ON THE VALIDITY
OF THE MINIMAL TREES HYPOTHESIS

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1. Introduction

The Generative Study of Second Language Acquisition (GSSLA) is edited by three distinguished scholars working on second language acquisition (SLA) research within the framework of the generative approach. As Flynn states in her introduction (GSSLA: xi), the book was compiled as a result of a conference entitled “Recent Advances in the Generative Study of Second Language Acquisition” held at MIT in 1993. The aim of the conference was to examine theoretical and empirical developments in the field since 1985, when a conference on a similar theme, entitled “Linguistic Theory and Second Language Acquisition” was held.¹

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¹ Flynn showed the purpose of the 1985 conference by referring to Flynn and O’Neil (1988) as follows:

(The purpose of the 1985 conference, at its most general level, was) to examine the extent to which a theory of UG could be useful in explaining the L2 acquisition process. (GSSLA: xi)
Since the generative approach to SLA gained popularity relatively recently, in the 1980’s, Japanese researchers following the generative approach are still a minority among researchers whose main interests are to produce theory and research practically useful for everyday second language teaching in classrooms. However, thanks to the stable theoretical development of the generative linguistics on which the researchers in the field of generative approach base their study, the development of the field is beginning to be paid considerable attention and is becoming more important in the wider sphere of SLA research. Nowadays, the generative approach to SLA is regarded as a productive and promising field presenting meaningful theory driven hypotheses and empirical data in the field of SLA research. Within this context, GSSL A is, theoretically and empirically, a significant contribution to the field of SLA.

The book comprises three parts on syntax: (I) Functional Categories, (II) Constraints on Wh-Movement, (III) Binding and Related Issues, and one part on phonology: (IV) Phonology. All four parts are informative and valuable for readers who wish to understand how SLA research in the framework of the generative approach has developed over the past decade and is developing now. Each part consists of a series of chapters which detail the results of specific research projects and raise pertinent comments on those results. In this review article, the focus will be on the studies in Part I, especially the Minimal Trees Hypothesis, for reasons I will state later. However, in order to introduce the contents and value of GSSL A as a whole, I would first like to briefly examine the chapters in Part II, III, and IV respectively.

2. Issues in Parts II, III, and IV

The main issues in Part II are the acquisition of Wh-movement and Empty Category Principle (ECP) by second language learners, which is one of the most frequently examined topics in the field of UG-Based

The 1985 conference can thus be regarded as the starting point of the generative approach to SLA, and the 1993 conference as the second stage, where participants examine the results of the studies done during the previous 8 years and point the way for the future.
SLA research. The most interesting point lies in the fact that the three studies which comprise this part of the book, although they deal with different types of L2 learners, come to the same or similar conclusions. In Chapter 9, Martohardjono states in a commentary on these three studies (p. 152) that the results presented in this part can be regarded as suggesting that language acquisition by adult non-native learners is constrained by UG principles in precise and predictable ways.

Xiaoli (Chapter 6) administered a judgment task of subjacency consisting of 34 sentences to approximately 200 Chinese college students and scholars, and to a control group (=25 native speakers of English). The results were that similar judgment patterns of Complex NP Constraint (CNPC), Sentential Subject Constraint (SSC), Wh-Island, and NP-Island were obtained in both the groups of Chinese speakers and native speakers. White & Juffs (Chapter 7) conducted a timed grammaticality judgment and a question formation task about Wh-movement by way of a computer based presentation system to two groups of 32 Chinese learners of English. While the first group comprised 16 students and teachers who had no experience of staying in an English-speaking environment, the second group comprised 16 Chinese people who had been in Canada for an average of 4.1 years. Interestingly, the results showed that both groups of learners access island constraints regardless of whether they are exposed to natural or formal type of linguistic input.

These two studies by Xi and White & Juffs are important in that they both show the fact that different types of second language learners access the constraints on Wh-movement. The subjects examined in the remaining chapter (Chapter 8) by Lillo-Martin provide an alternative perspective on this issue in second language acquisition. She investigates whether deaf signers access the constraints on Wh-movement in English. Although the majority of congenitally deaf people are born to hearing parents who do not learn American Sign Language (ASL) when their child is born (Lillo-Martin: 131), Lillo-Martin reports on studies carried out with minority ‘native signers’—those who have parents or older siblings who are deaf ASL users, and who therefore acquire ASL as a first language. For these children, it can be argued that the linguistic conditions for their acquisition of English are parallel to those of second language learners who learn their mother tongue first and learn a second language later. In Lillo-Martin’s experiment, 29 deaf college students were given (reading) grammaticality judgment
tasks on Wh-movement including Wh-in-situ, Wh-phrase on the right, Embedded clause fronting, Coordinate Structure Constraint, Complex NP Constraint, That-trace violation, etc. The author finds that deaf students respect the constraints on Wh-movement in English, in spite of differences in such constraints between ASL and English. All the studies in this part thus suggest that, in spite of differing linguistic backgrounds and experiences, learners are able to access the constraints on Wh-movement in a second language. This supports the argument for access to UG in second language acquisition.

