Noam Chomsky as a Linguist

A Great Vision defeated by Faulty Logic and Empirical Ignorance

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Introduction

To this day I am still not quite sure whether it is really of general interest to publish a book with critical remarks on Chomsky and Pinker, when it seems much more important to justify one's own way of thinking in such a way that in the end it may successfully assert itself against views the author deems erroneous. To convince is much better than to criticize. I am still confident that my view on Universal Grammar as elaborated in "The Principles of Language - Towards trans-Chomskyan Linguistics" may finally produce this result.

On the other hand, criticism can also have a definite value if it explains how erroneous opinions may turn into dogma simply because a highly praised authority stands behind them. Indeed, the fifth chapter reveals a fact that in retrospect seems quite difficult to understand. It is well known that Chomsky's once famous "trees" conquered the whole world in a surprise attack, so to speak. It seemed that science had finally found the formula that must be present in the mind of a speaker when he or she formulates grammatically correct sentences. At that time, no one was able to recognize that this formula represented no less than a logical absurdity - a mere tautology that says nothing at all about the processes in the human mind. But the fascination about the miraculous formula proved to be so immense, that it suffocated all sober thinking. Scholars should keep this in mind if they want to maintain the necessary mental distance from supposed - and sometimes downright wrong - authorities.

To true empirical linguistics, these trees stood in the same relationship as chemistry stands to alchemical sorcery. This too should be an important lesson. Obviously, the humanities and natural sciences take different paths. It does not help the former to merely imitate the latter by using abstract formulas. If a theory, let's say about aerodynamics, is wrong, then planes will not fly, they may simply crash. But if a linguistic theory is based on false premises, nothing happens. On the contrary, often its followers succeed in attaining highly endowed academic positions and then keep all those out of universities, who dare to oppose it.

On the other hand, machine translation programs represent natural science at its best. Meanwhile they achieve surprising levels of perfection, but

they tell us nothing about the nature of language, nothing about its origin, function and evolution. So, let's be sure, linguistics is not chemistry, but it does not need to become alchemy either.

The first chapter on method tries to outline the goal and the preconditions for general, comparative linguistics. It should be considered the starting and the end point of all subsequent discussions.

Chapter six refers to an article by Christopher Hallpike, who saw quite correctly that Noam Chomsky's supposedly universal "language module" is completely beside the point, since languages of very different degrees of development exist - a fact already dealt with in chapter two and that certainly does not fit into Chomsky's theory. Hallpike's objections offer a welcome opportunity to demonstrate - with reference to six questions rightly asked but wrongly answered by Noam Chomsky - how his theory completely neglects empirical linguistic reality, as if linguists need not care about languages.

In the second chapter, I had already taken a more fundamental approach by examining the relationship between meaning and form - and why Noam Chomsky never reached a clear understanding of the subject. The second chapter equally refers to basics, namely to the materialization of meaning by form – what I call its “realization”. Originally, I had put this chapter at the end to clarify my own point of view after criticizing current methods. But I then decided to place this chapter at the beginning. Critical comments are better understood if the reader knows from the outset what the author considers to be the scientifically correct procedure. The chapter on “The Primacy of Meaning and Differential Analysis” illustrates how English and Chinese formally realize an identical structure of meaning - the very core of any language - in quite different ways. It is intended to show succinctly how my own approach works and that - unlike Chomsky and Pinker - it is based on a method of the highest possible precision, namely “Differential Analysis”, which I apply – possibly for the first time - to linguistics.

The reader will notice, that in this book, as in the “Principles”, a very important part of linguistic theory is completely missing, namely Cognitive Science, which for more than half a century has enriched our knowledge of language and brain to an astonishing degree. This omission is deliberate because I assume, with modern anthropology, that the cerebral abilities of Homo Sapiens have not undergone significant changes for at least the last hundred thousand years.

The diversity of languages and its explanation cannot, therefore, be justified by differences in the structure and function of the brain. Since the reflection of reality (external and internal) by the human mind has remained essentially the same throughout this time, the structure of meaning, composed of a logical and an informational part, must exist independently of the findings of cognitive science, even though it increases in complexity over time.

I get somewhat polemical in the last chapter, where I accuse Steven Pinker of consciously hiding the truth. Pinker knows that Chomsky's theory of a Universal Grammar fails and is simply wrong right from the start, but he does not want to quarrel with his mentor (still at the height of fame at the time), and so he bends his own findings in such a way that they do not openly contradict Chomsky's teaching. From a human point of view, this may be understandable, scientifically I consider such an approach unacceptable.

Let me add that the present book offers a great advantage for the reader: It is extremely short - no more than seven chapters. Building a new theory is a creative project that normally takes a lot of time and space. It took me about half a century to complete "The Principles of Language". In contrast, shattering a faulty theory can be the work of moments, like when an airplane crashes due to wrong aerodynamics. The same rule should generally apply to criticism if it is meant to convince. It should be short and decisive. Now, the present book is certainly short, it is up to the reader to say whether its arguments are decisive too.

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1 Discourse on Method: WORDS, SENTENCES, VERBS etc.

Almost half a century ago (1973) when working as a lecturer at the Tohoku University in Sendai, Japan, I became so interested in the subject of general linguistics that I began to study the work of Franz Boas on indigenous American languages as well as such eminent linguists as Otto Jespersen and John Lyons. Very quickly, one and always the same question presented itself to me as the most intriguing. What is common to such different languages as English, German, Sanskrit, Japanese, Chinese, etc.?

I soon realized that my answer would be fundamentally different from Chomsky's and that only his or mine could be correct. As far as my answer was concerned, it emphasized the two dimensions that constitute all human languages, namely meaning and form. Pointing to form is trivial. Human beings must be able to produce sound sequences with their acoustic apparatus, and they must be able to do so in sufficient quantity and differentiation to give the immaterial ideas in their brain a material expression perceptible to others. Form is the material shape of a language; meaning is the immaterial substrate expressed or, as I call it, "realized" by form. The relationship of acoustic form to immaterial meaning, then, consists in a material realization of the second by the first. Otherwise, interpersonal communication would not even be possible.

This statement is trivial, so it will hardly be contested – not, of course, by Chomsky and his followers. After all, Ferdinand de Saussure had already strictly separated meaning (signifié) and phonetic sign (signifiant). But the consequences of this dichotomy are far-reaching - they shake the very foundation of

Chomsky's theory of language – Chomsky never understood this crucial point.

First, it should be obvious that languages evolve from the simplest beginnings to the most sophisticated manifestations of literary languages. While form as produced by the human sound producing organs has not changed, at least during the last million years, immaterial meaning is an *expanding cosmos* - not the ready-made homunculus module postulated by Chomsky (see chs. 4, 6). This, then, is the first mistake of the great American linguist, a mistake based on empirical ignorance.

His second mistake – this one based on faulty logic - is even more consequential. If, indeed, it is true that every language materially manifests – realizes - the immaterial cosmos of meaning *in its own specific way*, then we must define meaning and form independently of each other. We can no longer use terms such as sentence, word, verb, subject, object, etc., since all these terms refer to both meaning and form at the same time. *They imply what they are meant to elucidate.*

Chomsky and his successors never undertook to define the immaterial structure of meaning and the material structure of sound, enquiring into the realization of the former by the latter. Because of this theoretical failure, linguistics became a scholastic science where people no longer cared for the obvious, when it contradicted established theory. Yet it should be evident to any expert in the field of empirical languages that linguistic diversity is based on the two dimensions just mentioned.

First, on the diversity of meaning, i.e. the immaterial ideas which a culture forms about the external world and about internal mental processes. The representation of the inner and outer reality as it appears in some given language *cannot be fundamentally different* from the representations of other languages, because then it would not even be conceivable to translate one into the

other. It is, however, an incontestable fact that languages can be translated to a large extent and often surprisingly well. This even applies to texts that were written four thousand years ago. The reason is obvious: the immaterial cosmos of meaning in the brains of people represents to a large part external reality, and this consists of things like trees, clouds, rivers, plants etc. most of which are present everywhere on the globe. At the same time the human psyche always and everywhere expresses the same fundamental sensitivities grief, love, hate etc. These far-reaching similarities of both outer and inner realities in all parts of the globe constitute the obvious reason why the cosmos of meaning to be found in different languages presents so many similarities.

But similarity is far from identity. The immaterial representations of reality in different languages are never identical with one another - least of all when they refer to inner reality. Here, in the realm of sensations and feelings man becomes to a certain extent the creator of himself. This explains why the encounter with a foreign language and culture so often amounts to the discovery of new, unexpected realities.

Form as the second factor of linguistic multiformity is much easier to describe, but it is precisely here that the inadequacy of Chomsky's general theory of language emerges in full force. Let us take a Latin sentence like "Vos am-o" and an English one like "I love you." Obviously, the semantic content (the basic structure of meaning) of these two sentences is identical, but their realization as a material sound sequence is not. In the first case we are dealing with *two words*, in the second case *with three*. Some so-called polysynthetic languages realize the meaning content *in a single word* of the kind "love-I-you". This contrasts with Chinese, which makes *four words* out of it, if "you" is to be understood as plural: "I love you plur". Besides, these four words must follow

each other in a definite order, so that "I" occupies the role of agent, while "you plural" takes over the role of patient.

In other words, *the term "word" is unsuitable as a general linguistic category*, because in different languages a word may realize quite different structures of meaning. Only the latter represent an adequate basis for comparison, only they may serve as tertium comparationis. In the given instance, the tertium comparationis, which we find in all developed languages, consists of the following six basic elements of meaning:

love, I, you + plural, agent, patient

Not only does the term "word" prove inappropriate when it comes to general linguistic categories, but the same objection applies to the term "sentence", which, as the present example shows, is a sequence consisting of four words in Chinese, whereas in some polysynthetic languages it may be just one single word. And of course, in different languages “verbs” too may have quite different semantic contents - as is also illustrated by our example. And, finally, those familiar with classic Sanskrit will know that in this language a “noun” may express a single semantic element like “tree”, “house”, “cat” or take the shape of a compound that expresses a total event like for instance “bravely-conquered-evil-enemies-victor” (the victor who bravely conquered the evil enemies”). In Sanskrit artistic prose, such compounds may even cover entire pages!

Thus, terms such as word, sentence, verb, verb phrase, noun, nominal phrase, etc., which form the basic framework in Chomsky's notorious trees (see ch. 5), denote specific connections of meaning and form in a given language. Accordingly, they *presuppose what is to be explained*, namely how pure meaning like the before-mentioned sequence “love, I, you + plural, agent, patient” becomes embodied in form. When using terms like verb

and noun, our procedure becomes in fact tautological. Instead of asking how pure meaning becomes embodied in form, are question gets diverted from its very purpose. We ask how meaning *already embodied in form* (i.e. verbs, nouns, etc.) are being *formally realized*.

Let's give a more generalized expression to this basic insight. As stated before, even Chomskyans seem to agree that the task of general linguistics is to ask for the embodiment of pure meaning (the immaterial content in human brains) in pure form (that is, the material means of manifestation):

Pure Meaning + Pure Form ⇒ specific languages

But so far, no one has bothered to strictly define the two dimensions, thus giving this formula a more concrete expression, for instance:

Action, substances, qualities… + formants, position, tones, stress ⇒ specific languages with language-specific verbs, nouns, affixes, syntax

Actions, substances, qualities… represent immaterial meaning, while formants, position, tones, stress are formal means *devoid of any semantic content or connotation*. A specific language thus represents the *emergent reality* resulting from "endowing" material form with immaterial meaning. It should be clear from the preceding considerations that words and sentences do not belong to pure meaning. If we were to range these at the left side of our equation, the latter would become tautological:

not allowed (tautological):

words, sentences… + pure form ⇒ specific languages (= *words, sentences*)

For the same reason, we may not place verbs, nouns, verbal phrase, etc. to the left, because this too would produce a tautology:

not allowed (tautological)

verbs, nouns, verbal phrases… + pure form ⇒ specific languages (*verbs, nouns, verbal phrases*... plus syntactic structure)

This basic objection to the tautological nature of Chomsky's procedure allows but one conclusion. As Chomsky does not start from pure meaning, he could neither formulate a general nor a generative grammar. This goal can only be achieved by using purely semantic categories on the one hand, purely formal ones on the other - the universal tertium comparationis. Only when starting from this common base, general linguistics can demonstrate how each language formally realizes a given structure of pure meaning in its own specific way.[1]

But beware! *What Chomsky did is quite appropriate and indeed indispensable in pedagogic or traditional grammar!* Instead of starting from pure meaning and pure form as demanded by general comparative linguistics, he based his description on elements such as verbs, nouns, etc. that contain pure meaning like

[1] This is exactly the claim Steven Pinker made in his book *The Language Instinct* but never followed up. There it is said that all languages access "Mentalese", namely a cosmos of meaning, which they then realize in their own way in their respective language. Pinker generously disregarded the fact that I had already established the theoretical basis for this procedure from which I could derive a whole series of practical consequences and insights from. Apparently, he also did not know that Otto Jespersen formulated the same idea speaking of "Notional Grammar".

actions, substances, etc. in a *paratactically* organized way so that he may find out how these classes are grouped into a specific *syntactic* order.

Chomsky's procedure:
paratactic classes (verbs, nouns, verbal phrases…) + syntax =
formal structure of some specific language[2]

This formula adequately describes the basic task of pedagogical grammar as well as of algorithms for automated translation. Chomsky may be said to be the founding father of the latter – though against his own will and intent – but he certainly did not create a general and generative grammar (ch. 2, 5).

Let me add a final remark on pure meaning. Actions, substances, qualities, temporal and spatial determinations, and so on certainly make up its basic elements – but no more. Communication between people does not consist of an arbitrary stringing together of such elements as: "cry, house, later, mother..." Instead, it consists of specific but universal *semantic building blocks* composed of such elements. For instance:

Man, run ⇒ The man is running
Tree, warped ⇒ That tree is warped

Here the semantic building block is placed at the left side of the arrow, its formal realization in English to the right. These universal building blocks of pure meaning *have so far never been given*

[2] Please note that the arrow ⇒ and the symbol = describe entirely different outcomes. In the first case, immaterial meaning and material form combine to produce a new *emergent reality:* sound filled with meaning. In the second instance left and right describe the same reality – they are tautological though not identical just like for instance five + two = seven (see ch. 5).

distinct names, that is why I created the neologism "action-synthesis" for the first and "quality-synthesis" for the second example (see ch. 2). The task of general comparative linguistics is thus clearly defined. After taking the following two preliminary steps, it establishes the two basic tasks of general linguistics, the analytic and the generative (steps three and four).

First, list and define all purely semantic building blocks (in my words "syntheses") that can be found in existing human languages! *It turns out that their number is quite limited.* They represent what I call the "logical structure of meaning". Then list all variants imposed by the needs of communication (statement/ question; free/ bound synthesis; topic/ comment etc.). This is what I call the "informational structure of meaning". To my knowledge the first and so far the only attempt to comprehensively describe the general structure of meaning was made in Jenner: *The Principles of Language – toward trans-Chomskyan Linguistics*.

***Second*,** list and define all formal means at the disposal of the human sound producing organ! These are free/bound formants, position, tones, stress. At the same time, consider the limits of the human memory, which do not allow humans to communicate in bits and bytes.

Once this fundament firmly established, our task is expressed by the following general formula:

Pure Meaning (logical + informational structure) + Pure Form
⇒ specific languages

***Third*.** Deal, first, *analytically* with the right side of the arrow, that is with the emergent reality that results from endowing

material form with immaterial meaning. Describe how in different languages different formal means are used - *or else cannot be used!* - to express meaning.

This raises the first basic question. How are meaning and form related when we compare them quantitatively? As just mentioned, the number of semantic building blocks (syntheses) is quite limited, but the elements of which they are composed are not; at least theoretically they verge on the infinite (within a quality synthesis like “tree, big” for instance, both the substance “tree” and the quality “big” may be replaced by an indefinite number of alternative semantic elements). Human language must therefore be capable of formally manifesting at least thousands but in its most developed shape even hundreds of thousands of immaterial meaning contents (semants). In principle, formants as well as position may fulfill this requirement equally well. If it were possible to replace the two elements minus and plus of binary computer languages by sounds like bu and ba, then “tree” could appear as bu-bu-bu-ba, “cloud” as ba-bu-ba-bu and so on. Only two sound elements (formants) arranged in different sequences (position) would be needed to “realize” any number of semants, but it is obvious why man never developed a binary natural language. First, his memory would be hopelessly overtaxed; second, uttering such sequences would require a multiple of time, since unlike computers man cannot produce sequences of bu and ba with the speed of light.

