# Seven Trivia of Language Acquisition[1]

## Wolfgang Klein
### *Max Planck Institute for Psycholinguistics*

> *"You know that much," said the wise man to the explorer, "but your knowledge is not really forceful. You know all these things about the sun, when it rises and when it sets, how far away it is and how hot. But I know a formula, and when I spell it, the sun begins to shine. Do you know such a formula?" - "No," said the explorer, "I am impressed. And this formula really works?" - "On occasion, at least," said the wise man, "but you don't even have a formula, do you?"*

The first aim of scientific research cannot be the mere accumulation of knowledge. It must try to uncover the general principles behind the masses of particular findings: It must eventually come up with a "theory." There is surely no disagreement among researchers of any orientation or discipline on this general point although opinions substantially vary on how such a theory should look, both in general and in the particular case, what might constitute a sufficient factual base for it (Newton's *hypotheses non fingo* seems no longer trendy), or how to evaluate the relative merits of more theoretical versus more descriptive contributions.

Language acquisition research is no exception. Indeed, be it due

to the steadily increasing stock of knowledge about acquisition or be it due to the mysterious meandering of scientific fashion or to both, the need for a theory of acquisition is more urgently felt than ever. This need holds for first- and second-language acquisition studies; especially in the latter case, the lack of a theory has become almost traumatic for some researchers. The reason is historical: The field originally developed from language teaching, and it was, and often still is, seen as an application of linguistic and psychological insights rather than as a research domain in its own right. It lacks the glamour of a true scientific discipline, and hence it tries to obtain this glamour from other, more reputable areas: first from psychology, notably psychology of learning, and more recently from theoretical linguistics.

I think this attitude is understandable, but basically wrong. One surely should keep an eye on what is going on in neighboring fields, but the study of developing systems should be a research field in its own right, and linguistic theory can benefit from it as much as vice versa.

The process of language acquisition has a number of obvious and salient characteristics, and a theory which does not take these characteristics seriously does not qualify as a theory of acquisition, no matter how elegant, precise, and appropriate for other fields it may be.

The aim of this paper is straightforward. I will list and comment on seven elementary facts of language acquisition that any theory of this field must take into account if the label "theory" is meant to be more than a self-awarded stamp of quality.

## "Language acquisition is a difficult and cumbersome process which extends over many years until full mastery is achieved."

This statement is obviously true for second-language (L2) acquisition, where full mastery is rare, anyway. It is not always realized, however, that the statement holds for first-language (L1) acquisition as well. We are sometimes surprised and pleased how rapidly children grasp certain features of the language to be learned, especially if they are our own children. However, this impression must not lead us to premature conclusions. Clearly, a normal child rarely shows

phonological errors at the age of four, that is, after about three years of learning, and not many morphological errors at the age of six. This age is also the time by which most important rules of syntax are mastered - but clearly not all. The difference between *him* and *himself,* felt to be a crucial phenomenon of English syntax by many linguists, is not yet systematically mastered at the age of seven (Dutch and Koster 1982; Solan 1987); at this age, by far most children consider *him* in *The dog told the horse to hit him* to be co-referential with *the horse.* Many children do not master the *tough-to* construction at the age of eight (C. Chomsky 1969). There are numerous other examples of this sort, as one may find in any comprehensive text on language acquisition.

The point here is not whether children are able to understand and to make themselves understood (this they may achieve much earlier), nor whether they know some unusual lexical item or inflectional form (this often adults never do). The point is rather at what age they master the full structure of their language. Even if we assumed, counterfactually, that they do so at school age, the process of language acquisition extends minimally over five years. Why such a long time? There is at present no straightforward answer to this question, but I think any serious theory of language acquisition has to take a stand on it.

