derives from the verbal behaviour of the child's social environment. The relative weight of innate and environmental factors in the ontogenesis of linguistic knowledge needs some more detailed examination, to which we turn in the next section.

#### 4. Biological and social sources of linguistic knowledge in the individual

##### 4.1 The thesis

To Herodotos, we owe the story of the Egypt king Psammetikh who wanted to know what the mother tongue of mankind was. To that end, he let some children grow up without any verbal contact, and since the first recognisable production of one of the children resembled the Phrygian word for bread, bekos, it was decided that Phrygian was the first language of mankind.

The experiment had a clear design, a clear hypothesis, and a clear outcome. It met all standards of scientific experimentation. It was also clearly asocial, and this for two reasons. First, because of the way in which the children were treated. Second, because of the way in which Psammetikh, or his linguistic advisers, thought about the ontogenesis of linguistic knowledge: It is entirely innate, and what is innate is not some universal features of language but one full language - mankind's first and initial language. If there is any **social** component in the ontogenesis of language, then its only role is to distort what was originally there. In one sentence: **Linguistic knowledge need not be acquired, it is there at birth.**

Two and a half thousand years later<sup>7</sup>, no one would want to repeat, or at least would not dare to repeat, Psammetikh's experiment, and no one would believe that one full language, not even English, is there at birth. Still, the notion remains that the individual's linguistic competence is predominantly innate, and that the role of social factors - the relative share of the linguistic environment in which the child grows up in his or her eventual linguistic knowledge - is a comparatively minor one. I believe this view is false. More precisely, I would like to defend the following radical hypothesis:

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<sup>7</sup> Despite these ethical obstacles to empirical research, the investigation of language acquisition has made some progress within this time. Slobin (1986, 1991) give an excellent survey of empirical and

**The individual's linguistic knowledge has a genetic as well as a social source. But the former is not specific to language; whatever is specific to language is social.**

One problem with this thesis is that the term "social" is not entirely clear. In the next section, I will explain what I have in mind.

#### 4.2 Genetic and experiential transmission of knowledge

Nature has provided us with two ways to transmit information - by means of the genetic code, and by means of whatever is perceived by our 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 limited possibilities of variation. We know of no way in which acquired information could be genetically transmitted. Experiential transmission is less robust, but much more flexible. In particular, it allows to transfer information which an individual has gained from experience to some other individual, and thus to increase the amount of knowledge available to the individual as well as to the collective mind - if there is a collective mind. All of this is not new, but it should be kept in 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 other individuals. In fact, this is nothing but a somewhat circuitous way of saying that minds interact with each other. So far, we have only talked about 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 now re-state my general thesis as follows:

**Both genetic and experiential transmission of information play a role in the ontogenesis of the individual's linguistic knowledge; but whatever is specific to linguistic knowledge comes from other minds via experiential transmission.**

This is a hypothesis at variance with what many linguists believe. Given the present state of knowledge on the ontogenesis of language, it can be neither proven nor refuted at this point. Still, there are some arguments in favour of it, to which I will turn now.

#### 4.3 What determines language acquisition?

We all have acquired a language during the first years of our life - our first language. Most of us have learned another language as well. This may have happened in various ways, and the transitions between these ways are gradual. There are children who are exposed to more than language right from the beginning; others start to learn a second language with a delay of some years, while the first language is still being acquired; in still other cases, second - or even third, fourth - language acquisition begins at a time when first language acquisition is completed, which is normally the case at puberty, perhaps earlier. In this latter case, the second language is often not learned "in the natural way", i.e., by everyday communication with speakers of the language to be learned but by explicit teaching in the class-room. Usually, second language acquisition after puberty does not lead to perfect mastery, whereas first language acquisition regularly does, and early second language acquisition often does. In one word, there is not one way to gain linguistic knowledge but many, and if we want to understand the ontogenesis of linguistic knowledge, this variability has to be taken into account.

In each of these cases, the acquisition of a language is a very complex process which in the case of both child and adult extends over many years and whose course and final outcome depend on a number of interacting factors. In any event, however, there are three major components which are necessarily present.