Therefore, all human languages without exception make use of formants, i.e. they combine vowels and consonants in a potentially infinite way, e.g. Sam, Kam, Lam, Dam, Sham... Sum, Kum, Lum, Dum... Sim, Kim... - where these syllables may be further combined to produce Samkum, etc.

Speaking in general terms, we may say that formants have a "*Differentiation Value*" that tends to infinity, i.e., they allow

humans to produce an almost infinite number of different words that can realize just as many immaterial meaning contents (see ch. 2).

Only in binary systems does position have an equally high differentiation potential. As for natural languages, analytic investigation shows that the “Differentiation Value” rarely exceeds the minimum of two. It is mostly used to express a *semantic dichotomy*, for instance the contrast between statement and question in German (Er kommt/ Kommt er?) or in English and Chinese the contrast between agent and patient (Peter likes Mary/ Mary likes Peter). From a quantitative point of view, position plays only a minor role in natural languages, but seen *from a qualitative perspective it may play a decisive one* shaping the core of a language, its syntax (see ch. 3).

In many, probably in most languages, tones play only a minor role, e.g. in English, when a speaker says. "He is a great man. Really." The person addressed may respond by repeating the word "really", but with a different intonation that expresses a doubt or a question. In Chinese and other tonal languages this formal device is used for an altogether different purpose, namely, to differentiate identical formants. The “Differentiation Value” of tonal modulation in Chinese is four, meaning that the same formant occurs in four tonal variants. This allows a language to reduce the total number of formants to a quarter and yet formally realize the same number of immaterial semants.

As already mentioned, a relatively small number of semantic building blocks (syntheses) constitute what I call the general or universal structure of meaning. As, however, the elements of which they consist, are potentially infinite (within a quality synthesis like "tree, big", both the substance “tree” and the quality “big” may be replaced by an indefinite number of alternative semantic elements), we are confronted with both a *semantic*

paratax (the two classes of substances and qualities) and a *semantic syntax* (in the present example the qualification of a substance. Our general analytic enquiry is therefore confronted with a most challenging question: Are syntax and paratax on the immaterial semantic level faithfully reflected in the syntax and paratax on the formal one? And if this is not the case, what is the reason for such deviation?

Roman grammarians used the term "nomen" (noun) to designate the declinable substantives of their language. When transferred to any other language, this term was used to refer to a class of words that designate predominantly or even exclusively dead or living substances such as tree, house, dog, etc. Likewise the Romans applied the term "verbum" (verb) to those words of their language, which predominantly express actions like run, hit, eat etc. Now, the challenging question of our analytical enquiry concerns the obvious exceptions to this general rule. Why do eating, running, stroking etc. count as nouns on the formal level, while they are actions on the semantic one? What do languages gain when they engage in these formal transformations?

This is one of the problems, which general analytical linguistics must confront and which the *Principles of Language* actually treat in detail. A second one of equal urgency is the exact assignment of meaning to form, which up to now proceeded in a merely intuitive way. "Differential Analysis" (see ch. 3) provides an instrument of perfect precision.

The relation of meaning to form constitutes one of the oldest subjects of scientific enquiry, but so far it has never been based on a systematic and strict separation and definition of these two dimensions, except when limited to such simple problems as for instance the formal realization of the semantic dichotomy of statement and question. There it was easy to show that position

as well as designation could serve the same purpose (Er kommt/ kommt er? - He comes/ does he come?).

Up to now, however, there has not been, and could not be, any research on the final task of general linguistics:

***Fourth*,** try to solve the most important, indeed the basic question of generative (constructive) general linguistics (ch. 2):

Formula describing the generative procedure of the human mind:

Pure meaning + pure form ⇒ ? (= total range of *possible* formal realizations)

Here more is required than strictly separating the material and immaterial dimensions of natural languages. Without reckoning with the "Differentiation Value" of those formal means that are at the disposal of human speakers, we would not be able to even approach the problem.

Is this final goal of general linguistics too ambitious? I don't think so, because it describes no more and no less than *the actual procedure of the human brain*. Out of the *range of possible formal realizations* of the general structure of meaning it chooses some definite one turning it into a specific language (just as on the level of single semantic terms such as "tree" each language assigns to this element of meaning its own phonetic form: Baum, albero, arbre, mu, etc.). *In other words, this formula describes our generative linguistic ability*. While it is true that every newborn learns the rules of a language from his environment - primarily from his parents - he is capable of learning the rules of all languages ever spoken and all languages ever possible - this is exactly what is meant by his generative ability.

There are two possible solutions to our generative ability: chance and necessity (law). De Saussure maintained and the just mentioned example illustrates the role of chance. We may choose any sign (formant, gesture, symbol or even binary expression) to materially embody an immaterial notion like "tree". So chance plays a predominant and it may even play an exclusive role in the realization of single semants. But is that true for the structure of meaning in its entirety? The *Principles of Language* are an attempt, the first of its kind, to elucidate the rule of law in human generative capacity.

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Reviews

Christopher Hallpike (anthropology, linguistics):
Thank you very much for this. I think you are absolutely right, and it seems to make Chomsky's concept of a 'language organ' as an innate structure of the brain quite untenable. Most interesting!

GJ: The terms verb, noun, verbal phrase, which appear in Chomsky's notorious trees, are language-specific associations of form and meaning (English-verb, English-noun etc.). They cannot be innate, as that would mean that a newborn child in England, even without instruction by its parents, could only learn English and no other grammar - which is obviously untrue.

Innate, on the other hand, is the general human ability to represent the outer and inner reality in the brain - in the form of an immaterial cosmos of meaning which is stored there and becomes larger and larger in the course of onto- and phylogenetic development. Moreover, every human is capable of producing highly differentiated sounds soon after entering the world. These two preconditions enable him to assign material sound sequences to the immaterial structure of meaning. The task of general linguistics consists in determining the alternatives of this assignment, namely *whether it proceeds completely arbitrarily or whether it is bound by rules - rules which can be shown to be at the basis of all languages.*

Edith A. Moravcsik (general linguistics):
... /This/ is indeed a very interesting account! As you say, all linguists, including Chomsky, agree that form and meaning are the two basic dimensions of language and that the central question is how the two enter a symbolic equivalence relation. You are right: since we are interested in the relationship between the two, each needs to be defined independently of the other…

2 Meaning and Form – an Introduction to the Principles of Language

(followed by a discussion of the main thesis at the end of the chapter)

I consider Pure Meaning as the basis of language – meaning, which becomes embodied in form, that is, in structured sequences of acoustic waves. It should be noted that vibrations of the air, that is form, fundamentally differ from meaning in a very precise understanding: there is no way of deriving any meaning from mere vibrations of the air or from their representation as graphic symbols (letters, words, sentences on a sheet of paper). Acoustic waves or their graphic representations are *merely assigned to meaning so as to evoke it*. (Basic idea proposed in Jespersen (1925:55) and De Saussure (1931), hinted at in Lyons (1925:134) and Pinker (1994:73) developed in Jenner (1981, 1991, 1993, 2019); objections to my wording dealt with in Jenner (2020:70). This statement is a generalization of de Saussure's famous dictum on the relationship of désignant to désigné.

It was the basic error of Chomsky's so-called Generative Grammar to have missed this essential point. On the other hand, it is perfectly possible to construct machines that totally ignore meaning. They transform the vibrations of air belonging to some language A into acoustic waves correlated with a language B (or do the same for their respective graphic representations). In the case of basic items like words this transformation is laid down in dictionaries where German 'Baum' is identified with English 'tree' - without the dictionary being aware of any meaning. Of course, the machine only enacts this identification because it is

told to do so by a human being who knows that Baum and tree have the same meaning.

In the case of larger formal units like sentences, translation machines proceed in a similar manner. In many cases, the transformations of larger units like sentences do, however, lead to spurious results. In order to exclude such errors, reference to the linguistic environment is mostly sufficient. This means that a broader formal environment determines a narrower one, so that such reference mostly produces appropriate translations. As the broader environment still exclusively consists of other formal elements (acoustic waves or their graphic representations), translation machines may rely exclusively on form and be highly reliable (which is already true of the most developed among them). Such basic formal procedure was initiated by Distributional Analysis, which has thus made an immense contribution to the pragmatic purpose of translating languages.

However, translation machines
do not further our *understanding of language* - understanding is therefore quite a different matter. As Distributional Analysis kept meaning strictly out of its way, it has been an obstacle to understanding. The reason should be perfectly clear. Meaning represents the very core of language, without it translation machines would not even be able to identify English "tree" with German "Baum".

Chomsky must have felt the shortcomings of his theory, as he tried to amplify it by means of a concept he called ‘deep structure’ - opposed to a surface-structure. If the first was to have any sense at all, it should refer to what lies at the bottom of form, namely meaning (de Saussure’s désigné or Steven Pinker’s “Mentalese”). But meaning could not be arrived at by purely formal Distributional Analysis, so Chomsky got stuck and soon abandoned Lin-

guistics altogether – and it so happened that after him General Linguistics got stuck as well. The impasse was obvious, for Chomsky was right and wrong at the same time. Meaning was of no use to the flourishing new science of computerized translation, so programmers could feel assured that they need not bother with it. On the other hand, it was Chomsky's avowed and ultimate aim not to explain machines but man's linguistic generativeness – and he was totally wrong when he believed that this goal could be reached without reference to what is the very substrate of language. In order to lead to a true theory of generativeness, the deep-structure would have to embrace what I call 'Pure Meaning', while the surface-structure would be pure form, that is sequences of acoustic waves (or their graphic representations) described by means of Distributional Analysis.

Let me illustrate this basic point
right at the beginning.

First, historically (or phylogenetically): Animals already *conceive* reality and act accordingly, even if they do not translate these conceptions into auditory or any other signs and signals.

Second, ontogenetically: Infants add auditory signals (De Saussure's 'signifiants') only to concepts already present in their mind, otherwise they would pronounce empty sounds. Mere crying is, of course, meaningful too as it usually is the outward expression of pain.

Third, pathologically or ‚a contrario': Deaf-mute persons (like Helen Keller) are equipped with ‚meaning' independently of its formal realization in sound structures. The fact is proven by their

ability to replace sounds with a sign language consisting of gestures.

Fourth, pragmatically through translation: When translating an English sentence into Chinese, I must, first, go back to its meaning before, subsequently, applying the specific rules governing its formal realization in Chinese (as mentioned above, computerized translation-machines proceed without reference to meaning because the programmer as a human being identifies formal sequences according to meaning).

And fifth, methodologically: The preceding considerations acquire their most general significance as soon as we switch to comparative linguistics. There are but two tertia comparationis between any too randomly chosen languages. These lie at the bottom of any specific translation as well as of any general statement about comparative linguistics and linguistic laws. The first tertium comparationis consists in Pure Meaning (that is meaning apart from and prior to any realization in form by sounds, letters, gestures etc.). It is what Steven Pinker has called 'Mentalese'. The second tertium comparationis are the Formal Means at the disposition of human beings.

Generativeness

What such an approach aims at should be evident: It endeavors to explain, first, the *particular generativeness* of the single speaker of some given language, say English. What is it that enables an infant to create an infinite set of sentences though being acquainted with only a finite number? Second, this approach wants to explain *general generativeness*. What are the necessary conditions and the constraints that govern the human capacity for

creating any natural language whatsoever, that is those which have already been created and those he may still create in the future?

Somebody has termed my approach 'pragmatic' – a misnomer. Computerized translations that transform a formal sequence of some language A into the formal sequence of some language B deserve such a characterization as they may be put to pragmatic use. The approach expounded in this book is not pragmatically useful in this sense. If it has any merits at all, it is its capacity to make us understand the true nature of meaning and its relation to form in natural languages. Noam Chomsky had conceived the grandiose idea that a speaker must dispose of a set of rules otherwise we would not be able to explain his *particular generativeness*. Chomsky even hinted at *general generativeness* when referring to innate ideas at the base of human linguistic capacity. But Chomsky was unable to prove his point. Generative grammar based on Distributionalism, that is on a purely formal procedure is by its very method barred from proving what Chomsky wanted to prove.

Syntheses – the basic Units of Meaning

If the preceding assumptions are correct, the first task of *comparative linguistics* must consist in the definition of Pure Meaning as meaning constitutes the tertium comparationis of languages – a task up to now never envisaged as concepts like: sentence, word, noun, verb, object etc. are hybrids, that is defined simultaneously by form as well as meaning. We must therefore look for the units and subunits of meaning. Obviously, lexical semantic items can only be considered subunits as they fall short of the requirements of information. Nobody converses in the following way: Cold, Peter, volcanoes, serenity, green etc. Hence the real units of Pure Meaning must be what I call "Types of Synthesis", for example

the Action-Synthesis (Peter jumps; He gives the ball to Mary) or the Quality-Synthesis (The wall is green). In information, the synthesis constitutes the basic unit not concepts.

Thus, the Science of Language
starts with the following scheme consisting of three basic parts:

1) Meaning, which is 'formally realized' by means of:

2) definite formal entities (words etc.) in:

3) structured formal sequences, the most elementary units of which we name 'sentences', as these normally represent what in the sphere of meaning are the basic 'Types of Synthesis'.

What I call definite formal entities are (a) mono- or polysyllabic units (words), (b) tones, (c) intonation and (d) position.

In natural languages semantic lexical items are for the most part formally realized by mono- or polysyllabic sounds called 'words'. Tones may, however, substantially reduce the number of sound units used for lexical items, as happens for instance in Vietnamese or Chinese.

Intonation is often used to distinguish the informational appearance of a synthesis as assertion or question, assertion or doubt. According to how I pronounce it, the German Action-Synthesis "Peter kommt" (Peter is coming), may be understood either as an assertion or a question. The same informational distinction can be produced by means of position, for instance 'Er kommt' (He is coming) versus 'Kommt er?' (Is he coming?), or finally by means of a specific sound particle as in Japanese: 'kuru' versus 'kuru ka?' the first meaning "(he) comes", the second 'does (he) come?' Position may thus be used as alternative formal device to

express semantic relations like Agent and Patient or Assertion and Question, but it may not be used in natural languages to express different lexical items in the manner of artificial languages. Only digital computer languages express all possible semantic differences by means of varying sequences (positions) of just two signs + and -.

What I call the "Differentiation Value" (Dif-Val)
of position is thus quite different in natural as compared to artificial languages. In the first instance this value is quite low while in the second it may be infinite. The reverse holds true for sound units (words). In natural languages, the Dif-Val may theoretically be limitless while it reaches its minimum of two in digital ones (+/-). The Dif-Val of Tones seems to reach a maximum of six in natural languages like Vietnamese. In Chinese it equals five, as there are five tones if we count the neutral as well (high: ma1, rising: ma2, falling-rising: ma3, falling: ma4, and neutral: ma5). Tones substantially reduce the number of elementary sound units (word-syllables in the case of Chinese). Indeed, Chinese only uses a fraction of those needed by languages without tones.

The Dif-Val of formal elements used in natural languages is responsible for the *constraints operating in the formal realization of any possible language*. In other words, it delimits the boundaries of possible linguistic variety and thus allows us to formulate basic laws governing the formal realization of meaning.

Let me once again repeat what I assume to be the foundation of truly comparative linguistics:

1) Meaning, which is ‘formally realized’ by means of:
2) definite formal entities (words, modified or not by tones) in:

3) structured formal sequences, the most elementary units of which we name ‘sentences’, as these normally represent what in the sphere of meaning are the basic ‘Types of Synthesis’.

These observations lead to the conclusion that truly comparative linguistics is necessarily made of two different compartments namely "Analytic Linguistics" and its counterpart "Constructive Linguistics".

The first deals with natural languages still in use or found in historical documents. It explains the *particular generativeness* of a speaker of English, Chinese or any other definite language. The second describes *general generativeness,* namely how natural languages are developed by human beings when - obeying to the constraints of formal realization - they create any new idiom.