As is well known, a number of theories of language acquisition have been partly inspired by exactly the opposite direction.[2] Hornstein and Lightfoot (1981), for instance, state that "... this complex but fairly uniform mature capacity is attained in a remarkably short time, without much apparent effort, conscious thought, or difficulty" (p. 10). The problem which arises under this assumption can be accounted for by stipulating that a great deal of the structure of the language to be learned is already there and that only a few gaps must be filled by appropriate triggering; in more recent terminology, some open

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2. It should be stressed that the 'relative speed and ease of acquisition,' though customarily referred to, was never the key argument for a rich innate structure, as far as I can see. More important was the supposed 'poverty of the input," exemplified by the many ungrammatical structures which it contains or the non-appearance of some structures. I do not think that this argument actually stands, either. See discussion of this point below.

parameters must be set. Such an assumption is clearly not justified by time constraints; on the contrary, children have all the time in the world to acquire the structure of the language, and they actually take it. Note that this situation does not falsify the notion of a rich innate structure, but neither can the existence of such structure be motivated by the speed and ease of the acquisition process. The justification, if any, has to come from somewhere else, from the possible poverty of the input, for example.

It is interesting to compare this case to another famous argument over a developmental theory: Darwin's theory of evolution. A crucial problem of Darwinian evolution is the long time it needs to bring about the present state of the animate world. Clearly, the 6000 years allowed this world by Bishop Usher in accordance with the testimony of the Bible and with Newton's calculations would not suffice. Under this assumption, the idea of a Darwinian evolution must be false, the creation of the world must have been a short-term process, and a reasonable theory of it could even consider it to be instantaneous (or six days long). A more serious argument along these lines was raised by the leading physicists of Darwin's time, who estimated the age of the earth to be no more than about 20 million years - still by far too short for Darwinian evolution. This estimate was clearly a much more demanding challenge to Darwin's theory than Bishop Wilberforce's eloquence, and, indeed, no solution was found in his days. Only at the beginning of this century was convincing evidence provided that the earth was much older, hence that there was probably enough time for Darwinian evolution.

## "Language acquisition is essentially accumulative."

This point is related to the previous one, but it is not the same. What is meant is this: It is not just an accidental fact that not everything is learned at one stroke; you must have accumulated some knowledge in order to be able to add further knowledge. This task may be accomplished in various ways, and how it is done is an empirical question. In any case, the process is essentially, and not just accidentally, accumulative. Ignoring this fact creates a number of

puzzles which immediately disappear as soon as we consider the time-course of the acquisition process. One of these examples can be illustrated by the following argument used by Chomsky on various occasions, for example, in Chomsky (1975):

> Imagine our neutral scientist, observing a child learning English. Suppose that he discovers that the child has learned to form such questions as those in (A), corresponding to the associated declaratives:
>
> (A)    the man is tall - is the man tall?
>        the book is on the table - is the book on the table?
>        etc.
>
> Observing these facts, the scientist might arrive at the following tentative hypothesis as to what the child is doing, assuming now that sentences are analyzed into words:
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> > *Hypothesis 1:* The child processes the declarative sentences from its first word (i.e., from "left to right"), continuing until he reaches the first occurrence of the word is (or others like it: *may, will,* etc.); he then preposes this occurrence of *is,* producing the corresponding question (with some concomitant modifications of form that need not concern us here).
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> This hypothesis works quite well. It is also extremely simple. The scientist has every right to be satisfied, and will be able to find a great deal of evidence to support his tentative hypothesis. Of course, the hypothesis is false, as we learn from such examples as (B) and (C):
>
> (B)    the man who is tall is in the room -
>        is the man who is tall in the room?
> (C)    the man who is tall is in the room -
>        is the man who tall is in the room?
>
> Our scientist would discover, surely, that on first presentation with an example such as *the man who is tall is in the room,* the child unerringly forms the question (B), not (C) (if he can

handle the example at all). Children make many mistakes in language learning, but never mistakes such as exemplified in (C). If the scientist is reasonable, this discovery will surprise him greatly, for it shows that his simple hypothesis 1 is false, and that he must construct a far more complex hypothesis to deal with the facts. The correct hypothesis is the following, ignoring complications that are irrelevant here:

*Hypothesis 2:* The child analyzes the declarative sentence into abstract phrases; he then locates the first occurrence of *is* (etc.) that follows the first noun phrase; he then preposes this occurrence of *is,* forming the corresponding question.

