

Applicability of Insights from Theoretical Linguistics (Generative Syntax) and Psycholinguistics (Sentence Processing) to English Education: Two Preliminary Case Studies

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1. Introductory Remarks

The goal of this paper is to investigate the applicability of insights from theoretical linguistics (generative syntax) and psycholinguistics (sentence processing) to English education in Japan. To achieve this goal, two pedagogical experiments were carried out. One (Case Study I) was to give teacher trainees of English education a 15-lesson class based on what sentence structures of human language (English, in particular) are like within the framework of generative linguistic theory. The other (Case Study II) was to conduct for Japanese EFL (English as a Foreign Language)¹ learners an English class designed in response to psycholinguistic experimentation on how humans comprehend linguistic input. Dividing the paper into two parts, the results of the two experiments are reported, and their theoretical and practical implications are discussed.

Part I: Applying the Insights of Theoretical Linguistics (Generative Syntax)

2. Introduction

The purpose of Part I is to examine the applicability of linguistic theory to language teaching under the Communicative Grammatical Approach (Hoogenboom and Uehara 2010 to be discussed in Section 4). We adopt Chomskyan generative grammar as our framework linguistic theory², which does not mean that linguistic theories within other frameworks are not worth dis-

cussing for their practical applicability (see Ito, Shimaoka, and Murata 1982, for example).

Noam Chomsky, who is the founder of the generative grammar theory that we try to apply to language pedagogy, himself repeatedly emphasizes that this application should be approached with serious caution and skepticism. Chomsky (1966: 43) is indeed “rather sceptical about the significance, for the teaching of languages, of such insights and understanding as have been attained in linguistics and psychology”. However, Chomsky (1966: 45) also suggests that “principles of psychology and linguistics, and research in these disciplines may supply insights useful to the language teacher” but that “this must be demonstrated, and cannot be presumed”. Part I explores possible paths to demonstrate the application of generative linguistic theory to language teaching practice, particularly with our focus on EFL education in Japan, and contribute to the foundation of something like what Spolsky (1972) termed Educational Linguistics.³

2.1. Why is the application difficult?

There are at least two reasons why a number of language teachers are, like Chomsky, skeptical about the practical application of generative linguistic theory: (i) continuous radical changes in the theory itself and (ii) the theory’s highly abstract and idealized nature.

First for (i), Chomsky (1966: 45) says that “the applications of psychology and linguistics to language teaching . . . may be gravely affected by changing conceptions in these fields, since the body of theory that resists substantial modification is fairly small”. As this remark demonstrates, generative linguistic theory has been radically modified and revised (mainly by Chomsky and his followers) over the past decades. Chomsky (1965) established the so-called Standard Theory in which the sentence was assumed to have two levels of representation, i.e., the Deep Structure expressing the meaning and the Surface Structure realizing the sound or pronunciation. In Chomsky (1981), the Government and Binding (GB) Theory reconstructed this model and posited that the S-Structure, which replaced Surface Structure, was split further into two levels of representation, i.e., the Phonetic Form (PF) and the Logical Form (LF), and that the pronun-

ciation and meaning were dealt by the PF and LF, respectively. The GB Theory is also known as the Principles-and-Parameters (P&P) Approach to Universal Grammar (UG) that is assumed to constitute a set of principles capturing the universality of human language and a set of parameters determining the diversity of particular languages such as Japanese and English. Under this P&P Approach, Chomsky (1995) explores the Minimalist Program which abandoned the D(eep)- and S-Structures and treats the PF and LF as the only levels of representation for language. As seen in this brief summary of the theory's history, we have to interpret each conceptualization appropriately (and, of course, accurately) in order to decide which framework is most relevant to be applied practically into language pedagogy.

Second for (ii), Chomsky (1965 *et seq.*) adopts a theory-driven, rather than data-driven, approach to the analysis of language.⁴ As a result, the generative linguistic theory is highly abstract and idealized as the above technical jargon indicates, although abstraction and idealization are necessarily involved in any theory construction. Moreover, unfortunately for us, the more advanced the theory becomes, the further abstraction and idealization proceed (see the recent program called Minimalism (Chomsky 1995 *et seq.*) and highly technical discussions therein). This tendency makes the interpretation of the linguistic theory itself too difficult to apply practically to language pedagogy, leaving a large gap between the theory and its practice.

2.2. Yet, linguistics is a study of language

Although linguistics is a highly technical discipline as the previous subsection suggests, we can also consider it simply as a study of language. We may well feel suspicious about the presented findings about language because of their highly idealized nature in generative linguistic theory. Nevertheless, generative grammar has examined language so deeply as to establish a theory and thus may provide us with insights useful to the teaching of language. Fortunately, it has investigated language starting from the English language that is our target language to be considered for language teaching in this paper. This means that we have more insights for the English language, compared to other languages.

Chomsky (1980: 220) argues that "When we speak of the lin-

guist's grammar as a "generative grammar," we mean only that it is sufficiently explicit to determine how sentences of the language are in fact characterized by the grammar". The description of language in such an explicit way produces many concrete insights helpful to language teachers. For example, we can understand differences as well as similarities between the Japanese and English languages precisely in terms of principles and parameters within the generative UG framework. Compare an English sentence (1a) with its Japanese counterpart (1b).

- (1) a. I thought that he gave water to her. (English)
 b. Watasi-wa kare-ga kanojo-ni mizu-o age-ta
 I-TOP he-NOM her-DAT water-ACC give-PAST
 to omo-tta. (Japanese)
 that think-PAST

(Note: ACC: Accusative Case; DAT: Dative Case; NOM: Nominative Case; PAST: Past tense; TOP: Topic marker)

In terms of what we call the Headedness Principle, all the phrases in (1a) and (1b) have heads, e.g., *gave* and *age-ta* of the verb phrases, *gave water to her* and *kanojo-ni mizu-o age-ta*, respectively. Simultaneously, we can see the different word orders between (1a) and (1b) due to so-called the Head Position Parameter, which leads the heads of complementizer, tense, verb, preposition to precede their complements in (1a) but follow in (1b)⁵, e.g., *gave* occurs before its complements, *water to her*, but *age-ta* comes after its complements, *kanojo-ni mizu-o*. This kind of explicit knowledge about the Japanese and English languages is relevant to second language teaching and/or learning because it may be useful to avoid as much as possible what is called the first language (L1) transfer effect, which is defined as follows: "Transfer is the influence resulting from similarities and differences between the target language and any other language that has been previously . . . acquired" (Odlin 1989: 27). Based on the explicit nature of generative grammar, some earlier studies attempt to apply generative linguistic theory practically to the teaching of language. Despite these earlier attempts, the actual application seems not to be as wide-spread as might be expected. Why?