Analytic Linguistics

Its task is to describe how *specific languages* like Chinese or English realize Pure Meaning (désigné, Mentalese or Jespersen’s notional grammar). But Pure Meaning itself is not a monolithic entity. It is rather composed of two quite distinct parts, one of which I want to call the "Logical Structure of Meaning", while the other represents its informational aspect: the "Informational Structure of Meaning".

Together the two constitute the entire field of meaning. Let’s take the example of a simple Action-Synthesis "Men(Ag), rice(Pt), eat". Like any other synthesis it may assume totally different informational tasks. For instance, 'man eat rice' / 'do men eat rice?'/ 'These men shall eat rice!'. Or 'Men (not cats) eat rice/ 'Men eat rice (not grass)'. Or the same synthesis may appear as "information" or "non-information" like in the two English sentences ‘Men eat rice’ and ‘Man eating rice (are usually tall)’.

In the last instance, some fictitious man of the moon may just be explaining the eating habits of terrestrials. The speaker provides true information as he supposes to say something new to the listener. The second sentence ‘Man eating rice (are usually tall)’ contains two types of synthesis, first, an Action-Synthesis "Men(Ag), rice(Pt), eat" and, second, a Quality-Synthesis "They are usually tall". In this case, the Action-Synthesis does not convey any information as the listener is supposed to know that there are men, who eat rice. Relevant information is only provided by the Quality-Synthesis, which states that these men are invariably tall. I will use a more convenient way to distinguish the two informational variants by calling the information synthesis "free" and its non-informational counterpart "bound", as it must always be part of another synthesis that conveys information. As already hinted at in the above examples, further informational variants are statement versus question, topic versus novum (comment), the varieties of semantic effacement and so on.

The Formal Realization of Meaning

Meaning is the foundation of language, which form is meant to ‘realize’, that is to transform in material signs susceptible of being exchanged between the members of a linguistic community. Meaning as such – i.e. mental images formed in the heads of speakers and listeners - is totally distinct from form, just as form – acoustic waves or written letters - is from meaning.

An interesting and intriguing aspect of natural languages is to be found in the fact that the formal realization of meaning may proceed in quite different ways. On the one hand, identical units of meaning may be formally realized in different ways, while, vice versa, identical formal means may embody more than one meaning.

For instance, the above conjunction of two syntheses may be rendered in English in two alternative ways. ‘Men eating rice are usually tall’ or ‘Men, who eat rice, are usually tall’. In Chinese only the first of these formal alternatives is admitted leading to a sequence like ‘Eating rice men usually tall’.

These are instances of different formal realization of identical meaning, in this case the bound synthesis. On the other hand, the case of one and the same formal pattern expressing more than one meaning is, for instance, to be found in the so-called English ‘relative clause’. The latter may express either an ‘information’ or a ‘non-information synthesis’. Take for instance ‘Peter, who (by the way) is a fantastic young lad, has my special approval’. Though identical in formal appearance to a bound synthesis starting with a relative pronoun, we are in fact faced with a parenthesis, that is an information-synthesis (free synthesis). The speaker wants to expressly inform the listener that he believes Peter to be a fantastic young man. He could have chosen the more usual formal realization: ‘Peter is a fantastic young man. He has my special approval.

Syntax versus Paratax

The most basic operation of formal realization does, however, not concern *Rules of Syntax*, that is the manner how a specific language formally embodies semantic relations like in an Action-Synthesis of the type "He gave his bicycle to his brother". Much more elementary is the realization of *Formal Paratax*.

In order to illustrate what I mean, let’s take a most obvious case. In English we may say 'The woman is crying' and '(her) crying is horrible'. Woman and crying appear in the same formal slot though on the semantic level they represent entirely different categories: a (living) substance in the first, an action in the second case. In other words, English allows these different semantic

categories to paratactically appear in the same formal slot of English nouns. It even allows for Qualities to appear in this slot, for instance 'Brightness dazzles us'. As no two languages are alike in grouping semantic concepts into formal slots, English, Chinese, Japanese nouns, verbs etc. are paratactically different entities and must be distinguished as such for instance in the following way as $Noun_{eng}$, $Noun_{chin}$, $Noun_{jap}$ etc.

Paratax as the way of grouping different semantic classes in formal ones is part and parcel of formal realization at large – or rather it constitutes its very basis. It is the logical counterpart of syntax, as the semantic concepts (substances, actions, qualities etc.) combined in the latter constitute formal classes.

Universal Grammar

This is an item of utmost importance, when it comes to evaluating the possible performance of Chomsky's Universal Grammar. Supposed that the semantic contents grouped in paratactic classes (formal slots) were identical in all human languages, then nouns, verbs, NP, VP etc. would "mean" the same everywhere, and Universal Grammar as conceived by Chomsky would indeed be possible. Indeed, if - in all languages - nouns would only comprise Substances, verbs only Actions and adjectives only Qualities, Chomsky's method would fully apply. Unfortunately, this is by no means the case. Chomsky's Universal Grammar, instead of explaining the variety of languages, explains it away, because its basic units (Noun, Verb, NP etc.) do not constitute universals.

Generally speaking, Paratax as a basic and distinct procedure in every language has been all but overlooked in Traditional Grammar with the exception of 'Distributional Analysis', which, however, discarded meaning so that it cannot produce any results in the field of comparative linguistics.

Constructive or Generative Linguistics

Its scope is much more ambitious, though as a matter of fact it does but reproduce on the higher level of scientific theory *the mental operations at work in any society where human beings create their own language out of Pure Meaning and Formal Means* (doing so under the sway of certain definite constraints).

Constructive Linguistics wants, first, to describe the field of arbitrariness in natural languages, while, in a further step, it aims at specifying the limits of arbitrary variety, that is, *the constraints of formal realization*. Taken together, Analytic and Constructive Linguistics cover the entire field of General Linguistics, which I alternatively call "Universal Grammar" or "Semo-Formal Grammar".

In order to be complete, the above scheme describing my procedure has still to be widened so as to include Paratax.

1) Meaning, which is 'formally realized' by means of:

2) definite formal units (words modified or not by tones) in:

3) syntactically structured formal sequences called 'sentences', which consist of subunits that paratactically organize semantic classes into formal ones (traditionally called English, Chinese, Japanese etc. nouns, verbs etc.) in a language-specific way. These subunits are syntactically connected in a language-specific manner (so that German syntax is quite different from its Chinese counterpart even when both realize identical structures of meaning).

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Reviews

I submitted an abbreviated version of this paper (max. 1600 words permitted instead of the actual length of more than 3300 words) to "Academia Letters" where it was rejected receiving zero acceptance and three rejections listed below together with my comments:

First Review

"The issue of language understanding has mostly been addressed in the philosophy of language; Chomsky's contribution to the debate is just one among many, and not among the most important or influential. The author should broaden his point of view."

Jenner: Half a century ago, when I wrote the first draft of "The Principles of Language", Noam Chomsky was still a demigod, and no one would even take note of a radically different approach. No wonder I lost interest in broadening my point of view, but I am well aware that such an attitude is definitely not the best way to gain the attention of others.

Second Review

"P.1 LINE 4: air is not form: please rephrase; ibid. acoustic waves are assigned to meaning: much better: "acoustic waves correspond to meanings." To my knowledge Chomsky never discussed the problem of the /*sic!*/ pairing sounds (i.e. acoustic waves) and meanings. Consequently, the question of the correspondence between 'Baum' and 'tree' in the translation process sounds confusing. I think the Author has failed to really understand Chomsky's basic points (and I'm certainly not a Chomsky follower: quite the contrary!). Such a misunderstanding heavily impinges on the relation between 'Meaning' and 'Form', which is the topic of the paper."

Jenner: Not air, but "structured sequences of sound waves" become linguistic form. The verb "to assign" implies an activity by an actor, while "corresponds" describes an existing relationship. Both expressions seem appropriate. No one would deny that sign languages "assign" definite gestures to definite meanings. Likewise, some individual in the distant past must have assigned the acoustic label "Baum" to the meaning "tree". However, from a synchronic point of view, it is correct to say that the German acoustic label "Baum" corresponds to the meaning "tree".

It is true that Chomsky never discussed the problem of the pairing of sound and meaning - ***but this basic omission is what I criticise!***

Third Review

"I don't see the purpose of this paper. It is too short to be well argued. It claims that Chomsky is wrong (with which I could even agree), but does so on just philosophical grounds, beyond any kind of falsifiability. It sounds like a - unconvincing and ideological — manifest, rather than a paper."

Jenner: The paper is indeed too short - it is no more than an introduction - as I deal with the subject at length in "The Principles of Language". If I remember right, its length was one point of Academia's conditions for submission /max. length 1600 words!/, and, yes, it is a manifest but I fail to see what would be my ideology (apart from a critical attitude). As an eager student of Popper I am well aware of the scientific need for falsification.

None of the three reviewers seems to have noticed that the introductory statement is a generalization of de Saussure's famous dictum about the relationship of désignant to désigné. (This is the reason why I subsequently

added this passage to the original text). That de Saussure's famous statement may indeed serve as the basis for a new kind of linguistics went entirely unnoticed. What is more, the last reviewer *even considers it inadmissible to present a new theory in a scientific paper*.

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Reviews, second round

Being tenacious I submitted the paper again, taking the criticism into account. This time it was rejected because I had not added any references. I made up for this omission and proposed the paper a third time. It was again rejected:

First Review

"The paper starts with a triviality. Without evidence it incorrectly ascribes to generative grammar to have missed this point. It purports to be be an introduction to the principles of linguistics, ignoring that linguistics is an empirical science. I sorely missed contentful empirical statements about linguistic phenomena. /sic!/ in a nutshell I didn't see in this paper any tangible contribution to the study of language.

Jenner: The reviewer is right. The distinction between meaning and form is indeed trivial. It had already been expressed by Jespersen's opposing notional to formal grammar, de Saussure's opposing désigné to désignant, and by Pinker's Mentalese versus "word chains". But the reviewer as well as Chomsky are unable to see the far-reaching consequences that this apparent triviality entails. Mentalese (notional grammar, désigné, or pure meaning), which refers to conceptual content, must be described in terms of mental concepts or types of such, while form must be described in purely formal terms - this is nothing less than a radical departure from traditional grammar and also from Chomsky.

Second Review

"This paper wants to disprove Chomsky's UG by saying he 'missed' an essential point that Chomsky actually champions: That sound is assigned to meaning ('Language and the cognitive science revolution(s): Text of lecture given at the Carleton University, 8 April 2011. online: www.chomsky.-

info/talks/20110408.htm). There is little here that is original beyond that error, so I would recommend against publication."

Jenner: My answer to the first review equally applies to this particularly shallow criticism.

Third Review

"The article is an odd medley of concepts from structural and generative linguistics spiced with Plato's idealism, and as such it has little epistemological worth, because the scientific sterility of structuralism and generativism has been proven long ago. The inherent deficiency of both lies in the dehumanization of language as something external to man, a communication tool in the first case and a kind of computer program (which is also a tool) in the second. A systems approach to language as part of the organism-environment system (a living, cognitive system) disallows the view of Meaning as something that exists 'out there' in the so-called external reality. "

Jenner: This review is particularly annoying because its author feels justified in despising everything he dislikes, e.g. structuralism and generative linguistics. My theory has the same goal as Noam Chomsky's (in this respect we are in complete agreement): it is my concern to find possible structures, or possibly laws, that apply to all languages. This is a perfectly legitimate and certainly not a »dehumanized« goal "external to man". Of course, no one can know in advance what success such endeavors will have. But with the blasé gesture of this reviewer, all research efforts can be discredited or ridiculed from the outset. And further: Nowhere in my work is there any talk about meaning to be found somewhere "out there" in "so-called external reality". This criticism is as blasé and arrogant as it is superficial.

A remark apparently added by the Academia team

"In my view it would be more fruitful to address real empirical puzzles in specific languages and try to solve them."

Jenner: A very pertinent exhortation. In "Principles" (2019), I am doing exactly this. I proved for instance that the remarkable correlation of S V O languages with prepositions and S O V languages with postpositions, which

so far remained a linguistic mystery, can be explained according to my theory. But possibly this too would be rejected. Edith Moravcsik, author of several articles on language universals, objected that we cannot be sure that we may still find languages that do not conform to the constraints I expounded. But such an objection is intellectually sterile. It could even be raised against Newton: We cannot be sure that the laws he found do still retain their validity beyond the cosmos reached by our instruments.

3 The primacy of Meaning and Differential Analysis

Chomsky's vision was great: how to uncover the common basis of human languages? He was right, there is such a common basis: it is meaning (as Steven Pinker knew very well when he spoke of "mentalese", which gets a specific formal expression in each individual language). In this chapter, I will briefly illustrate how different formal surfaces in two languages, English and Chinese, can be accurately described by a structure of meaning common to both languages. In other words, the present chapter is meant to illustrate how Chomsky and Pinker *should have* proceeded. The method introduced, namely “differential analysis”, goes much beyond intuition. It transforms the assignment of deep structure meaning to surface form into an exact science.
Let me illustrate the common semantic structure that I want to explore by the following English sentences:

a1) **The man,** who beat Peter, **used a stick**
b1) **The man,** whom Peter had beaten, **used a stick**

The two sentences express a semantic deep structure that consists of two semantic dichotomies:

1) agent (man, who)/ object (stick, whom)
2) main clause / relative clause

Traditional grammar including that of Chomsky uses concepts like S, O and V to describe different languages by means of identical terms. Our two examples therefore appear as follows:

a1) **The man** who beat Peter **broke the stick**
Subject rpron V Object **V** **Object**

b1) **The man** whom Peter (had) beaten **broke the stick**
Subject rpron Subject V **V** **Object**

But these terms are inadequate, as they were originally derived from classical European languages like Greek and Latin. Indeed, the use of these concepts not only complicates understanding but makes it both impossible and contradictory. They don't even allow us to understand the two following logically identical examples *within the same language*, that is, English:

a2) **The man,** by whom Peter was beaten, **…**
S ? rpron S ? V , **…**

b2) **The man,** who was beaten by Peter , **…**
S rpron ? V ? ?

Both a1) and a2) and b1) and b2) are stictly identical in logical structure but the elements appearing as questions marks can no longer be accounted for by the terms S, O, and V. The object has all but disappeared – in other words, S and O cannot belong to the deep semantic structure even in one and the same language like English. Indeed, this observation applies to the main clause too:

The man broke the stick
S **V** **O**

and

The stick was broken by the man
S **?** **V** **?** **?**

Again, both sentences are *strictly identical* as to their logical structure, but they differ in terms of informational meaning. Man is the topic in the first, stick in the second example. While the first example is perfectly described by "S V O", the second instance, *though consisting of identical semantic elements*, can no longer be explained by these terms. Subject and object no longer serve us. We must look for different terms. These are agent and patient do. They are present in the second instance as well as in the first. They - and they only - are part of the semantic deep structure. We must therefore adopt the following scheme:

The man broke the stick
Agent a Patient

and

The stick was brok-en by the man
Patient ? a ? ? Agent

The reason why I replace "verb" with "action" (a) is explained in my work *The Principles of Language*. It is of no particular importance in the present context.

Two formal elements still remain unexplained, they are the result of shifting the topic. Man is topic in the first, stick in the second instance. The so-called passive voice here serves as a formal means to achieve topic shifting.

The two examples thus illustrate a common semantic structure consisting of two semantic oppositions:

1) agent/ patient
2) agent in the role of topic/ patient in the role of topic

The man broke the stick
Agent a Patient

and

The stick was brok-en by the man
Patient x_1 a $-x_2$ DsAg Agent

Now, we fully reveal the semantic elements expressed, that is agent, patient, x for topic shifting and DsAg, the formal element here used for designating the agent. Our description is based on the semantic deep structure and applies to two intra-lingual examples that cannot be described by the traditional terms S and O.

Once we accept the common semantic deep structure as the true and, indeed, *the only tertium comparationis within and between languages*, there is no other way than to turn to a purely semantic description. Such a change had already been advocated by the great Danish linguist Otto Jespersen and was renewed by Steven Pinker's notion of "mentalese".

Pinker says: „Mentalese: The hypothetical 'language of thought,' or representation of concepts and propositions in the brain in which ideas, including the meanings of words and sentences, are couched." And*:* „Knowing a language, then, is knowing how to translate Mentalese into strings of words and vice versa".

