Linguistic Theory-Based Research as Core Discipline in Second Language Acquisition Studies

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Abstract

This paper presents an argument for how second language acquisition (SLA) research should be carried out if a researcher is genuinely interested in learner grammar (i.e., knowledge of language), its acquisition and use. SLA research has expanded greatly over many years and currently spans many subfields, but researchers share one main goal: to describe and explain second language learners' knowledge and behavior in a broad sense. After presenting important insights from Doughty and Long (2003), who discuss relations between SLA research and language teaching, we divide these subfields into three areas following Wakabayashi (2003) and contend that investigating learners' linguistic systems is the core area of SLA research. We will illustrate the importance of linguistic theory-based research with data concerning 3rd person singular *-s* in English. It will be argued that SLA studies need a rigorous descriptive tool (i.e., a theoretical framework) to describe and explain the system underlying learners' behavior in their use of second languages.

Keywords: second language acquisition, theoretical framework, generative grammar, learner behavior, 3rd person singular *-s*

Introduction

At the dawn of second language acquisition (SLA) research, Corder (1967) suggested that we should examine learners' errors to investigate how SLA takes place. Selinker (1972) coined the term 'Interlanguage' five years later, to refer to the system / grammar in the learner's mind for the use of a second language. Linguistics-based SLA research has developed since these important works to investigate the interlanguage and systems related to it. There are of course other approaches to SLA but the findings in this approach should not be ignored in any sense when we discuss SLA, including discussion of second language learning in the classroom (see below).

Doughty and Long (2003) published a handbook, which is a milestone for the relatively short history of SLA research, reflecting the progress of our understanding of SLA in the 20th century and a few years into the 21st century. It shows the cutting-edge state of SLA research at that time, consisting of seven sections including 24 chapters, and covers most relevant issues in SLA research. These sections are: overview; capacity and representation; environments for SLA; processes in SLA; biological and psychological constraints; research methods; and the state of SLA. Although there may not appear to be much description about how language teaching influences SLA as the handbook one chapter of instructed SLA in the section of environments for SLA has only, many other chapters contain discussions about classroom learners' behavior within them.

The first chapter is titled 'the scope of inquiry and goals of SLA,' and there Doughty and Long (2013) mention that:

> Much work in SLA ... has clear application or potential application from the start. The most obvious of these is second (foreign) language teaching..., since SLA researchers study the process language teaching is designed to facilitate. (p.7)

They add a note to this paragraph:

> The utility of some work in SLA for this purpose does not mean that SLA is the only important source of information, and certainly not that a theory of SLA should be passed off as a theory of language teaching. Nor, conversely, does it mean, as has occasionally been suggested, that SLA theories should be evaluated by their relevance to the classroom. (p. 8, note 2)

I strongly agree with Doughty and Long (2013) on the point that the goal of SLA research should be independent of language teaching and learning, no matter whether it has any relevance to language teaching, in or out of the classroom. In fact, logically speaking, even if SLA research were to reveal a characteristic of the system with which learners use a second language in a non-target-like way, it becomes an altogether separate scientific questions whether it is possible for instructors/teachers to facilitate change of the relevant part of the system among learners or to add something to compensate for the gap between the learner system and the goal system.

Facilitation by instruction is pedagogically desirable but whether it is possible or not or how it takes place in the learner system is largely unknown as far as I am aware: Even if progress in learner behavior seems to be triggered in some studies, these studies seldom discuss explicitly which part of the learners' second language system has been affected or changed. In fact, logically speaking again, how to facilitate progress must be less well understood than the second language system(s) themselves because we need to know the system itself before (or at the same time as) discussing its development, which in turn must come before (or at the same time as) isolating its facilitation. Moreover, if we are sincere about a scientific investigation of facilitation (i.e. how to advance language acquisition more effectively by giving better instruction or more effective tasks) ays a discipline, this logical order for the accumulation of our knowledge and understanding must be considered seriously. I should repeat that we must study mental systems underlying second language knowledge in the first place, or at least at the same time as other aspects of SLA, to know how to facilitate the advancement of learners' knowledge of their second language.

