

A comparison between SLI and second language acquisition: can parts of L1A be acquired via L2A processes in SLI?

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Bachelor thesis Linguistics

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June 2013

Abstract

The GRAMMATICAL ANALYSIS OF UNSUITABLE MECHANISMS by Locke (1993, 1994) proposes that in children with SLI linguistic function is taken over by other, less suitable mechanisms, since the original mechanism for analysis has not developed. This thesis suggests that in some individuals with SLI, processes underlying L2A take over some parts of linguistic function in L1A. To base this theory on solid grounds, it was first established whether processes underlying L1A and L2A could be different from each other. Secondly, it was investigated whether a common pattern between SLI and second language acquisition (L2A) could be present.

Fossilization and optionality in inflectional morphology in both SLI and L2A indicated that there is a common pattern between SLI and L2A. This suggests that it might be possible that in children with SLI, parts of their L1A are acquired as L2A.

1. Introduction

Approximately 7% of all children are diagnosed with specific language impairment (SLI) (Leonard, 2002). These children show impaired language ability, while other factors that usually accompany language learning problems – such as hearing impairment, low nonverbal intelligence and neurological damage – are not present. It is still not known why SLI occurs and what it is caused by. Several accounts claim linguistic knowledge is incomplete in children with SLI and that this incomplete knowledge causes trouble with rules, principles and constraints. The REPRESENTATIONAL DEFICIT FOR DEPENDENT RELATIONSHIPS (van der Lely, 1998) is an example. According to this theory, the process which ensures that movement is obligatory is impaired, and as a result children with SLI show optionality in their grammars. Utterances such as *My mum goes out* and *My dad go to work* can coexist, because features are checked in the former expression but not in the latter. Other studies focus on a limited general processing capacity, as evidence from nonlinguistic tasks suggest that children with SLI often face problems with nonlinguistic cognitive abilities as well. In this case, SLI is seen as a problem caused by a limited information-processing capacity. One of these accounts is the GENERALIZED SLOWING HYPOTHESIS designed by Kail (1994). Kail suggests that the underlying deficit is not situated in a specific component of linguistic processing, but rather in much linguistic and cognitive processing, resulting in a generalized slowing of responding.

Another possible explanation for the underlying deficit in SLI is examined in this thesis, namely the possibility that, in some cases, SLI-children with an incomplete L1A, acquire parts of their L1A via L2A processes. This idea will be mentioned here in short and will be elaborated later on. According to Locke's GRAMMATICAL ANALYSIS OF UNSUITABLE MECHANISMS account (GAUM) (1993, 1994) a specific grammatical analysis mechanism is triggered by the acquisition of a critical mass of lexical material. In children with SLI, this mechanism is activated too late and consequently the mechanism cannot develop properly. The critical

period for activation is missed. Locke suggests that in the case other, less suitable, mechanisms take over a linguistic function and exactly this assumption will be the basis of this thesis. One thing Locke does not clarify, is what kind of mechanism takes over the linguistic function. The thesis presented here is that in some SLI-children (with incomplete L1A) parts of their L1A are acquired via L2A processes. Bley-Vroman (1989) pointed out nine ways in which second language acquisition (L2A) differs from L1A language development. He also claims processes underlying the acquisition of L1A and L2A are not the same. However, some characteristics of L2A resemble those seen in SLI. An example is fossilization. This phenomenon will be explored in-depth later on, to establish whether some parts of L1A in children with SLI might be acquired as L2A.

2. Theoretical framework

2.1 Specific Language Impairment

The population of children with SLI is a heterogeneous one. SLI is classified as a language specific disorder, with no assignable cause. The diagnosis of SLI is much more based on exclusion than on inclusion, because other disabling conditions of which language problems are a part should be ruled out. There are a few criteria that are usually considered before making a diagnose. A brief summarization of each of them is displayed in Table 1.

