Notes on language change and grammar change

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1 Introduction

1.1 Overview

In this paper two different approaches to language change are presented: First, the E-language approach of traditional historical linguistics, in which language was studied as an entity and where the interest lay in its group properties, and second, the shift towards an I-language approach, in which the individual properties are central.

Following the generative view, children are internally endowed with Universal Grammar (UG), and they develop a grammar, a mature linguistic capacity, on exposure to primary linguistic data (PLD). It is important to make a distinction between the two notions grammar and language: GRAMMAR is an internal, individual system represented in people's mind/brain (I-language), whereas LANGUAGE is a group product of those systems and their use (E-language) (cf. Chomsky 1986). Likewise, we must distinguish between I-language changes and E-language changes: E-language changes are changes in the triggering experience (PLD), paving the way for a possible I-language change, a formal change in the grammar that takes place with a new generation acquiring the language.

The explanatory success of a diachronic change includes a three step process, with a) innovation of variation (E-language change), leading to b) acquisition-based grammar change (I-language change), and c) presumably two very different kinds of diffusion, beginning with gradual diffusion in language

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use. The first process involves *historical* (or *genetic*) explanations, typical for evolutionary phenomena and often exemplified by the results of the historical-comparative method in linguistics, while the second process involves a *theoretical* explanation, typical of current generative grammatical research. The traditional view is that changes in the E-language reflect changes in the I-language (thus, such concepts as grammar competition, cf. Kroch 1989b). This leads us to the question of what exactly the E-language then is. Cues are generally taken to be certain elements of I-language in the input, but the input is E-language tokens. The notion of cues, then, (or parameter expression) defines a relation between E-language tokens and I-language parameter values. Roberts and Roussou (2003) and Trips (2001) argue for a crucial distinction between the notion of cues and the notion of parameters. In Lightfoot's (1999a) cue-based acquisition, on the other hand, cues are fragments of the trigger experience a learner is exposed to, a part of a structure, whereas parameters are abstract properties of grammars. Hence, the parameters are the cues.

1.2 Language versus grammar

Within generative theory, the language system is generally conceived of as an internalized grammar. Hence, *grammar* is the cognitive capacity which determines what the shape of well-formed linguistic expressions are for the individual speaker. This notion of grammar is related to Chomsky's (1986) distinction between E(xternalized) and I(nternalized) language, where he claims that UG can be viewed as a function that maps observable utterances (an E-language) into an internalized grammar (I-language). The E-language is the set of sentences in the linguistic environment, whereas the I-language is the mental or internalized grammar that is developed on the basis of UG and the E-language. The two concepts are complementary as E-language represents observable linguistic expressions produced by a community and I-language represents the knowledge that the individual speaker puts to use when producing and perceiving linguistic expressions. That is, the processing mechanisms

involved in producing and comprehending utterances are claimed to be separate from the grammatical knowledge (competence) in the mind.

It is implicit in Chomsky's (1999) work that language variation may be a part of E-language rather than I-language. However, the I-language must still be able to derive all the variables. That is, the I-language's computational system must have the ability to make all the variants possible.

Grammar can be defined as a set of parameter values, and it is generally assumed that there are no changes in the grammar after the Critical Period. It consists of mental entities that arise in the mind/brain of individual speakers as they are exposed to the trigger experience, the input available to the child during language acquisition. The final state of children's mature capacity is a grammar. In other words, grammar is the cognitive structure that is used in producing and comprehending utterances, it is situated in the mind of an individual speaker and it contains all knowledge about the language. As the grammar of individual speakers is acquired on the basis of the trigger experience, the PLD they are exposed to, speakers may end up with slightly different grammars. *Language*, on the other hand, is the output of certain people's grammars, and it is generally assumed that changes in the E-language may take place after the Critical Period. It is an external entity, postulated to come into existence across a series of speakers along a certain time span. It is an actual occurrence of the product of human behavior in communicative interaction, as it is pronounced, grammatically structured, and semantically and pragmatically interpreted. Hence, it is the population of utterances in a speech community (see Croft 2000: 26). E-language is further a specification of the set of implementation strategies relating I-language constructs and their realizations in E-language (the user's intentions). In other words, it is a conception of language as a 'social practice', involving complex sociopolitical, historical and cultural elements (cf. Chomsky 2000: 49-50).

We can assume substantial changes in the E-language, such as alternations in frequency, without there being an immediate change in the I-

language. These would then reflect gradual (E-language) changes in the PLD, paving the way for an acquisition-based grammar (I-language) change. We can also assume that E-languages are the by-products of the diffusion of parameter settings associated with I-languages, where the diffusion takes place via further instances of acquisition.

2 From traditional language change to internal systems

The nineteenth century scholars were concerned with finding out exactly how the contemporary languages had evolved. They looked at historical relationships to find the ancestral language. Language was observed as an external object, that changed according to fundamental laws, and it was believed that with enough research, these laws could be discovered. These linguists were primarily interested in sound changes – how one sound is replaced with another sound, and presumably, given enough of these cumulative sound changes, how the language would have transformed into a different language.

Eventually, it was believed that sound change was the principal manner in which languages changed, and that these changes were regular and systematic, and exceptionless. This manner of looking at change reflects the way *language* was perceived to be, a language was an object that had an independent existence. It did not seem to exist in the minds of its individual speakers as such, but as a property of the race, and changes were hence seen to be symptomatic of the people who spoke the language. The believers in this exceptionless regularity were called neogrammarians (*Junggrammatiker*). The research had mainly been done on Germanic and Romance languages, so the "evidence" was only valid for these languages, and their scientific evidence was based on the comparative method solely, wherein two languages are compared, and the differences are used to reconstruct a language they had no record of (Proto-Germanic), which again were used to reconstruct Indo-European.

However, the notion that language change is the same as law governed sound change does not give any explanation as to why the change took place.

After 1878, the interest shifted, and the scholars now wanted to find the *causes* for change, but they did not get very far. One early, possible explanation came from Rask (1818), who claimed that all change is towards something *simpler*. This does not explain the reason why, though, and *simplicity* was not defined. Another possibility lay in Darwinism, which inspired linguists to look at languages as organisms, which compete with each other for survival. Language was direction-driven, towards survival against others, but again, this does not explain exactly why some survive and some die out, or why one specific change should be better than another. Mainly one kind of scientific evidence was involved here, the comparative method. By this method, a common source is postulated for corresponding forms in different languages; the corresponding forms are derived from the common source by sound changes. Changes were taken to be directional as in biology, with languages changing in systematic ways, following fixed developmental laws, but there was active disagreement about which direction that was.