Subfields in SLA Research and linguistic theories

As shown in Doughty and Long (2013), SLA research includes several subfields, though most usually share a common purpose: to describe second language learners' knowledge and behavior. In addition, some approaches, including generative approaches to SLA, try to explain why L2 learner behavior does (not) appear to be like that adult native speakers in some respect, adopting theoretical frameworks from linguistics and psycholinguistics. Some approaches try to explain inter- and intra-learner variability from psychological and physiological points of view. Other approaches do this based on environmental factors surrounding different learners and events. Environmental factors are not limited to stable ones but include dynamically changing ones as well, such as learner interaction, teacher instruction and peer reactions. The studies that focus on what is happening in the classroom is sometimes called Classroom SLA research.

Internal and external environments as well as L2 linguistic knowledge must always be connected to learners' behavior, because SLA research relies on the description of learner behavior, either quantitatively, qualitatively, or both, to discuss internal and external environments and/or L2 linguistic systems. In typical 'foreign' language situations, such as learning English in Thailand or in Japan, descriptions of learner behavior in L2 use is often no more than a description of learner behavior in an English classroom, and hence, so-called classroom SLA research is sometimes confused with research on language teaching. This misunderstanding is often strengthened by the fact that teachers/instructors tend to control learner behavior in class. In this sense, the external environment (e.g., L2 input, tasks, instruction) and learner behavior (e.g., classroom participation, practice, learner strategies) are difficult to distinguish.

Wakabayashi (2003) divided SLA research into four subfields: (studies of) internal environment, external environment, learners' behavior, and L2 linguistic system, as shown in Figure 1, where "core SLA research" refers to studies of cognitive systems underlying learners' verbal behavior, while "broad SLA research" includes those of other factors surrounding how learners learn and use the target language.

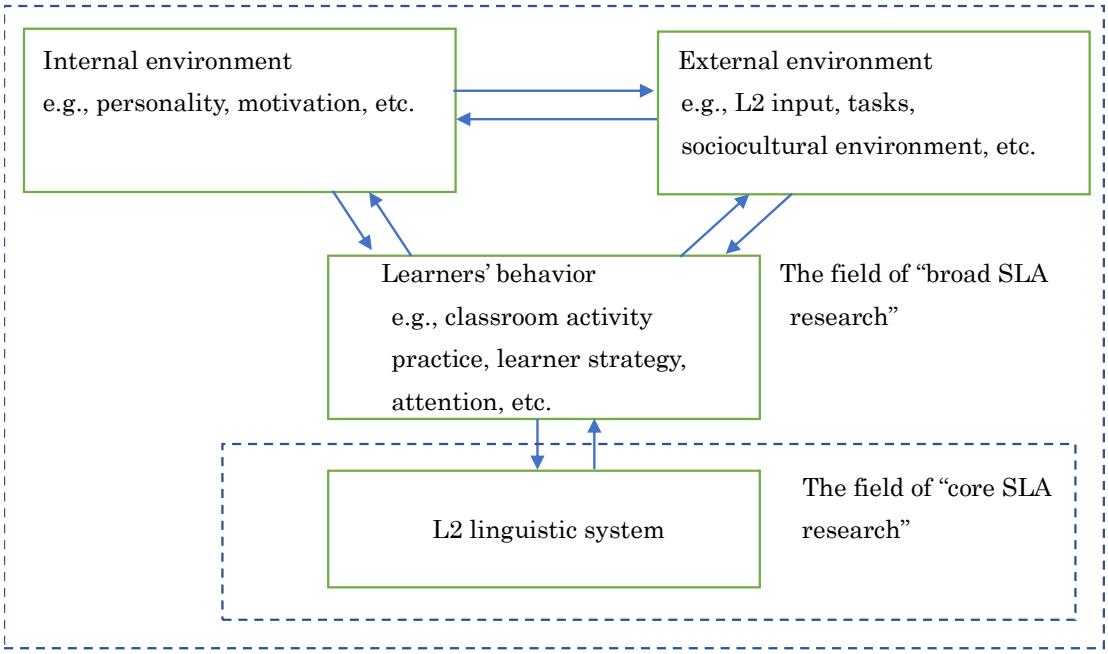


Figure 1. L2 linguistic system and related areas (Wakabayashi, 2003)