Factor	Criterion
Language ability	Language test scores of -1.25 standard deviations or lower; at risk for social devalue
Nonverbal IQ	Performance IQ of 85 or higher
Hearing	Pass screening at conventional levels
Otitis media with effusion	No recent episodes
Neurological dysfunction	No evidence of seizure disorders, cerebral palsy, brain lesions; not under medication for control of seizures
Oral structure	No structural anomalies
Oral motor function	Pass screening using developmentally appropriate items
Physical and social interactions	No symptoms of impaired reciprocal social interaction or restriction of activities

Table 1. Criteria for SLI. Reprinted from *Children with Specific Language Impairment* (p. 10), by L. B. Leonard, 2002, London: the MIT press.

As can be seen from Table 1, the criteria for SLI are mostly exclusionary. The only thing firmly established about children with SLI is that they acquire language significantly slower (at least 1.25 standard deviation (SD) below the norm). To rule out other additional problems that perhaps contribute to the language difficulties, a hearing screening is conducted. It is important that children with a hearing loss (possibly due to a recent episode of Otitis Media with Effusion¹) are not diagnosed with SLI, since the cause of the problem is assignable. Furthermore, there should be a discrepancy between nonverbal IQ and language score. A low IQ can have an effect on language development and measuring the gap between nonverbal IQ and language score eliminates this possibility. All the criteria for SLI rule out those children with language problems that have an assignable cause: structural anomalies or impaired oral motor function can influence articulation and therefore language. Abnormalities in the brain can also account for problems with several aspects of language. Last but not least, an infant

¹ Otitis Media with Effusion is an accumulation of fluid in the middle ear. A conductive hearing loss appears. Because of this, an infant could experience a partially impaired input, which results in a temporary delay in language development.

that does not make contact (due to a form of autism) is probably missing an important part of early language acquisition, since this part is mainly social. Problems in further language development may be the result of this.

2.2 Grammatical Analysis of Unsuitable Mechanisms

2.2.1 Phases of linguistic capacity development

Development of linguistic competence occurs in phases that arise in a fixed and overlapping sequence. Each phase has its own unique function and is served by a distinct neural specialization. The first two phases are mainly affective and social. An infant starts to make contact and begins to acquire utterances, which are still unanalyzed, prosodic patterns. In order to communicate, the child begins to coordinate the timing of its vocalizations. The first phase already starts when the child is not even born yet. In the second phase the infant starts to acquire utterances, a process which is largely served by mechanisms in the right cerebral hemisphere. These utterances are like multiword phrases: they are segmentally unanalyzed prosodic patterns without distinction between words or phrases. The third phase is analytic and computational. This is where Universal Grammar (UG)² kicks in. Prosodically organized forms are decomposed into constituent parts. By doing this, a child discovers segmental regularities. This is the start of the child's discovery of grammatical structure and rules. The phase has a distinct onset between 20 and 36 months of age. Overregularizations such as *breaked* for *broken* and *mouses* for *mice* indicate the presence of the phase. When overregularizations occur, it means that regular rules are being applied to irregular forms. In order to do this, an infant needs to know the rule for regular forms. As for this reason, when an infant utters *mouses* instead of *mice*, it means it has command over the regular rule for plural in English.

² The theory of UG proposes that every child is born with an innate system to learn grammar. As for that, linguistic ability manifests without being taught.

In contrast with the first two phases, this analytical and computational function is largely handled by left hemisphere mechanisms that are linguistic (Locke, 1994).

2.2.2 Lexical delay in children with SLI

According to Rescorla (1989, as cited in Locke, 1994), children with SLI appear at pregrammatical ages with lexical delays. They use far fewer words than their age-matched peers. This is in agreement with Locke's (1994) observation: "apparently our need is not to account for slow rates of learning but a late start in the acquisition of utterance material" (p. 611). Bishop and Edmundson (1987a & 1987b, as cited in Locke, 1994) evaluated the nonverbal motor performance and linguistic progress of 87 children with serious language delays. They found that on most measures all children with language delays made about 18 months of progress in 18 months of time. A late start of acquiring words seems to be indicative for SLI, rather than a slow development.