First, the learner must have a particular **language learning capacity**, which is part of his or her genetically transmitted - the species-specific **language faculty**. In psycholinguistics, it is common to call this faculty of our brain the **language processor**, a term which I will use here. The language learning capacity is nothing but the language processor in its application on new material.

Second, the learner must have **access** to this new material, that is, to utterances from the language to be learned. In the beginning, all this material is new to the learner; after a while, he or she has already some knowledge of the language to be learned and can use this knowledge to process new material. In other words, the learning process is an accumulating one, it increases linguistic knowledge by exploiting linguistic knowledge, and this partly explains why this process usually takes that long.

Third, the learner must have a reason, a **motivation**, to apply his or her language processor to the new material. This motivation can be very different. In the case of first language acquisition, it is probably the need of social integration - "Become a member of that society in which you have to live". In second language acquisition, it may also be the need for social integration; but more often, it is simply the wish to be understood for limited purposes, or - in the class-room - the need or wish to please the parents with good marks. Although the various types of motivation are many ways crucial for the course and especially the final result of the acquisition process, I will not consider it here. Moreover, I will only concentrate on language acquisition outside the class-room, i.e., to the acquisition of linguistic knowledge by interaction with the social environment, since this is the point in which we are interested here.

This leaves us with two essential components - the language processor, on the one hand, and the input from the social environment, on the other. Both crucially contribute to the way in which linguistic knowledge is built up in the individual. A simple picture would now be to say that whatever the former

contributes is genetically transmitted, and whatever the latter contributes is experientially transmitted. In fact, the situation is somewhat more complex. In order to show this, we must have a somewhat closer look at these two components.

### **Language processor**

The way in which the language processor works at some particular time depends on two factors: (1) a number of biological determinants; (2) the knowledge which is already available at that point in time.

(1) Biological determinants include, first, several **peripheral organs**, notably the entire articulatory apparatus from the larynx to the lips, on the one hand, and second, the entire auditory apparatus (for simplicity's sake, I ignore written language here, whose acquisition is usually a derived process, anyway). Second, they include some parts of **central processing in the cortex**, such as memory, higher-level aspects of perception, some parts of cognition. I shall try to sort out what precisely these latter aspects of cognition are and in which way they interact. It is open to which extent particular aspects of reasoning, for example, are indispensable for acquisition and use of linguistic knowledge; the fact that, for example, children with specific brain impairments can learn language shows that here is some independence; but it is unclear how far this independence goes. What is more important here is the possibility that, as has been claimed by some authors, there might be a specific "language module" in the human brain - a part of the cortex which is only responsible for language, or some parts of language. This is the Chomskyan position which considers language to be something like a "mental organ" that interacts with, but is in principle independent of, other higher cognitive faculties. We shall return to this point below.

Both peripheral and central biological determinants, as well as their interaction, are innate; whatever they contribute to language - it is genetically transmitted information. Both also change in the course of life, and this is probably a major reason in the normally lower success of adults who try to learn a new language (although surely not the only reason). As with most biological determinants in the human body, the ones necessary for language can be trained to some extent, and in this indirect way, social factors may affect them. But for present purposes, we may simply say that they constitute the "genetic contribution to the linguistic knowledge in the individual".

(2) The biological determinants set, as it were, the frame within which the process of language acquisition may occur. This process is not instantaneous, it extends over many years, and during this time, the knowledge available to the learner constantly changes. This knowledge includes minimally<sup>8</sup>

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<sup>8</sup> I say "minimally" because in second language acquisition, there is another type of available knowledge which influences the way in which the learner approaches the input - first language knowledge. The new language is perceived in the light of old knowledge, and this leads to the various kinds of (positive and negative) transfer in second language acquisition.

two major components which are relevant here:

(a) the learner's **world knowledge** at a given point in time which allows him to break down the more or less continuous sound stream which emanates from his social environment and hits his ears, to isolate bits and pieces of it and to give a meaning to these;

(b) the learner's **language-specific** knowledge of the language to be learned; the acquisitional process is always stepwise: once you have learned some bits and pieces, you are able to access further parts of the input; for example, until you don't have learned some phonological distinctions, it is impossible to approach some aspects of morphology. Hence, the entire process is an accumulating one: linguistic knowledge is increased by using linguistic knowledge, up to a point where nothing new can be detected in the input.