Some approaches try to capture learner behavior 'as a whole' in principle and try to describe L2 linguistic knowledge in the learners' psychological and social contexts, appearing to (try to) ignore the distinction between subfields in Figure 1 (or any other distinctions). These approaches may appear to be suitable to describe what happens in classroom situations as "a whole." However, in SLA research, this principle is very difficult to apply to concrete cases.

Let us consider a hypothetical example: Imagine that a hypothetical second language learner produced the non-target-like form *Tom **likes** peanuts but usually **eat** almonds* in a situation where an adult native speaker of English would have said *Tom **likes** peanuts but*

*usually **eats** almonds*, and that a researcher wants to discuss why this learner utterance was not identical to what would be expected from an adult native speaker. (This kind of inconsistency in use of certain morphemes has been observed for a long time. Cf. e.g., Towell and Hawkins, 1994). If the researcher assumes that this non-target-like utterance is not a one-off event (i.e., not caused solely by the effect of a specific social context) but is caused by the learners' production system, then she inevitably describes the situation with the assumption that the learner has an L2 system underlying this production.

Since 3rd person singular *-s* is a morpheme and morphemes connect sound /s/ and meaning (and grammatical function) in certain morpho-syntactic contexts, any difference between the L2 learner's production and the L2 input, produced by speakers of the target language, is due to, logically speaking, the non-native-speaker-like system in: (i) the (on-line computation of) connections between the sound /s/ and the meaning/function; or (ii) the production of the sound /s/; or (iii) the mental representation of the sound /s/; or (iv) the mental representation of the meaning; or (v) the interpretation of the morpho-syntactic contexts. These possibilities are not mutually exclusive, and hence there could be more than one aspect where the L2 learner system differs from the native speaker.

The areas in (i)-(v), in fact, correspond to research fields in linguistics: (i) (mental processing of) morphology / syntax; (ii) articulatory phonetics; (iii) phonology; (iv) morphology / semantics; and (v) pragmatics. Each field has developed its own theories to describe and explain what native speakers of the language do with its properties, largely independent of other fields, or of social contexts, except for (v), because there are psychological, physiological, and frankly logical reasons for this 'modulated' view of fields within linguistics. For example, informally speaking, the difficulty in articulating a consonant (in this case /s/) at the end of a word is independent of the mental representation of the number feature ([singular] for 3rd person singular *–s*, and [plural] for plural *-s*), and both are usually, if not always, independent of factors related with the hearer, the topic of the oral exchange, or the situation (e.g., in the classroom).

How is such a situation described and explained by approaches that emphasize capturing a learner as a whole without positing a linguistic system(s) underlying the production of utterances? I have no idea. They may contend that there is no value if we examine such a situation without referring to the social context. However, the fact is that no matter what the social contexts are, second language learners tend to drop 3rd person singular *-s*. In other words, such approaches ignore this kind of error (or they may change the logic such as these are not errors but second language performance that should be evaluated independent of target-like use, leaving open the question of why second language performance does not reflect certain parts of input). Therefore, I maintain that any approach that tries to describe learner behavior as a whole will be incapable of shedding light on what is going on in learners' minds if they seriously examine why learners make non-target-like or target-like productions and/or interpretations in their second language performance.

SLA researchers should consider the description of learner language more seriously. In this sense, a 'modulated view' of second language systems is inevitable, where abstraction is not trivial. When we discuss the acquisition of a second language linguistic system, we need a theory to describe this linguistic system. I am aware that we need theories of acquisition (e.g., Yang, 2018) and theories of how L2 linguistic systems operate in addition to a theory of representational knowledge of language; however, the description of second language learners' 'linguistic' behavior must be examined within a theory to describe the underlying linguistic system first. This is because without such a theory, we cannot discuss its acquisition or use.