In Part III, Binding and related issues are treated. Al-Kasey & Pérez-Leroux (Chapter 10) examine whether adult English-speakers can successfully reset the Null-subject or “Pro-drop” Parameter (NSP) in learning Spanish as a second language, focusing on two distinct domains of the NSP that differentiate English from Spanish: null expletives and the omission of optional subject pronouns. The authors propose three alternative paths that a NSP resetting might take. The first is that there is no parameter that underlies both null expletives and optional subject pronouns. The second is that optional subject pronouns would be more difficult to learn than null expletives. The third is that there would be a sudden simultaneous increase in the use of both null expletives and optional subject pronouns. The results of Al-Kasey & Perez-Leroux’s research support the third alternative, and the authors argue from this evidence that the NSP can be reset in the case of null expletives and referential subjects.

In Chapter 11, Bennett & Progovac examine the acquisition of the English binding pattern by native speakers of Serbo-Croatian. Arguing that the morphological, and thus categorical, status of a reflexive largely determines the binding options available in a particular language, the authors administered a battery of tests eliciting interpretations of English reflexives from a group of 73 native speakers of Serbo-Croatian and a control group of 47 English native-speakers. From their results, they conclude that reflexive binding in an L2 is constrained by UG, and that the morphological complexity of reflexives in the L1 may significantly affect learners’ interpretations of reflexives in the L2.

In Chapter 12, Yusa takes up the issue of L2 acquisition of reflexive-binding and empty categories in the framework of the Minimalist Program. Carrying out a study with 26 Japanese learners of English and a control group of 17 native speakers of English, Yusa proposes LF-
movement analyses of reflexive-binding and null complementizers, and succeeds in showing that L2 learners demonstrate knowledge of LF properties that they could not have learned through formal instruction. Yusa’s paper presented here is very important not only because it elegantly shows the acquisition stages of binding relation or ECP by SL learners based on his empirical data, but also because he demonstrates the necessity of paying attention to the “instantaneous model” of SLA. He points out that SLA research has paid too much attention to the problems of parameter resetting so far (p. 221), and claims that instantaneous model should be paid more attention. His statement is important to note for SLA researchers in that it indicates a promising direction in SLA research in the framework of generative approach.

In Chapter 13, Christie & Lantolf continue with the theme of reflexives in L2 acquisition. They hypothesize that, if UG is available in SLA, interlanguage grammar will exhibit evidence of UG effects, through a clustering effect of reflexive binding properties and through UG-sanctioned interlanguage grammars which are in accordance with the head movement analysis. To test their hypothesis, the authors carried out a study with Chinese-speaking and Spanish-speaking learners of English, and with English-speaking learners of Chinese and Spanish. The results of the study did not support the above hypothesis, and the authors propose two explanations. One is that their model or their conception of UG theory is wrong or inadequate. The other, more radical, explanation is that UG is not available to the L2 learner, and may even only be available in L1 acquisition as an “installation program”: once the L1 grammar is established, UG is lost. The authors conclude that, although their findings are preliminary, they indicate a need for more varied and thorough research into the availability of UG to L2 learners.

The final chapter in this part is a commentary on the preceding chapters by Thomas. Thomas successfully draws together the threads of the chapters in part III, highlighting the contradictions, complications and implications within and among the contributors’ findings. By offering alternative interpretations of the contributors’ results and by relating the chapters of this part to theories proposed in earlier parts of the book, she manages to demonstrate the rich diversity and depth of perspectives surrounding binding and related issues.

While the first 14 chapters of the book deal with syntax, the last three chapters, comprising Part IV, are concerned with phonology. In
Chapter 15, Archibald tackles the issues of transfer of native language (L1) representation into the second language (L2) grammar, a Learning Theory known as Lexical Dependency and its relationship to interlanguage change, and the lexical parameterization hypothesis. After discussing the results of several empirical studies on the acquisition of metrical phonology, Archibald argues that UG alone is insufficient to account for how interlanguage grammars change, and asserts the value of including learning theory and the lexical parameterization hypothesis in studying this issue.

In Chapter 16, Youssef & Mazurkewich present the results of a comparative study carried out with a group of 18 adult native Egyptian Arabic speakers of the Cairene Dialect who are L2 learners of English and a control group of 16 English-speaking Canadian adults. They focus on two areas of the acquisition of phonology: (1) the acquisition of English metrical parameters, with special reference to stress placement theory and (2) the acquisition of syllable structure. They found that the range of possible hypotheses held by learners regarding metrical parameters and syllable structure in the L2 is constrained, and conclude from this that UG plays an important role in the process of L2 acquisition. They acknowledge, however, that it was difficult at times to distinguish between the influences of L1 and UG when there was a match in L1 and UG parameter values.

Following these two chapters, O'Neil (Chapter 17) centers his discussion on the rhythm rule in English and the growth of L2 knowledge. Drawing on various studies, including the findings reported in the previous two chapters that adult learners of English all have trouble with the rhythm rule, regardless of the stress patterns of their native language, O'Neil argues that it is easier for people developing an L2 to set parameters anew rather than learn rules and the items to which they apply.