Hypothesis 1 holds that the child is employing a "structure-independent rule" - that is, a rule that involves only analysis into words and the property "earliest" ("left-most") defined on word sequences. Hypothesis 2 holds that the child is employing a "structure-dependent rule," a rule that involves analysis into words and phrases, and the property "earliest" defined on sequences of words analyzed into abstract phrases.[3]

To be clear, Chomsky does not make a particular claim about acquisition here; rather, he uses this example to demonstrate that a sentence is not just a linear sequence of words, but a structured string containing in particular an NP from which one must not extract a finite verb. This view is correct, although perhaps not in need of demonstration, and there is no argument as long as only the existence of structure is at issue. The point becomes interesting as soon as one asks how it is possible that the child unerringly obeys this structure instead of simply fronting the first *is,* that is, when the argument is turned into a case on acquisition (see, e.g., Fanselow and Felix 1987, p. 110-112). The child must somehow have access to this structure, but how? This question must be mysterious, indeed, for anyone operating with the idealization that the process of acquisition can be regarded, without

changing the nature of the problem, as instantaneous.

In fact, however, the process is accumulative, and the accumulative nature is not an accidental feature from which one can abstract away; it is essential to the process. What happens is roughly as follows. Children initially learn utterances like *Daddy is tall, the uncle is tall,* etc. They also learn utterances like *Is Daddy tall?, Is the uncle tall?,* etc. In addition, they learn that these two sets are somehow pairwise related, a relation which we can describe by some transformation **FRONTING,** which turns *NP is ADJ* into *Is NP ADJ.*[4] Learning this relation is, of course, not the end of the acquisition process. Children may work on their little NPs by enriching them with adjectives, genitive NPs, or relative clauses such as, for instance, *who is here.* But there is no reason for children to change their previous rule **FRONTING** - unless there is evidence to the contrary. There is no particular puzzle here, although there are a number of empirical problems about the details of this developmental process.

We may put this view in more general terms: If we truly want to understand the process of language acquisition, we must consider its time-course.[5] What learners acquire at a given point in time is only

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4. **This account admittedly makes a long and complex story short, but it illustrates the point. In fact, it is not easy to see how a child manages to relate these two types of structures to each other. Clearly, it is somewhat of a baroque metaphor to say that the child might go from left to right until the first *is* is encountered when processing the declarative sentence, good enough for the argument, but hard to make precise. Readers interested in a more comprehensive account of the acquisition of questions are referred to the literature, in particular to Labov and Labov (1978).**

5. **Felix (1987), being aware of this point, suggests a distinction between the "logical problem of language acquisition," on the one hand, and the "developmental problem of language acquisition," on the other. It appears to me that the former is simply the latter, if the time-course is ignored: It is a problem created by an unfortunate abstraction. It is like the problem of how it is possible to climb a mountain, a problem which gains a new dimension if we ignore the many intermediate stages that it normally involves. There is, of course, a "logical problem" of climbing a mountain, if we consider first only the stage where the possible climber is in the valley and then only where the cumber is on top: how is it logically possible to overcome gravity, which is, after all, one of the strongest constraints on the movement of bodies? Does the climber dispose of a hitherto unknown source of energy? Is the climber able to suspend gravity for a time? Difficult questions, indeed, but the logical problem disappears when the "developmental problem" of climbing the mountain is solved.**

understandable  if we take into account what they already have  at  that particular  point in time. Any serious theory of language acquisition  has to model this fact.

The point has been made here for L1 acquisition. It is easy to  see that  the point also applies to the L2 learner - a point to which  we  shall return below.

## "The process of language acquisition presupposes a vast amount of input as well as species-specific learning capacities."

The first part of this claim is hard to prove. It just appears that nobody  has ever learned a language, first or second, up to  full  mastery without a vast amount of input. Admittedly, intuition is no proof, just as there is no proof that everyone must die; it was just observed in all cases so  far.  On the other hand, since there is no convincing evidence  to  the contrary,  and  given  our experience so far, the  assumption  made  here seems  better justified than its opposite, namely, that a small amount  of input would suffice.

The  second  part  of the claim is no less arguable. Indeed,  it  has been  claimed  that other species are able to acquire a language  as  well. Bees,  dolphins,  and  monkeys  have been mentioned. The  argument would  be  more  convincing  if it had been made by a  spokesperson  of these species themselves. In fact, the point is trivial if we understand by language  any  system  of communication. There is no  doubt  that  other species  have such systems. On the other hand, there is no evidence whatsoever to  suggest that any other species does learn something similar to human languages.