If children who end up being 'language impaired' are troubled by their late start in the development of lexical comprehension, it is logical to wonder why they experience lexical delay. Locke suggests children with SLI are also likely to be delayed in a broad range of brain functions. When investigators isolate children with SLI from a population, they probably single out those whose brain development is slower than usual. Children with SLI tend to perform poorly on tasks that seem to be completely unrelated to language learning. For example, studies found that typical children with language delays were physically short and that control of bowel and bladder was acquired late among these children. It might be the case that children with SLI experience a neuromaturational delay and that this delay is responsible for the socially cognitive deficits that delay storage of words and phrases.

According to Locke, utterance storage and utterance analysis are two different processes which are performed by different neural mechanisms too. Utterance storage relies on

processes involving social cognition. This consists of learning about the face and voice, vocal turn-taking and joint attention. These processes are necessary for the storage of utterances and are located in the right cerebral hemisphere (Locke, 1993). However, there is no basis for believing that the right hemisphere also performs phonetically analytical functions, so it must be the case that analysis of utterances happens in the left hemisphere. Also, linguistically relevant regions of the left hemisphere develop later than similar regions of the right hemisphere. This is why there is every reason to suppose that utterance acquisition happens before and independently of utterance analysis. Moreover, it makes sense that without stored utterances, there is nothing to analyze, which leaves the child with no basis for a linguistic grammar.

Around 18 to 20 months, the unanalyzed utterances begin to exceed the limits of storage capacity, because children begin to learn new words at a faster rate from this age (Reznick & Goldfield, 1992, as cited in Locke, 1994). From then, the utterances need to be represented in a different way. This is when the mechanism for utterance analysis is activated. This mechanism has a critical period and it only develops when activated in that period. It could also be the case that the vocabulary spurt is an effect of the different representation of utterances. This way, the mechanism for grammatical analysis allows the infant to acquire words at a faster rate from then on.

As mentioned earlier, children with SLI have stored fewer utterances than their age-matched peers, so they are delayed in utterance acquisition. Also, many of them do not experience an increase in the acquisition of new words at the age of 1;5. As a result, SLI-children have too little “stored utterance material” and because of that there is not enough internal lexical pressure for the utterance analysis mechanism to be activated at the optimal biological moment. If the mechanism fails to develop in time, it is unlikely that it will ever develop. This is the reason why children with severe language delays do not eventually recover from

their language delay³. However, these children are not left without any linguistic capacity. For example, morphosyntax does develop in children with SLI, but their grammatical ability does not match that seen in age-matched peers. Locke's assumption here is that other mechanisms that are less adept at acquiring the grammars of language will have to be assembled. When the analytical mechanism in the left hemisphere is not activated on time, it behaves as if it is damaged. Rasmussen & Milner (1977) found that when there are large lesions in the left hemisphere in the first few years of life, somewhat similar mechanisms in the right hemisphere tend to take over linguistic functions. This new allocation needs enough speaking activity to produce a fair linguistic product. Because the analysis of utterance is not executed by the most suitable mechanism, residual signs of language disorder are likely to remain and literacy can be hard to achieve. This observation matches the productions of children with SLI.

Evidence supporting this claim comes from the fact that behavior and brain activity changes the structure of the brain. Deficits produce compensatory activity and this is known to lead to changes in the structure of the brain. This is also the case in children with SLI. When mechanisms in the left hemisphere are not activated on time, this causes increases in anatomical and function symmetry across the hemispheres. Several studies found that in SLI-children the perisylvian area⁴ – which is typically larger in size in the left hemisphere than in the right hemisphere – of the right hemisphere is larger than expected. As for that, symmetry of the left and right perisylvian areas can be observed. Plante, Swisher and Vance (1989, as cited in Leonard, 2002) studied a boy with SLI age 4;9 and found symmetry of the left and right perisylvian areas, because the perisylvian area in the right hemisphere was larger than expected. Another study obtained measures of MRI scans of the left and right perisylvian

³ According to Leonard (2002), 50% of the children with SLI that received clinical treatment for their disorder are 'cured'. This means that they become indistinguishable (at least superficially) from normally developing children.