De Saussure (1915) gave linguists a new direction; that of "synchronic linguistics" – the study of languages as systems existing at a given point in time. For de Saussure, a language was an entity that has existence in a society. There is a distinction between the physical manifestation of language; *parole*, the sounds that people produce, and the underlying system of *langue*, which is what those physical manifestations exemplify. For de Saussure, as for the historians, language was an entity with a seemingly independent existence. Prior to de Saussure's (1915) work, there did not exist a clear distinction between synchronic and diachronic linguistics; until then all work was diachronic. Saussure was the first to make a clear distinction between the notions of *synchrony* (the study of language in its static states) and *diachrony* (the study of language in its evolutionary stages). An important responsibility for the neglect of the study of language changes at this time is a consequence of emphasizing that the study of language structure from a synchronic viewpoint was a necessary prerequisite to the study of language change. The study of language

change, thus, was pushed aside for a long period of time. Besides, studying language change did not seem to be consistent with the current theories of synchronic linguistics.

Structuralists mainly studied the language structure (grammar) as a whole system, and assumed that the grammar could conceal a tendency towards harmony and simplification. They considered the language structure to be both independent and isolated, it is a community of the units of the language, working together, and fighting against each other, but the language users themselves are not really involved. The language structure is able to change itself in order to establish a harmony between the units of the language. The changes are *internal* and the language users are more like 'consumers' that do not have any other choice but to reflect the change in their language. Hence, we should expect the changes to occur at the same time through the language community instead of spreading from one user to the next. Since the changes are internal, due to a fault that needs to be repaired, it is natural to assume that this need does not only arise with one user, but everywhere where this language system exists. In sum, linguistic change takes place when the language structure changes itself. However, the question of how the system is able to change itself is left unanswered.

For the major part of the twentieth century, synchronic linguistics was considered to be prior to diachronic linguistics. One of the major problems of this view has to do with the directionality of change. It became central to the evolutionary view of biology at the time that the replacement of old species by new is not merely a process of random changes, but rather a movement from lower to higher; mutations which succeed in spreading are those which give their possessor an advantage in struggle for survival, while disadvantageous traits are eliminated.

In sum, traditional approaches to linguistic study saw language as external, as an object whose properties could be studied independently of its speakers. The historicists saw language and language change as something

relating to sound changes, which again was related either to something specific about a language's history, or by determinative forces of directionality, that languages followed a fixed development path (often towards simplicity), without giving a satisfactory definition of what the term meant. De Saussure and the descriptionists also looked at language from this external viewpoint. Saussure's notion of language as a social fact, existing in a language community rather than in individual minds, implied that change can only happen in the *parole*, in language use or production (E-language), because individuals do not have access to the *langue*, the system, as it exists in the collective mind of a society. Hence, the traditional view was to look at a speaker's output, in order to describe the properties of the language. The aim was not to discover general theories about language, but to describe a specific language under study. Languages were believed to have limitless diversity, so that no general theory was to be found. Under this traditional view, all changes in how individuals speak is therefore taken to be a change in the external production, in the *language*.

Chomsky (1986) distinguishes between language *competence* and language *performance*, in a similar fashion to de Saussure's *langue* and *parole*. The initial state, or UG, is a highly structured system of abstract principles and parameters, and the language learner 'sets' these parameters according to exposure to the language around her. What is attained by the learner is not a *language*, but an internal *grammar*, and changes, according to this view, take place in this abstract grammar, not in the performed language. A person's grammar competence (knowledge and understanding) is different from her performance (what she does with that knowledge). This difference between competence and performance is generally known as I-language versus E-language.

The most important consequence of this biological view of linguistics is the claim that language is a mental object related to the individual speaker (cf. e.g. Chomsky 1986: 21ff.). This, in turn, advocates a shift in focus from the

study of E-language to the study of I-language. Hence, the standard generative conceptualization of language became one where language is treated as species-defining genetically inherited phenomenon, where fundamental aspects of our knowledge of language is genetically determined or innate. Linguistics is thus a part of the scientific investigation of human nature, where grammar is a part of our mental organization. Our innate grammar (I-language) is clearly a *biological object* and should be analyzed by the methodology of natural sciences. It also follows that the linguistic study must go beyond linguistic description and explain what we know and how we acquire language. The biolinguistic perspective has had major effects on the study of both first language acquisition and language change, as evidence from both language acquisition and change may provide important insight into universal grammar.

Traditional nativist views of language acquisition argue for innate knowledge of the dimensions along which languages vary, emphasizing both the substantive and linguistically specific nature of the innateness and also the directive role of this knowledge in the learning process (Aslin, Saffran, and Newport 1999: 361). Chomsky (2000: 122), for instance, claims that the conditions of language acquisition make it plain that the process must be largely inner-directed, as in other aspects of growth, which means that all languages must be close to identical, largely fixed by the initial state. Hence, language acquisition is similar to the growth of organs generally; it is something that happens to a child, not that the child does (Chomsky 2000: 7). The child, endowed with certain innate capacities, automatically acquires knowledge of a language.

However, we still need a better understanding of the conditions under which grammars can emerge in the mind/brain of individual speakers as configurations of parameter settings with values very distinct from those characterizing the I-languages. We also need a better characterization of the relationship between specific aspects of the trigger experience (PLD) and the attainment of certain parameter values (cf. DeGraff 1999b: 9-11). Furthermore,

how exactly do PLD affect the development of grammatical systems, and what is the relationship between the initial (pre-experience) state of the innate language faculty and fully specified stable grammars (cf. DeGraff 1999b: 12)? Also, the interesting question remains if children really can acquire a language without well-formed input. For example in the creation of Creole languages and in other cases of insufficient language input, what enables them to do this? Bickerton's (1981) Language Bioprogram approaches the question of whether (and if so, how) there could exist a highly specified genetic program for language, capable of producing a well-formed language even if no well-formed language was available as a model. This new emphasis has resulted in a revived interest among linguists to study languages cross-linguistically.

3 Input data and cues

The child-learner must derive her grammar from UG by fixing the values of the different parameters on the basis of PLD. However, we also need to explore how she can do this. We need to assume either a learning theory or cues in addition to UG and PLD.