The authors of all three chapters in this part, therefore, agree that UG is accessible to the L2 learner in terms of phonological learning, and this adds an important comparative element to the more dominant studies of syntax.

Through these chapters in Parts II, III, and IV, readers can discover how the range of research interest has widened and how the theories in the field have been presented and established in recent years. Although these chapters have been introduced only briefly, it is hoped that the overview of the main ideas and theories contained therein will
serve as a guide, enabling anyone who is interested to study them further independently. Since it is impossible to deal in sufficient depth with the entire range of research presented in the book, however, the rest of this article will focus on Part I, which deals some of the most important key issues in the generative study of second language acquisition.

3. Main Issues in Part I

The main issues in Part I are concerned with Functional Categories. The reason I chose this part to focus on is not only because the acquisition of functional categories has been a central issue in the field of SLA research, but also because one of the most controversial and challenging hypotheses in the field, namely the Minimal Trees Hypothesis, is presented here. The rest of this article will thus be devoted to examination and discussion of the debate in this area.

Part I consists of five chapters (C1–C5):


C2: The Initial State in the L2 Acquisition of Phrase Structure, by Anne Vainikka and Martha Young-Scholten (V&Y-S).


The first four papers in Part I present a variety of topics which are all related to SL learners’ acquisition process of syntactic structures in the target languages, while the last paper by Gair is a commentary on these four papers. As the title of this part indicates, all the papers focus on the acquisition process of “functional categories.” The authors’ working hypotheses, empirical data, and discussion, however, give us promising insights not only into issues concerning the acquisition process of functional categories, but also into other important issues which should be taken into account in all research areas of SLA.

As Gair states, one of the most crucial questions in the field of language acquisition research (regardless of whether the target language is
the first or second language) has been whether universal grammar (UG) is available to first/second language learners in the acquisition process of syntactic structures. (Gair: 79) Based on the results of a plethora of theoretical and empirical research over the last 30-plus years, researchers have come to the conclusion that we cannot deny the existence of the availability of UG in first/second language acquisition. Subsequently, research concerns have shifted from the existence of the availability of UG to its "timing and degree." (cf. Flynn (1987), Flynn and O'Neil (1988), White, (1989), Goodluck (1991), among others.)

As a result, in recent language acquisition research, one intriguing and controversial topic is whether functional categories exist from the very initial stage of language acquisition or whether they do not exist in a complete state in the initial stage, but rather "grow" in accordance with biological maturation. The former is labeled the "continuity hypothesis" position (cf. Deprez and Pierce (1993), Hyams (1992), Lust (1994), Valian, (1992)) and the latter the "maturation hypothesis" position. (cf. Guilfoyle and Noonan (1992), Lebeaux (1988), Lust et al. (1994), Radford (1990).)

The authors of the five papers in Part 1 clarify their own position towards these two theoretical hypotheses with regard to the SLA process as follows:

<table>
<thead>
<tr>
<th>Position</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>maturation</td>
<td>continuity</td>
</tr>
<tr>
<td>2</td>
<td>maturation</td>
<td>maturation</td>
</tr>
<tr>
<td>3</td>
<td>continuity</td>
<td>continuity</td>
</tr>
<tr>
<td>4</td>
<td>continuity</td>
<td>maturation</td>
</tr>
</tbody>
</table>

2 Gair shows the table below in order to summarize each paper's position about both first and second language acquisition, and also to assert that there is a further possibility, Position 4, which none of the papers take. In his paper, he uses the term "stepwise" in place of "maturation."

3 Since Lakshmanan does not clearly mention which position she takes as her theoretical basis on L1 acquisition, Gair regards her position as "neutral" in terms of L1 acquisition. (Gair: 81) It is clear, however, that she presupposes that even a
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C5 Gair: Continuity hypothesis=Child, Maturation hypothesis=Adult

The other important topic, dealt with by all contributors bar Lakshmanan, is the influence of the syntactic structure of the learners’ first language (L1) on the acquisition process of the syntactic structures of the target language, in other words, L1 transfer. For example, Schwartz states:

Research on nonnative language (L2) acquisition has long focused on the role of the native language (L1). A commonly held intuition is that what happens in acquiring a second language is nontrivially dependent, at least in part, on the properties of the L1 grammar, and this intuition has received much empirical support over the last 30 years. (Schwartz: 35)

It is difficult, perhaps impossible, for anyone to deny categorically the possibility of the influence of the native language on SLA. The important question here, however, is not whether L1 has an influence or not, but “to what degree” and “on which structures/properties” it has influence in the acquisition process of a second language. Although the common focus of all the contributors in this part is the acquisition process of functional categories, their hypotheses show varying degrees of acceptance of the extent of L1 transfer. Their perspectives can be summarized as follows:

(1) Lakshmanan: L2 child learners exhibit functional categories.
   → Whether L2 child learners are activating the transferred L1 functional categories or they are activating UG is open to question.