⁴ The perisylvian area is located around the sylvian fissure and it includes the planum temporale.

areas from eight boys with SLI, age 4;2 to 9;6. In six of the eight children either symmetry of the perisylvian areas or a larger-than-expected right perisylvian area was found (Plante, Swisher, Vance & Rapsak, 1991, as cited in Leonard, 2002). These studies contribute to the theory of Locke about parts of the right hemisphere taking over linguistic functions in children with SLI.

3. Analysis

3.1 L1A and L2A processes

In short, Locke claims that due to neuromaturational delay, a lexical delay occurs. Because of this, children with SLI have not stored enough utterances. This results in too little internal lexical pressure. Mechanisms for the analysis of utterances are not activated at the optimal biological moment and therefore it becomes unlikely that these mechanisms will ever develop normally. Furthermore, it is suggested that other mechanisms take over linguistic function, but these mechanisms are less specialized in the analysis of utterances, because they are not operated by UG. As mentioned earlier, it is assumed here that other mechanisms take over linguistic function in children with SLI. Processes underlying L2A might underlie some parts of the acquisition of L1A in those children, too. To establish this, it should first be determined whether processes underlying L1A and L2A are really different from each other. The general view is that language development in children is guided by an innate system⁵, but that it no longer operates when an adult learns a second language, due to the critical period of this system. This is also Bley-Vroman's (1989) point of view: "child language development and foreign language learning are in fact fundamentally different" (p. 42). He also claims that different processes underlie child and adult language acquisition. Bley-Vroman supports this point of view by giving nine large-scale characteristics of adult L2A learning. Many of them

⁵ The innate system is called Universal Grammar (UG). This is a system consisting of knowledge of what human language can be and innate domain-specific procedures for arriving at a grammar.

show that adult L2A learning does not resemble child language development, but rather general adult problem solving. This distinction between the processes that underlie L1A and L2A is important when suggesting parts of L1A in SLI-children are acquired as L2A. Furthermore, to base the hypothesis of this thesis on solid grounds, it is examined whether there is a common pattern between L2A and SLI.

Bley-Vroman put forward nine characteristics of adult L2A learning in order to demonstrate that child language development and adult L2A learning are fundamentally different. Those nine characteristics are as follows:

Not everyone succeeds

The most striking characteristic of L2A learning is the lack of general guaranteed success. Achievement of a native-like status is reserved for only some people. Child language development represents a sharp contrast with this: normal children inevitably achieve full mastery of the language. This basic observation supports the view that the same process cannot underlie both child and adult language acquisition, because if both L1A and L2A were controlled by the same processes, one would not expect differences in the amount of success.

Most learners fail

Complete success is rare or perhaps nonexistent, according to Bley-Vroman, especially with regards to the ability to make grammatical judgments and residual accents in speech. Normally developing children, on the other hand, rarely experience failures in their first language acquisition. General lack of success in L2A is not the same as the general failure adult L2A learners experience.

Individual variation

Adult L2A learners often differ from each other with respect to the degree of success, even when age, exposure and instruction are held constant. They also vary in degrees of failure. L2A learners vary in learning strategies⁶ and the order which different aspects of language are learned⁷, too. In normal child language development there is no such variation. The timing and the pace of developmental phases can vary individual in L1A, but all children uniformly pass the same phases in the same order.

Variation in goals

Each adult L2A learner has different goals in L2A learning. Some want to be able to have conversations in everyday life, others lay great importance on vocabulary size or accuracy of grammar. Variation in goals influences the amount of success; different goals mean different criteria of success. This follows naturally from the hypothesis of Bley-Vroman that adult L2A learning is a type of general problem solving. Children are driven by their internal system and do not have the luxury of setting their own goals.