This is a cogent argument, even though the term mentalese is a misnomer, since the process of forming word sequences at the formal level is a mental phenomenon too. What Pinker should have said is: Knowing a language is knowing how to translate a structure of meaning into a structure of form (strings of words etc.) and vice versa.

The method to be used when we analyze how meaning gets translated into form, is quite precise. In the *Principles*, I developed this method calling it "differential analysis".

Differential analysis is an exact method for mapping the semantic deep structure of any language on its formal surface. Insofar as the chosen deep structure is common to several or all languages, it represents the only scientifically sound method of comparative linguistics.

It proceeds in four clearly defined steps. First, determine the semantic structure. In the following, this will consist of three basic distinctions: a) agent/ patient, b) free/ bound synthesis, c) agent in the role of topic/ patient in the role of topic. If all three oppositions are to be formally expressed, the minimum number of formal examples will be 2 x 2 x 2 = 8. But in English the actual number is at least twice as high because of purely formal alternatives (man beating Peter = man who beats Peter) etc.

Second step: take sentences that differ *by just one* of their semantic contents (semants) but are identical as to the others.

Third step: replace the formants that realize this difference with that semant (semantic content) and repeat this for all semants (in our case for all three dichotomies).

Fourth step: for each formant show all semants arrived at in step three. You will then discover that one formant may simultaneously or alternatively realize more than one semant. Some of these semants will be active in one context and suppressed in another, some will be realized synchronously with others, and some not. In this way we get an exact knowledge of which formants realize which semants. In other words, we have uncovered the hidden deep structure of meaning as it appears on the surface, and we understand the complex workings of the human brain. *The ultimate aim of replacing arbitrary formants with non-arbitrary semants is to allow intra- and interlingual comparison.*

Differential analysis is not a mere addition to the procedures of traditional grammar - it revolutionizes its very foundation, since it makes sense only if based on pure meaning - the rock

on which all formal realization is built. From a logical point of view, it would be circular to ask how formal or hybrid terms (i.e., terms defined partly by form and partly semantically) map onto the formal surface of a given language. This was shown above for the hybrid terms S and O. In the following, it is shown for the hybrid terms main/relative clause, passive, etc. These terms must therefore be replaced by purely semantic ones.

The above-mentioned examples illustrate the two semantic dichotomies of, first, agent/ patient, second, topic shifting, which must be realized by at least 2 x 2, that is four examples (two for the main clause, and two for the relative one).

But let us now again discuss the validity or not of traditional terms. Are main and relative clause concepts that can be used in intra- and interlingual comparisons?

Look at the following sentences:

1a) The gasping fellow left a bad impression.
1b) The fellow, who was gasping, left a bad impression.

and

2a) The green tree stood at the top of the hill.
2b) The tree that is (or was) green stood at the top of the hill.

Traditional terminology sees relative clauses only in 1b) and 2b). But the two examples listed under 1) and 2) are identical both in their logical and informational content. The gasping fellow (who was gasping) and the green tree (that was green) represent the non-informational alternative to their informational counterpart, that is to:

The fellow is gasping or The tree is green.

The shortcoming of the traditional terms, main versus relative clause, should be obvious. They describe the surface structure but not the semantic dichotomy at its base. So far, this deep structure dichotomy had no name. I speak of information versus non-information synthesis or free/ bound synthesis.

Replacing surface terms with true semantic ones, we now get three purely semantic dichotomies, with which to describe the very core of language:

1) agent/ patient
2) free/ bound synthesis.
3) agent of the bound synthesis in the role of topic versus patient in the role of topic (active/ passive voice)

The first and second semantic alternative must be realized even in the most primitive language, the third is formally realized in all modern developed ones. As stated before, the minimum number of formal examples will be 2 x 2 x 2 = 8, if all three oppositions are to be formally expressed. But in English the actual number is at least twice as high because of purely formal alternatives (man beating Peter = man who beats Peter) etc.

I will show how English and Chinese realize this basic semantic deep structure (but I simplify the results of differential analysis so that they can be more easily understood. The reader will find more fully developed examples in *The Principles* (paperback edition).

A comparison of English and Chinese

English a)

The man /beat-ing Peter/ **broke the stick**
Ag / a - // Pt / **a** **Pt**

The difference of Agent/ Patient is expressed by word order. That of free versus bound synthesis by the formant "-ing", which realizes the bound synthesis.

Chinese a)

/Ouda BIDE de / **ren daduan le gunzi**
/Beat Peter // / **Ag broke stick**
/ a Pt // / **Ag a Pt**

The difference of Agent/ Patient is expressed by word order. That of free versus bound synthesis by the formant "de", which realizes the bound synthesis.

As designation (case or apposition) does not indicate the roles of agent and patient, the sequence "S /V O.." in English a) could be understood as a free synthesis (main clause): "The man beat Peter". That is why there **must be** a formal element "//" indicating the bound synthesis (relative clause). In English this formal element is "-ing", in Chinese it is "de".

I omit the logical alternatives of a): The man who was beating Peter and a2) The man by whom Peter was beaten.

Let me now turn to the logical alternative b) in English and Chinese.

English b)

The man / Peter has beaten/…
Ag / (//) Ag a /…

English formally realizes the bound synthesis by placing its agent immediately after the agent of the free synthesis, that is, by means of word order. This is indicated by putting // in brackets. This

possibility does not exist in Chinese as the bound synthesis precedes the free one:

Chinese b)

/Bei BIDE ouda de / **ren…**
/ by Peter beat // / **man…**
/ x Ag a // / **Ag…**

Chinese must use the passive voice, that is the formal device for shifting the topic (expressed by the semant "x") in order to formally realize the second logical alternative. For the sake of easier understanding, I have translated Chinese "bei" with English "by" but it really transforms the verb into the passive voice.

General scheme of formal realization:

Alternative a)

English: **Ag** /a- // Pt / **a Pt**
Chinese: /a Pt // / **Ag a Pt**

Alternative b)

English: **Ag** / (//) Ag a /**…**
Chinese: /x Ag a // / **Ag…**

In both languages, word order is maintained in the bound synthesis too (a Pt and Ag a in English and Chinese).

Once more let me emphasize what differential analysis is all about. *It reveals the semantic deep structure within and between languages. The ultimate aim of replacing arbitrary formants with*

non-arbitrary semants is to allow intra- and interlingual comparison.

Intuitively, differential analysis has always been applied, for example, when linguists distinguish word order in different languages (S V O versus S O V, etc.). It was easy to see that "Bill caresses Jane" is a logical alternative to "Jane caresses Bill". Accordingly, the same substance (person or thing) can appear in two different roles (S or O). However, this procedure remained stuck in rudiments; it was never carried out systematically. Moreover, sentences like "Jane was caressed by Bill" or "Bill was caressed by Jane« had to be put aside, although logically identical with the two preceding examples. In other words, the decisive step towards a pure structure of meaning had still to be taken.

4 Homunculus linguistics

Noam Chomsky considers human language to be such an extraordinary instrument that he cannot imagine its gradual evolution but believes that it arose through some kind of sudden mutation. This means that linguists who want to make objective statements about the human language ability, do not need to deal with its evolutionary history - not even with linguistic diversity - since every scientist may find within himself the genetically provided homunculus that makes humans speak. "We know that, somehow, there's a homunculus out there who's using the entire sound and entire meaning - that's the way we think and talk."[3] David Golumbia adds the following comment: "It is hard to imagine a less scientific and more abyssal statement than this one (for good measure, Chomsky asserts the existence of the homunculus at least twice more in the book).[4]

Some people will see in Chomsky's theory of language
a great vision - but this vision has nothing to do with science. For it represents a mere assertion, which not only lacks any proof, but whose exact opposite is correct and can be proven to be so. Language is a product of evolution - in this respect not different from all living beings including man.

In order to establish this proof, we have to go a little further by considering all building blocks providing the fundament of human language. In other words, we have to elucidate *the preconditions for its emergence*.

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[3] Chomsky*, The Science of Language*, 37.
[4] David Golumbia: *The Language of Science and the Science of Language: Chomsky's Cartesianism* (diacritics, Volume 43, Number 1, 2015, pp. 38-62 (Article). Published by Johns Hopkins University Press).

Two building blocks are at the very base of language
namely reality and meaning - with the latter understood as the mental impression of the first. All beings perceive reality through their senses, even unicellular organisms, as they avoid an environment hostile to them. With increasing evolutionary levels mental impressions become richer and richer and therefore allow increasingly complex orientations, as they are conveyed by more and sharper sense organs. But from the beginnings of animal evolution up to human beings an iron law prevails: *All mental representations of reality remain fragmentary and poor in comparison to the latter itself.*

At first sight, this statement seems paradoxical, because it is expressed by means of language, since only in this way can we communicate with each other. But how can we talk about the otherness of reality, if this is possible only through language?

We find the answer within ourselves,
as soon as we use any general term or proper name. Let's start with proper names. If a certain individual possesses a friend named "John", then the mental image remains infinitely far behind the person designated, since the latter is characterized by an infinite presence in infinite moments of his or her temporal existence. The term "John" is no more than a label which evokes a more or less limited number of stored impressions. For a stranger who does not know the person in question, the term remains totally void of any content at all - except for a single residual characteristic. To him it means that there exists a person of this name who differs from all other seven billion people on earth.

The same reasoning applies to general concepts. If I speak of an apple tree, this concept is infinitely poor compared to every concrete specimen whose appearance I experience with my senses. Theoretically, I could evoke the sensual infinity branch

by branch and leaf by leaf in an infinite sequence of sentences, but I would never fully grasp the sensually experienceable totality of any concrete apple tree. Therefore, there is no exception to the basic law which states the poverty of mental representations (meaning) in comparison with the totality of reality itself.

It is important to understand this elementary statement apart from any philosophical tradition. Immanuel Kant considered reality as a thing in itself that we will never grasp. Both the information provided to us by the senses and the mental impression based on it were thus fundamentally called into question - we may well regard both as mere appearances. Plato had gone much further in the devaluation of sensually experienced reality. Instead of considering the latter as a totality in relation to its mentally strongly truncated mental imprints, he turned the relation between reality and its mental representation upside down. The truncated concepts were supposed to be the representatives of an absolute reality lying hidden beyond empirical reality.

These and other philosophical reflections on the nature of reality are without relevance for our current argument. What counts in connection with the emergence of language is the empirically given fact that living beings receive reality through their senses and then store it in the form of mental impressions.

Thus, we are dealing with a triad of, first, reality, second, sense impressions and, third, concepts. At the top of this triad looms reality, of which every living being only grasps a part through the sensory organs available to it. These sense impressions are reduced to more or less sketchy mental imprints. The triad thus resembles an upside-down pyramid, the top of which represents a

totality that is never fully reflected, while the narrow base of concepts provides language with its basic material.[5]

The mental imprint of reality
is fundamental for the emergence of language in all living beings including humans. Animals already distinguish general concepts from individual ones. For example, many bird species live in monogamy. They therefore clearly distinguish between their individual partners (in human language expressed by proper nouns) and all other members of their species (in human language expressed by a general term). Since this distinction is necessarily based on mentally stored peculiarities of color or other features of outward shape, we are in fact confronted with an analysis of sense impressions based on external, more or less constant features. But not only constant features (qualities) are recorded in the course of such analysis, also changes in time. It has been observed that ducks on a frozen lake fearlessly settle down next to eagles even in short distances. Obviously, they are perfectly aware that the predators present a danger only while they fly, but are completely harmless, if sitting on the frozen surface of a lake. Thus, the analysis of reality according to more or less constant properties on the one and changes (actions) on the other hand is a prerequisite for language already rooted in the animal kingdom. Of course, it constitutes a basic condition for survival.

The poverty of such analysis compared to the totality of sensual impressions is not really a disadvantage as long as mental impressions serve the purpose they are meant to fulfill: orienta-

[5] As is well known, the mental analysis of sensory impressions is not a passive reception but a creative performance. Neither red nor blue or yellow can be found in reality, neither salty nor bitter, but our brain attributes these properties to certain stimuli. In this respect, we may well agree with Kant that we never experience reality as a thing in itself.

tion within an often inimical environment. This explains why identical stimuli can emanate from living originals as well as from schematic dummies (that vividly demonstrate the relative poverty of mental concepts).

Mental images are not yet language,
but only provide its basic material. Language first arises when living beings transmit messages to other beings (as a rule, but not invariably to conspecifics). When we observe a beetle recoiling from fire, this is not yet communication, although of course the bug's reaction presupposes a mentally stored representation of reality (avoid extreme heat!). But we are in the presence of language when confronted with signs (optical, acoustical or any other kind). A toxic yellow, for example, sends a definite message that discourages predators: "Keep your distance, I am poisonous!" The wide-open beaks of chicks convey another message: "Please, I need food." The bright red of a bird's breast feathers can mean: "I am ready to mate."

Evolution has clearly marked four steps
leading to a fully developed language.

1. *Pre-linguistic analysis without the use of signs.*

An animal shies away from fire because of stored or even genetically anchored (instinctive) knowledge. No communication to conspecifics is intended.

2. *Preliminary stages of language where signs are used to express* inner states.

The expression of inner states by outward signs almost exclusively concerns elementary needs for food or mating or threatening gestures towards rivals. The signs are either genetically predetermined (mating coloration etc.) or - more rarely - culturally developed like locally differentiated song sequences of blackbirds.

3. *The use of signs to inform others (mostly conspecifics) about conditions of* external reality.

A huge step leads from information about internal states to information about external reality, because internal states are limited to few alternatives (hunger, thirst, rutting, rivalry), while the external world allows constantly changing constellations. The description of food sources in the dance of bees is a language whose vocabulary is genetically anchored. The astonishingly developed language of prairie dogs, on the other hand, seems to be a product of cultural learning.[6] The chimpanzees, which have been trained by humans to use up to several hundred sign-marks, were from the beginning exposed to cultural learning based on gesture language ASL. They succeeded in applying signs to a limited number of external objects and internal needs.

4. *Using signs to ask others for information* about internal states or external reality.

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[6] See Slobodchikoff, Constantine Nicholas, Bianca S. Perla, and Jennifer L. Verdolin. 2009. *Prairie dogs: communication and community in an animal society.* Cambridge: Harvard University Press. And: https://www.researchgate.net/publication/250068526_Prairie_Dogs_Communication_and_Community_in_an_Animal_Society_C_N_Slobodchikoff_B_S_Perla_J_L_Verdolin_2009_Prairie_Dogs_Communication_and_Community_in_an_Animal_Society.

The breakthrough to human language occurs at this point: It results from the existence of questions. When a speaker asks the addressed person the question: "Where are you going?" Or: "Where did you get your wound?", the borders of the here and now are crossed in both instances. The answer must relate to future or past events, which is not yet the case in the preceding developmental stages from 1 to 3 where the emitter of signals and their receiver both remain enclosed in the here and now (at most one of them enjoys a broader view so that he can issue warning calls in case of imminent danger, but the threshold leading forward into the future or backwards into the past is not exceeded). This only happens by way of questions, which must be answered by informations *beyond the here and now* (or beyond the directly visible in questions like: "Do you feel happy?"*)*.

So, it is indeed the existence of questions that provide us with the distinguishing feature of human language when compared to its non-human antecedents (in the beehive the returning bee is not questioned, but it is genetically programmed to pass on the location of a new food source with reference to the hive, and it cannot, of course, answer any other questions beyond the genetically fixed).

Even questions do not, however, fall from the sky - when viewed from an evolutionary point of view. Dog owners know quite well that their pets often attempt to induce them to play. These attempts are nothing else than elementary questions, whose answer in the way of consent or rejection is quite well understood by the animal. But such elementary antecedents are again limited to the expression of needs relating to moments and situations in the here and now. Only the special achievement of humans to *ask for informations beyond the here and now or the immediately visible has caused the extraordinary explosion of memes* (the cultural counterpart to genetic endowment). And that certainly

constitutes an evolutionary breakthrough of unique importance, because the knowledge of each individual *can be multiplied almost ad infinitum*.

Chomsky is perfectly right when he considers human language to be unique. But this uniqueness does not concern its foundation (which I call the logical structure of meaning) but it is due to a special feature of information (which I call the informational structure of meaning). Only by making use of questions has man succeeded in getting access to ever increasing amounts of information thus extending his horizon of personal experience by that of others.