(2) V&Y-S: Only lexical categories of L1 are transferred to L2.
   → The transferred lexical categories develop into L2 syntactic structures including functional categories by UG.

= The Minimal Trees Hypothesis

child at the very beginning stages of SLA has functional categories. In other words, she does not presuppose a growing process of the functional categories in child SLA. In that sense, her paper can be regarded as being based on the continuity hypothesis.

4 Gair suggests that child SLA should be distinguished from adult SLA in terms of the acquisition process of functional categories, and that it could be possible to explain child SLA using the continuity hypothesis and adult SLA using the maturation hypothesis.
(3) Schwartz: Functional categories of L1 are transferred to L2.
→ L2 learners exhibit the functional categories of L1.
= Absolute L1 Influence Hypothesis

(4) Epstein et al.: L2 functional categories are essentially the same as L1 functional categories (but L1 functional categories are not transferred to L2).
→ L2 learners become able to attain linguistic performance through activating UG competence.
= Direct Access Hypothesis

In addition, Gair suggests the need to take into account the issues of age at acquisition and the time span intervening between L1 and L2 acquisition when analyzing the acquisition process of SLA.

4. The Minimal Trees Hypothesis (MTH)

4.1. Significance of the MTH

As shown in the last section, three different positions: Minimal Trees, Absolute L1 Influence, and Direct Access, are presented in Part 1 of the book. The mere understanding that current SLA researchers analyze L2 learners’ acquisition process of functional categories based

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5 Cook (1989) shows the three positions in terms of the accessibility of UG to L2 learners’ grammar/competence: Direct Access, No Access, and Indirect Access, as in the figure below. If we view the five papers’ positions from this perspective, they can be categorized as below. I have categorized Epstein et al.’s position as Direct Access position, although they do not explicitly label their position as such:

Lakshmanan → Direct Access position
V&Y-S → (Partial) Indirect Access position
Schwartz → (Absolute) Indirect Access position
Epstein et al. → Direct Access position
Gair → Direct Access position (Child L2)
Indirect Access position (Adult L2)

Universal Grammar

L1 grammar

Direct Access

Indirect Access

L2 grammar

Other mental faculties

No Access

(Cook (1993: 210))
on various hypotheses or theoretical positions is in itself valuable. More important here, however, is that the discussion among the contributors gives us the opportunity to compare their hypotheses and theoretical positions and to ascertain which is most compatible with empirical linguistic data taken from SLA learners.

Among the three hypotheses or theoretical positions, V&Y-S’s MTH could be regarded as the most stimulating for discussion in that it clearly shows the hypothetical stages according to which L2 learners’ functional categories “grow,” and elicits constructive arguments from other researchers, whether they are “for” or “against” their hypothesis. V&Y-S assert:

Our proposal is admittedly more radical than the simple idea that L2 earners acquire a language in-between their L1 and L2. We propose that only certain projections are transferred from the L1 to the L2 grammar being constructed; that is, the initial state of L2 acquisition does not consist of the entire L1 syntactic knowledge, at least in terms of what the learner is able to access. (emphasis added) (p. 30)

Schwartz labels V&Y-S’s position the “partial L1 influence hypothesis” position and argues:

What is important to keep in mind ... is that the attractiveness of the Vainikka and Young-Scholten hypothesis is that it offers a principled explanation, based on a principled distinction in linguistic theorizing both for some of the similarities between L1 and L2 acquisition (i.e., the “growth” of functional categories) and for the differences between L1 and L2 acquisition (i.e., “transfer” of only lexical categories). (p. 36)

From section 4.2 and onwards, I would like to focus on the discussion concerning MTH, examining its validity in terms of theoretical and methodological questions.

4.2. Stages in MTH

V&Y-S (1994) propose the following three acquisition stages, shown respectively in Figures 1, 2, and 3. They assert that L2 learners follow these stages in the acquisition/growing process of functional categories of the target language.
By summarizing characteristics regarded by the authors as supporting evidence for the existence of the above stages, the nature of each stage can be illustrated in the following way:

**Table 1: Characteristics/Indicators of Each Stage**

<table>
<thead>
<tr>
<th>Stages</th>
<th>Verb raising</th>
<th>Modals &amp; Auxiliaries</th>
<th>Agreement paradigm</th>
<th>Complementizers</th>
<th>Wh-movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bare VP</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Underspecified FP</td>
<td>optional</td>
<td>some</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>AgrP</td>
<td>frequent</td>
<td>common</td>
<td>acquired</td>
<td>emerge</td>
<td>emerge</td>
</tr>
</tbody>
</table>

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6 V&Y-S label the underspecified functional projection in the second stage as Finite Phrase (FP) following Clahsen, who suggested that German children’s first functional projection is an underspecified FP. (V&Y-S: 24) As pointed out by Schwartz, what is important at this stage is that finiteness and subject-verb agreement are seen as distinct, for the Verb can move from its base position but targetlike subject-verb agreement has not yet been acquired in this stage. (Schwartz: 40)
Stage 1:
According to V&Y-S, the L2 learners in this very early stage (1) have no functional categories (e.g. CP, IP, or AgrP) of L2, (2) transfer part of the syntactic structure of their L1, that is, Bare VP into their interlanguage, (3) transfer only lexical projections specified for headedness from UG, and (4) have not yet fully acquired the specific instantiation of projection mechanism of the L2. They assert that the interlanguage of L2 learners in the very early stage has neither an FP, nor IP (or AgrP), and as a result, it has no heads of FP, and IP (or AgrP) to serve as the landing site for the Verb movement.