Fossilization

It is common knowledge that adult L2A learners reach a certain stage of learning and then stabilize at this stage. Efforts to get better are often unprofitable. The phenomenon is called *fossilization*. In normally developing children such a thing is not seen.

Indeterminate intuitions

In many cases, even in advanced non-native speakers, L2A learners seem to lack clear grammaticality judgments. This might suggest the underlying linguistic knowledge of the

⁶ Learning strategies are strategies that are used when for example the meaning of a foreign word is not known. These include avoiding, guessing, but also the use of a dictionary and a mnemonic aid.

⁷ Students who want to study abroad need to learn different words than immigrant workers, for example.

language is not complete. Normal child language development does not show this kind of observation.

Importance of instruction

Unlike adult L2A learners, children do not need formal lessons (from their parents) in order to acquire their mother tongue. Of course, a child is molded by its parents, but it does not need controlling over its linguistic experience. On the other hand, a whole industry is built on the consensus that instruction influences L2A learning.

Negative evidence

According to Bley-Vroman, a child does not seem to use or rely on forms of negative evidence. Negative evidence is the evidence of what is not grammatical. In the case of L2A learners, negative evidence can be very useful and is sometimes necessary, because corrected mistakes point the L2A learner to parts he/she still need to focus on.

Role of affective factors

Success in acquiring a first language seems unaffected by personality, socialization, motivation or attitude, because the process of acquiring L1A is controlled by an innate domain-specific faculty that is not impressionable. Children are always highly motivated, because of UG. Numerous empirical studies have shown significant correlations between affective factors and proficiency in L2A learning.

Optionality

Another way to describe the differences between L1A and L2A that is mentioned by Bley-Vroman (1989) is in terms of optionality. A study of Cancino, Rosansky and Schumann

(1978) has shown that persistent optionality in L2A occurs very often. They conducted a longitudinal study of negation in the English interlanguage⁸ of Spanish L1A-ers. All six participants showed optionality in their use of negation, varying from the use of two different sentence structures to four different sentence structures. Four sentence structures were observed: 1) no V (*he no like it*), 2) don't V (*he don't like it*), 3) aux-neg (*he can not go*) and 4) analyzed don't (*he doesn't like it*). This use of several different sentence structures is a typical example of optionality. In L1A, persistent optionality is not observed.

These ten characteristics strongly suggest that there are large differences between child and adult language acquisition. Bley-Vroman also suggests that Universal Grammar together with domain-specific learning procedure underlies child language development. Because the processes underlying L2A are different from those underlying L1A, adult L2A learning consists of knowledge of a native language⁹ and general problem-solving systems. The previous knowledge of a language and a general cognitive ability to deal with abstract formal systems compensates the L2A learner for the loss of UG.

4. Fossilization

The differences between child and adult language acquisition seem to indicate that the processes that underlie L1A and L2A are different. Because of that, it could be the case that parts of L1A are acquired as L2A, since they are operated by different processes. To confirm whether parts of L1A in SLI-children with incomplete L1A might be acquired as L2A, a characteristic of SLI is compared with a characteristic of L2A that seems to bear resemblance

⁸ The term interlanguage stands for the dynamic linguistic system developed by a L2A learner who has not reached full mastery of L2A yet. Some features of L1A are retained, but the interlanguage is different from both L1A and L2A. The interlanguage approximates the grammar system of L2A, but during the development certain features of the interlanguage can stabilize. A permanent stabilization is called fossilization.

⁹ Knowledge of a native language is very valuable in L2A learning. A learner knows a great deal about the general character of language. As a result, the learner expects the L2A to have a syntax, a semantics, a lexicon, a morphology, etc. The adult L2A learner is not a blank-L2Ate infant.

with SLI. Fossilization is a process that appears in both SLI and L2A. However, fossilization can be interpreted in two ways. The term fossilization is sometimes used to describe an acquisition process, but this implies a grammatical impairment or permanent deficiency. This aspect of the meaning of fossilization matches the observations made in children with SLI. In adult L2A learning, however, it is more suitable to refer to the outcome of L2A acquisition when mentioning fossilization. (Long, 2003, as cited in White, 2003).