The existence of questions is, of course, not the cause of this breathtaking evolution of language into its human shape, but it is its most unmistakable symptom. The cause has to be looked for in the evolutionary advantage offered by the multiplication of collectively stored memes with regard to survival in competition both with other species and other groups of one's own species. Some so-called primitive societies use languages without numbers, others get along with elementary grammatical constructs,[7] but they all know questions.[8] This means that they are typically

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[7] Christopher R. Hallpike, *So all languages aren't equally complex after all*, 2018.

[8] Since Chomsky belongs to the tradition of distributionalism (Zellig Harris), whose analyses are limited to linguistic form, he has raised a formal property of human language, namely embedding or recursion, to its most prominent feature - as if formal signs (acoustic marks, gestures or other signals) were at the origin of mental representation and not vice versa these at the origin of formal signs. It is, of course, true that signs (i.e. form) make immaterial mental images (meaning) more easily retrievable as they get fixed in material form. This is especially true for writing, which usually surpasses spoken language in complexity, but the logical sequence of cause and effect remains unchanged. Mental images come first, form provides but its outward physical representation. In *Principles of Language - towards trans-Chomskyan*

human and indeed *capable of unlimited further development*. Chomsky's insistence to see in recursion the outstanding feature of human language proves to be without empirical foundation. It is questions that provide the key to the opening of time and space beyond the here and now and thus to the multiplication of cultural memes. In order to demonstrate how far Chomsky's linguistic theory is off the mark, let me add that there used to be numerous human languages making no use of recursion - languages, which were nevertheless fully human as they invariably made use of questions.

But let's be clear about this point: Only empirical research can provide this insight - not some supposed homunculus within us.

I would like to expand these basic considerations
on Chomsky's homunculus by equally fundamental remarks on his method. Homo sapiens has been equipped with the same thinking apparatus for at least one hundred thousand years. We may therefore assume that the phylogenetic emergence of different languages on the one hand and the individual language acquisition by the child on the other are in principle subject to identical conditions in all humans. Individual language acquisition obviously proceeds from the simple to the complex - the same development is to be presupposed for the phylogenetic emergence of language.

During the earliest stages of its development, an infant merely expresses rejection and satisfaction. Presumably, the first linguistic signals will have contained similar information, e.g. "wolf - danger", "prey - good". Then such signals will have been increasingly differentiated according to various enemies and the degree of danger. On the other hand, primitive languages may have

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Linguistics, I show that recursion and embedding lose all meaning when treated purely formally.

differentiated according to different positive stimuli and the well-being emanating from them. Commands too belong to the oldest part of linguistic genesis. But the desire for information from others, i.e. questioning, already presupposes a higher degree of development. I would like to claim that we can only speak of language in the full sense of a means of communication if it possesses both question and answer.

If Chomsky had duly considered language development from the simple to the complex, then his idea of a basic linguistic capacity present in all humans, that is the assumption of a homunculus, would not seem absurd. We would simpy claim that certain neuronal as well as other physiological conditions must be present in all human beings if they are to develop language. *The task of the scientist then consists in determining these conditions*.

We have seen that the human brain analyzes
the impressions it receives from the external reality via the senses. This analysis already takes place when there is no language in the proper sense. Even animals must analyze the optical, haptic, acoustic and olfactory stimuli of the outside world in order to behave correctly - independently and before any communication with their peers. In humans, this pre-linguistic analysis of reality does not even have to be manifested in a spoken language, where mental concepts become acoustic signs. It can also make use of a sign set of haptic impressions or pictorial chips as in the case of the deaf-blind Helen Keller or the monkey Washoe. Each time we are faced with the same basic process: already existing mental contents of meaning are physically expressed by certain signs (acoustic, haptic, words on a sheet of paper, gestures).

If Chomsky had taken note of these facts,
his approach would have been justifiable. But he would have taken a fundamentally different path. His first enquiry would be into how the human mind analyzes reality. He would have noticed that the results of such analysis, namely concrete semantic contents like “tree” or “green”, are not yet information, that only applies to their synthesis - as I call it - e.g. "The tree over there is green" or "Is the tree behind the house green?" Proceeding in this manner, Chomsky would have further noted that concrete concepts like tree or green need not even exist at all, e.g. when people live in the snow deserts of the Arctic. But syntheses in which a substance is determined by a quality (like “the house is small”) or by an action (like “the hare runs fast”) are elementary patterns of meaning in all human languages.

Starting from the basic patterns of meaning - the “Structure of Meaning” as I call it consisting of a small number of elementary patterns (the syntheses of quality, action, identity, etc.) -, Chomsky could then have examined the second dimension of language that is the *transformation of these basic semantic patterns into sound sequences* - I speak of "formal realization" of mental contents. Obviously, this investigation reveals a completely different level. A pattern of meaning like the action-synthesis "Peter runs" exists in the human brain *independent of space and time*. But as soon as this mental pattern is transformed into a phonetic sequence of spoken speech, *a temporal order inevitably comes into being*. Either "runs" or "Peter" appears in first place. When speech is recorded as writing on a piece of paper, it also becomes a spatial order.

The temporal order (in writing: the spatial order)
arising from the formal realization of elementary patterns of meaning (syntheses) has nothing to do with the latter. Meaning

and its formal realization are strictly independent dimensions.[9] *The cardinal error of Chomsky's method lies in never having recognized this crucial point.* In his tree structures of Nominal and Verbal Phrases, Chomsky indiscriminately throws both together, the structure of meaning and its formal realization. On this basis, it is impossible to show the conditions under which the human brain develops language, explaining at the same time what is common to all of them and what creates their infinite variety.

[9] Let there be no misunderstanding: meaning and its formal realization (in sound or script) are independent only on this elementary level. The anchoring of mental images in the physical shape of sound signals and even more so in writing does of course give mental images a material support that essentially furthers their progressive differentiation. The fixation in writing cannot hardly be overrated - it has a direct effect on thinking and has substantially promoted the development of language to ever greater differentiation of its contents of meaning.

5 Logical refutation of Chomsky's trees - the essence of his theory of language

(followed by a discussion of the main thesis at the end of the chapter)

The fascination of Chomsky's theory of language is due to the fact that it seems to derive linguistic diversity and complexity from a quite simple scheme. After Chomsky, a whole generation of linguists was busy with drawing all these elusive inverted trees. Let us stick to a simple example:

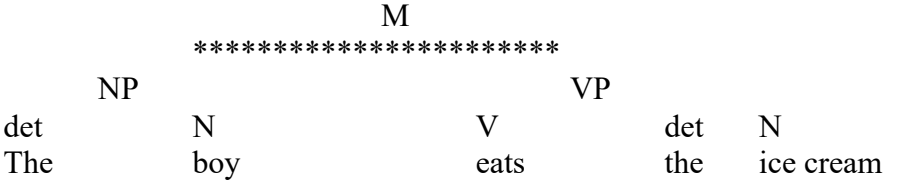
		S		
NP			VP	
det	N	V	det	N
The	boy	eats	the	ice cream

The derivation is fascinating because of its apparent proximity to the approach of the natural sciences, where complex events are similarly derived from a limited number of simple basic constituents. No wonder that many praised Noam Chomsky's approach as a revolution that finally turned the study of language into a science. The tree, with its simple peak for "S" = S(entence), seemed to define the rules that a speaker must obey in order to "generate" a potentially infinite number of grammatically correct sentences in English or any other language (hence the name "Generative Grammar").

But right at the beginning linguists
should have asked the crucial question, what "S" at the top of the derivation is meant to represent? "S" cannot be an entity void of

content - something cannot be derived from nothing. It must have some definite content. But what exactly?
As a matter of course, "S" cannot be identical with the formal end product, i.e. the English sound sequence "The boy eats the ice cream", because then there would be no derivation at all, but the whole thing would amount to *a mere tautology*. Nor can "S" be a composite of meaning and form, in the way the English word "boy" represents a phonetic form on the one hand and a carrier of meaning on the other. Then we would end up with a *partial tautology* since the formal end product is derived from a similar formal input.

The only possible interpretation is
that "S" at the top refers to something quite different: a structure of pure meaning not yet transformed into a sequence of sounds (or its graphic written counterpart). In the speaker's brain, the real event is present in a purely conceptual shape, which in the act of speaking he translates into a structured linguistic form.[10]
But then "S" as a term for S(entence) or formal structure turns out to be a misnomer. We have to replace it with another expression, say "M" as an abbreviation for M(eaning):



However, once we perform this necessary reinterpretation, it becomes obvious that we must separate the starting point "M" with a line from what follows, because NP and VP represent

[10] See Steven Pinker's concept of Mentalese in chapter 5.

something quite different from meaning, *namely formal elements in a given temporal order*. In temporal order "The boy" (NP) precedes "eats ice-cream", that is, (VP). Such temporal order is not found in the conceptual structure itself. A unit of meaning such as "The tree is green" is independent of time. And this equally applies to a unit of meaning like "The boy eats ice cream". When happening in outside reality, the action of eating is of course a temporal event like any other action, but it has nothing in common with the sequence of words in the English sentence.

And "M", which we have to substitute for "S"
exhibits still one more distinguishing feature. The expression "S" suggests unity and simplicity, which, however, does not at all exist on the level of meaning. "The tree is green" denotes the modification of a substance by a quality. "The boy eats" or "The boy eats ice cream" refers to the modification of a person (living substance) by an action. The "Logical structure of Meaning" (see my work *"The Principles of Language - Towards trans-Chomskyan Linguistics"*) portrays the most important types of such units of meaning. Each of these can take the place of "M" on the top of the tree.
Since the conceptual analysis of reality begins in the animal kingdom and is subject to evolution in human societies, only the basic types are present in all societies, not their more complex forms. In other words, evolution comes into play at the level of "M".

Dealing with Meaning involves evolution
The Logical Structure of Meaning comprises the elementary types of synthesis like "Paul dances", "Trees are green", "It happens now". "He lost it here" etc. Even animals must have analyzed reality according to whether something represents an action in time or a more or less constant property (quality) and whether

it happens here or there, now or in the past, etc. Most of them do not use auditory or other signs, that is a language, in order to transmit such analysis to their fellows, but their brains must be capable of performing such operations, otherwise they would not be able to adapt to an outward world characterized by unchanging properties as well as changing events.

But even chimpanzees trained in using different chips as substitutes for auditory signals only transmit claims (demands) or warnings like "I want to have a banana" or "Beware of such and such predator!" *Animals don't utter statements or questions*. In other words, the "Informational Structure of Meaning" not only differs from its logical counterpart in so far as it describes how the material provided by the latter is being put to the service of information between individuals or in societies, but it exhibits one more very distinctive feature. *The "Informational Structure of Meaning" is a purely human achievement*.

This too is, of course, subject to evolution - Homo Sapiens did not create it ready made all at once. While the dichotomy of question versus statement can be found in the most primitive languages recorded, that of bound versus free synthesis is a product of later evolution as is true of rank lifting and other more subtle needs of information. And the evolution of informational needs may not have come to an end at the present stage.

What about the components N and V of the formal level below "M", that is below the structure of meaning? According to Chomsky, these belong to General Grammar, so that we may apply them to languages as different from each other as English and Chinese. But are these terms in fact universal? No, they are definitely not. Here again flawed logic unites with lacking empirical knowledge, when Chomsky asserts that they are.

Supposed that in all languages "verb" represents a formal slot (paratactic class) exclusively filled with the semantic category of actions (run, eat, take, play etc.) and "noun" a formal slot exclusively filled with living or non-living substances (house, tree, tiger etc.), then we would indeed have universal categories as we may be sure to find actions and substances in all natural languages. But this definition is contradicted by linguistic reality. In English, words such as "running", "speaking", "striking", etc., formally belong to the class of nouns although they express actions.
The conclusion therefore seems evident: it is impossible to define verb or noun in a general (universally valid) way. All we know from empirical data is that different languages form their own *specific formal* classes using the *truly universal classes* of meaning such as actions, substances, qualities, and so on. Again, we have to modify Chomsky's deceptively simple scheme:

M

****

NP_{eng}		VP_{eng}		
det_{eng}	N_{eng}	V_{eng}	det_{eng}	N_{eng}
The	boy	eats	the	ice cream
	Running	tops		walking

Now, consider another example to better understand this basic correction. In English we may say "(In my view) running tops walking", which we understand in the sense that someone prefers to run rather than just go walking. In many languages this content cannot be expressed in a similar way that is without formally omitting the reference to a specific agent. In some languages, people must, for example, say, "I like to walk, but I'd rather run." The agent "I" cannot simply be effaced like in English.

To sum up, Chomsky's scheme does not in any way describe the generative linguistic capacity of human brains. On the one hand, Chomsky's "S"(entence) is either tautological or has to be replaced by "M"(eaning) - and then becomes much more complex, since "M" consists of different conceptual types (described in the Logical and Informational Structures of Meaning). This is an error of logic. On the other hand,

We hit upon an empirical error - categories such as V and N are not universal; when used as such, they obscure the existing differences in the formal realization of languages instead of explaining them. The error of mistaken universality is due to the fact that transforming structures of meaning into structures of sound does not only result in *differences of syntax*, i.e. in different temporal sequences (like SVO in English, SOV in Japanese), but creates *differences in paratax* as well. These concern the classification of semantic concepts in formal slots (paratactic classes) like English verbs, Japanese verbs, etc.
With their deceitful simplicity Chomsky's trees - the essence of what is methodologically new in his linguistic theory - all but obscure our understanding of language. But the question why Chomsky created a scheme that so blatantly disregards basic logic and empirical knowledge, need not concern us here, I will discuss it at the end of the chapter.

Chomsky's simplistic trees need still one further correction
Unless they be tautological, all the expressions above the dividing line must refer to meaning, ie the immaterial conceptual structure, while all expressions below belong to the acoustic chain or its representation on a sheet of paper. Now, there is no cogent reason why in sentences like "The boy eats ice cream" or "running tops walking" the verbal phrase VP should be represented

by "eats the ice cream" or "tops walking" rather than by "The boy eats" or "running tops". There is no justification for such classification neither on the formal level below the punctuated line nor on the conceptual level above it. We will see later that there is such justification (on both levels) only in cases like "dirty cloth" or "chanting joyfully". So, we again modify Chomsky's tree leaving out NP and VP altogether:

		M		
	**********			
det_{eng}	N_{eng}	V_{eng}	det_{eng}	N_{eng}
The	boy	eats	the	ice cream
	Running	tops		walking

After this final transformation, Chomsky's modified and reduced tree corresponds exactly to the general formula I had already used back in the eighties:

M **transformed into** F

where M refers to meaning and F to its transformation in symbolic form (sounds or their graphic representation). Note that transformation is not the same as derivation. In any given language, the structure of signs is not derived from M but transformed into it according to certain rules.

With this correction in mind, lets go back to our original example: "The boy eats the ice cream". It represents a conceptual structure consisting of Agent and Patient together with an Action. *I separate these members by commas in order to indicate that on the conceptual level there is no temporal sequence.* According to the specific rules governing English syntax and paratax, the conceptual structure is then transformed into the following acoustic chain or sentence:

Ag, Pt, A(ction) **transformed into$_{eng}$** The boy eats the ice cream

or, if you prefer the shape of a tree:

		Ag, Pt, A		
	**********			
det$_{eng}$	N$_{eng}$	V$_{eng}$	det$_{eng}$	N$_{eng}$
The	boy	eats	the	ice cream
A	dog	devours	a	bone
etc.	etc.	etc.	etc.	etc.
but not:	running	tops		walking

(where "etc." comprises the entire formal slot or paratactic class but running and walking are actions and not substances and they are neither agent nor patient)

Both schemes distinguish in a perfect and unequivocal way a deep from a surface structure - the first representing pure conceptual meaning the latter its formal representation. Why did Chomsky never even come close to such a basic statement?