Clark's (1992) approach to language learnability and acquisition uses natural selection, as simulated by a genetic algorithm, to stimulate parameter setting. By using the P&P-model with a finite set of parameters (with a finite set of possible values), he claims it to be possible to determine the size of the learner's hypothesis space simply by multiplying out the number of parameter values. If so, then the hypothesis space that the learner must consider at any given step in the acquisition process is reduced. In a system where the learner could reset any number of parameters, the hypothesis space would be the entire set of languages allowed by UG. In Clark's system, on the other hand, the number of hypotheses that the learner must entertain is reduced to the number of parameter settings. The constraint reduces the burden placed on the learner because a vastly smaller number of potential hypotheses would need to be sifted through at any given step in the procedure.

The child-learner translates each parameter value into a yes-no question, and then poses the resulting question to her linguistic environment. However, every given sentence that the learner encounters (meets) might be a positive answer for conflicting parameter settings; she might then have difficulty interpreting the relevance of the positive evidence for the linguistic environment. Clark's answer to this problem is that each parameter comes with description of a trigger; an abstract description of a syntactic structure that is decisive for setting the parameter to that particular value. When the child encounters a new input sentence, she would scan the set of parameters to see if the correct item matches a trigger associated with some value.

Clark and Roberts (1993) use this learnability framework to provide an analysis of diachronic change. However, the main problem with this account is that it is unclear whether the syntactic changes really *reflect* a single parameter resetting: Clark and Roberts seem to track the very changes that the new parameter setting is supposed to explain. They propose that grammar change occurs when the target of acquisition contains parameter values that cannot be uniquely determined on the basis of the linguistic environment. This can occur when the evidence presented to the learner is formally compatible with a number of different, and conflicting, parameter settings, although they do not specify explicitly how or why this would come about. They claim that a child must evaluate her hypotheses using criteria that are not purely a response to the external environment; in particular she must also consider factors like the Subset Condition (Berwick 1985) and what they call 'elegance of derivations' (Chomsky 1991). This account also comports well with Kroch's (1989b) view of grammar competition, however it does not explain where the winning grammar comes from.

In sum, this approach is claimed to be able to reduce the logical problem of language change to the logical problem of language acquisition, by relating both to the question of how learners set parameters to particular values.

Clark and Roberts (1993) also study how the fitness metric (of Clark) can model diachronic change. Their answer is that the fitness metric drives the child-learner toward a hypothesis that minimizes the number of violations and the number of superset settings and that generates the most elegant syntactic representations possible, given that grammatical violations are avoided. The fittest hypotheses will reproduce more frequently, and pass on their parameter settings to new hypotheses. Hence, the child will base her new hypotheses on those old ones that are relatively more fit, thus passing on the parameter settings that made those hypotheses fit to future generations. Those parameter settings that avoid grammatical violations relative to the input text will be preserved, and those that tend to generate violations will gradually disappear.

Note that it is implicit in Clark and Roberts' model that the child sets all the parameters at once, as a single unit. That is, they are making the idealization of instantaneous language acquisition, following the idealization of Chomsky (1965), where all parameters, all input data, are immediately available to the child from very early on. Furthermore, as within the standard input-matching models, this model also requires much memory and time. It requires multiple grammar testing on each input: The model records how successfully each grammar tested on a sentence can parse it, and it stores the success scores of all the grammars. However, this model is not meant to represent the actual process of language acquisition, including all actual cognitive and physical mechanisms, but should rather be taken as a metaphor for the process.

Dresher and Kaye (1990) and Dresher (1999) developed a "cue-based" theory of acquisition. Under this view, UG specifies not only a set of parameters, but also for each parameter a cue. As mentioned, Lightfoot (1999a) adopts this view. According to him, a cue is an element of I-language, which is derived from the input. If a cue is found, it is incorporated into the emerging grammar. Learners do not try to match the input; rather, they seek certain abstract structures derived from the input (elements of I-language), without regard to the final result. That is, a child seeks cues and may or may not find

them, regardless of what the emerging grammar can generate; the output of the grammar is entirely a by-product of the cues that the child finds, and the success of the grammar is not based on the set of sentences that it generates, unlike in input-matching models. Lightfoot argues that the child's triggering experience is best viewed as a set of abstract structures manifested in the mental representations which result from parsing utterances; some of those representations constitute partial parses, which lack some of the information found in mature, adult parses.

Now let us consider briefly the difference between Clark and Roberts, on the one hand, and cue-based acquisition (Lightfoot 1999a), on the other hand. One crucial difference is that Clark and Roberts rely on elegance, claiming that this can be made into the basis of a theory of markedness, which is something that Lightfoot's system does not have. Clark and Roberts see parameters as abstract properties of grammars whose values can be manifested in data in various ways. Another important difference between the two proposals is that Lightfoot does not distinguish cues from parameters while Clark and Roberts do, in their notion of parameter-expression, in terms of which trigger is defined. Lightfoot's model, on the other hand, takes the cues to be the parameters, that is, cues are a part of a structure, where various sentence types can express a given cue in different languages. The distinction between parameters and cues might be important for learnability, otherwise we have either too concrete (and hence theoretically not useful) a notion of parameter, or too abstract (and hence unlearnable) a notion of trigger.

Lightfoot (1999b) claims that the crucial difference between the two proposals is that his model does not need to assume perfect input-matching. However, he is incorrect in saying that Clark and Roberts' model is an input-matching one, since their parsing model is driven by elegance. Hence, if we have two grammars that can parse a set of sentences, then the one that actually matches the input perfectly can lose for the other that is more elegant (but does

not as perfectly match the input). However, then the question arises of why all grammars are not perfectly elegant.

4 Language change and grammar change

4.1 Introduction

In this section, we will approach the causality of change; that is, why linguistic change occurs in the first place, why one change takes place instead of another, and why languages do *not* change in many ways, often over many generations of speakers. Finally, we will focus on the distinction between grammar (I-language) change, and the changes in the linguistic environment (PLD) that precede a parameter change, trying to gain a balance between the language of the individual and the language of the population of speakers.

According to Lightfoot (1979, 1991, 1999a), a change in syntax consists of an abrupt grammatical reanalysis within the new generation acquiring the language. This approach assumes grammar change and language acquisition to be intimately connected: The child, due to some specific properties of the input at a given historical period, acquires a grammar which differs in at least one parameter value from the grammar of the previous generation. Lightfoot assumes the learning stage to be the place where grammar change occurs. Two different grammars may have a very similar underlying form, but different motivation and different transformations to derive their surface forms. The position that grammar change takes place during the process of language acquisition is also clearly expressed by Clark and Roberts (1993: 300): “the logical problem of language change cannot be separated from the logical problem of language acquisition”.