This point is particularly important here. The language processor itself is not just a biological component of our cortex, whose function is determined by genetically transmitted information. This is only the case at the initial point where the learner has not been exposed to any input as yet. At any later point, the language processor itself is changed by permanent interaction with the input, hence with experientially transmitted information.

What is this latter information?

## **Input**

How does the learner get access to the language of his or her social environment? If we exclude language learning in the classroom, in which the learner is often not directly faced with language itself but a more or less appropriate description of it, then the primary input is the physical speech signal - sound waves which hit his ear drums and of which he should make some sense. For the learner, this stream of noises is not yet segmented into phonemes, morphemes, words, sentences. In fact, this is the first task which he has to solve, and if he had only sound waves as input, this task would be unsolvable. Suppose someone locked you into a room and played Inuktitut to you, for days, weeks, even years - you would not learn it, any more than you would be able to learn Chinese just by regularly listening to short-wave radio programs in Chinese. The creation of linguistic knowledge in the speaker's mind requires a second type of input - all the accompanying information, gestures, actions, the entire situational context which eventually allows to break down the soundstream into smaller entities and to give them a meaningful interpretation. In other words, the input actually consists of two connected sources of information - the sound stream and the entire parallel information. Both of these are experientially transmitted - it is information which stems from other speaking and acting minds. Without those two types of experiential information, and without the learner's interpretive processes which brings them together, no acquisition of a particular language is possible.

I believe what has been said so far is fairly obvious - obvious at least at the level of generality at which it has been discussed here. Obvious, too, are the consequences to be drawn for our general hypothesis:

1. Whatever a speaker knows about a particular language, stems from his or her interpretation of the sound stream produced by other people AND the actions which go with this production of sounds. The input is not just a sort of trigger of a biological process - it is meaningful actions in social context.

2. Only at the initial stage is the individual's language processor exclusively based on genetically transmitted information. Then the language processor itself changes due to whatever has been processed from experientially transmitted information.

Taken together, both conclusions would clearly justify the claim that the ontogenesis of linguistic knowledge in the individual is indeed socially constituted, and in that sense, linguistic knowledge is **essentially social**.

There are two possible objections. First, one might argue that a substantial part of the individual's linguistic knowledge is not acquired at all, hence does not have to go through the acquisitional process. Second, it is an empirical issue to what extent the function of the language processor is indeed accumulative, i.e., stepwise analysis of the input. These two objections I will briefly address in the following section.

#### 4.4 Problems

To which extent is the mind's learning capacity itself affected by the learning process? Clearly, there are some purely biological prerequisites. Without memory, language learning would be difficult, similarly without the capacity for sensory perception. All of these capacities are not specific to language, however. Moreover, as was argued above, these biological givens do not suffice. They only suffice to start. Further processing systematically exploits the knowledge which is available after a while due to prior steps in acquisition. The fact that this knowledge is crucial is best illustrated by an example.

One of the most salient rules of German syntax - in fact, the basis of German word order regularities - concerns the position of the finite verb. The finite verb consists of two components - a lexical component and the finite component proper. These may be separated into two word forms, as in hat gegessen, where hat is the finite component, and gegessen the lexical component; it may also be projected into one word, as in more or less synonymous aß<sup>9</sup>. The basic rules of German now say that

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<sup>9</sup> In English, the situation is very similar with has eaten and ate, except that the word order rules are quite different. Therefore, I have chosen the German examples.