Chomsky inherited his approach and method
from his teacher Zellig S. Harris, the founder of distributionalism. Strictly excluding the semantic dimension, Harris had restricted the description of language to the study of recurrent formal elements. Let us consider the following utterance:

Birds are chanting joyfully:	N	V	Adv			
Mary washes all dirty cloth:	N	V		det	Adj	N
Big clouds cover the sky:						
Adj	N	V		det		N

Knowing that he may replace any noun, like for instance cloth, with a larger expression like dirty cloth, or any verb, like for instance chant, with a larger expression like chanting joyfully, the distributionalist may then write NP for N and VP for V:

Little Mary	eagerly washes	all dirty cloth
etc.	etc.	etc.
NP	VP	NP
.... S		

Any purely formal distributional analysis may, of course, be turned upside down. Then "S" is placed at the top but that won't change its nature: it remains strictly tautological, with "S" being a mere abstraction representing no more and no less than the respective formal chains in English.

This is not the way chosen by Chomsky. *By a mere sleight of hand, Chomsky turned an analytical process - a tautology - into a derivation*. As mentioned before, the apparent miracle was nothing more than a logical error.

It should however be noted that Distributionalism with its purely formal analysis of language, ie its complete avoidance of meaning, prepared the way for and the great success of machine translation. Machines must do without meaning. The programmer tells them that German tree must be replaced with English tree. In the same manner the different parts of speech must be recognized within the formal chains of sentences and their mutual relations be established. The method of Harris and Chomsky was not intended by its authors to serve machine translation, but therein lies its only utility. On the contrary, it completely fails when applied to linguistic universals or to man’s generative capacity.

Machines must do without meaning, while General and Generative Grammar are based on meaning - therein lies their basic difference.

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Added Review

The following text represents an abbreviated discussion with a distinguished member of the academic linguistic community - hereafter referred to as D(istinguished) M(ember) - author of an acclaimed textbook on general linguistics. My statements appear in italics.

DM: Meaning and form. Indeed, the central issue of descriptive linguistics is to establish the relationship between meaning and form and if the two are represented together rather than each characterized by itself, we simply lose the question...
The trees, indeed, prove nothing: they are just pictorial representations of the forms of sentences.

Jenner: *I was glad that agreement on this basic principle could be found, but DM subsequently invalidated this agreement by the following statements.*

DM: When Chomsky suggests that tree structures of English sentences are universal, I take this not to be an assumption – i.e., something that is taken to be certain – but, rather, a hypothesis… we don't know to begin with whether the tree structures of one language also apply to other languages: they may or may not… The same holds for other statements that he has made, including the universality of noun and verb. I agree with you that he should have been explicit about these claims being hypothetical and he should have provided test conditions for establishing them as universals; but we may take these statements as mere empirical proposals, rather than representing truth.

Jenner: *And then a final remark, the second half of which is directly opposed to my thesis:*

DM: Syntactic trees are not meant to represent meaning; they represent form and thus it would not be right to put M on top of a tree instead of S.

Jenner: *In my view, the two parts of this sentence have nothing to do with each other. Its first part a) is, of course, a perfectly accurate statement. I criticize Chomsky precisely because S and everything that follows from it (NP, VP, N, V etc.) only represent the surface structure of English. This surface structure is clearly defined: it consists of sequences of certain concrete phonetic bodies (words arranged into sentences) appearing in concrete utterances of English speakers and which for this very reason are and can only be found in English.*

The assertion that such formal sequences (English sentences) could at the same time be universal constitutes nothing less than a logical self-contradiction. This applies as much to single concrete words like 'go', 'jump', 'love' etc. as to the entire class of the English verb because the latter represents nothing else but the sum total of these concrete items; in other words, the expression English verb or 'V' is but a handy abbreviation for such a class of concrete items (arrived at by Distribution Analysis). Hence, we may say that V and the class of concrete items it represents are tautological expressions. In like manner this applies to N as well as to the larger "classes of classes" like NP, VP up to S. In other words, Chomskyan trees represent the purely formal skeleton of some definite language, which by definition (because of its derivation from Distribution Analysis) can never even hypothetically be valid for any other language! Even as a hypothesis, such an assumption must be logically excluded from the

outset. I guess that Chomsky would not pretend that a concrete English phonetic element like 'walk' is universal - but this is just as true for the entire formal class of the English verb etc.

My own method is based on this basic insight. Precisely because such a hypothesis can be ruled out from the outset, or in other words, because there is no possibility of logically or empirically inferring the form of any particular language from the form of any other particular language, I ask how it still remains possible to establish comparative linguistics?

The answer is provided by meaning. This, and not form (which is unique to each language), is the starting point when we ask for a basis common to all human languages (I omit the obvious caveats for this statement) - a basis that is then translated into form, but in a particular way, depending on the language in question.

So, if M represents meaning (more precisely, what I call the "general structure of meaning") and F the form of a particular language (in my diction, the "formal realization" of this structure), then this corresponds exactly to my approach, which fundamentally differs from that of Chomsky.

6 The Hallpike Paper

Universal and Generative grammar – a trend-setting idea or a mental straitjacket?

It will ever be Noam Chomsky's undisputed merit to have significantly influenced (if not created) a prominent area of modern linguistics by asking the right questions. These were

1) How does language come about? Is it innate or subject to evolutionary genesis?

2) How come that children create sentences they never heard before - theoretically in unlimited numbers?

3) What makes members of a language community like English distinguish grammatically correct from grammatically incorrect sentences?

4) Once we answered this question, why not apply the knowledge thus gained to all languages thus establishing a Universal Grammar?

5) Do we get a complete picture of language as long as we restrict our analysis to its surface, or do we have to visualize a deeper structure in order to understand language correctly?

6) May a linguist talk authoritatively about language as such (i.e. about all possible natural languages) even if he hardly knows more than the idiom he happens to speak?

To have asked these and similar questions is the great achievement of Chomsky. At the same time, however, it is his personal

tragedy that *he did not answer a single one of them satisfactorily or even correctly*, as I will show in this chapter. Of course, this shortcoming need not be a matter of real concern as errors have often proved to be extremely fruitful, provided that they prompted others to reflect on the subject. Unfortunately, however, this turned out to be a vain hope, because, with his extraordinary prestige and worldwide fame, Chomsky managed to nip all independent thought in the bud – any doubts were rejected as heresy. The answers Chomsky had given to the above-mentioned questions were received as inviolable dogmas, forcing thought into a corset from which linguistics is only now cautiously trying to disentangle itself.

Supposed that this devastating appraisal of Chomsky's influence on the science of linguistics is correct, we are, of course, immediately faced with the intriguing question why Chomsky is hailed - and rightly so, in my opinion - as one of the greatest contemporary linguists?

Let us first listen to some cynical sociologist well trained in the history of science (you may think of some pupil of Thomas S. Kuhn). He might claim that in the humanities, where empirical facts are often very complex and difficult to determine, the "appearance" of arguments counts at least as much as their "substance", that is sound logical and empirical corroboration. As far as "appearance" is concerned, Chomsky undoubtedly assumed the role of a master: he knew how to play the claviature of scientific jargon with uncontested virtuosity. To be sure, this definitely is a great advantage. You may be irremediably wrong as to the subject matter itself but still be accepted as serious and scientific because you succeed in presenting it in so brilliant a manner. Conversely, others may be perfectly right as to what they say but

never be accepted as equals by their peers if they do not conform to the prevalent jargon.

I think there is at least a grain of truth in this rather cynical interjection. After all, it may not be mere coincidence that Chomsky eventually turned his back on linguistics devoting himself instead to political essays. Mind you, these essays he no longer wrote in an esoteric jargon – "abstruse formalism", as Pinker called it -, but meticulously adhered to empirical facts in a language of great and convincing clarity. He could not have distanced himself more clearly from his earlier style.

Such an interjection by a cynical sociologist,
does, however, not explain the undeniable fact that Chomsky's achievements make him one of the greatest living linguists. We would have to acknowledge this fact as one of the most inexplicable mysteries ever recorded in the history of science, if it were true - as I just asserted - that all his answers to the six abovementioned basic questions are not only wrong, but even present themselves as serious stumbling blocks on the way to any further progress of linguistic science.

The apparent riddle is not really as difficult to solve as it might appear at first glance. It offers a solution often to be found in history, be it that of science or that of politics. Someone sets out to discover Cathay and India, but actually discovers America. Chomsky's declared intention was to establish a Universal and Generative Grammar, but it turned out that he has provided the theoretical tools for one of the greatest achievements of modern linguistics, namely automated translation.

Chomsky's training in distributionalism by Zellig Harris was, of course, the best prerequisite for this undertaking. Just as Harris before him, Chomsky too *believed he could do without meaning in the description of language* – and this is indeed perfectly cor-

rect as far as machines are concerned. In translation, say, from English to German, the digital program may receive the command to replace the English word 'hut' with German 'Hütte', without any notion whatsoever of meaning. Nevertheless, the latter constitutes the hidden “tertium comparationis” that enables the programmer to carry out this replacement in the first place. The same remains true, if instead of a single word a whole English sentence is to be translated. In this case, too, a corresponding algorithm ensures that the corresponding "formal realization" of English is replaced by the "formal realization" of German – both based on the same underlying structure of meaning known to the programmer but totally unknown to the translating machine.

Automated translation is a great historical achievement, but it is so especially at the present, where practical usefulness attained overriding importance. One of the most visible consequences is the invasion of linguistics by computer specialists. This may be a great advantage for further advances in all kinds of automation but it, certainly, does not entail an advance in our *understanding of language*. Even laymen are well aware that computers need not understand anything.

But a linguist is more than a machine. If the science of language discards meaning it overlooks the basic fact that 'hut' can only be replaced by 'Hütte' because of meaning. Linguistics is reduced to a mere skeleton as it eliminates the very basis of its subject matter. Understanding language is impossible without asking for meaning and its expression in form. Nevertheless, it is a well-known fact that understanding – the proper domain of humanities – is progressively pushed into insignificance even beyond linguistics. At universities, the immediately useful (including the financial benefits to be derived from it) occupies the very center of attention. “By all accounts, the humanities are in trouble. Univer-

sity programs are downsizing; the next generation of scholars is un- or underemployed; morale is sinking; students are staying away in droves" (Pinker).

After this short aside, let me come back to the six basic questions of Universal and Generative Grammar to all of which Chomsky has given answers that are logically or empirically incorrect.

1) Linguistic competence – ready made module or socially stimulated and evolving?

Chomsky believed to provide a satisfactory answer to this question when he postulated a fictitious "language module", with which all humans, regardless of their cultural belonging, are allegedly equipped, so that there can be no question of an evolution of language even though the evolutionary process characterizes all other human organs and abilities. "For Chomsky, then, the basic justification for saying that the capacity for language must be an innate module or organ, a computational mechanism, was the argument from the poverty of the input together with lack of correction, and ease of acquisition in childhood" (Pinker).

Unfortunately for the truth of his statement, Chomsky did not take the trouble to verify it by means of empirical material so abundantly available in the work of many anthropologists. In a recent article titled "So all languages aren't equally complex after all" (2018), Christopher Hallpike quotes some of this evidence to prove that much of what can easily be formulated in developed languages is not expressed in the language of many tribal people such as for instance the Piraha: /They have/ "no relative pronouns; only single modifiers; only one possessor; no co-ordinates such as 'John and Bill came today'; no disjunctions e.g. 'either Bob or Bill will come'; only one verb and one adjective in a sentence; no comparatives or superlatives; no counting; no distinction between

singular and plural; no quantifiers – some, all, every, none; nouns have no prefixes or suffixes; no color terms; no passive constructions; word order is not strict; no phatic communication (no greetings or farewells, 'please' or 'thank you' etc.)."

The basic question is, of course, whether the Piraha and other formerly called "primitive" people cannot express such contents or whether *they simply have no need for a more complex way of expression*. As the brain of Sapiens is genetically the same in different ethnic groups for at least fifty thousand years, the second alternative may be assumed to be empirically proven if infants of the Piraha, raised in an English family, would on average show the same language competence as any Englishman. If this hypothesis - empirically verifiable and presumably often tested in the past with regard to other "natives" – presents the right solution to our problem, then the lower linguistic competence of Pirahas is rather explained by the fact that in a group of a few people, who spend their entire lives in an identical environment, prelingual communication is so predominant that linguistic expression is largely dispensable. This fact is more easily understood when we compare it to similar situations in our own societies. Just think of those old married couples who often find themselves in exactly the same unchanging environment, knowing each other perfectly well and being completely enclosed in their small world. Their emotional bond may be very intense, still their linguistic communication is often quite limited, though both partners may have reacted in linguistically very complex ways as long as they were challenged with constantly changing problems and environments in their respective professions. Obviously, we are confronted with *a lack of need rather than with a lack of ability*.

In the case of the Piraha, this point seems to be further corroborated by the observation that these people are quite capable of expressing the corresponding contents of meaning through para-

phrases. Though they do not have a ready-made formula like English "Paita, bring back the nails that Dan bought", they may well express the same message in the following manner: "Hey Paita, bring back some nails. Dan bought those very nails. They are the same". The fact that they can perfectly well understand and express the semantic content in question, albeit in a very cumbersome way, merely proves a lack of need and not of ability. It is only when such need offers itself on a regular base - as in our cultures – people look for a "formal realization" that is not cumbersome but as simple as possible.
The same observation also applies to another example mentioned by Hallpike, the disjunction "Either Bob or Bill will come". The same semantic content may for instance be realized as "maybe Bob will come, maybe Bill will come" – but, of course, this is much more cumbersome kind of expression.

As to the presence or not of relative pronouns,
this is definitely not indicative of linguistic expressiveness, because relative pronouns are completely absent in some highly developed languages such as Chinese or Japanese. English represents a case of what I call “formal abundance” because it is able to express identical meaning by more than one formal device. "Men, who eat rice on Friday, tend to eat rice on Wednesdays too" makes use of a relative pronoun while "Men eating rice on Friday tend to eat rice Wednesday too" does not. Only the second alternative is available in Chinese and Japanese. We may say that English acquires additional suppleness because it may resort to two different formal alternatives. These examples, treated with particular emphasis in my book *"The Principles of Language - Towards trans-Chomskyan Linguistics*" are of primary importance for the correct understanding of both the semantic and formal aspects of language. But conforming to his usual proce-

dure, Chomsky merely clings to the formal surface when stating that something "recurs" or becomes "embedded". He does not ask himself what this something is, in other words, *what it means* and how it enlarges the range of information passed between speakers and listeners.
On the basis of empirical evidence, Hallpike's conclusion seems incontestable: "language does indeed become more complex in relation to social and cultural complexity… and cannot therefore be an instinct, organ or module as Universal Grammar maintains."

I would add that in its earliest stages
greater cultural complexity originates in a rather elementary way through the numerical growth of small groups into societies, where no longer all members have a *personal knowledge* of each other. It is at this moment that the abstract human being emerges, who is no longer identical with definite individuals, and at the same time we probably witness the genesis of abstract numbers. Hallpike indirectly confirms this conjecture when quoting the following observations of a competent anthropologist: "The /Cree/ hunter /of Eastern Canada/ knew every river in his territory individually and therefore had no need to know how many there were. Indeed, he would know each stretch of each river as an individual thing and therefore had no need to know in numerical terms how long the rivers were." And the anthropologist proceeds: "... the story is that we count things when we are ignorant of their individual identity" and "distinctive individual identity is key to the lack of number and counting." In other words, the absence of abstract thinking may be a proof for the overwhelming presence of concrete knowledge!

In numerically large societies
abstract semantic contents like numbers that did not play any role in the mutual intercourse of groups of but a few members, will henceforth become necessary instruments of communication. And it is only at this complex level of society and its material self-preservation that writing too is chosen as a supplement to oral communication. On the one hand, writing relieves memory (and thereby creates a new memory, the "memes", outside of individual brains), while, on the other hand, it is able to reach all those members of a language community who are no longer personally known to each other. Again, Hallpike is right in his statement that complexity of expression arises "especially as a result of writing and literacy".

We may conclude that empirical facts such as these
clearly contradict the assertion by Chomsky and Pinker that human language is a ready-made module that reaches and reached the same full development in every society (in fact, we do not even know whether our society reached such an endpoint of development or whether such final stage does at all exist). Nevertheless, it may be assumed that all members of our species are equipped with broadly the same genetic prerequisites to unfold this faculty under favorite conditions. Or stated in an alternative manner: all people have the same ability to speak, even if they manifest it in very different ways due to divergent social needs in different cultures and at different times. Even at an individual level, expertise comes and wanes with constant use or the lack of it – as is indeed true for all organs and abilities.