It is generally assumed that it is possible to use the generative framework to analyze the grammar not only of one language but also the differences between the grammars of two or more (comparable) languages. Furthermore, grammar change is also simply analyzed as a consequence of a new setting of a given parameter. However, we will show that the generative framework can

only provide us with tools for the descriptive part, and that it does not give us an answer to the question of why the change really took place. Of course, this leads to the question of whether changes are necessary directly for system-internal reasons, or whether some external (social) factors must always trigger the change. If so, how does language acquisition come into the picture? Even in the case of external factors, acquisition is arguably very important for change. In the spirit of Lightfoot (1999a) and Longobardi (1999, 2001), we will argue that syntactic change is not primitive. In other words, syntactic change should not arise unless it can be shown to be *caused*, either as a consequence of other types of change (phonological/ morphological), or other syntactic changes. Furthermore, external factors may cause small changes in the E-language (PLD), and that this may lead to a major change (grammar change) in the next generation's I-language.

In this section, we will focus on the question of why grammar changes take place. We will search for an answer in the nature of language acquisition and its implicational relationship to grammar change, where we will define grammar change as the difference between the grammar (I-language) of the mother and the grammar (I-language) of the child. The answer is, at least partly, to be found in the different parsing of information between generations. However, we also have to answer why the child-learner parses differently from her parents and how we might be able to explain the fact that a certain grammar that has survived for many centuries (many generations) is suddenly replaced. In our search for an answer, we will look at the interpretation process concealed in first language acquisition, along with children's ability to select from and reject information they receive through the language performance (output) of adults and the possible relationship of this selection with linguistic change.

The explanatory success of a diachronic change includes a three step process, with a) innovation of variation (E-language change), leading to b) acquisition-based grammar change (I-language change), and c) presumably two very different kinds of diffusion, beginning with gradual diffusion of language

use. First, we need to answer the question of why the innovation took place, and why we have variables in languages. Second, we need to account for the spreading of the innovation, why it sometimes succeeds and why it sometimes fails. Finally, we need to answer the question of how and why the E-language variables (the innovation of variation) become a part of the next generation's grammar (I-language). Many previous theories of diachronic change only account for one of these processes and thereby miss the link between the variation and the acquisition. It seems to be the case that sociolinguists focus mostly on the first process, the E-language change (and its diffusion), ignoring the second, while generative grammar only provides tools to account for the second process, the I-language change between generations, too often ignoring the prior E-language change in the PLD. In the spirit of Longobardi (2001), we will argue that the first process involves historical (or genetic) explanation, typical for evolutionary phenomena and often exemplified by the results of the historical-comparative method in linguistics, and the second process involves a theoretical explanation, typical for current generative grammatical research.

4.2 Grammar change

The diachronic generative syntax literature has been most concerned with parameter changes, that is, the process when a new generation of speakers sets a parameter of UG differently from the previous generation. The general assumption here is that diachronic study can shed light on syntactic theory in essentially the same way as comparative synchronic study, by revealing clusters of surface syntactic properties that are derivable from a single parameter setting. Hence, diachronic syntax is a kind of comparative syntax, where different I-languages are analyzed and compared, only executed along the *time*-dimension. What makes historical syntax a particular interesting form of comparative syntax is that sometimes, if we have enough appropriate records, we can identify single points of change and prior changes in E-language, what children might

reasonably be thought to have heard, such that we can link the E-language change to the I-language change.

Language acquisition is minimized to word learning and the setting of a finite number of parameters and it follows that a grammar change takes place as child-learners come to set parameters differently from the previous generation. Since the general assumption is that speakers of each generation are bound to base their grammar on UG and the language they hear in their environment, that is, on the language (the output) of the previous generation, it has been claimed that it may seem peculiar and unexpected that any linguistic change occurs in the first place. In other words, it is "unexpected" given the poverty of the stimulus argument. This is also in the spirit of Longobardi's (2001) principle of inertia: Most of the time, nothing ever changes. Bye (2001) discusses what he calls *high fidelity of acquisition hypothesi*s: Given the opportunities to correct misapprehension, errors of interpretation are largely eliminated by the time the child reaches linguistic maturity. Assuming that acquisition gives ample opportunity to correct errors of interpretation, we are still left with a conundrum: How do errors in performance bypass the high-fidelity acquisition process? This is the logical problem of grammar change: Assuming that the end result of acquisition is a grammar which perfectly reflects the adult grammar, how does grammar change arise?

It is concealed in the generative approach to language change that children are expected to converge on the same grammar as their parents, as long as the produced utterances correspond relatively closely to the parents' grammar (see, e.g. Lightfoot 1999a: 431). However, this process is not always so simple, as the E-language (PLD) can include different parsing possibilities. It is necessary to ask two pairs of questions: a) why do languages have histories, why do changes take place and why are languages not generally stable? and b) why do languages *not* change in many ways, and why do they often remain stable over many generations of speakers?

Within the generative approach, the cause of grammar change is by definition taken to include different parsing of certain linguistic phenomena from one generation to the next. However, we also have to ask why the child-learner parses in a different way from her parents and how we can explain the fact that a certain grammar that has survived for many generations is suddenly replaced. As noted by Kroch (2001: 5), the stability of many languages over long periods of time suggests that first language acquisition cannot be very inaccurate. Modern generative theory with the instantiation of UG also makes less room for erroneous learning; since so many principles are innate, the child-learner has to learn less.

Hale (1996: 127) mentions two types of "misparsing" as reasons for grammar changes, which he calls: a) no evidence and b) misparsing. 'No evidence' is taken to include misparsing because of insufficient input. This is consistent with Bickerton's (1981, 1984) Language Bioprogram Hypothesis (LBH): The LBH claims that child-learners will fall back on an innate language capacity (default value) in cases of non-optimal or insufficient language input. See similar assumptions in Lightfoot (1999a), Bruyn, Muysken and Verrips (1999), and Roberts (1999). In short, default or unmarked settings of UG are expected to emerge in the absence of relevant triggering experience. On the other hand, Hale takes 'misparsing' to occur in cases where the child-learner analyzes the input she receives incorrectly. That is, as noted by Lightfoot (1999a: 60-61) and Pinker (1999: 47-48), the child has to analyze and interpret the linguistic phenomena in her language-acquisition environment in order to be able to acquire the grammar of the previous generation. This task is twofold: First, the child has to analyze the surface phenomena in the PLD, and secondly, the child has to draw conclusions about the underlying grammar. Now, if the surface is analyzed incorrectly, the child's goal is also incorrect. In other words, if the child's task is to match her input data, she is bound to fail as she sets out with wrong conclusions. She has misinterpreted the final state. This type of misparsing can arise in cases of, for example, structural ambiguity. This

ambiguity may, in turn, have occurred in the language because of a previous E-language change.