By comparing the two kinds of fossilization, it might be that a common pattern between SLI and L2A can be established. This could be a step forward in basing the hypothesis of this thesis on solid grounds.

4.1 Fossilization in L2A

It is common knowledge that the number of L2A learners who achieve native-like status is assumed to be small. At some point in the learning process, no further learning seems possible and despite exposure to, and interaction with the target language, some parts of the language stabilize. This phenomenon is called *fossilization* and refers to the often-observed loss of progress in the acquisition of L2A. When diagnosing fossilization, two criteria are important: (1) errors should be regular, and (2) errors need to persist in the interlanguage for a number of years. Jarvis and Pavlenko (2000, as cited in Han and Odlin, 2006) report on a case-study of a woman (age 33) pseudo-named Aino. She is a native speaker of Finnish and has lived in the United States for ten years consecutively. Jarvis & Pavlenko constructed a five-year longitudinal database of Aino's oral and written production data. This data show evidence of fossilization in the areas of tense and aspect (1a) and countability (1b).

- 1) a. She *had called* today to say that she won't be there.
- b. I think she's got *fever*.

These errors are influenced by Finnish, Aino's first language. Lardiere (1998) also reported on a case-study of fossilization. Lardiere recorded the speech of Patty, a native speaker of Chinese who has lived in the United States for about ten years at the time of the first recording. There were three recordings over nine years. Lardiere found that Patty had a native-like knowledge of verbal inflection, although she showed omission of inflectional morphology. For example, use of third person singular (3Sg) –s was very low, often totally absent (suppliance in obligatory contexts was 4,5%). It is clear from her full command of syntactic structures which implicates tense and agreement that inflectional morphology is present in her grammar. For instance, her use of nominative case assignment in obligatory contexts is flawless. Patty's morphological agreement affixation diverged considerably from that of the target English input she had been exposed to and therefore Lardiere concluded this aspect of her English was most likely fossilized.

4.2 Fossilization in SLI

Many studies have focused on the development of language of children with SLI, but only few addressed the problem of incomplete mastery of some parts of the first language. For example, Leonard (2000) refers to this problem by calling it plateau development. He poses that language development of some individuals with SLI is not only delayed, but that also mastery levels are never reached for some aspects of the language: "a plateau is reached at some point before certain aspects of the language are mastered" (p. 32). Experimental evidence on fossilization in SLI is scarce, however there is plenty of data suggesting children with SLI do not improve on some parts of their language over time. For example, van der Lely (1998) conducted investigations on a subgroup of children with SLI, in which morphosyntax was most impaired. A boy pseudo-named AZ was selected to exemplify the

problems this group faced. He was tested on several nonlinguistic and linguistic tasks for a couple of years. He showed no improvement on a task that elicited production of 3Sg present-tense –s verb form; his level of errors was consistent over the years (70-80%). On a past-tense elicitation task AZ (age 11;3) only achieved 6,3% correct responses. At age 14;5 this test was administered again, resulting in score of 56% correct responses. However, this substantial improvement seems to be attributable to a strong frequency effect, so there was probably little improvement.

Menyuk (1964) conducted a study in which language samples from ten children with ‘infantile’ speech¹⁰ and ten children with normal language development were collected to examine whether the two groups used different syntactic structures. Menyuk found that in the ‘infantile’ speech group, only in a few instances well-formed sentences and reduction of use of approximate forms¹¹ were uttered. This was the case throughout the whole age range. For this reason she concluded that there appeared to be a plateau in language development of children with ‘infantile’ speech (Menyuk, 1978).