The subsequent sections of Part I are organized to discuss that problem and report our new (preliminary) attempt. Section 3 describes some relevant earlier studies on the applicability of generative linguistic theory to language pedagogy and discusses their strengths and weaknesses as insights and issues for further research, respectively. In Section 4, we explore possible paths to apply the theory effectively to practice, and present our preliminary attempt at this application. Section 5 discusses the results of our attempt in order to consider some current issues and suggest future directions for application.

3. Insights and Issues Suggested from Earlier Attempts

As pointed out by Yasui (1973) and Chiba (1982), generative linguistic theory has contributed to language teaching by (i) depicting the generative (i.e., explicit) view of language and (ii) providing language facts or representative sentences relevant to the nature of language. Corresponding to (i) and (ii), there are two types of earlier attempts to apply linguistic theory to teaching practice: theory- and practice-oriented studies.

3.1. Theory-oriented studies

An explicit view of language could be the core of theorizing the learner's developing grammar of the target language. In that sense, it might be generative linguistic theory that becomes the basis of designing in a principled way a more efficient teaching plan to facilitate the development of the learner's language (Yasui 1977). This rationale motivates theory-oriented studies.

Although he considers Chomsky's skepticism about application, Yasui (1973) nevertheless discusses the importance of the generative view of language for both creativity and formalism. Human beings produce and comprehend novel sentences that they have never encountered, but simultaneously the formation of sentences is severely rule-governed. Based on this nature of language, we could make an inference about developmental processes governing the learner's language, e.g., whether or not his/her language is rule-governed enough to produce and comprehend sentences in a second language. On the other hand, Yasui (1983) also cautions that the more abstract the view of language becomes, the more difficult it is for generative grammar to

apply to language teaching.

Ito, Shimaoka, and Murata (1982) consider the generative view of language acquisition as contributing to language teaching. They discuss the shift of the view of language from a set of observable linguistic habits (behaviorism) to a system (or module) of unobservable cognition (generative mentalism). Based on this shift, they point out that the generative view of cognitive learning may be empirically closer to the nature of language acquisition than the behavioristic view of habit-formation learning in that the acquisition of language proceeds beyond consciousness (though we can facilitate the learner's language development as pointed out below). Ito, Shimaoka, and Murata's (1982) argument suggests that language teaching should be designed following a more empirically accurate view of language (acquisition) such as that provided by generative grammar.

3.2. Practice-oriented studies

Generative grammar has found new facts about language and conceptualized them as discussed in § 2.1. As pointed out above, it began from the intensive study of the English language, and consequently the language facts that have been found so far are much more extensive for English compared to other languages. It is empirically clear that we cannot acquire a language without any input from the target language. So the wide range of language facts of English will contribute to the design of more efficient input to learners.

Saito (1971) tries to apply the generative notions of D-Structure and rules transforming (changing) it to S-Structure to the organization of teaching materials. Although the transformational description (using tree diagrams, for example) is clear to learners, he points out that such teaching materials may be effective to students of linguistics but not to language learners. This implies that the generative notions can be informative for the organization of teaching materials but should be reflected in the materials in a sufficiently accessible way to learners.

Sasaki (1967), Kajita (1982), and Fukumura (2000), among others, apply various generative notions relevant to the English grammatical items taught in schools such as *to*-infinitives, relative clauses, active and passive voices, and so on. This kind of analytic curriculum material reflecting the language facts of Eng-

lish may be beneficial to create better input for learners. Considering the limited time and effort available for education, the efficient teaching of language would require better input that consists of the most representative (or frequent) sentences derived from each grammatical item.

3.3. Summary

Theory- and practice-oriented studies as above might demonstrate that the analysis of language and the language facts that have been found are major contributions from generative linguistic theory to language teaching practice. Thus, these studies also suggest that the applicability would be worth considering further. However, as we can see in § 2.1, applying the generative view of language is rather abstract, though a principled design for language teaching is indispensable. This means that we have to make the relationship between theory and practice as clear as possible. § 3.2 implies that a clear link between them may be made possible by the application of language facts explicitly described by generative grammar, for example, to better understanding of the grammatical items that can be considered the base of the learner's language.

4. Exploration of Applicability and Case Study I

The previous section suggests that the application of generative linguistic theory to language pedagogy may be productive. Then, our primary question is how this application should be carried out. This section explores some possible ways to realize the practical application by proposing two ideas:

- (i) that the relevantly applicable scope of generative linguistic theory to language teaching practice should be clarified, and
- (ii) that the link between theory and practice should be made as explicit as possible for actual application.

4.1. Development of communicative competence in an EFL context

Consistently through the recent Courses of Study (MESC (Minister of Education, Science and Culture) 1998, 1999; MEXT (Minister of Education, Culture, Sports, Science and Technology) 2008a,

2008b, 2009)⁶, the primary objective of English education in Japan is to foster the learner's communicative competence in Canale's (1983) sense. According to Canale and Swain (1980), Canale (1983), communicative competence can be disaggregated to four components, based on the characteristics of human communication: (a) grammatical competence, (b) sociolinguistic competence, (c) discourse competence, and (d) strategic competence. Competence (a) is the ability to generate grammatically accurate sentences. Competence (b) makes possible the appropriateness of language use (e.g., changing how to speak depending on the addressee's social status). Competence (c) enables us to maintain the coherent flow of communication using cohesive devices (e.g., pronouns). Using competence (d), we can avoid communication breakdowns by various strategies (e.g., requesting a repetition of the addresser's opinion). In terms of their properties, these four components may be divided into two categories: (a) for grammatical competence (Chomsky 1965) and (b), (c), and (d) for pragmatic/communicative competence (Hymes 1972). Following this different nature of (a) from (b), (c), and (d), Uehara and Hoogenboom (2000: 188) characterize grammatical competence as the base of communicative competence because "without grammatical competence, communicative competence cannot be sufficiently developed due to a lack of accuracy".

English education in Japan is implemented in an EFL situation where input from the target language is severely limited because it is not spoken daily in the surrounding community. This EFL context causes a serious problem for English education in Japan, making it difficult for learners to develop their pragmatic competence through social interactions. Considering such EFL learning environment, one of the ways to foster learners' communicative competence efficiently may be to facilitate the development of its base, grammatical competence. Since generative grammar provides an explicit picture of language (or grammatical competence), generative linguistic theory could be applied as grammar instruction to improve the development of learners' grammatical competence, though it might be irrelevant to fostering their pragmatic competence. Therefore, generative linguistic theory will be worth considering for its application to language pedagogy in order to strengthen learners' grammatical competence, a precondition of the development of their commu-

nicative competence.

To develop learners' communicative competence most effectively in the EFL context of English education in Japan, Hoogenboom and Uehara (2010) propose what they name the Communicative Grammatical Approach. They try to integrate the early trend of language teaching, the Grammar-Translation Method, into the newly-emphasized, Communication-Oriented Approach(es), synthesizing their advantages as form-focused and communication-oriented. According to Hoogenboom and Uehara (2010), one of the disadvantages of Communication-Oriented Approach(es) is the lack of systematic teaching of grammatical structures of the target language, and this can be compensated by one of the advantages of the Grammar-Translation Method, i.e., systematic learning of the target grammatical structures. Taking the nature of grammatical competence as the base of communicative competence into consideration, it would be highly reasonable that form-focused (grammar) instruction is emphasized as compensation for communication-oriented language teaching.