Hence, a new parameter setting may arise either because of insufficient input data for a given parameter setting, or because changes in the PLD lead the child-learner to set the parameter in a new way.

Children only have access to the grammar (I-language) of their parents through their language use (E-language). Therefore it is natural to expect grammar changes to take place where there is no obvious connection between interpretation of the PLD and the underlying grammar. Grammatical phenomena cannot be acquired unless clearly reflected in the output. Hence, a grammar change may take place when there has been a change in the language use of the previous generation, paving the way for a new interpretation. We argue here that it is possible that gradual changes in PLD play a central role in the explanation. Lightfoot (1999a) has argued at length that there cannot be gradual evolution in an acquisition-based theory of change. What we are arguing, instead, is for a gradual evolution within the E-language, leading to an (acquisition-based) I-language change. Lightfoot (1979, 2002 and elsewhere) has also proposed that variation in the grammars of successive generations is responsible for grammar change.

We assume that the E-language can develop gradually between generations, without this causing a major grammar change. In this way, language use can go through a gradual development/changes from generation 1 to generation 2, and so on. This is a natural process of development from one generation to another. At one point in the development, the language use (PLD) may reach a certain threshold where it no longer reflects the underlying grammar (I-language) completely and a grammar change (parameter change) may take place. But why would this happen? We assume the answer to this question to be concealed in (innovation of) variation in PLD. We take the PLD to be influenced by external factors. Hence, we need to assume (at least) two important steps in order to have an explanatory success of a diachronic change:

a) innovation of variation (E-language change), and b) acquisition (I-language change). That is, we must account for both the initiation of the change, the variation and innovations, on the one hand, and the integration of these E-language innovations into a stable I-language, on the other hand. The exposition of these steps are in the spirit of Lightfoot (1991), Roberts (1993) and Willis (1998).

However, many generative approaches in recent literature do not offer a complete explanation of a syntactic change, as they only focus on the precise nature of the parameter change in question, ignoring the prior (external) change in the trigger experience (PLD). The two different steps in the diachronic change, the change in PLD, (the E-language change) and the following I-language change, can be regarded as i) an external change (caused by language contact or (other) changes in the society) and ii) a biological (internal) change.

The essence of the generative explanation of diachronic change goes back to Andersen (1973). The child generates her grammar on the basis of the language the older generation produces, their output. UG and specific parameters in addition to PLD (the E-language of the first generation) are the model for the language acquisition process of the next generation. More exactly, UG or the language acquisition device (LAD) is a function that maps the experience (the PLD) into the steady state attained (cf. Chomsky 1981: 34).

Given that the child-learner indeed does not have any direct access to the grammar of the previous generation, how is perfect language learning possible? Our answer is that it is only possible in cases where the output clearly reflects the underlying grammar. Variation and change in the PLD may lead the child-learner to construct a different grammar from that of the previous generation.

The locus of change within Andersen's model is the acquisition process. As grammar change is assumed to only take place between generations, with a new generation of children acquiring the language, each mature individual I-language is in a steady state as concerns the value of the parameters. Potential change only takes place in the shift from the grammar of one generation to the

grammar of the next. The child-learner makes hypotheses about the grammar on the basis of the trigger experience (the parent's E-language). Then, she must test these hypotheses against more input data, revising them if necessary.

According to Andersen's (1973) and Lightfoot's (1979) model, reanalysis or grammar change then consists of a change of syntactic structure perception by the language learners when exposed to an increased number of sentences which favor one structure before another. In terms of the P&P theory, reanalysis can work as follows: At a certain stage of a language's history, the basic structure of sentences has a certain order of constituents, for example, the object precedes its associated verbal head. If the surface order of constituents follows this underlying structure closely in a majority of cases, this structure will be easily learnable for the new language learner. If for some reason the frequency of derived word order (for example, the verb appearing in front of its object in the surface structure) increases, the child's language acquisition device may assume this order to be underlying, and the other one (as long as it continues to exist) derived. Thus, both the underlying structure and the available transformations in this child's internal grammar will be different from its predecessors'. Once this happens, the number of sentences with the new order might increase in this speaker's idiolect, due to them being "simpler" in terms of her grammar. This, in its turn, leads to a facilitated acquisition of the same structure by the next generation as the amount of such speakers grows. Finally, the older structure will be excluded from the language completely.

We may ask whether it is plausible to assume that two grammars can differ although (parts of the) outputs might be identical. This means that while the different I-languages may generate identical E-languages, the child's and the parent's I-language representation for a certain E-language utterance can differ. Neither the grammar of the mother nor the children's grammar has changed; the change in question is concealed in the *difference* between the two grammars. This is not a development from one stage to the next, but the formation of a new grammar, where the grammar of the former generation is an indirect model, with

the language (performance) of that generation as an intermediary (see Hale 1998: 2-3).

As mentioned, a *language* is mainly defined in terms of the I-language in a P&P theory, or as grammar plus use factors, with *language change* being analyzed as a consequence of a new setting of a given parameter. Hence, the generative syntactic framework mainly provides us with tools for the descriptive part, and it does not always give us an answer to the question of why the change really took place, that is, it does not always provide insights into the source of the change (although the emphasis on the poverty of the stimulus might give us a way of thinking about this). These are the main shortcomings of the generative view on diachronic change. In other words, although the P&P framework assumes E-language variation, it usually does not explain the E-language variation or change that paved the way for the grammar change. Too many works in diachronic generative linguistics assume cultural and/or social factors to be irrelevant in the explanation, as they are irrelevant to structural linguistic theory. Contra this view, we argue that social factors are an important link in explaining diachronic change, and relevant to linguistic theory as they affect the E-language. Indeed, variation and change in recorded (E-) language may be evidence for changes in the I-language. This kind of variation is familiar from studies in population genetics, as argued by Lightfoot (1991: 67). Note, however, that we do not take variation in the frequency of different word order types to reflect grammatical change, but rather a significant factor in causing a grammar change as it alters the PLD for the next generation of speakers.

Once we have established (acquired) a certain parameter *P*, the computational system simply takes over and sets all related parameters accordingly. It is anticipated in the P&P theory that some cross-linguistic variation can be attributed to the setting of a single parameter. A change in a parameter setting may thus simultaneously affect all the constructions controlled by the parameter; once a new parameter setting has been adopted, several simultaneous changes in features linked to that parameter will follow naturally.