2) The generative capacity
Chomsky's question about the generative capacity of the child, which enables it to form new, never-heard sentences in theore-

tically unlimited numbers, is particularly significant insofar as it is based on the refutation of false assumptions made by Behaviorism. As Chomsky rightly pointed out, the latter is incapable of explaining this really amazing faculty.

Unfortunately, this important insight does not prevent Chomsky from following, for his part, a path as wrong as that of the theory he attacks. The trees he constructs, borrowed from distributionalism, *cannot be used* to justify a child's generative capacity.

In *"The Principles of Language - Towards trans-Chomskyan Linguistics*" (and the first chapter of the present book) I tried to show that Distributionalism, the method used by Chomsky, *never arrives at any deduction at all*: that is, it cannot get out of its deductive trees any more information than it had previously (or surreptitiously) put into them: it is indeed strictly tautologous. Let me illustrate my point using a Chomskyan tree of the most elementary type. In the upper first line we may find an abstract expression like "S(entence)". In the second "N(ominal) P(hrase)" and V(erbal)P(hrase). In the third line we will come across a more concrete expression like "Det Noun Verb"; the fourth line then provides some concrete example like "The girl smiles".

Now, no English-speaking person would accept "The diddle doddles" in the fourth line, while a Bantu without any knowledge of English might well accept it. In other words, *without a perfect previous knowledge* of English we wouldn't be able to exclude this example. In quite the same way, an English speaker wouldn't accept "The girl smile" as it violates an elementary rule of English grammar. Finally, an example like "The stone coughs" would even be rejected by a Bantu or an Apache because all human beings make use of an innate structure of meaning that tells them that stones are incapable of coughing (other than in a metaphorical sense).

In all three cases, ***a perfect previous knowledge***
of either the semantic deep structure or of valid formal realizations of English is a necessary prerequisite if we want to arrive at admissible examples. This is to say, that the Chomskyan tree only creates examples, which we must know beforehand – or, put in an alternative way, it *generates nothing* but merely distinguishes admissible sentences from those which are not – and that is exactly what any traditional grammar does. However, by giving to the procedure of traditional grammar the shape of a tree, Chomsky imparts the misleading impression as if he were able to *deduce the concrete from the general* (like "the girl smiles" from "S" via "NP VP".
Nevertheless, it is, of course, perfectly true that every child - and every adult for that matter - may create sentences it never heard before, like, for instance, "Tuggering smiles" (if the child just saw some fictional being called Tuggering on TV). Or it may say, "Tuggering giggles" though this combination of words too has never been uttered by its parents. Or a particularly gifted child conceives the idea of a half-smile and creates its own word for realizing it in form (like the Japanese who have ten different words for rain or the Inuit ten words for snow). No machine will list these expressions among admissible English sentences unless the newly created word with the meaning half-smile were *previously inserted* into the class of English verbs and the name "Tuggering" in the class of nouns.
In other words, a machine is utterly incapable of any generative act whatsoever. The reason should be no secret to anybody: We know that machines lack any knowledge of meaning. On the other hand, it is precisely on the level of meaning (or the "language of thought") that unknown events become known to the mind and contribute to its constant enlargement in children as well as in adults. Stating this evident truth in the most general

way, we may say that *meaning is the raw material which is brought into the specific form of some particular language according to the latter's rules of "formal realization".* Generativeness is, therefore, primarily located on this basis. But this essential truth was altogether missed by Chomsky. Influenced as he was by Distributionalism - a purely formal method -, he was unable to accept meaning as the true foundation and deep structure of language.

A residue of generativeness remains,
however, even if meaning is excluded from language. It manifests itself not as a positive force but as a source of mistakes like, for instance, the *violation of prescribed rules* of formal realization. Children are surely generative when saying 'go-ed' instead of 'went' or 'fli-ed' instead of 'flew' (they never heard their parents utter these mistakes).

Likewise, mistakes of prevailing formal realization changed the French of invading Normans to develop into modern English, and in course of time mistakes produced what we now call "sound shifts" in German. Similarly, the German language is now transformed by the mistakes of immigrants. Any change of language on the level of form is an act of creative (or more often non-creative) destruction of established patterns. It may make a language just different (which is true of "sound shifts") or it may reduce expendable complexity as, for instance, when English abolished the gender distinction characteristic of Indo-Germanic languages. Here too, Chomsky missed the essential point. He couldn't see true generativeness welling up from the deep stratum of meaning, and he couldn't see that mistakes are generative acts in their own particular way.

3) Grammatical correctness in Generative Grammar

Chomsky uses basically the same method as traditional grammar in order to distinguish grammatically correct sentences from grammatically incorrect ones. He does so, however, in quite a particular manner by depicting the rules specifying correct formal realization in the shape of a tree that begins at the top on the most abstract level and then widens downwards to concrete examples. As explained above, he thus creates the misleading impression as if he were able to deduce the concrete from the general. Apart from this erroneous notion, Chomsky's method is, however, just as legitimate as that of any traditional grammar. That is why Chomsky's approach has proved so immensely fruitful in its application to automated translations.

But Chomsky wants to achieve a lot more

His method is meant to reveal the hidden rules that allow a child to form infinite sentences it has never heard before, and at the same time prevents it from uttering the equally infinite number of sentences a given linguistic community would reject as unacceptable.

The most primitive case of grammatical correctness is, of course, compliance with the rules that apply at the formal level. A child saying „Mary is cute. I like him“, would commit as grave an error in English as when it says „Mary are cute.“ The formal rules of grammatical correctness are rather simple and they can be counted on a few hands in all languages. It is for this reason, that they are understood and correctly applied by any child after a rather short time of learning.

But there are countless wrong sentences, which may be formally correct, but are still not considered admissible in any language community. These include statements such as "the stone coughs unbearably in D major" or "the water pipe has just laid a bent and

illiterate egg". The *theoretically infinite number* of such sentences is rejected for a completely different reason: They do not occur in the social or natural reality of man. (It does, of course, belong to a quite different chapter that man may consciously distort “real” reality in order to confront it - again quite consciously - with a fictitious one).

Again, Chomsky's answer is inadequate because of its incompleteness. It only becomes correct once we simultaneously consider two completely different grammars. Firstly, the grammar that determines the rules of "formal realization", and, secondly, the grammar of the "general structure of meaning", which consists of a small number of "syntheses" equally found in all natural languages, since they represent a reversal of the previous mental “analysis” of reality.

As Chomsky was opposed to give meaning a prominent place in his theory, he could only deal with linguistic form but was barred from recognizing the second type of grammar, the one at the very base of all languages. This point was well understood by Stephen Pinker, who rightly insists that “*People do not think in English or Chinese or Apache; they think in a language of thought*“. Chomsky missed this elementary truth. For this reason, he can only account for a tiny portion of grammatical correctness.

In two German publications "Grammatica Nova", 1981 and "Prolegomena zur Generellen Grammatik", 1991 and, likewise, in the “Principles of Language” published in English in 1993 and, finally, in "The Principles of Language - Towards trans-Chomskyan Linguistics*",* I described a "General Structure of Meaning". Jerry Fodor had used the term "Language of Thought” in 1975. Steven Pinker took up this term in “The Language Instinct” in 1994.

4) Universal Grammar

The leap to Universal Grammar, which Chomsky wants to achieve when answering the fourth basic question, i.e. the transition from some specific language to all possible languages, was recently rejected by Prof. John Goldsmith in a discussion with the author. Goldsmith justly criticizes Chomsky for having borrowed his basic categories of description from traditional Western grammar. Traditional terms like noun and verb are "unscientific" because their semantic content varies from one language to another.

Let us take an elementary utterance like "John comes today", which can be expressed in any developed and probably in most less developed languages as well. It consists of three formal slots: a noun, a verb and an adverb. If the *formal slot* of nouns would in all languages only be filled with the same *semantic category* of (living or non-living) substances, and likewise all verbs only with actions, all adverbs only with temporal determinants as in the above English example, then these formal slots could be described as universal as their semantic content would be identical in all natural languages. But any linguist with even a slight knowledge of other languages than English is well aware that this is not the case – not even in English itself, where sentences like "Withdrawal happened at once", "Greatness came later", or "Unexpectedness characterized his visits" show that the noun may comprise the semantic content, first, of an action (to withdraw), second, of a quality (great) and, last, of a psychic synthesis (I, you or we did not expect that John would arrive). Other languages must express the same semantic content in totally different ways, like for instance: "The army withdrew immediately".

It is, nevertheless, a truism that the semantic content of formal categories like noun, verb etc. must to a certain degree overlap in different languages – how else would it be possible to

apply the same term of noun to totally different languages like English and Japanese? Thus, in English as well as in Chinese, Japanese and Russian, nouns always contain substances, verbs always actions, adjectives always qualities. Only because of *this partial semantic identity* have grammarians been motivated to apply identical terms like noun or verb to otherwise widely different formal classes of different languages.

On closer look, however, comparative linguists immediately become aware of existing differences. We have just seen that in opposition to many other languages, the paratactic class (formal slot) of English nouns comprises not only substances but other semantic categories as well, such as actions (hunting, withdrawal), qualities (brightness, greatness) and even spatial, temporal or psychic determinants (contiguity, simultaneousness, unexpectedness).

There is no harm in using the "sloppy and not scientific" concepts like noun and verb so justly criticized by Prof. Goldsmith *as long we use them without any claim to generalization*. The procedure is quite legitimate in traditional grammar as otherwise we would have to invent a *new set of descriptive concepts for each language under consideration*. If only we keep in mind that the semantic contents of formal slots (like Russian, Chinese or English verbs or nouns) merely overlap without ever being identical, our procedure is totally correct and unobjectionable. The same holds true for the use of such categories in translation machines, because these too only deal with particular languages. But the use of terms like "noun", "verb" etc. in Universal Grammar is strictly out of question. Mr. Goldsmith is right. In this case their use is more than just "sloppy", they blur basic distinctions which we want to explain – instead of explaining them away as Chomsky does.

5) Deep versus surface structure

As to Chomsky's attempt to distinguish a linguistic surface structure from a depth structure, this was from the outset condemned to failure. To this very day, nobody - not even Chomsky himself - seems to know exactly how to define their difference. Nor should this be a surprise since the failure is due to the fact that Chomsky never accepted the independent reality of a general structure of meaning (Language of Thought).

Only after clearly distinguishing meaning and form are we capable of *drawing an exact line between them*. All languages are built on the foundation of a general structure of meaning (a Language of Thought), which in each of them is transformed into a sequence of acoustic signals - a formal structure - by means of specific rules of formal realization. This truth seems so evident that Chomsky's resistance can only be explained by the fact that the use of his theory for the practical purpose of automated translation would not be possible had he based it on the general structure of meaning, since, as we know, machines know nothing about the latter. In other words: Chomsky had to sacrifice the *understanding of language* if he wanted to secure the theory's *practical application*.

6) Can there be a General Theory of Language without knowing languages in the plural?

Let us now turn to the last of Chomsky's great questions and how he answered it. He confidently asserts that we may well design a General Theory of Language without knowing any language other than the one we happen to speak. On this matter Chomsky expresses himself in no uncertain terms. "I have not hesitated to propose a general principle of linguistic structure on the basis of observation of a single language. The inference is legitimate, on the assumption that humans are not specifically adapted to learn

one rather than another human language, say English rather than Japanese. Assuming that the genetically determined language faculty is a common human possession, we may conclude that a principle of language is universal if we are led to postulate it as a 'precondition' for the acquisition of a single language."

I beg your pardon, if at this point,
I am quite unable to prevent the cynical sociologist quoted above to raise his voice once again. Look, he says, how scientific jargon – Chomsky's intellectual brilliancy - *produces so forceful a hypnotic effect that almost nobody noticed the utter nonsense this statement really conveys*. What Chomsky actually says is tantamount to the assertion that botany may do without the study of plants or astronomy without the study of stars. He tells linguists that they carry the language module within them, so they really needn't worry at all about languages, that is, about empirically given reality. According to Chomsky, language, unlike all other organs and abilities, did not evolve gradually, but resembles the Goddess Athene falling from heaven perfectly equipped with all her divine attributes. Chomsky gives a license to theorists to assert whatever they like about language regardless of whether or not this contradicts the evidence arising from the study of facts. No wonder that his pronouncement was fervently acclaimed by all those who in fact are quite innocent as to their knowledge of languages and of historical facts. Chomsky managed to give absolution and a pretty good conscience to learned ignorance (docta ignorantia) that as a rule is more disturbing and dangerous than its naïve unlearned counterpart.

Conclusion:
Let us beware of cynics and their mostly one-sided and misleading judgments. It is simply not true that modern linguistics has

abandoned empiricism. On the contrary, in a specific sector, albeit a restricted one, it has achieved a resounding success. Automated translation, whose incredible performance we rightly admire, requires an extreme degree of technical competence and precise knowledge of the relevant algorithms - in other words, it represents nothing less than a triumph of empirically orientated research. In this field, there can absolutely be no question of detached and outlandish theorizing.

A fair judgment must, therefore, strictly distinguish between the great achievement that Chomsky actually attained and the one that *he himself wanted to accomplish*. Chomsky reached a shore that he did not even want to head for: against his intentions, he has become the pioneer and father of automated translation. On the other hand, he never got to the coast, which he declared to be his real goal, namely Universal and Generative Grammar. Although here too we have to admit that Chomsky must be credited with having grasped the eminent meaning of such a goal more clearly than others. And he, certainly, asked the right questions even though he never gave the right answers as he remained fatally attached to "sloppy and unscientific" descriptive categories borrowed from traditional grammar. The overall effect of his work was to strengthen the prevailing trend towards the immediately useful (machine translation), and simultaneously weaken the *scientific understanding of complex reality*. The latter presupposes an extended knowledge of history and linguistic diversity - a knowledge the significance of which he tried to discredit. As to the matter, which was most dear to his heart, the study of Universal and Generative Grammar, this he turned from science into dogma and the linguists following him from scientists into "True Believers". Universal and Generative Grammar, a trend-setting idea, was changed into a mental straitjacket.

7 Psycholinguist Steven Pinker: How a great scientist turned into an enemy of himself – and of truth

Steven Pinker's book „The Language Instinct" is certainly still one of the best books ever written on the rather elusive subject of language: comprehensive in its wealth of facts, intelligent in its argumentation and fascinating in the refreshing wealth of ideas. No one who wants to have a say in the matter can do without it although almost 25 years elapsed since it was published in 1995. It was written by a scholar who, as an admirer of Chomsky, was, of course, influenced by what is believed to be this man's most important contribution to linguistics, that is Generative Grammar and Universal Grammar.

At the same time, however, his book illustrates
a fundamental truth invoked by Thomas Kuhn in "The Structure of Scientific Revolutions". Like all other mental activities, science is exposed to a peculiar danger. Provisional truths may easily be elevated to the rank of irrevocable paradigms, so that, at a certain stage, science may actively *prevent its own progress and violate its basic ethos*. In fact, Pinker's book proves two things at the same time: it shows how fruitful a paradigm is whenever an intelligent author explores its most hidden depths and breadths - and how dangerous it becomes when it erects artificial barricades against criticism. Chomsky is known for his poor tolerance of contradiction; Pinker seems to be acutely aware of this shortcoming – so he painstakingly avoids any step which could unleash the master's scorn. That is why "The Language Instinct" so redolent with brilliant ideas turned out to be a stillbirth that *up to the*

present time prevents linguistics from getting rid of a paradigm - or rather the straight-jacket into which Chomsky has enclosed it.

This becomes evident as soon as Pinker
expounds the book's main thesis to which he - following the footstep of others - gives the rather funny name "Mentalese". It is a basic notion indeed mentioned no less than 28 times! According to Pinker, language – every language – is based on prelinguistic conceptualization defined by him in the following way: „**Mentalese**: The hypothetical „language of thought," or representation of concepts and propositions in the brain in which ideas, including the meanings of words and sentences, are couched" (p. 509).