There  are  two reasons why I mention the  claim  above  in connection  with the requirements that a reasonable theory of  language acquisition  must  meet. First, there must be  something special in the genetic endowment of human beings which allows them to learn a language.  In  other words, there must be a genetic  component  in language acquisition. The only question is where this component is. There are  other species-specific capacities of human beings. No other animal  has  mastered fire, invented the wheel, built  a  single  neutron

bomb, plays dominoes, or creates value-added taxes. The question is whether the innate component of the mind that allows us to learn a language is a different capacity from the one that allows us to perform all these other feats. We shall return to this question shortly, but in any case, it is clear that a reasonable theory of language acquisition has to take a stand on it.

The second reason I bring up the claim is this: Why do we need that much input? If one imagines how much children hear (or overhear) during the first three years of life, it is amazing how little they make of it. It is not likely that children after that time are exposed to structures not heard before (unless there is a major change in social environment, but this is not the point). The fact is simply that everything is basically there, but not everything can be fully processed. Some researchers have correctly pointed out (see Corder 1973) that there is a difference between "input" and "intake", that is, that part of the input which is processed, or processed beyond mere meaning. This insight is, however, only a name for the problem. Why does "intake" change? There are two reasons. First, the flashlight of linguistic theory sometimes makes us blind to the fact that mastering a language is not just knowledge; it is a skill which includes knowledge. Hence, it needs practice, and thus time. This fact is much more obvious in L2 learning than in L1 learning, but it applies to the latter as well, even though children are perhaps more flexible in this respect, just as they are more flexible in learning many other skills.[6] In any event, having heard some structure once - or twice or even ten times - does not guarantee that you really "have" it. Thus, there might be a purely statistical reason for the vast amount of input needed. This possibility is not a very poetic reason, but there is surely some truth to it, especially on the production side.

The other reason for the change in "intake" is more interesting. Apparently, the capacity to process input changes over time. This

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6. Flexibility, incidentally, is perhaps a major reason for the obvious differences in achievement when learning an L2 in childhood or as adult. We would not claim that there is a "critical period" for learning to ice skate or to play the piano, but when you start as an adult, your final achievement is (on the average) less perfect than that of a child. Mastering language is not just a skill, but it includes an important skill component that has consequences in ease of acquisition and final achievement.

change immediately leads us to the next question which a reasonable theory of language acquisition must address: Which part of our "learning capacity" changes?

What are the possibilities? At any point in their acquisition process, learners can draw on two types of resources (see Figure 1). The first type includes their biologically given faculties to process language; these faculties include peripheral capacities such as hearing or articulation, and central capacities such as memory, thinking, and perhaps others (including possibly some language-specific capacities). The distinction between peripheral and central is not always perfectly clear, but the lack of a precise division should not concern us here. The second type of resource concerns the "available knowledge," that is, all that knowledge to which learners have ready access at that time. The accessible knowledge includes not only knowledge of the world and the course of events in it, but also whatever learners know about the language to be learned. One might have very different ideas about what these components look like, how they interact, and what their relative weight in the whole process might be; there can be no doubt, however, that they all play a role in the acquisition process.

Language Learning Capacities

Biological Determinants

peripheral          central
-auditory           -memory
-articulatory       -thinking
                    -xyz

Available Knowledge
-knowledge about the
 world
-existing knowledge of
 language to be learned
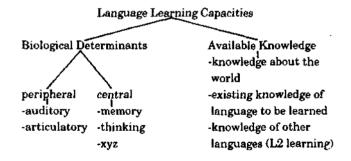-knowledge of other
 languages (L2 learning)