If their hypothesis is correct, we can expect to find that L2 learners in a very early stage do not exhibit the five indicators (verb movement, modals and auxiliary, agreement paradigm, complementizers, and Wh-movement) shown in Table 1. V&Y-S show production data taken from the least advanced Turkish, Korean, Italian, and Spanish learners of German as evidence to support the existence of their hypothetical developmental stages.

As is clear in Table 2, they successfully show the existence of the transfer of headedness of participants’ L1 to L2. While German (= target language), Turkish, and Korean are all Head-final VP languages, Italian and Spanish are Head-initial VP languages. All the data indicate the fact that learners in this stage transfer their L1 headedness to L2, which is compatible with V&Y-S’s assertion.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Head-final VP</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 (Turkish)</td>
<td>100%&lt;sup&gt;8&lt;/sup&gt;</td>
</tr>
<tr>
<td>P2 (Turkish)</td>
<td>98%</td>
</tr>
<tr>
<td>P3 (Korean)</td>
<td>95%</td>
</tr>
<tr>
<td>P4 (Italian)</td>
<td>20%</td>
</tr>
<tr>
<td>P5 (Italian)</td>
<td>35%</td>
</tr>
<tr>
<td>P6 (Spanish)</td>
<td>20%</td>
</tr>
<tr>
<td>P7 (Spanish)</td>
<td>0%</td>
</tr>
</tbody>
</table>

<sup>7</sup> Original data in Table 2 are taken from Tables 2.1 and 2.2a in V&Y-S, pp. 20-21.

<sup>8</sup> Percentages are calculated as the number of correctly used verbs out of the total number of verbs produced.
As is shown in Table 3, the least advanced learners of German, despite their different language backgrounds, do not seem to have acquired the functional elements which are regarded as indicators in Table 1.

As for the agreement paradigm, V & Y-S show the following data in Table 4 taken from the same Turkish and Korean learners. They assert that the L2 learners in this stage have not yet acquired the agreement paradigm, citing the following evidence:

... the majority of their verbs bear infinitival and plural suffix -n, which they assume to represent the lexical entry of a verb — hence, a default suffix, and this form is used regardless of the person and number features of the subject. (p. 23)

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Table 3: Indicators for Bare VP Stage

<table>
<thead>
<tr>
<th></th>
<th>VR</th>
<th>AUX</th>
<th>MOD</th>
<th>COM</th>
<th>WHM</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 (Turkish)</td>
<td>12%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>P2 (Turkish)</td>
<td>14%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>P3 (Korean)</td>
<td>16%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>P4 (Italian)</td>
<td>NR</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>P5 (Italian)</td>
<td>NR</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>P6 (Spanish)</td>
<td>NR</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>P7 (Spanish)</td>
<td>NR</td>
<td>14%</td>
<td>8%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

VR: verb raising, AUX: auxiliaries, MOD: modal, COM: complementizer, WHM: Wh-movement, NR: not reported

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9 Original data in Table 3 are taken from Tables 2.3a, 2.3b, 2.4, and 2.5 in V & Y-S, pp. 22-23.

10 Percentages are calculated as the number of correctly used elements: verb raising, auxiliaries, modal, complementizer, and Wh-movement. Calculations are based on the actual numbers of production of the elements and total number of verbs produced which are shown in Tables 2.3a, 2.3b, 2.4, and 2.5 in V & Y-S, pp. 22-23.

11 As far as verb raising by Romance speakers is concerned, V & Y-S do not report the actual number or percentages. They explain the reasons for not reporting them as follows:

As Romance speakers switch the word order within the VP at an early stage, it is impossible to determine based on word order exactly how much verb raising occurs at this stage (a V2 structure may reflect either verb raising to the left or a head-initial VP). (p. 21)
Stages 2 & 3:

V&Y-S show how the functional categories of the subsequent stages "grow," using data indicating the change of percentages of correct verb raising by Underspecified FP Stage (=advanced) learners (Table 5) and AgrP Stage (=most advanced) learners (Table 6).

Furthermore, in order to show the development of the agreement paradigm in accordance with the stages, they show data on learners' suffixation in Tables 7 and 8. As shown in the tables, while the learners in Underspecified FP Stage show the high default -n, the learners in AgrP Stage show much lower percentages of default -n and high percentages of correct suffixation.