the lexical component is regularly sentence-final whereas the finite component changes its position according to sentence type: It is in second position in declarative main clauses, in initial position in yes-no questions and imperatives, and in final position (even after the lexical verb) in subordinate clauses. If both components are fused to one form, such that the positional constraints are at variance, it is the finite component which wins. Almost everything in German word order is based on these regularities; if they are not learned, there is little chance to learn German syntax. This is different in English, in fact, in all languages, hence, these regularities cannot be innate knowledge and must be learned from input analysis. In order to achieve this, the learner must be able to identify what the finite component of the verb is. The only way to identify this component is by its inflectional morphology. Hence, the learner must first know the German verb morphology - not necessarily the complete paradigm, but enough to identify the finite verb. In contrast to English, this task is not precisely what one would call easy (Mark Twain's famous remarks about German highlight the point). In particular, German finite verbs - as well as uninflected words - can end in extremely complex consonant clusters, for example -ltst (as in hältst or schmilzt) or -rgst (as in würgst or verbirgst). Sometimes even a well-educated German has problems identifying a finite verb form as such (for example, wüsch). Decomposing such a consonant cluster is an extremely difficult phonological problem for both first and second language learners. But if the necessary phonological knowledge is not available, the morphological problem cannot be solved, and, as a consequence, the fundamental rule of German word order cannot be acquired.

I do not think, incidentally, that this essentially accumulative nature of learning is peculiar to the acquisition of linguistic knowledge. Very often, our capacity to learn something simply depends on previous knowledge, and the highly normal, natural and automatic acquisition of linguistic knowledge in the individual is only a special and particularly complex instance of this general principle - with the peculiarity that the information so processed comes from "other minds".

Whatever is acquired is acquired with step by step analysis of sound stream and parallel information, and this is not accidental. But is it really necessary that all components in the mature speaker's linguistic knowledge be acquired? It could well be that part of the speaker's linguistic knowledge is there right from the beginning.

This is indeed the key assumption by acquisition researchers who work in the "generative paradigm". It leads to an interestingly simple theory of language acquisition. Basic parts of the structure are right there, and only some open slots, so to speak, must be filled by input analysis. This general idea has been worked out in some detail in the so-called "parameter setting approach". It basically says - I will not go into any detail here (see, e.g., Weissenborn, Goodluck and Roeper 1992) - that there is a "peripheral part" of linguistic knowledge, which has to be learned by input analysis, and a "core part", which is universal, genetically transmitted, but contains at birth some "open parameters" with a limited number of options. All the child has to do is to choose one of the options, and this is done based on specific cues from the input.

Researchers in this framework do not agree on what these parameters are, and so it is difficult to evaluate the empirical value of this idea. But independent of that problem, it is beyond dispute that

only those components of linguistic knowledge can be genetically transmitted which are common to ALL languages. No one is born to learn Tagalog or Twi, every new-born can learn every language. Hence, whatever distinguishes Latin from Chinese, for example, must be experientially transmitted. This includes

- the entire vocabulary
- the entire morphology
- the entire syntax to the extent to which it is covered in descriptive grammars
- most (if not all) of phonology,

in a word, practically everything. This does not necessarily exclude the possibility that, on some abstract level, there are also some universal properties. But if this is the case, then it remains to be shown that these universal properties go in any way beyond the constraints on perception, memory, pattern processing, and higher functions of cognition which are characteristic of the human mind in general.

At this point, the empirical evidence is too weak to settle this issue. Personally, I believe that it is possible, indeed, to find such universal constraints on what constitutes general linguistic knowledge. But I see little reason to believe that these constraints go in any way beyond general, not field-specific constraints of the human mind. Until evidence to the contrary is given, however, a theory which only operates with general constraints on the human mind rather than with a specific "language module", characterised by independent mental principles, makes the more powerful generalisations, and is therefore preferable - until evidence to the opposite is given.

## 5. Conclusion

The core conclusion is straightforward: Linguistic knowledge of the individual requires a genetic disposition; only the human mind is apt to learn language. Whatever linguistic knowledge the speaker eventually has stored in his or her brain, is experientially transmitted - it is information which stems from other minds: sound waves emitted by them in connection with actions actions performed by them. There is no factual evidence whatsoever that components of linguistic knowledge in the individual is genetically transmitted - above and beyond general constraints on structure and functioning of the human mind. Linguistic knowledge is essentially **social**. It is **essentially** social. It is brought about by the interaction of the individual mind with other minds. This view is not really proven. It could still be falsified. But given what we presently know about language and the human mind, it is by far the simplest view compatible with the facts.