4.3 Common pattern

When looking at the two types of fossilization, a common pattern can be observed. The data give a clear indication that inflectional morphology is an aspect of language that fossilizes in both the SLI-child and the adult L2A learner.

It seems that inflectional morphology is very sensitive to fossilization. Impairment in morphosyntax in SLI is studied extensively in the field of linguistics, mostly because many children with SLI exhibit problems with this particular area of language. Not surprisingly, adult L2A learners also experience difficulties with morphosyntax. This follows from the

¹⁰ Children with infantile speech were diagnosed first by their teachers and then by a speech clinician. It is questionable whether these results about children with infantile speech can be generalized to children with SLI, since Menyuk did not clearly define what was meant by infantile speech.

¹¹ Approximate forms are productions that come close to well-formed utterances, but are not grammatical.

many omissions and ill-formed verb forms adult L2A learners exhibit. Both children with SLI and L2A learners seem to reach a certain stage of attainment regarding inflectional morphology and then stabilize. From then on, those parts of the language are fossilized for a long time, despite continuous exposure to the target language. In the case of SLI fossilization implies a grammatical impairment or permanent deficiency, because it has an influence on the acquisition process. For adult L2A learners the result aimed at – full mastery of a second language - is not reached because of fossilization. The same process has therefore different outcomes.

5. Optionality

Not only fossilization is a well-known phenomenon in both L2A and SLI, optionality is also known to occur in the production of adult L2 learners and in children with SLI.

L2A learners exhibit variable use of inflectional morphology, such as tense and agreement. This becomes evident in spontaneous and elicited production. The variable use of inflectional morphology is even found in end-state grammars (Lardiere, 1998a, b, as cited in White, 2003). This is also the case for Patty and Aino. Their grammars show use of inflectional morphology that is varying, or as Sorace (2000) puts it: stable optionality. He also claims that optionality in grammar occurs in adults who have reached the stage of ultimate attainment. This way optionality can become a permanent part of the second language. For example, advanced German learners of English produce sentences like (2a) and (2b). Since German is a V2 language, a sentence like (2a) is therefore influenced by a residual V2 constraint.

- 1) a. For many kids is living with their parents a nightmare.
- b. For many kids living with their parents is a nightmare.

The study of Cancino, Rosansky and Schumann (1978) also provides evidence for optionality in L2A. Elicited and spontaneous speech was gathered over several months to examine the participant's use of negation in their second language English. Two participants called Dolores (age at onset of study 25) and Alberto (age at onset of study 33) both showed a variable use of sentence structure with regard to negation. Dolores demonstrated this by using three different sentence structures (don't V, aux-neg and analyzed don't) for expressing negation. She does not seem to have a distinct preference for one of the structures. The correct structure (analyzed don't) is even used less than the other two structures at the end of the study. Alberto, on the other hand, shows a strong preference for the no V-structure. This structure alternates with the don't V-structure, resulting in optionality.

Optionality does not only occur in the grammars of adult L2A learning, it is also a characteristic of SLI. All children go through an optional infinitive stage in which their grammars allow both finite and nonfinite forms in contexts where the finite form is required. Nevertheless, they know the rules of grammatical finiteness, but they fail to mark tense in their utterances. From the age of three the optional infinitives start to disappear. Children with SLI are assumed to stay in the optional infinitive stage for an extended period of time. However, just like normally developing children, they do know the rules of grammatical finiteness. Van der Lely's study on AZ demonstrates this. AZ shows he can use all inflectional forms correctly: plural -s, 3Sg -s, regular past tense -ed and the progressive marker -ing (van der Lely, 1998). Despite the available knowledge of inflection, AZ still produces nonfinite forms in contexts where finite forms are required for 70 to 80 percent of time. Optionality does not only appear in production, AZ also shows optionality in comprehension. In a grammaticality judgment task, AZ judged sentences with both finite verb forms (*Yesterday I looked at Susan*) and nonfinite verb forms (*Yesterday I look at Susan*) as grammatical (van der Lely and Ullman, 1996, as cited in van der Lely, 1998).