The Communicative Grammatical Approach consists of four elements as follows:

- (a) Introduction of new grammatical structure and opportunity for inference
- (b) Opportunity for analysis, understanding, and meaningful repetition
- (c) Application, development, and reinforcement
- (d) Strategy development and confidence development

In practical terms, element (a) requires that teachers have a clear knowledge of grammatical structures of the target language in order to make their students able to understand what the new structures are like. Elements (b) and (c) set appropriate situations in which the new structures can be used communicatively. Element (d) enables learners to be more successful communicators by developing their pragmatic competence in addition to grammatical competence. The topmost element (a) may be prerequisite for the three elements that follow it because there can hardly be communication without any grammatical structures. Here, we can see the significance of the pedagogical application of genera-

tive linguistic theory as it is what provides explicit description of grammatical structures.

4.2. Method of Case Study I

To make as explicit as possible the link between generative linguistic theory and language teaching practice, a case study (hereafter, Case Study I) was carried out. It was conducted by (i) listing up the grammatical items in a junior high school English textbook in Japan, which follows the Course of Study (MESC 1998), and (ii) interpreting them in a formal way based on generative grammar theory in order to present them to the participants as teaching materials. This subsection describes the method of Case Study I, and the results are discussed in the following section.

participants

Twenty-nine undergraduate students majoring in English education at Gunma University participated in Case Study I. All the participants had experienced English for at least six years as a compulsory high school subject in Japan by the time of the study. They took part in Case Study I as one activity in a 90-minute class within half an academic year.

materials

Nine groups of the grammatical items in the Course of Study (MESC 1998) were subcategorized into 15 items⁷ and interpreted formally (see Appendix A). Those 15 items were presented one for each day of the class to the participants in the form of hard-copy handouts.

To make teaching materials explicit, the relevant language facts were presented as the representatives for each formally interpreted item. For example, the grammatical item, personal pronouns, was explained in generative terms of Conditions A, B, and C of the Binding Theory and presented with the following language facts of un/grammaticality ((a-b) for Condition A, (c-d) for Condition B, and (e-f) for Condition C; note that the star indicates ungrammaticality, and that the subscript letters are indices for co-reference):

- (2) a. *Bill_i thinks that Emily_j likes himself_i.
 b. Bill_i likes himself_i.
 c. Bill_i likes him_{-i/k}.

- d. Bill_i thinks that Emily_j likes him_{i/k}.
- e. *He_i likes Bill_i.
- f. He_i likes Bill_j.

The grammatical item, *to*-infinitives, was presented with the following example sentences:

- (3) a. The cat_i is likely [*t_i* to be out of the bag] (idiom = possible)
- b. *It* is likely *that the cat will be out of the bag.* (expletive *it* = possible)
- c. The cat_i is eager [*PRO_i* to be out of the bag] (idiom = impossible)
- d. **It* is eager *that the cat will be out of the bag.* (expletive *it* = impossible)
- e. I expected the cat_i [*t_i* to be out of the bag] (idiom = possible)
- f. I expected *it* to be surprising *that the cat will be out of the bag.* (expletive *it* = possible)
- g. I persuaded the cat_i [*PRO_i* to be out of the bag] (idiom = impossible)
- h. *I persuaded *it* to be surprising *that the cat will be out of the bag.* (expletive *it* = impossible)

These items were explained in generative terms of raising ((3a-b for subject, and (3e-f) for object) and control ((3c-d) for subject, and (3g-h) for object).

procedure

In each class, handouts were distributed to the participants, and the grammatical item in question was explained for around 15 minutes or so by presenting the language facts as above. After that, the participants discussed for about 10 minutes (whenever possible) the contexts in which the grammatical item could be taught communicatively. On the final day of the class, a survey questionnaire was conducted in order to obtain the participants' reflections on the teaching and materials.

survey questionnaire

The survey questionnaire consisted of the following four questions:

- (4) a. Q: What was your impression of our teaching? (choose any)
1. enjoyable
 2. interesting
 3. difficult
 4. boring
- b. Q: Were you able to deepen your knowledge/ understanding about the English language? (choose one)
1. very much
 2. more or less
 3. not so much
 4. not at all
- c. Q: Do you think the information presented in the class would be necessary when you teach English? Write your reason.
1. necessary
 2. not necessary
- d. Q: To which aspect(s) of the actual teaching of English do you think the information presented in the class would be useful? (choose any) Write your reason(s).
1. pronunciation instruction
 2. vocabulary instruction
 3. grammar instruction
 4. listening instruction
 5. speaking instruction
 6. reading instruction
 7. writing instruction

These four questions were designed to elicit from the participants relevant feedback about the applicability of generative linguistic theory to language pedagogy. Question (4a) tried to obtain information about whether or not learners feel bored with the teaching materials in actual application. Question (4b) attempted to find out whether or not generative linguistic theory will be useful to the development of the learner's grammatical competence. Finally, Questions (4c-d) directly sought for any opinions on the actual application and the potentials of application, respectively. Note that the questionnaire was anonymous.

5. Results and Discussion

Table 1 below shows the overall results of the survey questionnaire.

Q1.	What was your impression of our teaching? (choose any)	
N = 29	1. enjoyable	4 (13.7%)
N = 29	2. interesting	22 (75.8%)
N = 29	3. difficult	16 (55.1%)
N = 29	4. boring	1 (3.4%)
Q2.	Were you able to deepen your knowledge / understanding about the English language? (choose one)	
N = 29	1. very much	6 (20.6%)
	2. more or less	22 (75.8%)
	3. not so much	1 (3.4%)
	4. not at all	0 (0%)
Q3.	Do you think the information presented in the class would be necessary when you teach English? Write your reason.	
N = 29	1. necessary	28 (96.5%)
	2. not necessary	1? (3.4%)
Q4.	To which aspect(s) of the actual teaching of English do you think the information presented in the class would be useful? (choose any) Write your reason(s).	
N = 29	1. pronunciation instruction	0 (0%)
N = 29	2. vocabulary instruction	1 (3.4%)
N = 29	3. grammar instruction	28 (96.5%)
N = 29	4. listening instruction	1 (3.4%)
N = 29	5. speaking instruction	1 (3.4%)
N = 29	6. reading instruction	8 (27.5%)
N = 29	7. writing instruction	16 (55.1%)

Table 1: Results of the Survey Questionnaire

(Note: N stands for the number of responses. For Q's 1 and 4, the maximal number of responses was 29 for each item, while for Q's 2 and 3, it was 29 in total.)