In the introduction, it was said that language is in two ways unique among the capacities of the human mind: first, no other species has it, and second, it is language which renders possible all "higher forms" of cognition as well as that particular kind of interaction between members of a species which

we feel to be characteristic of human beings. What does the picture of language discussed above then imply for what we understand by "specifically human cognition" and "specifically human interaction"? The idea of language being essentially social does not mean that there is no "biological component" in language. After all, no other species has it. It rather means that the human mind has a fairly general, genetically transmitted disposition on which the interaction with other minds superimposes a very specific structure, the individual's linguistic knowledge. Once brought about as a **product** of such a process, language becomes a means - the essential means - in transmitting information from other minds to whatever is in the individual mind by birth. Let me briefly illustrate this with two examples.

The first example concerns one of the fundamental categories of human cognition - space. The way in which the human mind conceptualises space partly depends on our genetical endowment - our capacity to see, to hear, to move around, on the one hand, and the capacity to remember what we have seen, heard, and experienced in previous actions. Human space, to the extent to which it is biologically constituted, is roughly characterised by three essential features:

1. It consists of smaller entities (sub-spaces, places), for which a twofold structure is defined:
2. a topological structure, i.e., places can be contained in other places, in the environment of other places, or be adjacent to other places;
3. an order structure: Places are ordered with respect to each other in three dimensions - vertical, transversal, horizontal.

There is good reason to assume that all human beings share these properties of space. But the way in which, for example, the average European conceptualises space goes far beyond. For example, we **define** the three dimensions as "up-down, front-back, left-right" by projecting our body asymmetries on them: "up" is where (normally) the head is, "down" is where (normally) the feet are; "front" is where we look to, "back" is the opposite direction; "left" is where most people have their weak hand, "right" is the opposite direction (or in whichever way this body asymmetry is defined). Such a superimposed structure is culture-specific; it must be learned from other people in the social environment; other cultures impose very different structures on the "biological space" (see, for example, Levinson 1993, Klein 1994). Similarly, culture-specific knowledge may allow us to introduce a **metric** into the basic space - a systematic way of indicating distances between places, and so on. We will not follow this up here - the basic point should be clear: The way in which the human mind conceptualises space has a universal component, shared by all normal members of our species due to genetically transmitted properties of our body and our mind. It also has a culture-specific component, brought about by the experiential transmission of information from one mind to the other. The main instrument of this transmission is language, in itself brought into the individual's head by experiential transmission.

The second example concerns a peculiarity of human interaction rather than of human cognition. Animals kill other animals, but rarely beyond immediate need for survival. Sometimes, they even kill

members of the own species. But again, when it happens, it is usually for quite evident biological reasons, such as survival of the individual, of the "individual's genes", or sometimes of the immediate social community. This is also found among humans, and the extent as well as the way in which it is evaluated varies from culture to culture. But we do more. One peculiarity of human interaction is the fact that we kill each other systematically, far beyond immediate biological need. The reason is normally a strong belief system - nationalism, religion, some kind of ideology. The convictions which constitute these belief systems are not genetically transmitted - they are brought about by intensive interaction between minds. Probably, these belief system could not be created by human minds and transmitted to other human minds if there were not linked to genetic components of our brain. But they far exceed our "biological nature". Our genes may tell us to survive. But they do not tell us to die and to kill here in order to survive in another world. They tell us to defend our progeny. But they do not tell us to defend our faith or our flag and to kill those who have a different faith or flag. Murder may be biological, mass murder is always social.

The particular form and the relative weight of universal, genetical transmitted components of the human mind, on the one hand, and more specific experientially transmitted additional structure brought about by the interaction between minds, on the other, may vary considerably across different aspects of human cognition and human behaviour, and so do the opinions of researchers in this area. Since Darwin in 1871 published "The descent of man", the balance on the average seems to have gone towards the former, the biological component. I think the case of language, and maybe also the two examples given above, illustrate that a lot in the mind of the individual is genetically transmitted but is also shaped even more by the interaction among minds.<sup>10</sup>

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<sup>10</sup> I wish to thank the participants of the conference "Interactive minds" for a lively and useful discussion and to Paul Baltes and five anonymous reviewers for most helpful comments on an earlier draft of this paper.