Table 4: Agreement Paradigm

<table>
<thead>
<tr>
<th>Default Suffix -n</th>
<th>Bare Stem</th>
<th>Other Suffixes</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 (Turkish)</td>
<td>92%(^{13})</td>
<td>8%</td>
</tr>
<tr>
<td>P2 (Turkish)</td>
<td>68%</td>
<td>31%</td>
</tr>
<tr>
<td>P3 (Korean)(^{14})</td>
<td>68%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Table 5: Correct Verb Raisings in Underspecified FP Stage

| P8 (Turkish) | 37% |
| P9 (Turkish) | 53% |
| P10 (Turkish)| 45% |
| P11 (Turkish)| 46% |
| P12 (Turkish)| 48% |

Table 6: Correct Verb Raisings in AgrP Stage

| P13 (Turkish) | 66% |
| P14 (Turkish) | 75% |
| P15 (Turkish) | 84% |
| P16 (Korean)  | 74% |
| P17 (Korean)  | 68% |
| P18 (Korean)  | 90% |

\(^{12}\) Original data of Table 4 are taken from Table 2.6, in V&Y-S, p. 24.

\(^{13}\) The authors do not report the actual numbers of the correct usage of verbs with regard to the agreement paradigm, but point out that “even the speakers who already have a head-final VP have correct subject-verb agreement on the main verb only 11% to 36% of the time.” (p. 22)

\(^{14}\) As for P3, since the total percentage of the Default Suffix-n and Bare Stem is 77%, there is a problem for the adequacy of categorizing this learner as in Stage 1.

\(^{15}\) Original data in Table 5 are taken from Tables 2.8, 2.9, in V&Y-S, p. 26.

\(^{16}\) Original data in Table 6 are taken from Table 2.11, in V&Y-S, p. 27.
5. Discussion

In the previous section, we saw the structures and characteristics of L2 functional categories proposed by V&Y-S under the name of MTH, and how empirical data produced by the L2 learners support the existence of the “growing” stages. MTH is certainly one of the most valuable hypotheses proposed in the field of SLA research in the last decade because of its clarity and its wide and deep perspectives. As is often the case with an excellent hypothesis, however, it also elicits some important methodological and theoretical problems. In this section, I would like to discuss some of the points touched upon or criticized by the other contributors in Part I of this book.

5.1. Methodological Problems

5.1.1. Problem of Data Collection: Performance or Competence?

One of the most difficult problems in the research of second language acquisition is what types of data the researchers should rely on to examine the validity of theoretical hypotheses. For example, Epstein et al. in this book comment on the methods of data collection used by V&Y-S:

(They attribute knowledge to the L2 learners of only those grammatical categories that are correctly instantiated in the learners’ speech. (p. 63)

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Table 7: Suffixation in Underspecified FP Stage

<table>
<thead>
<tr>
<th></th>
<th>Default (-n) or Bare Stem</th>
<th>Other Suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>P8</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>P9</td>
<td>93%</td>
<td>7%</td>
</tr>
<tr>
<td>P10</td>
<td>94%</td>
<td>6%</td>
</tr>
<tr>
<td>P11</td>
<td>92%</td>
<td>8%</td>
</tr>
<tr>
<td>P12</td>
<td>78%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Table 8: Suffixation in AgrP Stage

<table>
<thead>
<tr>
<th></th>
<th>Default (-n)</th>
<th>Correct %</th>
</tr>
</thead>
<tbody>
<tr>
<td>P13</td>
<td>47%</td>
<td>88%</td>
</tr>
<tr>
<td>P14</td>
<td>17%</td>
<td>97%</td>
</tr>
<tr>
<td>P15</td>
<td>20%</td>
<td>97%</td>
</tr>
<tr>
<td>P16</td>
<td>30%</td>
<td>97%</td>
</tr>
<tr>
<td>P17</td>
<td>20%</td>
<td>95%</td>
</tr>
<tr>
<td>P18</td>
<td>31%</td>
<td>95%</td>
</tr>
</tbody>
</table>

17 Original data in Table 7 are taken from Table 2.10, in V&Y-S, p. 27.
18 Original data in Table 8 are taken from Table 2.12, in V&Y-S, p. 28.
And they assert that:

Production tasks of the kind are subject to more performance constraints than other tasks, given the lack of experimental controls. Thus, it is possible that the absence or incorrect instantiation of functional categories in these naturalistic type speech tasks are due to a deficiency in production or performance, rather than knowledge or competence. (pp. 63-64)

Since it is clear that V&Y-S’s study is not concerned with L2 learners’ performance but with their competence, the criticism made by Epstein et al. is a crucial one. In order to solve the problem, it might be necessary for them to tap the L2 learners’ competence for functional categories, by administering some other appropriate tasks, such as a grammaticalilty judgment task and a comprehension task, together with the production type tasks.

Furthermore, Epstein et al. assert that it is possible that the absence of the complementizer *daß* is attributable to the lack of acquisition of the lexical entry of the word and not the absence of CP.19 (p. 64)

Since this problem is closely connected with the interpretation problem of the given linguistic data, I would like to deal with it in the next section.