Question (4a) (i.e., Q1 in Table 1) produced somewhat positive results for the actual application. However, we have to bear two

things in mind (i) that these results might have been a little biased because the participants were all English majors and (ii) that almost half of the participants felt some difficulty with the teaching and materials, which could be a factor leading to learners' boredom. Recall that the primary objective of EFL education in Japan is to foster learners' communicative competence. Nevertheless, for developing its base, grammatical competence, the results of Question (4b) (Q2) were suggestive in that generative linguistic theory may be worth applying to the teaching of language.

Moreover, Question (4c) (Q3) showed positive results for the actual applicability because almost all the participants thought that the information provided in terms of generative linguistic theory would be necessary to language teaching. However, we can also find some negative aspects even of those positive results. The primary one is that the generative terms (e.g., the Binding Theory, expletives) were too technical and difficult to apply actually to language teaching practice. This was exactly the same opinion that was expressed by only one participant who considered the application as not necessary. Interestingly, that participant answered for Question (4d) (Q4) that the information presented in the teaching and materials would be useful for grammar instruction. This implies that the application of generative linguistic theory may be useful to language teaching but that as Chomsky (1966: 45) emphasizes, this must be demonstrated, for instance, by presenting the generative notions in more accessible forms to learners as well as teachers. Note that the generative terms were presented to the participants with a small amount of relevant language facts for Case Study I because the participants were all English majors. To make the actual application more realistic, it would be important not to present the technical terms directly to learners but to provide as many explicit language samples based on the generative notions as possible to facilitate the learners' inductive learning of what the target language (English in this case) is like.

The results of Question (4d) (Q4) were interesting in another way. As expected, a great number of the participants answered that the information presented in the teaching would be useful for grammar instruction, which suggests a positive outlook for application. More interestingly, the results might broaden the

scope of applicability because some of the participants felt the usefulness of the generative notions for writing (55.1%) and reading (27.5%) instruction.⁸ One of the reasons was that for writing, explicit knowledge of cross-linguistic differences between the Japanese and English languages would be useful to teach how to write (produce) English sentences conforming to the correct word order, and that for reading, knowledge of sentence structure would be helpful to teach how to read (interpret) English sentences, especially complex ones, accurately.

As these results show, Case Study I produced positive evidence as a whole for the applicability of generative linguistic theory to language pedagogy. The teaching and materials using generative notions were regarded as necessary to actual English classes by those who were all majors in English education. However, the participants' opinions suggest that we further need to consider how to demonstrate the application in more accessible forms to target learners who may be junior and high school students. Also, we have to bear the following in mind:

- (5) a. that considering only the applicability of generative linguistic theory is not enough for better language pedagogy;
- b. that the applicability of other language-related disciplines such as psycholinguistics (see, e.g., Hatori 1982) and second language acquisition (see, e.g., Okada 2004) is also necessary to consider; and
- c. that implications provided from such interdisciplinary research (see the articles in Taishukan 1982, for example) should be required for a rather complex task, language teaching.

However, if our approach is on the right track, the applicability of generative linguistic theory to language pedagogy may not be as limited as believed before, for example, in developing more effective teaching materials, designing a more efficient curriculum, and so forth. To verify the plausibility of this path, surveying language teachers' direct opinions about applicability will be valuable (as an example, see a survey questionnaire study reported in Kenkyusha 1971).

Part II: Applying the Insights from Psycholinguistics (Sentence Processing)

6. Introduction

The purpose of Part II is to explore the applicability of insights from psycholinguistic research on human sentence processing to the language-teaching/learning classroom. As in Part I, we focus on Japanese EFL learners because their input from the target language (English) is severely limited due to their EFL learning environment. One of the keys to success in teaching/learning English in an EFL environment is how efficiently the learner can process the input from the target language. The present study examines this question by conducting a case study in which we consider how to facilitate Japanese EFL learners' processing of relative clauses in English.

After summarizing the theoretical background, Section 7 reviews the methodology of Processing Instruction, a form of grammar instruction based on insights from sentence processing. Based on PI, Section 8 describes the case study, and Section 9 discusses its theoretical/practical implications.

6.1. Theoretical background

This paper is based on the following two models of language acquisition:

Primary Linguistic Data → LAD → Language

Figure 1: First/Native Language Acquisition Model (Chomsky 1988: 34)

I II III
 input → intake → developing system → output
 I = input processing; II = accommodation, restructuring;
 III = access, productive procedures

Figure 2: Second Language Acquisition/Learning Model (VanPatten 2004: 26)

(Note: for the process I, Processing Instruction (VanPatten 1996, 2004; Benati and Lee 2008); for the process III, Processability Theory (Pienemann 1999, 2005))

According to the concept of the Language Acquisition Device (LAD) proposed by Chomsky (1965), in first language acquisition as in Figure 1, input (Primary Linguistic Data) from the target language is indispensable for output (i.e., generation of the grammar of that language). This holds also in second language acquisition/learning as in Figure 2. For example, when Japanese speakers acquire the English language, acquisition never occurs without any input from English. Based on this empirical fact, input from the target language should be indispensable for acquisition of a second language as well. In other words, what is necessary for language acquisition/learning is processing of input from the target language.

It turns out from psycholinguistic research on human sentence processing that the human sentence processing mechanism or parser operates most efficiently when it follows its own principles or strategies. Input processing in language acquisition means the processing of a sentence from the target language and the understanding of the features of that language; that is, sentence processing. Thus, it is important to make input processing work most efficiently by following the principles of the processor/parser. Because input processing is indispensable for language acquisition, efficiency of input processing is the key for the success of language acquisition. To enhance input processing efficiency, the language learner needs to understand the properties of the parser's principles and apply them effectively to their input processing.

7. Processing Instruction

A form of grammar instruction based on the parser's principles is called Processing Instruction (VanPatten 1996, 2004). Processing Instruction (henceforth, PI) considers the empirical fact that the parser conducts input processing obeying its own principles, and enables the language learner to make effective use of such principles and facilitate his/her language acquisition processes. As the parser's principles, VanPatten (2004) lists up the following:

Principle 1. The Primacy of Meaning Principle. Learners process input for meaning before they process it for form.

Principle 1a. The Primacy of Content Words Principle. Learners process content words in the input before anything else.

Principle 1b. The Lexical Preference Principle. Learners will tend to rely on lexical items as opposed to grammatical form to get meaning when both encode the same semantic information.

Principle 1c. The Preference for Nonredundancy Principle. Learners are more likely to process nonredundant meaningful grammatical form before they process redundant meaningful forms.

Principle 1d. The Meaning-Before-Nonmeaning Principle. Learners are more likely to process meaningful grammatical forms before nonmeaningful forms irrespective of redundancy.

Principle 1e. The Availability of Resources Principle. For learners to process either redundant meaningful grammatical forms or nonmeaningful forms, the processing of overall sentential meaning must not drain available processing resources.