Hence, setting or changing the setting of just one variable (one parameter) can give rise to a number of immediate changes, some perhaps quite distinct. This means that two completely distinct (and seemingly unrelated) parameter settings can be triggered by the value of a single other parameter, as the execution of one parameter may imply an entire block of subsequent parameter value changes.

4.3 The different role of children and adults

In recent years, there has been much debate in the literature about the respective roles of children and adults in diachronic changes. The controversial viewpoints are, on the one hand, that language acquisition by children is crucial to understanding diachronic change. This child-based theory has a long history, dating back at least to the late 19th century (see the historiography in Harris and Campbell 1995: 29-30). This view has also been adopted by most generative linguists, with the first major explication by Halle (1962). Indeed, child language acquisition is assumed to be the locus of diachronic change in generative approaches. On the other hand, sociolinguists tend to argue that children do not play an essential role in diachronic changes. Both parts have put much energy in the debate, and especially the sociolinguists have argued at length against the child-based theory of diachronic change.

We argue that the two different standpoints are not necessarily controversial, as they focus on different steps in the diachronic change. Indeed, we argue that *both* viewpoints are not only correct but also necessary in order to have an explanatory success of a diachronic change. While the sociolinguists are concerned with the external *language change* within social groups where minor alternation, or innovations of variation, may take place in the language of *adult* speakers, generative linguists are concerned with the internal *grammar change* where *children* are the real agents, as they integrate a subset of the available innovations into an emerging stable I-language during language acquisition. Hence, on the one hand, we are looking at minor, gradual, changes in the PLD, partly due to social influences in adolescent years and adulthood. These are the

E-language changes, taking place after the Critical Period. On the other hand, we have a (major) grammar change, or in other words, an acquisition-based I-language change. The former changes cause an altered triggering experience, that in turn may lead the next generation of child-learners to change some parameter settings and a grammar change takes place. While the adults are the central agents of the former language change, as introducers of instability and innovations, the children are the agents in the acquisition-based grammar change, especially because of their specific cognitive skills, access to UG, and their cue-seeking disposition. The language acquisition is mainly driven by the child's innate instinct to parse and generate utterances, to create a grammar, according to the constraints of UG. See also the discussion in DeGraff (1999c).

This is what we are arguing here: The initial change is within the language of the adults, (presumably) through their live span as they change their language in minor ways. This can for example take place where the grammar already had optionality, then one of the options becomes more frequent during the life span. Another (presumably frequent) means by which innovation can occur is via language contact. Teenagers and adults can also introduce innovations to the language. All these factors make the PLD for the next generation of speakers slightly different from the PLD of the previous generation, paving the way for a parameter change. Hence, it is too simple to claim that either children or adults play the central role in the diachronic change. It is generally assumed that there cannot be a grammar change after the Critical Period, that is, in the grammar of adults. However, adult language is susceptible to variation and innovation, as already proposed by King (1969), although there in the form of rule addition and minor rule changes. The child-learner of the next generation must build her grammar on the basis of the output available to her during language acquisition. This is to a large extent the language of her parents and older peers, and hence, she arrives at a grammar not radically different from that of the older generation. However, the child-learner must also account for the innovations that the adult language may have undergone, and

this may result in a parameter change. Note, however, that innovations of course do not always have to lead to a grammar change within the next generation. Presumably, many different factors affect the probability for a (micro)-variation in E-language to become a part of a stable I-language.

Since we take the parameter settings of the adult's grammar to be fixed, the innovation only occurs in the language use, that is, in the E-language. Croft (2000) takes a radically different view: "If linguistic variables are a part of the grammar…, then changes in use are changes in grammatical knowledge. In other words, changes can occur in the grammar of adults in the course of language use" (Croft 2000: 57). We disagree with this point, claiming instead that the grammar is the I-language but that the variables are a part of the E-language; hence, one I-language can crystallize into several E-languages. Newport (1999) and Kegl, Senghas and Coppola (1999) also claim that children learning sign language as a first language are capable of outperforming their models drastically, creating systematic, UG-compatible grammars, whereas the adults cannot. This indicates a deep gap between the ability of adults and children to recover from limited PLD.

The ongoing debate about the different role of children and adults is mostly due to an unclear distinction between *language change*, on the one hand, and *grammar change*, on the other hand. That is, we must make a distinction between the initiation of the change (innovation) and the parameter change. In other words, we have to make it clear whether we are dealing with 'language' as the language of the speech community or as the grammar in the mind/brain of an individual speaker.

Language change (innovation) is often not held distinct enough from the *diffusion*. Of course, this may be correct with regard to the initial language change in the PLD, depending on which age group is the most important source of the PLD. If we assume this to be the *parent's* E-language, then this view is presumably right. Other children, e.g. siblings, may also play an important role in shaping the trigger experience. *Grammar change*, on the other hand, reflects

an abrupt change taking place during first language acquisition, where language acquisition is the activity of an individual acquiring her particular idiolect.

One of Croft's (2000) arguments against the child-based theory is related to the difference between abrupt and gradual diachronic change, where the source of the criticism is the unclear distinction between language and grammar change. We are arguing here that language change with innovation of variation is usually gradual, even taking place through several generations without this (necessarily) causing a major parameter change.

4.4 Internal and external reasons for diachronic change

Diachronic research should be primarily concerned with the investigation of what type of changes can be explained by factors operative in language acquisition alone, and which type of changes assume 'external' factors. Hence, the question becomes important of whether we think that diachronic change can be explained solely in terms of spontaneous change or do we assume that some external (social) factors are necessary to trigger the change. There is also a fundamental question about diachronic change that does not get posed very often; namely: How accurate is language learning in the ideal case of a monolingual community without outside contact? If it is very accurate, then all change must come from outside the grammatical system. If it is imperfect, there is room for internally generated change. The notion 'outside the system' is, however, dubious. For example, phonetic pressures could be thought of as external to the phonology, and phonology and morphology are external to the syntax.

Chomsky and other generative linguists have for a long time shown a thoroughgoing skepticism in regard to functional explanations of language structure. This skepticism is (in part) related to the view that the study of language *use* is very distinct from the study of language *structure*, and hence not of importance; more exactly, syntax is generally assumed to be autonomous and the language faculty is taken to be an innate structure isolated from social

interaction. While we take this assumption to be correct, we cannot forget that grammars are *used*. While we agree with the generative view that the cause of *grammar* change may often be internal, that is, factors inherent in and arising out of a given synchronic state of the language system, we take the cause of *language* change to be external, where 'external' has a twofold meaning: Type A: internal to the grammar but outside the syntax. Hence we have interaction with other components, where change at other levels of the structure can lead to a change in the syntactical component, and Type B: outside the system, that is, change due to social and/or cultural factors.