5.1.2. Problem of Interpretation of the Data: “No Appearance” Is Equal to “No Existence”?

In V&Y-H’s study, data indicating the absence of functional categories are regarded as evidence to show the “non existence” of the functional categories. For example, V&Y-S argue:

(T)he Turkish and Korean speakers at this [Bare VP] stage produced no embedded clauses with overt complementizers nor any Wh-questions with a clear CP projection. We conclude that they do not have a CP projection available to them at this point. (p. 24)

19 In addition to the problems discussed in section 5, Epstein et al. point out the possibility that the learners’ deficiency is due to phonological reduction of unstressed phonemes or clusters in certain environments. They also assert that the data taken from the naturalistic production in V&Y-S’s study is not always efficacious or ultimately reliable. (p. 64)
A key question here is whether this way of interpreting the data is proper or not, in light of the fact that what the authors want to see is not the phonological realization of the functional categories (e.g. CP, IP, or AgrP). Functional categories should be regarded as abstract operators/positions which are allocated their own functions within the syntactic structures of language. If so, it does not seem to be proper to conclude that CP does not exist because of its phonological absence.  

On the other hand, Lakshmanan interprets child L2 data in a different way to V&Y-S. She presents the following data, produced by two Chinese L1 children learning English as a second language:

(1) This little baby sleeping in the big bed (Meng-Meng)
He walking. (Huan-Huan)

(2) This little girl was watching the movie (Meng-Meng)
[=This little girl is watching a movie.]
He was /grai/ [=He is crying.] (Huan-Huan)

In order to determine whether the above children have acquired the auxiliary is, Lakshmanan interprets these two sentences as follows:

(I)t is interesting that in the very same samples where utterances such as those in (1) occur, there were also instances where both children produced the auxiliary was even though the contexts in question required the use of the present tense form. This can be seen from the examples in (2). (p. 7)

It is difficult to conclude whether V&Y-S's way or Lakshmanan's approach is more valid, since other contextual conditions might have some influence on the produced data. But we should be aware of the fact that data indicating the "absence of phonological realization" of a functional category are not "direct evidence" to show the "non-existence" of it, but "indirect evidence" to suggest the possibility of the absence of the functional category. Even if we cannot capture the sound

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20 It is also possible to assume that the "non-movement" of a verb, in other words, the verb "remaining in the firstly generated place," could be regarded as evidence to indicate the "non-existence" of a functional category which could be the landing site for the verb.

21 Sentence (1) is given as (3a), and (2) is given as (3b) respectively, in Lakshmanan, p. 7.
of a functional category, it is logically possible to assume that the functional category exists. In other words, L2 data showing the phonological absence of functional categories can be interpreted neither as evidence to reject the continuity hypothesis, nor as evidence to support the maturation hypothesis in SLA.

5.2. Theoretical Problems

In addition to the methodological problems discussed in section 5.1, V&Y-S's study elicits interesting arguments regarding theoretical problems in the field of SLA.

5.2.1. Role of Input

One of the fundamental problems is concerned with the question of whether it is theoretically possible for L2 learners to develop functional categories based on partially transferred lexical categories and input data. V&Y-S label their hypothesis as The Weak Continuity Hypothesis, which lies between the Nature approach (=Strong Continuity Hypothesis) and the Nurture approach, which holds that everything needs to be discovered in the data because UG provides no relevant information. They regard the roles of UG and input as follows:

The Weak Continuity Hypothesis of language acquisition ... falls in between the two extremes: UG provides the mechanism of positing projections (X'-Theory), but the specific instantiations of projections are based on the input data. (p. 29)

Since their assertion sounds moderate compared with the other two extreme approaches, it sounds intuitively correct. But the important question here is whether or not L2 learners really can develop functional categories based on the input data. For example, Schwartz poses a question to V&Y-S on this point:

As movement is generally from a position inside a lexical projection to a position inside a functional projection (e.g., NP-raising, Wh-movement, Verb movement), then does the Vainikka and Young-Scholten proposal predict that all such movement would have to be acquired “anew” in the course of L2 acquisition? (p. 46)

V&Y-S answer her question by saying, “In fact, existing L2 data can be argued to support these and related predictions (p. 29),” and suggest the possibility and necessity of examining the hypothetical developmental or acquisition stages of a functional projection. Although it may be
meaningful to set up falsifiable hypotheses to be examined, it seems to be difficult to believe that all the syntactic elements shown by Schwartz are acquired one by one, exclusively based on input data, as V&Y-S predict. Of course, further research is needed to obtain data which will clarify whether their theoretical explanation is compatible with empirical data.  

5.2.2. Transfer of Lexical Categories

According to MTH, in the very early stage, lexical categories are transferred to the L2 while functional categories are not transferred. However, what happens in the acquisition of the following verbs: hear and want?

a. John heard [NP the story].
b. John heard [CP that Mary's paper was late].
c. John wanted [NP the paper].
d. John wanted [IP Mary to turn the paper in on time].

