Japanese EFL Learners' Cognition of Connective Expressions:

Focusing on "But" and "So"

（日本人英語学習者における接続表現の意味認識）

（―「But」と「So」に焦点を当てて―）

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Japanese EFL Learners' Cognition of Connective Expressions:

Focusing on "But" and "So"

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Connective expressions are one of the elements that constitute languages. The concept of the category has appeared in many languages, at least Japanese and English (e.g., Nihongo Kizyutu Bunpô Kenkyûkai, 2009; Swan, 2016), even though it has often been operationalized as different categories depending on the literature, such as discourse markers (Schiffrin, 1987), pragmatic markers (Fraser, 1990), logical connectives (Ozono & Ito, 2003), and discourse connectives (Wilson & Sperber, 2012). Connective expressions are also closely related to a part of speech, conjunctions (Ishiguro, 2008). This current research calls the category "connective expressions" with a comprehensive definition.

As shown by the various category names above, the previous literature has not fixed the concept of connective expressions. On the other hand, language teachers' and researchers' recognition of the role of connective expressions has seemed fixed: They are useful for the comprehension of contexts. As described in the following section, many teachers in the field of English education in Japan (e.g., Narita & Hibino, 2003a) and Japanese education (e.g., Okimori, 2016) have insisted that the alleged relationship is the truth. Researchers also seem to have the same idea (e.g., Ushiro, 2011). There is a question arising from these facts: Why do they believe firmly in the usefulness of connective expressions though they have not even clarified the definition? This question is the starting point of this dissertation.

The purpose of this research is to clarify whether the plausible truth that connective expressions are effective for comprehension of contexts is really the truth or pseudo-truth. Some previous studies have aimed to reveal the effects, but the effects have not been established. Another purpose of this research is to give a more concrete form to the plausible truth: What kind of connective expressions are effective, to what extent are they effective, and for whose are they effective? The more concrete version of

the truth should take the part of teachers and learners.

This section reviews the previous literature on connective expressions, and then summarizes the issues with the studies. The purpose of this current research and the organization is described in the last part of this section.

Review of Previous Research

Definitions of Connective Expressions

Many studies have examined the definition of connective expressions, but more definitions have emerged, and there has not been a unified view of it. Hirose (2012; 2014) and Yang (2014) summarize how discourse-marker researchers have conducted studies on the definition. Halliday and Hasan (1976), in one of the earliest studies of discourse analyses, proposed that discourse markers "are not primarily devices for reaching out in the preceding (or following) text, but they express certain meanings which presuppose the presence of other components" (p.226). Their framework of cohesive devices, which create coherence in texts, consisted of five factors: Reference, Substitution, Ellipsis, Lexical cohesion, and Conjunction. In the conjunction category, they also established five subordinate categories as a classification of connective relationships in texts: Additive (e.g., "and" and "also"), Adversative (e.g., "but" and "yet"), Causal (e.g., "so" and "then"), Temporal (e.g., "then" and "next"), and Continuative (e.g., "now" and "well"). The classification reflects their recognition that connective expressions connect contexts in texts. Hirose places their analyses as one of the approaches to texts.

In the 1980s, studies on connective expressions adopted conversation-based analysis approaches. Schourup (1985) concluded that discourse markers are "used, generally speaking, to relate what is covert to what is overt in ongoing conversational

behavior" (p.111). In other words, they defined discourse markers as "evincive" expressions, the expressions for displaying and sharing the recognition range of speakers and hearers. He called the recognition range "world." Unlike Halliday and Hasan, his definition of discourse markers did not include the function of sentence-to-sentence or paragraph-to-paragraph connections. Also, he did not view discourse markers as expressions that show logic, but expressions that display and share the ways speakers think. He has analyzed the functions of "now" (Schourup, 2011) and interjections such as "well" (Schourup, 2001) as discourse markers as well as conjunctions or logical connective expressions.

Schiffrin (1987) defined discourse markers as contextual coordinates of talk, and their functions are classified into five levels: ideational structure, action structure, exchange structure, participation structure, and information state. Hirose (2012) explains the details of each level (pp. 6−7), and in the first function level, ideational structure, discourse markers connect structures of texts or conversations logically. Therefore, she defined discourse markers as logically connective expressions, but the logicalness is not a necessary and sufficient condition.