Principle 1f. The Sentence Location Principle. Learners tend to process items in sentence initial position before those in final position and those in medial position.

(VanPatten 2004: 14)

Principle 2. The First Noun Principle. Learners tend to process the first noun or pronoun they encounter in a sentence as the subject/agent.

Principle 2a. The Lexical Semantics Principle. Learners may rely on lexical semantics, where possible, instead of word order to interpret sentences.

Principle 2b. The Event Probabilities Principle. Learners may rely on event probabilities, where possible, instead of word order to interpret sentences.

Principle 2c. The Contextual Constraint Principle. Learners may rely less on the First Noun Principle if preceding context constrains the possible interpretation of a clause or sentence.

(VanPatten 2004: 18)

In order for the learner to make use of these principles both accurately and effectively, PI provides *explicit instruction* and *structured input*. By *explicit instruction*, the language teacher

explains explicitly that the above principles are at work in human sentence processing and makes his/her students ready for the processing of input from the target language. For *structured input*, the teacher manipulates input from the target language on the basis of the above principles and attempts to make it “comprehensible input” (Krashen 1982) to his/her students as much as possible. For example, for acquisition of the English regular past morpheme *-ed*, the *structured input* may be *I played the piano* rather than *I played the piano yesterday*. This is related to Principle (1b). That is, in *I played the piano yesterday*, both *-ed* and *yesterday* refer to the past tense, and since the learner tends to take meaning from a lexical item, he/she would receive the past information not from *-ed* but from *yesterday*. Thus, this input is not relevant for acquisition of the grammatical form of the regular past in English. On the other hand, in *I played the piano*, the learner can obtain the past information only from *-ed*. Hence, comparing with the already learned present tense, *I play the piano*, he/she can notice that the *-ed* morpheme represents the past tense. Exploiting *explicit instruction* and *structured input*, PI enables the learner to conduct the input processing, which is indispensable for language acquisition, most effectively, and facilitates his/her language acquisition processes as efficiently as possible.

8. Case Study II

Based on PI (VanPatten 1994, 2004), a case study (hereafter, Case Study II) was conducted. As in Part I, we adopt the Communicative Grammatical Approach to language teaching/learning (Hoogenboom and Uehara 2010) within the framework of Canale’s (1983) communicative competence, and assume that the grammatical competence is the basis for creative communication (Uehara and Hoogenboom 2000). In this respect, it is meaningful to consider grammatical items of the English language from the communicative perspective. Without effortful consciousness, native speakers of Japanese accurately use the grammar of the Japanese language and achieve communicative success. Then, how about communication in English as a second/foreign language? Is it possible to achieve communication in English without its grammar (whether consciously or subconsciously)? That seems not impossible but very inefficient. In the Communicative

Grammatical Approach, grammar is the base of communication. The correct understanding of the communicative functions of each grammatical item of the English language will lead students to success in communication in English, which is one of the objectives of English education in Japan (see § 4.1). In Case Study II, we propose an input processing instruction in which ambiguous relative clauses are disambiguated by *structured input* and students' understanding will be fostered about agreement between the head noun and the following verb in a relative clause.

8.1. Ambiguous relative clauses in English

Cuetos and Mitchell (1988) found in native speakers of English a preference for their processing of the ambiguity in relative clause attachment as demonstrated in the following sentence:

(6) Someone shot the servant of the actress who was on the balcony.

In (6), the relative clause, *who was on the balcony*, may attach either to the non-local noun, *the servant*, or to the local noun, *the actress*. Presented with this attachment ambiguity, native speakers of English show a preference for attaching the relative clause to the local noun. Here, recall *structured input*. For language learners, a sentence as in (6) is not a *structured input*. Because an ambiguous sentence yields two (or more) possible interpretations, it would be difficult for learners to understand which feature(s) of the sentence in question should be focused on and consequently learned. Compared to (6), the following sentence can be considered *structured input*:

(7) Someone shot the servants of the actress who were on the balcony.

In (7), the *be*-verb in the relative clause is plural (i.e., *were*), and thus the relative clause must attach to the non-local plural noun (*the servants*), not to the local singular noun (*the actress*). That is, *structured input* in which agreement between the head noun and the following verb is controlled could facilitate students' learning of a relative clause in English and noticing its communicative function of specifying a particular referent.

8.2. Method of Case Study II

Based on the idea of *structured input* described as in the previous subsection, Case Study II was carried out as an example of input processing instruction. Unlike the 15-lesson series of activities in Case Study I, Case Study II was a one-shot class. In the class, students compared ambiguous and unambiguous relative clauses cross-linguistically in their native language, Japanese, and their target language, English, and tried to foster their understanding of how to use relative clauses in English by exploiting *structured input* disambiguated for attachment.

participants

Forty students majoring in applied chemistry or biological chemistry at Gunma University took part in Case Study II. All of them had received at least six years of compulsory English education by the time of the study. They were taught the usage of relative clauses in English in their third year at junior high school (perhaps how relative clauses were taught may have varied depending upon individual teachers, though they at least obeyed the Course of Study by MEXT).

Also, all the participants had taken an English class in the university for half an academic year before the time of the study. In that class, they were provided by an English-speaking native teacher with opportunities to practice all four skills in English: listening (to the teacher and also to other students), reading (the relevant materials for the group project), speaking (during class and at the final oral presentation of the project), and writing (the script of the presentation and also in class- and home-work).

materials

There were two kinds of tests whose scores were compared for the effect of input processing instruction: Pre-test and Post-test. The following three sentences with two possible choices in curly brackets were included in both of the tests (all of the sentences were modified versions of those used in Cuetos and Mitchell (1988)):

- (8) a. Peter was looking at the book of the girl {who / which} was in the living-room watching TV.
- b. John met {the male friend} of {the female teacher} who was in Germany with her students.

- c. The old lady was looking at {the toys} of {the baby} that were on the bed.

Although there were other sentences in both the Pre-test and Post-test, this paper focuses on the results of (8a-c) because only those sentences were used in common between the two tests.

procedure

As for (8a-c), the participant was asked to select the correct answer from the two possible choices in curly brackets by putting a circle around it. *Who* was the correct answer for (8a) because the entity that watches TV must be animate, *the female teacher* for (8b) because in the relative clause, *her* agrees with the female antecedent⁹, and *the toys* for (8c) because in the relative clause, plural *be*-verb (*were*) agrees with the plural antecedent.

The Pre-test was carried out during the last ten minutes of a 90-minute reading class that was not related at all to Case Study II. One week later, an input processing instruction on relative clauses in English was conducted, and after the teaching treatment, the Post-test was administered to the participants. Note that the correct answers for (8a-c) were informed as feedback only after the Post-test, not after the Pre-test, and thus that no influence of feedback on the results of the Post-test was expected.

The class of input processing instruction was given in English as in Table 2.