FIGURE 1:
Language Learning Resources

Now one can return to the question of which component changes and is thus responsible for the changing "intake." The first answer is

clearly that all of the components change over the years. They change, however, at different times during the life span and to different degrees. With the possible exception of the very first months, the peripheral capacities remain relatively stable for a long time; at least, between, say, six months and ten years these capacities appear not to undergo any decisive development that could account for the changing capacity to process input. It is much less clear whether the central capacities as such change considerably between, say, two and 50 years. We would all like to believe that our thinking becomes faster, clearer and more correct than that of a three-year old. Our wishes notwithstanding, it is not at all clear whether biological changes in our central capacities are responsible for this desirable development, or whether it is just a consequence of the obvious fact that we have more experience and more knowledge than a three-year old. In addition, we do not become better language learners with increasing age: A six-year old is generally a better language learner than a 30-year old. Moreover, the "intake" (not the input!) changes considerably from, say, three to six, but it is debatable whether there are major biological changes in memory or thinking during this time. Thus, the extent to which the change of central biological capacities is responsible for the changing "intake" is simply an open question. There might be, of course, a special central capacity different from memory or thinking (the "xyz" in Figure 1) which is solely responsible for language and which changes (or "matures",[7] as some would say). We return to this possibility below.

The clearest change concerns the available knowledge, especially after the first year (although world knowledge clearly grows during the

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7. The notion of a "maturing" language faculty seems to have gained some popularity over the last years; see, for example, Felix (1987) as well as Borer and Wexler (1987). This forum is not the place to deal with the notion in detail. The only evidence put forward so far is the fact that the learner's capacity to process input changes; this change, however, is no argument that the language faculty matures. This is a minor problem, perhaps. The real problem is that it is difficult to see how the idea of a "maturing language faculty" of the mind could ever be falsified. The point is not that one cannot talk about maturation of the mind; it is all too easy to do so. Note that the situation would be quite different if claims were made about cellular or glandular development. I think we should leave the notion of maturation to real biologists and to camembert producers.

first year as well). Hence, it would be natural to assume that the difference in what can be, and actually is, processed from the flood of input is largely due to what knowledge is already available at a given point. At least, it would be very strange if the permanent changes in this respect did not affect the ways in which the learner deals with what remains to be learned from the input. Moreover, it would be most economical for a theory of language acquisition if the entire acquisitional process could be explained in terms of changing accumulated knowledge rather than in terms of changes in the biological component of the language-learning capacity.

The point of this argument is this: A reasonable theory of language acquisition cannot assume a stable "language-learning capacity." It has to operate with a "learning capacity at $t_1$," where $t_1$ is some period in the acquisition process. What the changes are and how they affect the acquisition process are empirical issues.

## "The input consists of sound waves and of parallel situational information."

The language to be learned becomes accessible to the learner in the form of sound waves - longer or shorter stretches of audible, but unanalyzed speech. (For simplicity's sake, I ignore written language here, although it may play an important role in L2 acquisition.) The sound stream does not include little labels like "NP," "VP," "classifier," or "infix." Its segments do not have a structure or carry meaning for learners as they do for those who know the language in question. There are two exceptions. First, learners may have a teacher who analyzes the sounds for them. This exception explains why tutored L2 acquisition is in at least one crucial aspect different from L1 acquisition and from L2 acquisition via everyday communication. Second, learners may already know bits and pieces of the language to be learned. In this case, present "available knowledge" allows them to analyze parts of the sound stream - albeit exactly those parts which they need not learn any more.

If learners only had the stream of sounds, then they could practically never learn anything new. This situation constitutes what one might call the "locked-room mystery of language acquisition."

Suppose a person were locked into a room where Malayalam was played over a loudspeaker - for hours, days, weeks, months. Even after years, the person would not have learned Malayalam, except perhaps for some features of the phonology. In order to learn Malayalam, the person also needs a large amount of "parallel information;" that is, the person must see and hear what people do when they produce these streams of sounds. This necessity concerns not only the lexical meaning of words, but also the structure of sentences. For instance, standard German has many sentences that are verb-initial and have a null subject. In order to understand this important feature of German syntax correctly, a person must know that it goes with a special communicative intention on the part of the speaker (*Mach das Fenster zu, bitte* - "Close the window, please"). Nothing in the sound stream provides this information" It is part of the "parallel information" which must be processed simultaneously. What the nature of this "parallel information" is and how it operates in the process of language acquisition is an open, interesting, and extremely difficult question. It is perhaps the central question of language acquisition. At present, it is hardly more than an area of tentative assumptions (see, for example, Slobin 1985 and, for L2 acquisition, Klein 1986, Chapter 4). One point should be clear, however. A theory of language acquisition in which this "parallel information" is not a key concept cannot even remotely explain what it is meant to explain: language acquisition. It is worthless for this purpose. I am stressing this point because there are several ambitious theories of acquisition which suffer from exactly this deficit. These include most theories in the "learnability" paradigm (although surely not all; Pinker (1984), for example, is an impressive attempt to tackle some aspects of the problem). They also include some formal theories of language learning in which the input - to the extent it is felt to be necessary at all - is processed by a special parser (see, for example, Berwick and Weinberg 1984). It is not easy to imagine a parser which successfully handles the Malayalam sound stream in a locked room, that is, derives the language-specific rules of Malayalam without any access to and systematic integration of on-going "parallel information."