Kroch (1989b) argues that it is necessary to look at other developments in the grammar in order to explain a grammar change. Pintzuk, Tsoulas and Warner (2000: 3-4) mention three different types of E-language change that may each pave the way for a grammar change: (i) antecedent change, such as the loss or weakening of overt morphological contrasts; (ii) external factors, such as contact or sociolinguistically motivated alternations in frequency; (iii) chance fluctuation in frequency. Apart from special cases of external factors, such as foreign influences and expressivity, it seems to be a widespread view that grammar (I-language) change is caused mainly by internal factors while E-language changes may be caused by both internal and external factors, where *external* generally means external to the syntactical component, for example, but still internal to the grammar. A common example is that the occurrence of structurally ambiguous surface structures may be the result of loss of inflectional endings on verbs and nouns. Hence, external factors may create the conditions that induce grammar change. Finally, diffusion is generally assumed to be determined by external factors such as social standing, age, sex, and prestige (see discussion in Gerritsen and Stein 1992: 5).

Before the structuralist period, where the focus was mostly on historical (E-language) changes, both internal and external factors were taken into consideration. Structuralists, on the other hand, considered the language structure to be both independent and isolated, hence, the explanation for

historical change lies within the system itself; changes are necessarily internal. As mentioned, structuralists mainly studied the language structure (grammar) as a whole system, and assumed that the grammar could conceal a tendency towards harmony and simplification. Hence, linguistic change was assumed to take place when the language structure changes itself. However, the question of how the system is able to change itself was left unanswered. This view is very common among linguists concerned with reanalysis. The locus of change within Andersen's model, and many generative approaches, is the acquisition process where grammar change is seen as an internal change, taking place as a failure in the parsing or transmission of certain linguistic phenomena over time. Lightfoot's (1979) hypothesis is a good example of an autonomous position.

Weinreich, Labov and Herzog (1968) clearly made room for both internal and external causes of diachronic change. They put forward several principles which define the nature of linguistic change. One of these is *Principle 7: Linguistic and social factors are closely interrelated in the development of language change*. Explanations which are confined to one or the other aspect, no matter how well constructed, will fail to account for the rich body of regularities that can be observed in empirical studies of language behavior. Weinreich (1953) also emphasizes that a coupling of both internal and external factors is necessary in order to define the space of predictable courses of development and change. Thomason and Kaufman (1988) is another example of the renewed interest in external explanations of syntactic change.

Lightfoot (1991, 1995) makes strong claims against the hypothesis that change is inherent to syntax. Instead, he claims that grammar change only takes place when there is sufficient change in the data used by the learner to set grammatical parameters. In other words, grammar change takes place because of a prior language change. Otherwise, grammars are stably transmitted. Lightfoot (1999a) also claims that we cannot expect to find internal explanations for change, that is, tendencies for languages to simplify or to grammaticalize. Rather, change can only happen when there is a shift in primary linguistic data;

a given child will acquire a different grammar from its mother if and only if it is exposed to different input.

4.5 Language change

In this section, we will investigate the distinction between grammar change and the changes in the linguistic environment that precede parameter changes in languages in general. Following Lightfoot (1991, 1999a) we argue that certain changes in language use, that is, changes in *language*, that do not involve an immediate change in the underlying grammar, can (gradually) lead to an abrupt *grammar* change.

Much work on historical syntax within a generative framework is in fact *synchronic* in nature rather than diachronic. That is, two (or more) different stages in the history of a particular language are compared and analyzed (synchronically) and the difference is typically illustrated in terms of a parameter change; for instance, a certain movement was lost due to a loss of the strong triggering feature. Although this is interesting, it can only be a part of the historical story of the change, where we are leaving out the *initiation* of the change, the linguistic variation reflected in most historical data and the sociolinguistic factors underlying this variation. Many major parametric changes such as the loss of V2 word order and the change from OV to VO order indeed involve a lengthy period of variation. In other words, we too often ignore the prior changes in the PLD that must have paved the way for the grammar change in question.

Speakers in the language community may consciously or unconsciously choose to alter their language use in various ways for reasons that may be non-linguistic in nature: A certain variant of language use may be fashionable, or it may serve as a social identity marker. They can do this by either creating a new variant in their language use, or starting to favor the use of a certain structure over another variant. Hence, the E-language may gradually become different from the E-language that served as the triggering experience for the I-language

earlier. These changes in the E-language also constitute changes in the input available to the child-learners of the next generation and a motivation for a different parameter setting may have arisen. In other words, a change in linguistic behavior may lead to a grammar change within the next generations of speakers. We argue that two main types of language change may alter the triggering experience: a) innovation: the creation of novel forms in the language, and b) shift in frequency.

Innovation, also known as actuation, is the process by which a change is begun. It occurs at the moment when a new linguistic form or structure is created. Innovation produces a new variant of a structure and thereby leads to variation. The second type of language change can occur by shift in the frequencies of the variants of a structure. This second type of change is closely related to diffusion. Since innovations begin life at the bottom of the S-curve of diffusion, they are very difficult to pin down, and it is also very difficult to distinguish them from their diffusion.

One type of language change that is possible without a change in grammar is a change in *usage*; that is, a change where a certain structure or word order gains a (gradual) frequency over time. This type of change does not involve an immediate change in the grammar, as the set of grammatical sentences remains the same. However, the increased frequency of a particular variant may reduce the availability of another variant for a particular parameter setting within the trigger experience, and hence, it may (over time) trigger a change in the grammar (of following generations). The occurrence of this type of change seems to presuppose optionality.

Kroch and his associates (Kroch 1989a, b; Pintzuk 1991; Santorini 1989; Taylor 1990; Fontana 1993, among others) have expressed the necessity of studying relative frequencies of variants (competing forms) as part of generative diachronic studies. Niyogi and Berwick (1995) also claim that in cases of linguistic environment with mixed PLD, that is, in cases in which children hear sentences from a grammar that presents evidence consisting with a given

parameter setting as well as from a distinct grammar that presents evidence inconsistent with that parameter setting, the percentage of input they receive for each variant plays a crucial role in how that particular parameter will be set. See further discussion of frequency effects in setting the stage for parametric change in, for instance, Roberts (1993), Lightfoot (1999b) and Briscoe (2000).