Time (minutes)	Activity	Contents
20 mins	Warm-up	Worksheet I (Appendix B)
15 mins	<i>Explicit Instruction</i>	Worksheet II (Appendix C)
20 mins	Practice	Worksheet III (Appendix D)
25 mins	Testing (including Post-test)	Challenge Sheet (Appendix E)
10 mins	Wrap-up	Evaluation Sheet (Appendix F)

Table 2: The Flow of a 90-minute Input Processing Instruction Class

In the first 20 minutes, relative clauses that are ambiguous for attachment were introduced cross-linguistically in both Japanese and English. In the next 15 minutes, the participants were instructed explicitly about attachment ambiguity, the communicative function of relative clauses, and agreement between the antecedent and its relative clause. In the next 20 minutes, the participants practiced how to produce and understand relative

clauses in English correctly. In the next 25 minutes, a test (including the part of Post-test) was given for to check achievement. Finally, in the last 10 minutes, the class was reviewed.

As for *Explicit Instruction* in Table 2, which was most important in the class, attachment ambiguity was explained explicitly in that a single sentence could have two (or more) interpretations. Receiving *structured input* in which relative clause attachment was disambiguated, the participants were taught explicitly about the relation between the antecedent and its relative clause (for example, number agreement, gender agreement, animacy agreement) and the communicative function of relative clauses as specifying the referent in question.

data treatment

The forty participants' accuracy in each of the three questions in (8a-c) was calculated for both the Pre-test and Post-test. The mean accuracy in the three questions was compared between the two tests, and the effect of input processing instruction, especially *Explicit Instruction* in Table 2 above, was estimated. Recall that feedback was not given after the Pre-test, and thus that there would be no influence of feedback for comparison.

9. Results and Discussion

The results for accuracy in (8a-c) can be summarized as in Figures 3-5.

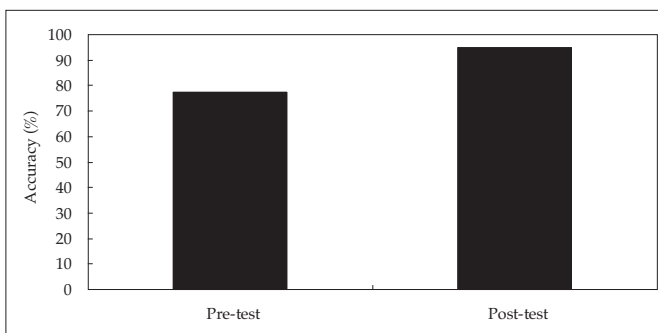


Figure 3: Mean Accuracy in (8a):

Peter was looking at the book of the girl {who/ which} was in the living-room watching TV.

(The circled choice was the correct answer.)

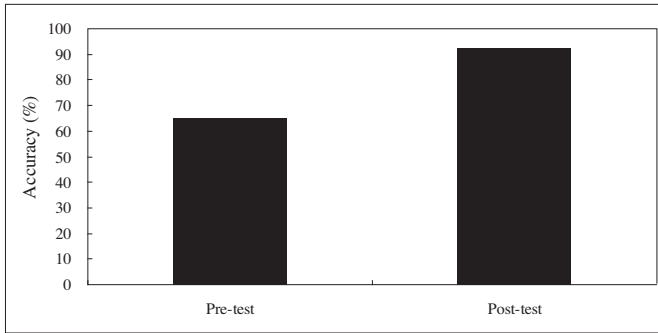


Figure 4: Mean Accuracy in (8b):

John met {the male friend} of {the female teacher} who was in Germany with her students.

(The circled choice was the correct answer.)

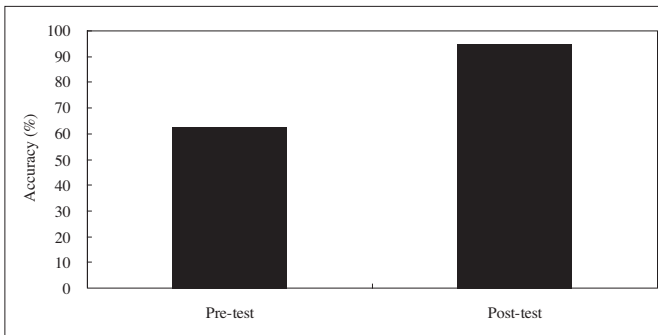


Figure 5: Mean Accuracy in (8c):

The old lady was looking at {the toys} of {the baby} that were on the bed.

(The circled choice was the correct answer.)

As seen in all of Figures 3–5 above, the mean accuracy for each of (8a-c) became higher: for (8a), 77.5% (Pre-test) versus 95.0% (Post-test); for (8b), 65.0% (Pre-test) versus 92.5% (Post-test); and for (8c), 62.5% (Pre-test) versus 95.0% (Post-test). The overall accuracy for (8a-c) can be shown as in Figure 6.

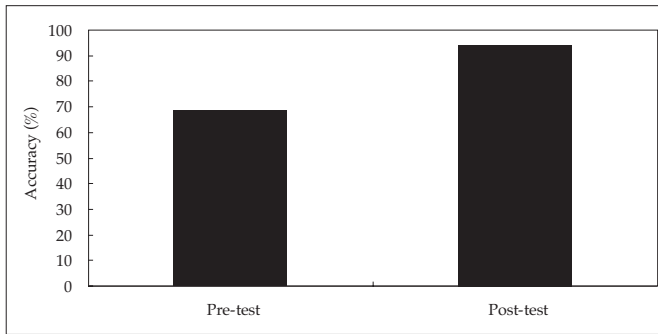


Figure 6: Overall Accuracy (8a-c)

As shown in Figure 4, the mean accuracy for (8a-c) was better after the teaching treatment: 68.3% (Pre-test) versus 94.2% (Post-test).

Let us discuss the results of Case Study II for the effect of input processing instruction. As shown in Figures 3–6 above, we found improvements in the participants' understanding of relative clauses in English after *explicit instruction*. During *explicit instruction*, the participants received *structured input* in which attachment ambiguity was explicitly disambiguated and thus the communicative function of relative clauses as specifying the referent in question was made explicit. Hence, it is conceivable that explicit knowledge of grammatical items in English (i.e., English grammar) would be the base for better performance in English. As emphasized in the Communicative Grammatical Approach, if the learners' explicit knowledge of grammatical items is automatized, their communicative competence could be fostered efficiently as well as effectively.

As pointed out in §6.1 above, no language acquisition occurs without any input from the target language. In other words, efficiency of language acquisition/learning depends on efficiency of input processing. Based on this rationale, VanPatten (1996, 2004) proposes PI with *explicit instruction* and *structured input* in consideration of mechanisms of input processing or parsing (see Section 7). Supporting the usefulness of PI, Case Study II suggested that an input processing instruction could contribute to the efficient development of EFL learners' grammatical competence in the target language.