## "The target of the acquisition process is to interrelate expressions and meanings."

This point is related to the preceding one, but it is not to be confused with it. by the deliberately global term "parallel information" used above, I mean all that information which, in a given learning situation, is accessible to learners in addition to the sound stream. It allows learners to find out how expressions are structured in the language to be learned and how they are related to particular meanings. Structuring, however, is not to be equated with particular meanings, just as the sound stream is not simply to be equated with "expressions," so long as learners cannot analyze it. Sound stream and parallel information are the **sources,** expression-meaning pairs are the **targets** of the acquisition process.

Language acquisition, both first and second, is a directed process with a clear target, and we cannot understand this process - and hence cannot have a reasonable theory of it - with keeping in mind what this target is. The eventual aim of learners is not to know how to build a certain expression when they want to express a certain meaning in a given situation.[8] It is with this aim in mind that learners operate on the sound stream and parallel information. In other words, learner ideas about how a certain expression is structured are driven by the idea that this expression and the rules on which it is based should make some sense - not some sense in general, but some specific sense. This idea does not mean, of course, that learners might not sometimes use constructions, the meaning of which they are totally wrong about or do not know at all. In the former case, however, learners will give it up after a while; in the latter case, learners continue to operate on it until the meaning is discovered. Observations of this kind do not violate the general principle that during the acquisition process, the rules which

8. For simplicity's sake, I am talking here about the production side only; the analogous argument holds for comprehension, of course.

9. There is only a limited number of studies on this point in the literature; for L1 acquisition, see especially Slobin (1985) and Clark (1987) and the literature cited there; for L2 acquisition, see von Stutterheim (1986), Chapter 1.3.

the learner assumes must be meaningful; they confirm it.

The common way to state specific acquisition problems often blurs this issue. We should often say, for example, that a child or adult who tries to learn French has to learn the rules of clitic placement. Such a statement is not wrong, but it is indeed misleading. What the learner has to learn is roughly this: "If, in French, some entity is referred to, and if this entity is not in focus, then put the word *le* or *la* in front of the verb" (and analogously for the comprehension side). Or to take another example, there are several studies on how people acquire relative clauses in different languages, but the **aim** of these efforts is not to learn how to construct relative clauses in a particular language, although they clearly learn how to do it. This is only part of a meaningful task. What the learner wants to know, and eventually learns to do, is how to express, in a particular language, a property of some object or person, such as the property of a book to be cheap or to be liked by a person "John"; languages have various ways of accomplishing this, including constructions which we call relative clauses, and it is for this reason that learners eventually learn relative clauses. Just as children learn to tilt cups as they learn to drink from them.

Ignoring the fact that expressions are usually considered to be meaningful can lead to a number of bizarre problems. As is well known, children sometimes express the idea of the past event of "going" with the form *go-ed,* just as they express the idea of some past event of "walking" with the form *walked.* After a while, they give up this way of expressing "going + PAST" in favor of *went.* This retreat is sometimes felt to be surprising because they are hardly ever explicitly corrected. I do not see that there is anything surprising about the retreat, given (a) that children also have to analyze the recurring *went* in the input and that, as a consequence, they discover that the meaning "going + PAST" is expressed by everybody else as *went* and (b) that they normally take their ideas of how to express something from how it is expressed by everyone else. The retreat might be a mystery, however, if one ignores what *go-ed* and *went* are used for.[10] Or consider the relative-clause