Generative Approaches to SLA

Among SLA studies, the discipline that takes the description of learners' linguistic behavior most seriously is linguistics-based SLA, or more specifically, the generative approach to SLA. Studies in this discipline have successfully revealed many aspects of L2 linguistic systems. Most importantly, plenty of evidence has emerged to show that L2 linguistic systems are constrained by innately given linguistic knowledge, in a way similar to L1 linguistic systems (see e.g., Wakabayashi, 2011; White 2003), and hence, it is both reasonable and desirable that SLA research be carried out based on previous findings in linguistics that deal with natural languages in general. At the same time, although it is largely accepted that the L2 linguistic system is fundamentally equivalent to the L1 system in this approach (Hopp, 2007), its substance and/or its use appear to differ between first and second languages, and hence second language learners often produce non-target-like productions (i.e., their productions are different from the input they are exposed to) and appear to fail to process certain items during comprehension. Generative (and non-generative) studies have reported such phenomena, but currently what factors cause such differences is remain largely unknown, and this question has raised hot debates for more than two decades (cf. Slabakova, 2016).

Variations in the Use of 3rd Person Singular *-s*

Phrasal Syntax is not difficult, but affixation is, and the omission of bound morphemes is more pervasive than their overuse or substitution (Slabakova, 2016). For example, it is well known that 3rd person singular *-s* is difficult for second language learners of English, which is attributed to multiple dimensions in second language systems (see below).

Wakabayashi, Hokari, Akimoto and Kimura (2018) adopt Distributed Morphology (Halle & Marantz, 1993), a theoretical approach within the Minimalist Program (Chomsky, 1995), as its framework, with the view that morphosyntactic knowledge has several submodules within itself. Based on data from a series of experimental studies, Wakabayashi and colleagues suggest that certain errors in comprehension and/or production of 3rd person singular *-s* can be attributed to non-native-like computation in different submodules (see also Wakabayashi 2013).

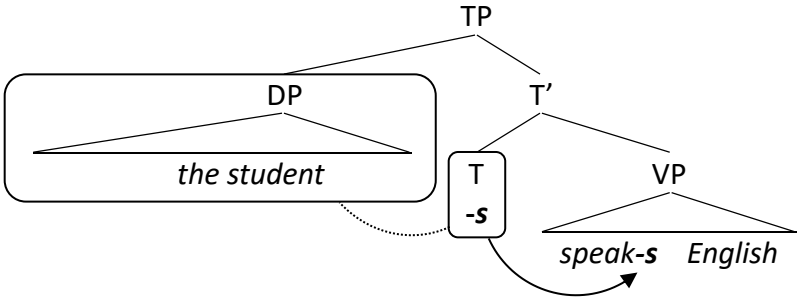
Part of their account is as follows: Wakabayashi and Yamazaki (2006) found that Japanese speaking learners of English tend to drop 3rd person singular *-s* when they produce sentences like (1a). When they produce a sentence where an adverb *often* intervenes between the subject noun *student* and the verb *speaks* (1b), the ratio of omission of 3rd person singular *-s* is significantly higher than (1a) type sentences. On the other hand, when a PP *with blue eyes* intervenes between the subject noun *student* and the verb *speaks* (1c), the ratio of omission of 3rd person singular *-s* is not significantly different from a sentence with no intervening item (i.e., (1a)).

(1) a. The student speaks English.
b. The student often speaks English.
c. The student with blue eyes speaks English.