A very important insight indeed
– and a relatively novel one too, as it was first developed by Jerry Fodor in 1975 and six years later - much closer to natural language - by myself in "Grammatica Nova".[11] But why does the

[11] You may have noticed with disapproval that I mentioned Jerry Fodor only in passing. Indeed, my own thoughts on the matter originated quite independently. *No specific theory of mind* is implied in my work on the "General Structure of Meaning". The latter is simply – I don't mind if you call it "naively" - accepted as a given fact and described as such in its twofold aspect of what I call its logical and informational parts. In other words, the "General Structure of Meaning" serves the sole purpose of providing the indispensable fundament for truly explaining the generativeness of natural languages. Nevertheless, you will want to know what distinguishes the "General Structure of Meaning" from Fodor's LOT (1 or 2) or his and Pinker's "Mentalese"?

My answer is based on a *purely linguistic and quite unequivocal criterion*: "formal relevancy". Only those parts of the semantic deep structure belong to the "General Structure of Meaning", which must obligatory be expressed by specific formal means in the surface structure of *every developed natural language*. The "action synthesis with or without spatial and temporal determinants" thus belongs to the logical part of "General Structure", so does the informational dichotomy giving rise in the surface structure to English "men

author pusillanimously turn back from his courage adding the word „*hypothetical*“? Pinker definitely surprises the reader as his reservation implies that, after all, *Mentalese may not even exist*. But here, Pinker contradicts himself. At another place, he emphatically argues for the existence of such a prelinguistic reality asking the purely rhetorical question: „If thoughts depended on words, how could a new word ever be coined?” (p. 47). Of course, it could not. Nor is there any mention of a fictitious reality when Pinker states: „Are our thoughts couched in some silent medium of the brain – a language of thought, or „Mentalese“ – and merely clothed in words whenever we need to communicate them to a listener?” (p. 45).

In the first of these quotes, Pinker had already given a positive answer to this question. Spoken language invariably presupposes a prelinguistic reality, he therefore pursues in a perfectly logical way: „*No question could be more central to understanding the language instinct*“ (p. 45). This is what Pinker really means, and his position becomes even more transparent, when he summarizes it in the brief statement: „*We end up with the following picture. People do not think in English or Chinese or Apache; they think in a language of thought*“ (p. 72).

Here, there is no more question of a “hypothetical” prelinguistic reality, the latter is most definitely assumed as an undisputable fact – and rightly so since even the thinking layman never thought otherwise. When Englishmen call a certain tree „birch“, but Japanese call it „shirakaba“, then everybody will agree that *no similarity whatsoever* obtains between the acoustic vibrations of the

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eat rice” versus “men eating rice (or “who eat rice)…. Such formal distinction is obligatory in every natural language. But this does not apply to the semantic distinction to be found in Japanese that expresses the rank of the speaker with regard to that of the person addressed: it therefore does not belong to the “General Structure of Meaning”.

air produced in the first case by an Englishman uttering the sound "birch", and in the second case by a Japanese saying "shirakaba" (nor is there any similarity between the symbolic lines on a sheet of paper representing the respective acoustic phenomena). *There is but one Tertium Comparationis*, and that is the cerebral idea in the minds of an Englishman or Japanese referring to the same concept and behind the concept to a similar object in the real world. Without the concept common to both languages, it would be impossible to mutually replace the two completely different acoustic „word marks" or pictorial signs (rightly referred to by de Saussure as arbitrary). But, of course, this *common concept* (belonging to Mentalese) is the exact opposite to anything merely hypothetical. It constitutes, so to speak, an ens realissimum, the *logical prerequisite* of any translation.

If it makes any sense at all to distinguish a deep
from a surface structure of language then the *concept of birches* to be found in the mind of both speakers obviously belongs to the first dimension while the two acoustic word marks belong to the second. This fact remains true even if we have to admit that up to the end of the 20th century concepts could only be subjectively perceived, they could not be measured, so their degree of reality seemed to be less pronounced. This may change in the near future: neurologists are on the way of proving that mental images such as birch, house, cloud, etc. *imprint certain neural impressions on the human brain*.

So, why does Pinker invalidate his own point of view
by speaking of this reality as a merely "hypothetical" one? He does so, because otherwise he would be in danger of coming into conflict with his mentor Noam Chomsky. If Englishmen, Chinese or Apaches – even before uttering a single word – „think in the

language of thought“ (p. 72), then, of course, Chomsky should have based his so-called generative grammar on Mentalese because this would have been *the true deep structure and generative foundation* every historical language is based upon.

Pinker shrinks back from this obvious conclusion,
although he knows better, and for the same reason he uses the almost comical term „Mentalese“, though a ready-made concept used from the very beginning of linguistics is at his disposal and would, indeed, be much more appropriate. Whenever an Englishman or a Japanese express the same mental reality through different word marks such as birch and shirakaba, linguists (and laymen too) used to say that these words have the same “*meaning*”. The generative background or Mentalese to which Englishmen, Chinese or Apaches all refer when they communicate with acoustic marks is therefore nothing more than “mental meaning” (beg your pardon for the pleonasm).

Thus, *meaning constitutes the mental*
(neurologically impressed) conceptual reality on which all language is based. In an indirect way, Pinker expresses this truth clearly enough, but he recoils from replacing the curious term „Mentalese“ with the common word “meaning”, because he would again collide head-on with Chomsky’s paradigm. The generative mental source, his „language of thought“, would consist of *purely semantic contents* such as birch, house, car, etc. (bundled together in a comprehensive semantic class such as „substance“). „Meaning“ would comprise the entire „language of thought“ (Mentalese) as the true deep structure, and by no means it would be "prelinguistic" but, on the contrary, constitute the very fundament of language, while „form“ would refer to its

material representation or surface structure consisting of acoustic vibrations (or the signs on a piece of paper).

This conclusion Pinker himself definitely embraced
when contrasting meaning and form: *„Knowing a language, then, is knowing how to translate Mentalese into strings of words and vice versa"* (73, 108). In my words: "Knowing a language, then, is knowing how to translate a deep structure of meaning into a surface structure of acoustic or other formally realized signs and vice versa."

Moreover, the author is well aware
that meaning on the one hand and form on the other are indeed "structures" - *each of them representing quite complex phenomena*. Language does not merely consist of individual contents of meaning such as birch or house on the one hand and, on the other, individual acoustic word marks representing them on the level of linguistic form. Both meaning and form are highly structured entities. Pinker himself stresses the point with regard to Mentalese: „*even a wordless thinker does well to chop continuously flowing experience into things, kinds of things, and actions*" (pp. 149, 150).

In other words, Mentalese, the deep lying language of thought, is already highly structured before it pops up in form appearing as the surface structure of some definite language like Chinese, English, Japanese etc. It should, of course, be added that only the overall structure of meaning is the same for all languages – they all distinguish substances from actions, qualities etc. and differentiate questions from statements and so on – *but the mental analysis of reality giving rise to the structure of meaning is susceptible of almost infinite variety on a more concrete level!*

The difference between Mentalese
or the general structure of meaning and its possible formal realization may be illustrated by means of basic examples. In a sentence like „Men eating rice (on Wednesday generally) eat rice (on Tuesdays too), the same core of *logical* meaning „men, eat, rice“ is to be found twice in the formal surface structure, namely, first, as an independent sentence and, second, as a dependent clause. „Men eat rice“ represents the independent occurrence while “men eating rice … ” may only be found as part of a sentence. To this difference on the formal level corresponds a difference on the deeper semantic level, which is not logical but “*informational*” (see "*The Principles of Language - Towards trans-Chomskyan Linguistics",* p. 7, 104 ff).

Obviously, the merely formal contrast between a “nominal phrase“ (men eating rice …) and an independent sentence (men eat rice) does not explain anything – rather it is itself in need of explanation. Such explanation is provided by the “*informational”* difference on the level of Mentalese, that is the semantic deep structure. In order to be understood on the level of formal realization, this difference in meaning must be unambiguously expressed by the surface structure as well. We may add that the informational semantic dichotomy in question *needs to be formally realized* in all developed languages; in some of them, such as English, even two formal alternatives are available (a) men eating rice … , and b) men who eat rice …).

Similar considerations come to mind
with regard to formal differences like, for instance, the English noun „withdrawal“ as opposed to the English verb „to withdraw“. The core of *logical* meaning is identical in both cases: it is an action (like to run, to go, to give etc.), so why can it be represented on the level of form either as a noun or a verb? Otto

Jespersen was the first to try an explanation (namely “rank lifting”). But Chomsky was by his very method prevented from finding it as he would have to dive deeply into Mentalese (i.e. the structure of meaning), more precisely into its *informational* requirements (see *"The Principles of Language - Towards trans-Chomskyan Linguistics*", p. 7, 104 ff). As long as we cling to formal surface structure (verb/noun), nothing at all is explained – not even the fact that not all languages allow such an alternative realization as both verb or noun.

It would have been easy for Steven Pinker
to adopt these insights – they are obvious and he has already hinted at them in the above-mentioned quotes. But then he would have been forced to add that verb, noun, nominal phrase, etc. *cannot be concepts of Mentalese*, i.e. the true depth-structure of meaning, presupposed by the speakers of all languages in their mental analysis of reality. In the statement quoted above that „even a wordless thinker does well to chop continuously flowing experience into things, kinds of things, and actions“, he rightly omits mentioning verbs, nouns, nominal phrases etc. (pp. 149, 150). In other words, Pinker would have been forced to admit that nouns, verbs, adjectives, nominal phrases etc. have no place in Mentalese or the structure of meaning, because *they belong to the level of formal realization.* But then he would have destroyed Chomsky's entire theory.

Obviously, this was a red line Steven Pinker did not dare
or did not wish to cross. For this reason, “The Language Instinct” represents more than just a missed chance – it is a flawed paradigm raising a formidable obstacle to the advancement of linguistics. *Pinker writes against his own better knowledge as he constantly cowers before Chomsky’s overpowering shadow.*

Why is Pinker so afraid of defending
his own convictions? Why couldn't he put his mind at ease? After all, Chomsky has achieved so much more than most of his colleagues. His undeniable merit is to have prepared and paved the way for modern linguistics' greatest achievement: automated translation. A machine need not know that birch and shirakaba "*mean*" the same thing. Machines only deal with material, measurable elements – so they are barred from knowing anything about meaning. They simply receive the order to replace the formal element „birch" with the formal element „shirakaba" when translating it into Japanese. And they proceed in basically the same way when they come across a nominal phrase such as „Men eating rice" (are usually healthy) in English replacing it with Japanese „Rice eat men (are usually healthy)". The formal realization used in English is merely replaced with the formal realization prescribed for Japanese. Thus, Chomsky's formal surface structures have become the indispensable tools for translating any language A into any other language B.

In this respect, Chomsky must be credited
with nothing less than the foundation of *modern linguistics as a practical instrumen*t (though he has become so against his own intention). For a single man's honor and fame this should be praise enough. But not content with this great achievement, Chomsky wants more – and this is where he failed. Chomsky definitely does not live up to his own claim of having created a truly universal and generative grammar. He never came to terms with the structure of meaning or, in Pinker's words, the "language of thought". Nor did Chomsky explain how Mentalese arises, i.e. how the human brain proceeds in the analysis of reality in order to arrive at a General Structure of Meaning. And he does not deal with the formal constraints that the structure of meaning is subject

to at the moment of its realization as sequences of sounds (for only single word marks are "arbitrary" in the sense of de Saussure). *Understanding language, beyond its automated transfer from one surface form to another, implies looking into the relationship of meaning and form (Mentalese versus strings of sound). This dimension has altogether escaped Chomsky's attention.*

Steven Pinker is far too intelligent
not to have gained these rather basic insights, in fact he is well aware of them. That is why he says on page 95 that he is appalled when coming across all those "*countless popular books on mind, language, and human nature that refer to 'Chomsky's deep structure of meaning common to all human languages'*."

Right, that is what Chomsky himself should have said but what he definitely did not say. And the reader will now understand the two main reasons why Chomsky was unable to do so. If he had chosen as the true deep structure the "General Structure of Meaning", he would have had to abandon all familiar concepts of traditional grammar like nouns, verbs, adjectives etc. as these belong to the surface. His primary task would have consisted in creating entirely new terms to begin with. But these new - purely semantic - concepts would, of course, be useless in machine translation *precisely because they refer exclusively to the sphere of meaning.* Machines only describe transformations on the level of surface structure, they have no place for meaning. So, renouncing traditional surface concepts, Chomsky would not have become what he actually is (but never intended to be): the father of machine translation.

Now, you may understand the precarious situation
Pinker had to confront when he was writing "The Language Instinct". He understood clearly enough that the real language of thought could not be described by categories belonging to the

surface of any given natural language ("*People do not think in English or Chinese or Apache; they think in a language of thought*" and he was perfectly aware that "*even a wordless thinker does well to chop continuously flowing experience into things, kinds of things, and actions*"). But he recoiled from the inevitable conclusion that Chomsky's method to evolve a universal grammar was simply *invalid and wrong* as it relied on concepts belonging not to the semantic deep but to the formal surface structure of language.

I tried to present an outline
of such a deep Structure of Meaning and the processes and restraints governing its representation ("formal realization") on the level of in surface structures (in natural languages). Pinker either did not know or did not bother to mention my work. The "Language Instinct" was published in 1995. My thoughts on this topic first appeared in 1981, more than ten years earlier – albeit in German ("Grammatica Nova"). "Principles of Language" was, however, published in English in 1993, two years earlier than the "Language Instinct". Everything Pinker had to say about Mentalese was explained in the Principles (above all in its new version *"The Principles of Language - Towards trans-Chomskyan Linguistics*") in detail and due emphasis on broad detail.[12] Last year,

[12] Pinker only superficially touches upon the actual difficulties raised by Mentalese or the "Language of Thought". Merely in passing does he say that *"even a wordless thinker ... chop/s/ continuously flowing experience into things, kinds of things, and actions"*. In fact, language presupposes a twofold pre-linguistic activity, consisting of both *analysis* (chopping continuously flowing experience) and *synthesis* built upon it. "The bear now runs towards the abyss" is a unique event on the level of sensual experience. Mentalese, however, has *analytically broken down* the sensual totality into constant mental images (bear = substance, running = action, now = temporal

determinant, towards the abyss = spatial determinant) which it afterwards *recomposes into a synthesis* made of these images.

Difficulties do not end at this point. Neither the unique sensual experience nor its mental reconstruction in Mentalese or the "Language of Thought" represents a "sentence". Sentences, nominal phrases, etc. denote formal structures belonging to the level of formal surface. For this reason, we need a new term. I speak of a *synthesis*, more precisely of an "*action synthesis extended in time and space*" which reverses the preceding analytical segmentation of "continuously flowing experience".

An action-synthesis like "The bear now runs towards the abyss" certainly belongs to the core of Mentalese, that is to the General Structure of Meaning (Mentalese) as it may be expressed in all developed natural languages.

Besides this general core many more semantic contents may, of course, become objects of linguistic attention. In some languages, the speaker is required to specify whether he means a male or female bear, whether the latter runs towards him or away from him, whether he addresses a person of higher, minor or equal rank, whether he believes that the statement represents a fact or is known only by hear-say and so on. Mentalese may thus be said to be at the origin of both the general core and a *true infinity of semantic specifications* characterizing specific natural languages.

To be sure, at this level we do not yet speak of interlinguistic differences *arising at the level of formal realization*, that is when Mentalese is expressed in orderly strings of acoustic signals. Differences such as between isolating, non-isolating, agglutinating, polysynthetic languages etc. belong to the surface level of formal realization *above Mentalese*.

The ordering of formal elements is quite independent of semantic differences, it obeys its own specific laws (as I have tried to show: The same structure of meaning may be expressed in various formal ways – a fact made quite evident in computerized artificial languages where different operating systems are freely used to express identical contents. In a similar way, Japanese, Russian and Chinese represent different operating systems that may convey the same meaning). *This is the main point: meaning and form are subject to laws originating independently from each other in their own spheres, and both together create the tremendous variety of natural languages.*

I tried to draw Mr. Pinker's attention to this fact writing an open letter, which, I believe, was as polite as it should be between scholars with similar interests (see last chapter). I never got an answer.

These are basic facts, which Pinker does not speak about – and he certainly need not do so. After all, everybody is free to choose his or her particular field of interest but it was never deemed to be good and responsible science to just overlook or belittle insights that contradict one's own paradigm, especially if the latter turns out to be a hindrance to a deeper understanding of language.