10. General Discussion and Concluding Remarks

This paper examined the applicability of insights from theoretical linguistics and psycholinguistics to English education by conducting two case studies. In Part I (Case Study I), we investigated how useful the insights from generative syntax on sentence structures of human languages might be to language teacher trainees. Although the participants felt that the technical knowledge was abstract and thus difficult to understand quickly, many of them reported that such knowledge would be useful in teaching grammatical items in English, which are regarded as the base of creative communication according to the Communicative Grammatical Approach. As for the applicability of generative linguistic theory to language pedagogy, Shite and Kawamura (2012) conducted a survey with only a single question, "How do you make use of items learned about generative grammar in language learning or teaching?" (p. 21). Out of forty-four answers provided by thirty-four third-year university students as English teacher trainees, forty-three were positive about the usefulness of generative grammar. As discussed by Shite and Kawamura (2012), removal of the answers by nine participants from further analysis due to their poor understanding of generative grammar suggested difficulty with applying knowledge about generative grammar to language learning or teaching. Compared to Shite and Kawamura's (2012) attempt, the present Case Study I trained the participants, through a 15-lesson class, in how some representative items of generative syntax could be used in language teaching, and showed that those participants provided many positive answers to the four questions as in (4a-d) above. It follows that in order to enforce the applicability, the language teacher trainee should be informed about how the theory, which is always abstract as its nature, can be applied to the actual practice of language pedagogy in such a concrete way as partially shown in Case Study I. Therefore, support from experts on the study of language would be required for language teacher training.

In Part II (Case Study II), we examined how applicable the insights about human sentence processing might be to EFL learners in the form of input processing instruction. As shown by comparison between the Pre-test and Post-test (though the amount of data was small), improvement would be expected

from *structured input* in learners' better understanding of the communicative functions of grammatical items in English (in the present case, relative clauses). Based on the Communicative Grammatical Approach, the learner's efficient processing of input or grammatical items in the target language could lead to both his/her efficient learning of that language and development of effective communication in that language.

In conclusion, the current Case Studies I-II suggested that the application of insights from theoretical linguistics (generative syntax) and psycholinguistics (sentence processing) to language teaching and leaning would be productive. Recall that Chomsky (1966: 45) notes as follows: "principles of psychology and linguistics, and research in these disciplines may supply insights useful to the language teacher", but "this must be demonstrated, and cannot be presumed". In this respect, the present study, although only preliminarily, demonstrated some applicability.

In further research, we would have to extend the scope of applicability in clear forms of demonstration. Keeping in mind that the theory is necessarily abstract and idealized, a particular issue is how accessible the insights from theoretical linguistics and psycholinguistics can be made to language teachers and learners. In actual practice, collaboration between experts in the study of language and in the teaching of language will be required, and how this could be achieved is an important future issue. Note that an application of abstract and idealized theory without any serious consideration might be harmful to practice. If the theoretical and practical implications discussed in the present study are on the right track, the application of linguistic insights can be productive for language pedagogy in particular (Sanz and Igoa 2012), and possibly for school pedagogy in general (cf. Denham and Lobeck 2005, 2010, 2013).

Acknowledgments

First of all, my best gratitude should be expressed toward both those who patiently took part in Case Studies I and shared with us their honest opinions about the applicability of generative linguistic theory to language pedagogy and those who kindly participated in Case Study II and took two tests for the effect of input processing instruction. Without all of them, the present

study would not have been possible.

I also have to thank professors in Gunma University for providing me with the opportunities to conduct Case Studies I-II: in particular, Professor Keiko Uehara (for Case Study I), and Professor Shin Kikkawa and Associate Professor Takako Watanabe (for Case Study II).

Lastly, but not the least, I am very grateful to Professor Brendan Wilson at the University of Tokyo for his patience and comments on the earlier drafts of my thesis.

Notes

1. In some literature on second language acquisition/learning, no distinction is made between a second language (L2) and an FL because an FL is also treated as a language to be learned second to the first language. However, we have to bear in mind that there is a fundamental difference in the learning contexts between them: whether the target language is spoken in the community (for L2) or not (for FL). This paper adopts this distinction where necessary.
2. Within generative linguistic theory, the present study concerns syntactic theory only. This does not mean that for the teaching of sound and meaning aspects of a second language, examining the practical application of phonological and semantic theories within the generative framework is not productive.
3. Educational Linguistics explores those aspects of linguistics that are relevant to education but simultaneously seeks for its own research scope. For further details, see Spolsky (1978) as an introduction and Spolsky and Hult (2010) as a comprehensive volume of recent studies within this framework.
4. In this paper, by the theory-driven approach, we mean that only a small number of idealized linguistic examples relevant to specific hypotheses are used for the examination of language. On the other hand, the data-driven approach means that we observe linguistic evidence throughout (whether immediately relevant or not) for the investigation of language.
5. There is a question whether the interpretation of the English preposition, *to*, in Japanese should be a genitive Case or a postposition. This is why in (b), there is a notation, Gen(*to*). We put aside this question here.
6. In addition to fostering the learner's communicative competence, there are two other major objectives of English education in Japan: (i) to develop his/her positive attitude toward communication and (ii) to deepen his/her knowledge of language and culture. Since generative grammar provides an explicit picture of cross-linguistic differences between the Japanese and English languages, its applicability might be broadened to deepening the learner's knowledge of language. The

results of the survey questionnaire in Section 5 below may be suggestive for this being on the right track.

7. For the present study, we did not interpret formally four grammatical items because we were not able to find the relevant formal terms for them: present perfect, backward modification, imperatives, and S+V+O+C. If our study might be on the right track, these four grammatical items should also be interpreted relevantly in formal terms.
8. Notice that both reading and writing skills deal with the written mode of language. This might imply that the applicable scope of generative linguistic theory to language pedagogy would be wider for written skills compared to spoken skills, listening and speaking.
9. For (8b), *the male friend* could be a possible entity that was in Germany with the female teacher's students. In the input processing instruction (described below), however, agreement in gender was emphasized for the relation between the antecedent and its relative clause. Hence, in Case Study II, the correct answer was decided as *the female teacher* (notice that the teacher, instead of her friend, can also be considered semantically more relevant to be with her students, and note that in fact, the intended antecedent was *the female teacher*, not *the male friend*, in Cuetos and Mitchell (1988)).