In the 1990s, studies on connective expressions adopted corpus-based analysis approaches. Hirose (2012) shows that Biber et al. (1999) is a representative study of the approaches. They define discourse markers as "words and phrases which are loosely attached to the clause and facilitate ongoing interaction" (p.140). They also describe two roles of discourse markers: "(a) to signal a transition in the evolving progress of the conversation, and (b) to signal an interactive relationship between speaker, hearer, and message" (p. 1086). They explained that interjections such as "oh" and lexical phrases, such as "you know," have such roles.

Biber et al.'s (1999) definition of discourse markers is thought to be very close to

the definition currently adopted in connective expression studies in Japan. For example, Nihongo Kizyutu Bunpô Kenkyûkai (2009) defines connective expressions as linguistic elements that indicate the relationships between the following part and the preceding part of the discourse or the entire discourse in texts or conversations (p. 49). They also explain that connective expressions do not always indicate the relationship between the parts of linguistic contexts; They can connect situational or memorial contexts. Matsuo et al. (2015) explain that the most common characteristic of discourse markers is that they have a discourse function that signals speakers' intention in their utterances (p. 333). They also explain, as well as Nihongo Kizyutu Bunpô Kenkyûkai, that discourse represented by connective expressions is not only presented with linguistic contexts in texts but also in utterance situations. Taken together, the above previous studies of Japanese connective expressions consider it appropriate to define connective expressions as linguistic elements representing some signals, such as a sentence-to-sentence or utterance-to-utterance relationship, in contexts.

On the other hand, some previous literature advocates a narrower definition of connective expressions. As for the contexts of English education in Japan, many textbooks defined discourse markers as expressions representing a logical relationship. For example, Narita and Hibino (2003a; 2003b) explain that discourse markers represent a switch of the topic in texts (2003a, p. 4). They emphasize that discourse markers indicate some logical relationships. Kanatani et al. (2012) also state that discourse markers are indicators of logical structures in paragraphs (p. 163). In this way, English education in Japan focuses on the role of discourse markers as a logical indicator.

However, other literature has criticized such a narrow definition of connective expressions. Ishiguro (2008) explains that conjunctions are, in general, expressions

connecting the preceding sentence and the following sentence logically. He does not adopt that definition, and instead, he explains that conjunctions are expressions representing a development of the following context based on the preceding context (p. 27). He also insists that conjunctions should not follow objective logical structures. He explains that both of the sentences, "I studied all night long last night for today's test, but the result was 0 point," and "I studied all night long last night for today's test, but the result was 100 points," are acceptable, which is an example that opposes the insistence that conjunctions follow objective logical structures (p. 30). He insists that the example implies that conjunctions represent speakers' or writers' subjective rather than objective logic.

Ranges of Connective Expressions

There has been no strict definition of the range of connective expressions. Nihongo Kizyutu Bunpô Kenkyûkai (2009, p. 54) insists that there is an infinite number of Japanese connective expressions, from one word such as "*soshite*" (corresponding to "and" in general), "*shikashi*" (corresponding to "but" in general), and "*nazenara*" (corresponding to "because" in general), to a clause such as "*naze ka to iu to*" (corresponding to "this is because" in general), and "*hanashi wa tobimasu ga*" (corresponding to "by the way" in general). Moreover, they suggest that a unit of some sentences can play a role equivalent to connective expressions, but discourse studies mainly treat expressions with a high frequency of the appearance as connective expressions.

Some previous literature asserts that connective expressions cannot be defined based on parts of speech. According to Okimori (2016, p. 31), the school grammar in the Japanese national language says that conjunctions are independent words that are

not conjugated, showing the relationship between the preceding and the following sentences or utterances. However, he criticizes the range of connective expressions described by the school grammar because it excludes "*sono tame* (corresponding to "therefore" in general)," which is a combination of a pronoun adjectival "*sono*" and a noun *"tame*." In addition, Ishiguro (2008, p. 22) claims that some previous literature reiterates that the conjunction category should not be a part of speech. The boundary between adverbs and conjunctions is ambiguous in some cases (e.g., "*tokuni*," corresponding to "in particular" in general) and so are the margins between demonstrative pronouns and conjunctions (e.g., "*sore ga*," corresponding to "it is" or "but" depending on contexts). Thus, the literature on Japanese connective expressions emphasizes that classifications based on parts of speech are insufficient for the clear range of connective expressions, at least in Japanese.