As many sociolinguists, Croft (2000) claims that the mechanisms for innovation are functional; they involve remappings of the link between form and function in a conventional linguistic sign or lingueme. E-language change in the form of an innovation leads to the existence of variants in the language (Croft 2000: 31).

However, we also need to address the question of why the innovation took place in the first place; that is, how and why specific variants arise and become part of the variable linguistic system. Weinreich, Labov and Herzog (1968: 102) call this the *Actuation Problem*: One of the central issues here is whether languages are stable or unstable by nature. Once we have solved the Actuation Problem we know what drives language change. Croft (2000) puts forward what he calls the *Theory of Utterance Selection* for language change, assuming that utterance selection (in social intercourse) is the primary locus of language change. Linguistic innovations emerge from complexity of communication in social interaction.

Bye (2001) mentions that the basis of biological evolution is differential reproductive success. As an alternative approach, Bye approaches the question of whether changes in PLD may be byproducts of demographic factors (individuals entering and leaving the population). In the absence of such factors, is there change at all? If there is change, does it proceed neutrally by drift or are there selective (evolutionary) mechanisms at work?. He concludes that autochthonous innovations take place in peripheral (monolingual, closed, endocentric) speech communities as well, implying that some other evolutionary mechanism is at work. Recent articles (Lass 1990; Ohala 1989) have stressed that the re-use of old forms for new purposes, that is “exaptation” (cf. Gould

1991; Gould and Lewontin 1979), may be an important factor in language change. The idea is that most language changes result from variation which has always been present in language. Variation in language is due to the inevitable deviations caused by the interplay between variation in pronunciation in the speaker and under- and over-correction (reconstruction of the speech signal) by the listener (Ohala 1989) and to the historical accumulation and selection of such variation (Lass 1990).

4.6 Diffusion

A change diffuses from the innovator to (a subset of) those with whom the innovator comes into contact. Once an innovation has arisen, it may in principle be actuated/diffused in two main ways. It can either spread at different rates in different contexts or it can spread at the same rate in each context (see the discussion in Kroch 1989b: 205 and Pintzuk 1991: 316). Bailey (1973), among other researchers, has proposed a wave-model for language change actuation that is motivated by two principles. The former principle entails that the gradual replacement of one linguistic form by another over time follows an S-shaped curve. See also Kroch (1982, 1989b). According to this principle, the replacement of old forms by new ones occurs slowly in the beginning of the change, then faster in the middle of the replacement, and finally, it tails off at the end of the development, when the old forms have become rare, until the replacement reaches completion. See also the discussion in Pintzuk (1991: 313-318).

Bailey's (1973) later principle for language changes entails that the actuation of a language change occurs sequentially, spreading at different rates in different contexts, first in the most preferable one; "differences in the rate of use of a new form in different contexts reflect both the relative time at which the new form began to appear in those contexts and a differential rate of acceptance of that form in those contexts" (Kroch 1989b: 203).

Contra Bailey, Kroch (1989b) proposes the *constant rate hypothesis*, that entails that although the frequency of alternating linguistic forms may differ across contexts at each point in time during a language change, the rate of the change for each context remains the same. Kroch (1989b) presents arguments from various language changes that have been studied quantitatively. He claims that all these changes show that when one linguistic form is replaced by a new one with which it is in competition in several contexts, then the rate of the replacement is the same, independent of the context. Diffusion through a population has temporal attributes: each step in the diffusion requires that an acquirer comes into contact with an innovating prestige speaker and learns and uses the innovating structure. Hence, diffusion is gradual; it can even take centuries, depending on the population (cf. Hale 1998: 5).

Diffusion is generally assumed to be determined by external social factors such as social standing, socioeconomic class, age, sex, ethnicity, prestige, and social and geographical mobility. The mechanisms for spreading of innovation is social as it involves the relationship between the speaker, the interactor, and the society she belongs to (cf. Croft 2000: 173). Croft (2000) argues that the basic mechanism for propagation is the speaker identifying with a social group, and that patterns of propagation in social populations that are parallel in significant respects to patterns of selection in biological populations.

Various explanations that have been put forward in recent years about language changes do not strictly speaking explain the *source* of the innovation but rather its *spreading*. A possible reason for this is that diachronic linguists do not have a long tradition for searching for answers to their questions in the spirit of generative grammar. A theory of language change must distinguish between two processes; it must distinguish innovation (of variation) from its diffusion through the language community. Explanations based on people's social position, for example, must be connected to spreading rather than the source of the change. Explanations for language changes based on topographical

information, transportation, geographical isolation, etc. must also take to the prerequisite for the spreading of changes that already have arisen.

Aitchison´s (1991) view is an example of the failure to distinguish between language changes and diffusion so that the discussion becomes very confusing, and she even claims at one point that language changes do not exist: "[changes] usually originate from elements already in the language which get borrowed and exaggerated ..." (Aitchison 1991: 74). Labov (1994) looks for explanations for language changes in both regional and social variation. However, he is mostly concerned with the *spreading* of changes rather than their origin. We disagree with this claim, it is indeed very important to try to keep the origin (innovation) and the diffusion of a change distinct.

So far, we have mainly been concerned with diffusion of innovation (language change). However, we should also address the question of whether, and then how, diffusion of grammar change may take place. Parameter settings themselves cannot diffuse but each individual speaker must acquire the parameter change anew. "A parametric shift spreads in so far as the change of parameter setting in one speaker or group of speakers tilts the trigger experience of children towards the new setting. That is, once one speaker shifts to the new setting, the amount of data in favour of the old parameter setting falls, whilst the amount of data in favour of the new parameter setting rises" (Willis 1998: 47-48). In other words, the diffusion of a grammar change is very different from diffusion of language change (innovation of E-language token), there the diffusion is much more similar to diffusion of phonological change. Diffusion through a population is not an I-language phenomenon.

5 Summary

In this paper we have discussed different explanations for diachronic change. We focused on the distinction between language change and grammar change, changes in E-language and I-language. Language change as a whole is a group phenomenon. E-languages reflect the output of grammars, the varying use of

those grammars in discourse. Grammars, on the other hand, may change between two generations. A change is initiated when (a population of) learners converge on a grammatical system that differs in at least one parameter value from the system internalized by the speakers of the previous generation.

Grammatical phenomena cannot be acquired unless clearly reflected in the output. Hence, a grammar change may take place when there has been a change in the language use of the previous generation, paving the way for a new interpretation. The PLD is influenced by external factors, hence, we need to assume (at least) two important steps in order to have an explanatory success of a diachronic change: We must account for both the initiation of the change, the variation and innovations and the integration of these E-language innovations into a stable I-language.

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