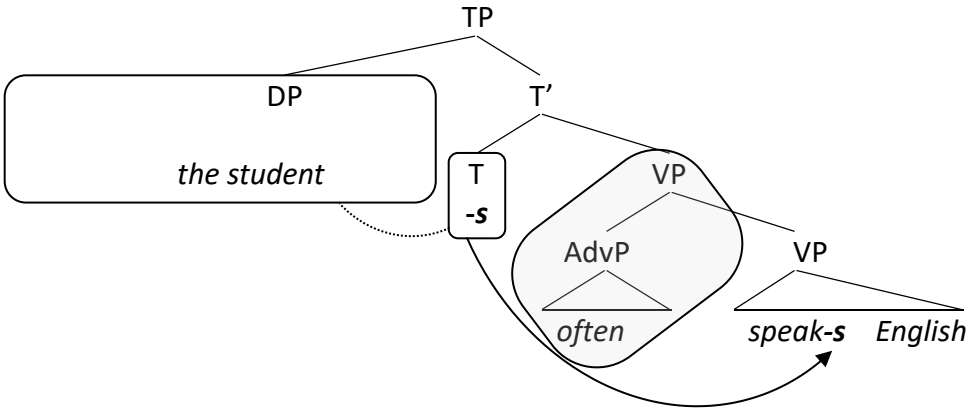
Wakabayashi (2013) and Wakabayashi and Yamazaki (2006) illustrate the structure of sentences in (1) as in (2). They explain that the structural distance between the subject DP and the verb in (1b) is greater than that in (1c), and hence, the difference in the ratios of omission for (1a) and (1b), but not so between (1a) and (1c). That is, when the subject DP is structurally far from the verb, L2 learners tend to drop 3rd person singular *-s*. Regarding why

3rd person singular *-s* is difficult in general, Wakabayashi et al. (2018) build upon Ionin and Wexler's (2001) account of affix-lowering as long-distance agreement (Chomsky, 1993) and attribute this difficulty to feature lowering in Morphology in the Distributed Morphology model of language computation. The differences in syntactic structures of the sentences in (1) are illustrated in (2), where only relevant elements are included; dotted lines show AGREE; and arrows show feature lowering:

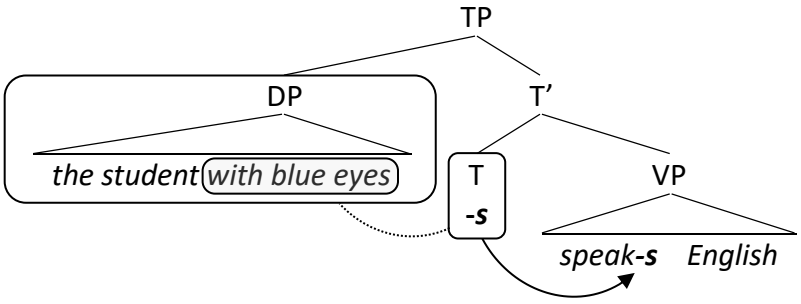
(2) a.



b.



c.



As illustrated above, an adverb (AdvP) intervenes between T and *speak-s* syntactically (2b), which has a strong effect on the use of 3rd person singular *-s*. On the other hand, *with blue eyes* is within DP and hence, this PP does not structurally intervene between the subject DP and the verb, as seen in (2c) (Wakabayashi, 2013; Wakabayashi et al. 2018; Wakabayashi and Yamazaki 2006). If the claim that structural differences in morphosyntax have greater influence than surface linear order distances is correct, we must pay attention to morpho-syntactic structures when discussing learner errors in morpheme use. Therefore, we need a linguistic analysis of the structure to discuss learner behavior sensibly.

So far so good, but this is not the end of the story. Maemura (2002, cited in Wakabayashi 2013), reports that some adverbs have stronger effects on Japanese speaking learners' production of 3rd person singular *-s* than others. Moreover, some PPs in subject noun phrases have distinct effects: Hawkins and Casillas (2008) show that Chinese- and Spanish-speaking learners of English produce 3rd person singular *-s* less accurately when a subject DP has *of*-PP (e.g. *the guest of the tutor(s)*) than when it has no PP; and Yusa, Kim, Yusa and Koizumi (2014) report data where PPs with different head prepositions (*of, for,* and *with*) have different degrees of impact on the use of 3rd person singular *-s*. Hence, L2 learners' use of 3rd person singular *-s* is sensitive to subtle differences among adverbs and PPs, which implies that multiple factors operate on L2 systems. In my view, why some PPs have different effects than others on the use of 3rd person singular *-s* remains unanswered, and hence it demands more detailed examination in future research.