5.1 Common pattern

Optionality seems to arise in both L2A and SLI. In SLI, inflectional morphology is often optional and this is also the case in L2A. Both grammars are subject to persistent optionality. Cancino, Rosansky and Schumann (1978) provide evidence for the fact that optionality is persistent in L2A and that it does not disappear over time. Three participants took part in the study for over nine months and in none of them the optionality disappeared. This is also the case for SLI, as van der Lely's (1998) study has shown. Improvement on tasks that elicited 3Sg present –s was little. For that reason, optionality in the grammar of AZ persists.

6. Discussion

Many studies have tried to come up with an explanation for the underlying cause of SLI. However, the results are far from conclusive. This thesis tries to give an explanation for how some parts of a L1A might be acquired as L2A in some children of SLI. The idea from Locke's GAUM about other mechanisms taking over linguistic function in children with SLI lays the foundation of this thesis. It is suggested here that processes underlying the acquisition of L2A are also underlying the acquisition of some parts of L1A in SLI. The phenomena fossilization and optionality in SLI and L2A provide evidence to support this idea. In both SLI and L2A, fossilization and persistent optionality occur in inflectional morphology which results in omission and variable use of verbal inflection and/or ill-formed verb forms. These common patterns between SLI and L2A suggest that some parts of L1A in children with SLI might be acquired through processes that underlie L2A instead of processes underlying L1A.

The findings of this thesis do not say anything about the GAUM account, because this thesis is merely an extension of this account. Locke does not come up with a theory about what the

nature of the other mechanisms taking over linguistic function could be. A common pattern between SLI and L2A could support the idea that some aspects of L1A might be acquired as L2A, but it does not give examples of which parts of L1A are acquired through processes of L2A. The fact that fossilization in inflectional morphology indicates a resemblance between SLI and L2A does not mean that inflectional morphology is a part of L1A being acquired by L2A. So, what the findings of this thesis do implicate is that it might be the case that processes underlying L2A take over linguistic function of some parts of L1A in children with SLI. What kinds of aspects of L1A are being taken over has yet to be explored.

Furthermore, evidence on fossilization and optionality that suggests a common pattern between SLI and L2A alone is not enough to conclude that parts of L1A are really acquired as L2A in SLI. More characteristics of second language acquisition mentioned in Bley-Vroman (1989) can be observed in SLI too, for example individual variation. Adult L2A learners do not all reach the same stage of attainment. This is also the case in children with SLI. More research of several aspects of language is needed to really confirm the hypothesis of this thesis.

Another interesting research question is why children with SLI and adult L2A learners both fossilize in inflectional morphology and why optionality of inflectional morphology is so persistent in both groups. Inflectional morphology is extensively studied, in SLI and in normal development. Much attention has been paid to it and perhaps other aspects of language that also share characteristics in SLI and L2A are therefore less conspicuous. However, this doesn't give an answer to why inflectional morphology is sensitive to fossilization. Impairments in inflectional morphology are found in several subgroups of SLI (Gopnik & Ullman, 1999), indicating that it is perhaps vulnerable to impairment. This would also explain why adult L2A learners often face problems with inflectional morphology. The question why inflectional morphology is prone to impairment is not addressed here.

In further research, it would be useful to attempt to identify possible parts of first language that could be acquired as L2A in SLI. To provide evidence that suggests the theory might be feasible is the first step, but identifying specific parts of language that might be acquired as L2A could have a positive effect on the research of SLI. At the same time, these areas would also be the problematic areas in language, as a result of SLI.

In conclusion, a first step is made in the development of a new theory about the underlying cause of SLI. Research on this particular topic should focus on providing more evidence on a common pattern between SLI and L2A, to really confirm parts of L1A could be acquired as L2A in children with SLI. It would also contribute greatly to this theory when possible acquired-as-L2A parts were identified.

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