Appendix A: Grammatical Items in the Formal Terms

Grammatical Items	Formal Terms
1. <i>be</i> -verbs and ordinary main verbs (present and past tenses)	[person, number] features and subject-verb agreement, [tense] feature, T-to-C movement, and <i>do</i> -support
2. progressive and future expressions	PRO and the Control Theory
3. auxiliaries	multiple-VP layers and the scope of negation
4. articles (determiners)	the DP Hypothesis and the DP structure
5. nouns	nominalization and verbs' subcategorization and argument structure
6. personal pronouns	the Binding Theory
7. interrogative pronouns	[Q, WH] features and Move <i>a</i> , <i>wh</i> -movement (successive cyclicity and subjacency), multiple <i>wh</i> questions (superiority, the Empty Category Principle, and LF movement)

8. adjectives and adverbs	raising predicates and the θ -Criterion and the Case Filter, polarity items and c-command, the Verb.Movement Parameter, and inversion as movement
9. comparatives	ellipsis and ambiguity
10. relative pronouns	preposition stranding and pied-piping, and the distinction between relative and interrogative pronouns in terms of verbs' argument structure
11. <i>to</i> -infinitives	verbs' argument structure, and raising versus control
12. gerund	control and PRO
13. passive	Burzio's Generalization and the θ -Criterion and the Case Filter
14. expletives	LF movement (expletive replacement), and <i>pro</i> and the Null Subject Parameter
15. S+V+O+O	double-object predicates and the Larsonian structure

Appendix B: Worksheet I

ワークシート I

1. 日本語と英語の関係節の解釈

- ① 何者ががバルコニーにいた女優のお手伝いさんを撃った。
 ① Someone shot the maid of the actress who was on the balcony.
- ② 私は
 ② I interviewed the daughter of the woman who had played the piano.
- ③ 私は
 ③ I played chess with the assistant of the doctor who was relaxed

in the living room.

- ④ 太郎は
 (主語を太郎にして)
- ④ Mike called the son of the man who won the first prize.
- ⑤ 花子は
 (主語を花子にして)
- ⑤ Mary fell in love with the student of the teacher who was signing a love song.

2. 日本語と英語の文構造の比較

何者かがバルコニーにいた女優のお手伝いさんを撃った。

Someone shot the maid of the actress who was on the balcony.

Appendix C: Worksheet II

ワークシート II

1. ^{あいまい}曖昧性
 一つの表現から二つ以上の解釈が得られる。
 Someone shot (the maid) of (the actress) [who was on the balcony].
2. 非曖昧性
 一つの表現から一通りの解釈しか得られない。
 Someone shot (the maid) of (the actress) [who was on the balcony memorizing a script].
 (日本語訳)
3. 非曖昧性の例
 英文を和訳しましょう。
 次に、[]内の表現が指すものとして適切な方に○をつけましょう。
- ① A girl broke (the glasses) of (the artist) [who spoke five languages].

- ② The police arrested (the sisters) of (the servant) [who were sick].
-

- ③ A reporter interviewed (the son) of (the actress) [who was in the living room with her husband].
-

4. 関係節による特定化

関係代名詞 (who, which, that) とその後に続く表現 (上の [] 内のこと) によって、話題になっている人や物を特定すること。

ポイント: 関係代名詞の形 (who = 人, which = 物)、関係代名詞の後に続く動詞の形、関係代名詞の後に続く表現などに注意すること。

Appendix D: Worksheet III

ワークシート III

関係代名詞の解釈を練習しましょう。

- ① [] 内を、1~4 では和訳し、5~7 では < > 内の単語を意味が通るように並び替えて英訳しましょう。
- ② [] 内の関係代名詞とその後に続く表現が指すものとして適切な方に○をつけましょう。

1. The mouse bit (the hand) of (the woman) [**who ate the cheese**].
-

2. Mike ran into (the female friend) of (the man) [**who played tennis together with his wife**].
-

3. A present arrived for (the dogs) of (the boy) [**that were fat**].
-

4. John went to the concert with (the father) of (the woman) [**who was widowed**].
-

5. This afternoon I saw (the sons) of (the woman) [繁華街へ歩いて行った].
< downtown, walking, who, were >
-
6. A small dog bit (the leg) of (the man) [包帯が巻かれた].
< a, wound, which, bandage, with, was >
-
7. The chef prepared a meal for (the waiter) of (the woman) [夫と夕食をした].
< that, dinner, with, husband, had, her >
-

Appendix E: Challenge Sheet

チャレンジシート

1. 関係代名詞が指すものとして適切な方に○をつけましょう。
- ① John met (the male friend) of (the female teacher) who was in Germany with her students.
- ② The old lady was looking at (the toys) of (the baby) that were on the bed.
- ③ The nurse took (the medicine) of (the patient) which was by the window.
2. 適切な方に○をつけましょう。
次に、完成した英文を参考にして、関係代名詞が指すものに○をつけましょう。
- ① The journalist interviewed the daughters of the man who (was / were) dancing with his wife.
- ② Peter was looking at the book of the girl (who / which) was in the living-room watching TV.

- ③ The people watched the bag of the soldier (who / which) was sold at 5% discount in the store.

3. 英文にはそれぞれ1つ誤った箇所があります。

誤っている箇所に○をつけて、その下に適切な語を書きましょう。
次に、訂正した英文を参考にして、関係代名詞が指すものに○をつけましょう。

- (例) The boys poked fun at the female child of the teacher who was in the park with her wife.
his

- ① Lewis ran over the dog of the fruiterer which came here to sell oranges.
② This afternoon I saw the babies of the doctor who were at our home treating grandmother.
③ The rain wet the hammock of the priest who was broken by the children.

〈ヒント〉

poke fun at 「～をからかう」、run over 「(車などで)～をひく」、fruiterer 「果物屋」、treat 「～を治療する」、hammock 「ハンモック」、priest 「牧師」

4. 日本語を参考にして、()内の英語を意味が通るように並び替えましょう。

次に、完成した英文を参考にして、関係代名詞が指すものに○をつけましょう。

- ① 警察は軍隊に従事している女性の息子たちを逮捕した。
(police, serving, the, sons, the, of, army, arrested, woman, the, in, who, the, were)
-

- ② ジョンは韓国でコンサートをしたことがある歌手の友人たちと手紙の遣り取りをしている。

(letters, a, Korea, in, the, exchanges, John, with, performed, has, the, of, singer, who, concert, friends)

- ③ メアリーは独身の時にアルゼンチンに行ったことがある牛乳配達人の娘と言い争った。
 (with, when, Mary, had, argued, who, been, the, he, the, to, milkman, single, daughter, was, of, Argentina)
-

Appendix F: Evaluation Sheet

自己評価シート

今日の授業を振り返りましょう。ここに書かれたものは、授業者の今後の授業改善の為のみに活用されますので率直に答えてください。

1～4 は、いずれか該当するものに○をつけてください。

1. 日本語と英語の関係節の解釈の違いについて理解を深めることができましたか？
 よくできた できた あまりできなかった できなかった
2. ^{あいまい}曖昧性という概念について理解できましたか？
 よくできた できた あまりできなかった できなかった
3. 本日の授業を受けて、英語の関係節はどのように使われているのか理解できましたか？
 よくできた できた あまりできなかった できなかった
4. 本日の授業に、関心をもって取り組みましたか？
 よくできた できた あまりできなかった できなかった
5. 本日の授業について、感想やコメントを自由に書いてください。
 (授業者の説明のわかりやすさ、説明の速さ、パワーポイントの見やすさ、など)

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