Another kind of relevant data is that the use of 3rd person singular *-s* is closely related to the overuse of *be*. Ionin and Wexler (2001) reports that Russian-speaking child L2 learners of English almost never use 3rd person singular *-s* when they overuse *be*. This is supported by Hawkins and Casillas's (2008) observation based on the same kind of corpus data. Some may say that L2 learners use some strategy, such as, "mark tense only once in a sentence." If this were the case, we would expect the overuse of *-s* instead of *be*, such as in (3), which have not been observed in the data.

(3) a. #That boy smart**s**. (cf. "That boy is smart.")
b. #This girl running**s** very fast. (cf. "This girl is running very fast.")
(#: not observed in data)

As far as I am aware, no study has reported L2 learner production of sentences like (3a, b). In short, the overuse of *be* instead of 3rd person *-s* is observed but not the other way around. The overuse of 3rd person singular *-s* is not observed in place of *be*. Thus, the question we should ask is not only why *be* substitutes for 3rd person *-s*, but also why not the opposite? The most promising way to answer this question is to adopt a linguistic theory to describe the phenomena, namely, what 3rd person singular *-s* and *be* are, as Ionin and Wexler (2001), Hawkins and Casillas (2008), and studies by Wakabayashi and colleagues have done. Their answers are not exactly the same as one another, but they agree in one important respect: Feature lowering in Morphology causes the problem; the use of 3rd person singular *-s* involves this operation but the use of *be* does not; and the light verb *be* moves from V to T and stays there in Morphology, which is easier than feature lowering. More detailed discussion on this, and further arguments concerning why feature lowering causes difficulty in the L2 system, appears in Wakabayashi (2018) and in Hawkins and Casillas (2008), and will not be discussed further here.

In this section, we have discussed why second language learners have difficulty in the use of 3rd person singular *-s*, along with which it has been maintained that there are multilayered factors that impede target-like use of this morpheme. Note that the fact that multiple factors influence second language learners' use of a certain morpheme does not imply that the learners' system for producing second language output or comprehending second language input is in any way chaotic or unsystematic. On the contrary, what research has revealed shows second language learner behavior to be quite systematic, and in order to uncover further the systematicity involving second language use, we must design our research carefully, with specific research questions based on a solid theoretical foundation.

Conclusions

SLA research is a broad field, and different approaches in SLA research naturally place emphasis and rigor on different aspects. However, when we discuss the development and use of learner knowledge of a second language, we need to describe that second language knowledge with precision. To achieve this goal, we need a linguistic theory as a theoretical framework. An informal description of recent studies on second language learners' use of 3rd person singular *-s* in English shows how a linguistics-based approach explains how syntactic contexts affect the use of a morpheme. It should be added that SLA data concerning sentences like those in (1) did not come out of blue. Consequential studies inquiring into a proper research question (and setting hypotheses to answer it) have revealed important differences among these sentences, demonstrating that setting a relevant question in each experimental study is one of the most important steps in SLA research.

Core second language research in Wakabayashi's (2003) terms (see Figure 1 above) requires a framework to describe linguistic aspects of learners' cognitive activities. Neither environmental nor internal factors directly alter the difficulties in the use of a morpheme (e.g., 3rd person singular *-s*). If variation in use or differences in the ratio of target-like use is influenced by such factors, the influence always comes about through learner behavior, including cognitive activities, as illustrated in Figure 1. When learners have a greater willingness to communicate (Yashima, 2002, 2012), it may change their physical behavior (e.g., more frequent production of utterances) but the cognitive activities between motivation and behavior may not surface. If we posit a change in learners' cognitive abilities (including linguistic knowledge), a specifically designed study to obtain evidence for or against that change is needed. While many topics have received intensive scrutiny in generative approaches to SLA (see Slabakova, 2016), these studies have uncovered only a limited range of the aspects of what should ultimately be revealed. I hope that those who are interested in SLA will take sincere analytic approaches to the investigation of what learners have for a second language system and what they do with it, otherwise the mystery will remain a mystery.

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