10. I do not claim, incidentally, that all problems of "lacking negative evidence" can be handled in this way. But many. For a recent survey of "negative evidence" and the various solutions, see Bowerman (1988).

example. Some languages express relative clauses with constructions like "the book such that John likes it," that is, with an explicit object pronoun. Structurally, it would also be possible to have some other object in this position, for example, "Mary," but such constructions never occur. How does the learner avoid them? On purely structural grounds, we might be forced to stipulate some special constraint on relative-clause formation, either explicitly to this effect or as a consequence of some other, more abstract structural constraints. In fact, the problem never occurs for the learner who tries to find ways to say something about some objects: It is a possible property of some book that a person "John" likes it, but it is, as far as I can see, not a possible property of some book that "John likes Mary."

Let us conclude with a brief look at another argument which is often put forward in the acquisition literature, the "poverty of stimulus" problem (see Note 2). One aspect of this argument is the assumption that the input which the learner obtains is deviant in many respects: full of hesitations, pauses, false starts, ungrammatical constructions, etc. Let us ignore the possibility that the linguist's ideas of grammaticality are occasionally somewhat different from the ideas of the average native speaker. Then, a great deal of the phenomena mentioned are simply irrelevant to the point. Pauses or hesitations normally do not affect grammaticality; similarly, repairs often obey rigid grammatical constraints (see, e.g., Levelt 1983). However, the input surely also contains utterances which one would not predict from a grammar book. Take, for instance, a repetition like *Give me the the the plate.* Utterances of this type are not infrequent, yet children never develop a rule that there is a determiner consisting of *the* repeated three times. Such a determiner does not make sense, in contrast to the simple determiners *the* or *a.* These determiners have a clear and recognizable function. Let us assume, for the moment, that *the N* has the function of indicating that the referent of the NP was mentioned before, whereas *a N* indicates that previous mention was not the case (in fact, the situation is more complicated, but the full picture is irrelevant to the argument). We can assume that the child keeps track of what has been mentioned before, at least for a while, and thus will identify this functional difference after some time. There is no such functional contrast between *the the the N,* on the one hand, and *the N* or *that N* or

*three  N* or *a N,* on the other. Hence, there is no way in which  the  child could  ever  make  sense  of  the  construction  *the the the  N*  and, consequently,  the  construction  will  not  be  included  in  the  child's growing repertoire of linguistic devices. This is a problem, of course,  for any  acquisition  theory  which only looks at the  occurring sequences of sounds  and  syllables,  but if learners were thus constricted, we could never  understand  how someone can learn a language. Children  do  not learn "bare" structures - they learn meaningful structures.

## "Language acquisition is the result of many essentially interacting processes."

Mastering  a language involves mastering rules of  various  types: phonological,  morphological,  lexical,  syntactic,  as  well  as  rules  of discourse organization. All of these rules are either there right from  the beginning, or they  must  be  learned. As for  the  latter,  they  are  not learned  one domain after the other: first phonology,  then  morphology, etc.;  the  acquisition process simultaneously affects all of these  domains (or modules, perhaps). This is clear and not denied by anyone. However, development  is  not just parallel; it is essentially  interactive.  The development  of some syntactic rules, for example, is often - though  not always  - dependent on the development of a rule in some other  domain, say, a phonological rule, and vice versa.

There  are  many  phenomena  that illustrate this  point.  Let  me take  one from German. One of the most salient rules of German  syntax concerns the position of the finite component of the verb (in contrast  to the  lexical component, which may, but need not, go together with it).  It is  sentence  initial in some interrogatives, in imperatives, and  in  some conditionals;  it  is  sentence final in subordinate clauses, and  it  is

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11. Note that the whole point of "meaningfulness" made in this section has nothing to do with the "autonomy of syntax" argument. It would be utterly confusing to equate syntax  with semantics, or to assume that syntactic rules are in some way  "determined" by semantic rules. After all, L2 learners basically want to express the same  meanings, just in  a  different language, with different syntax, morphology, etc. They do not just learn new rules; they learn to express certain meanings by certain new rules.