(Schwartz: 45)

As suggested by Schwartz, when we think of the four types of argument structures for the two verbs, that is two for each verb, it is clear that the four argument structures need to be projected from the lexicon into syntax as a functional projection. If the lexical entry of the Verb specifies the particular syntactic form of the proposition (e.g. CP/IP, [+/-] tense, [+/-] wh), the MTH does not allow learners to acquire the argument structures, since the CP and IP categories are excluded in the MTH. (p. 45) Furthermore, Schwartz states in an endnote:

22 For example, it is theoretically possible to gather linguistic data from input data, to show the relation between acquisition of a movement and some specific trigger causing the movement. However the issue of what kind of data could be a good evidence for the relation is open to question and V&Y-S have not been successful in capturing the data clearly.

23 Schwartz points out that the theoretical explanation of the acquisition process of the Minimal Trees Hypothesis is more similar to lexical learning by Clahsen et al. (1994) than to the maturationally based approach of, for example, Radford (1990). (p. 39)

24 Schwartz also explains the case that the lexical entry of the Verb simply specifies that a proposition is a possible argument. (p. 45) One of the reviewers points out that since learners at the early stage without functional categories do not produce
Suppose a Verb does not just note its argument(s) as "nominal" ... but rather specifies the category. If nominal arguments of a Verb are listed as DPs, ... this implies for Minimal Trees that the L1 headedness of VP would not be able to transfer: as DPs—being functional projections—do not transfer, then none of the argument structure of the Verb can either. Since there is nothing for X-bar Theory to be applied to, ... the headedness of VP is simply precluded. (p. 54)

As is shown above, insofar as lexical categories have a close and inextricable relation with syntactic structures including the projection of the argument structures, it does not seem to be enough for V&Y-S to say that L2 learners transfer the lexical categories at the very early stage. In order to make their hypothesis theoretically meaningful, they need to explain specifically what properties of the lexical categories are transferred and what properties are not, and why.

5.2.3. Development of Linguistic Theories and L2 Acquisition Research

Gair touches upon the relation between linguistic theories and L2 acquisition research and comments:25

One problem that haunts theory-driven acquisition studies is the rapid development of linguistic theory in comparison to the braking effect that careful experimental design and execution and the gathering of precise and sufficiently extensive data exert on acquisition research that goes beyond the observational. (p. 83)

For example, Schwartz suggests, in an endnote, the possibility of a drastic change in V&Y-S's hypothesis under the influence of the change sentences like (b) & (d), there is no logical problem with the MTH in this respect. In addition, the reviewer touches upon Schwartz' assertion that headedness cannot be set if there are no functional projections, and suggests that it may be possible to decide the direction, i.e. initial or final, of headedness of phrases regardless of other elements (e.g. NP or DP). These important points are now open to question, and need to be researched in greater depth in the future.

25 Gair also touches upon the theoretical changes in the field of linguistics over the past few years in terms of IP: e.g. T(ense)P, Neg(ative)P, Agr_s(ubject), and Agr_o(bject).
in linguistic theories:

Kayne (1994) argues that all languages are underlying SVO—that is heads always precede their complements and specifiers always precede their heads—and moreover, that rightward movement of all kinds is prohibited. If Kayne’s proposal is correct, the Vainikka and Young-Scholten hypothesis, namely, that functional projections do not exist in the L2 initial state, is immediately falsified. (p. 54)

As Schwartz states here, if Kayne’s proposal is correct, V&Y-S would lose their theoretical foundation, because to presuppose L2 learners’ acquisition stages of the headedness of the target language per se becomes meaningless.

It is true that SLA researchers have to struggle with research topics in a dilemma between the rapid development of linguistic theories and the necessity of gathering sufficient and adequate empirical data, and this is especially true of researchers working within the framework of generative grammar. While it is sometimes difficult for us to follow the pace of new developments in linguistic theories, however, such developments present us with an exciting and challenging research field providing a lot of new intellectual stimulation.

6. Concluding Remarks

In this review article, I examined the Generative Study of Second Language Acquisition (GSSLA) with special reference to Part I, especially the Minimal Trees Hypothesis (MTH) and related issues. MTH has been one of the biggest contributions to SLA research within the framework of generative grammar over the past several years. Although there are some problems or questions left unsolved, no one denies that it is one of the most valuable extant hypotheses.

I could not deal fully with the other parts: Part II, Constraints on Wh-Movement; Part III, Binding and Related Issues; and Part IV, Phonology. However, the newest and most striking hypotheses and arguments in these fields are presented in all the other parts, too. In my opinion, reading of the other three parts will also bring about intellectual stimulation and profit all readers who are interested in linguistics, 1st/2nd language acquisition, and language teaching.

As mentioned in section 5, the rapid development of linguistic theories in these years is remarkable. We could say that the greater
the expansion of theoretical development in linguistics, the wider and deeper the SLA research themes become. I hope that we will be able to read the next version of this book in several years, and in the meantime we can look forward to the fruitful development of SLA studies between this book and the next one.

REFERENCES


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