preceded by one and only one constituent (subject, object, adverbial) in declarative main clauses. This rule is important for learners to acquire. In order to do so, learners must be able to identify what the finite component of the verb is. The only way to identify this component is by its morphology. Hence, learners must know the verb morphology - not necessarily the complete paradigm, but enough of it to identify the finite verb. In contrast to English, this task is far from being easy in German (Mark Twain's famous remarks on German highlight the point). In particular, German finite verbs - as well as uninflected words - can end in rather complex consonant clusters like *-ltst* (as in *hältst)* or *-rgst* (as in *würgst).* Decomposing such clusters is often a difficult problem for learners, especially for L2 learners with a native language like Spanish or Chinese. This difficulty clearly hampers their recognition of verb morphology, hence the identification of the finite verb and, as a consequence, the acquisition of a central syntactic rule of German.

All of this does not mean, of course, that learners must first complete a phonological analysis before they can seriously attack other, higher rules; actually, morphological or syntactic rules may, at a given point, facilitate the phonological analysis. The example only illustrates that processes in one domain are affected by processes in some other domain. Thus, we should not be surprised that in L2 acquisition some learners have difficulties with some structures and others do not, even though their native languages do not differ with respect to the corresponding structure; the reason may be in some other domain (or module).

There is a clear consequence: If we want to make a claim about development in one domain, say the syntax or the lexicon, we must also keep an eye on the other domains. The fascination that the idea of a "modular approach" has created - whether justified or not - must not lead us to forget that these modules, in whichever way borderlines are drawn between them, interact at some point. This fact holds as well for acquisition, and a theory of language acquisition that does not deal with this interaction misses its objective in a crucial aspect.

## "Principia non sunt multiplicanda praeter necessitatem."

Occam's razor applies to all theories, and theories of language acquisition should be no exception. There is a widely-held view in the literature, according to which the species-specific capacity of learning and using a language cannot be solely accounted for by those cognitive capacities of our mind (or brain) which are also operative in other cognitive domains. There is a special part of our mind (or brain) - call it the "language module" - which, of course, interacts with other parts (without a memory, it is not easy either to learn or to use language), but which is not shared by any other part of our mind (or brain). We briefly touched upon this point above in connection with the changing capacities of exploiting input.

I think the question of whether there is such an extra "language module" is not easy to settle, given the present state of knowledge about language in particular and cognitive capacities in general. What is clear, however, is the **research strategy** in such a situation. A theory which can do without the assumption of a specific "language module" is much better than a theory which requires the assumption. This point is a simple consequence of Occam's razor. If everything can be explained without an extra cognitive capacity, why assume it? It may turn out, of course, that indeed not everything can be explained without special assumptions. This result would be a highly deplorable fact which one possibly has to face at the very end. It would be, however, unwise to begin with it.

The temptation to stipulate an extra capacity for language is understandable. After all, language is something special, and at present we cannot account for all of its peculiarities. On the other hand, life itself is something special: No one would deny that there is a difference between a living tiger and a dead tiger. It is not surprising, then, that at least until the end of the last century, many researchers assumed that there is some special property, a "living force," "élan vital," "Lebenskraft," which distinguishes living from dead beings and which cannot be explained by general biological or chemical processes. By now, most researchers have given up this notion, not because it was definitely falsified - it would indeed be difficult to falsify - but simply because it

was no longer needed. Clearly, a century ago, the issue was much more open, and given how little was known in those days about biological and chemical processes, the assumption of a "living force" was not an unreasonable one: It accounted for many phenomena which we find in a living, but not in a dead organism.

To be clear, I do not want to belittle the idea that there is an extra "language module" in our mind which plays an important role in language acquisition and use. However, a theory of language acquisition which does not need this extra "principium" would be a better theory. Hence, we cannot rule out the existence of such a capacity, but we should avoid this assumption as long as possible.

## Conclusion

In this paper, I have discussed seven basic requirements which, to my mind, any reasonable theory of language acquisition must meet. There are others, no doubt, but even for those mentioned, I do not see any existing "theory" which would even remotely satisfy them. I personally think that at present, we simply do not know enough to proclaim a serious and comprehensive theory of language acquisition. At present.

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