The previous literature on connective expressions in English also stresses that connective expressions include not only conjunctions but also other words or phrases. Matsuo et al. (2015) show 43 English phrases as basic discourse markers, but Matsuo (2016) states that they put 130 expressions as candidates for headwords at first. Their headwords include not only conjunctions but also adverbs (such as "actually"), interjections (such as "ah"), lexical phrases (such as "I mean"), and phrases including prepositions (such as "according to"). In fact, many previous studies on English connective expressions (Biber et al., 1999; Halliday & Hasan, 1976; Schiffrin, 1987; Schourup, 1985, 2001, 2011) and dictionaries (Quirk et al., 1985; Swan, 2016) have analyzed these words and phrases as well as conjunctions. For example, Swan (2016) explains that discourse markers "are words and expressions which help to structure spoken exchanges and written text" (Section 284), and he introduces some adverbs, lexical phrases, phrases including prepositions, and even verbs (e.g., "suggest" and

"claim," which show attitude) as discourse markers. Thus, the literature on English connective expressions suggests that classifications based on parts of speech are insufficient for the clear range of connective expressions, as well as in Japanese.

Classifications of Japanese Connective Expressions

Japanese connective expression researchers have conducted a large number of studies on the classification of them (Ichikawa, 1978; Ishiguro, 2008; Ito & Abe, 1991; Nihongo Kizyutu Bunpô Kenkyûkai, 2009; Okimori, 2016; Saji, 1987; Sakuma; 1992, 2002; Tanaka, 1984). Table 1 shows one of the earliest classifications, Ichikawa's (1978) eight types of connective expressions. His classification was based on the meanings and functions of connective expressions, and most of the subsequent studies also addressed a classification based on the meanings and functions.

Tables 2 to 4 show three representative classifications of Japanese connective expressions, including expressions that are relatively comprehensive. Ishiguro (2008) classifies connective expressions into four kinds and ten classes. As for connective expressions classified into logical expressions, he explains that they show a logical development based on a conditional relationship, such as a causal relationship (p. 58). The expressions are subcategorized into two classes: conjunctive expressions represented by "*dakara*" (corresponding to "so," in general) and adversative conjunctions represented by "*shikashi*" (corresponding to "but," in general). Nihongo Kizyutu Bunpô Kenkyûkai (2009) classifies connective expressions into four kinds and 19 classes. As for connective expressions classified into logical developments, they explain that either the preceding or the following context causes the other context, and the expressions represent the relationship. Adversative expressions are included in this type because the following context is contrary to a logical estimate from the preceding

Table 1

Eight Types of Japanese Connective Expressions by Ichikawa (1978)

Type	Example
順接型 (conjunctive)	*dakara* (so)
逆接型 (adversative)	*shikashi* (but)
添加型 (additional)	*soshite* (and)
対比型 (comparative)	*ippou* (while)
転換型 (switchable)	*tokorode* (by the way)
同列型 (replaceable)	*tsumari* (that is to say)
補足型 (complementary)	*nazenara* (because)
連鎖型 (implicitly connecting)	[no connective expressions in general]

Note. I am the English translator for each type. The English translations of each example are one of the representative expressions corresponding to each Japanese example.

Table 2

Classification of Japanese Connective Expressions in Ishiguro (2008, p.57)

Type				Example
論理	for logic	順接	conjunctive	*dakara* (so)
		逆接	adversative	*shikashi* (but)
整理	for arrangement	並列	parallel	*soshite* (and)
		対比	comparative	*ippou* (while)
		列挙	enumerative	*dai ichi ni* (first)
理解	for understanding	換言	replaceable	*tsumari* (that is to say)
		例示	illustrative	*tatoeba* (for example)
		補足	complementary	*nazenara* (because)
展開	for development	転換	switchable	*sate* (by the way)
		結論	conclusive	*kono you ni* (in this way)

Note. I am the English translator for each type. The English translations of each example are one of the representative expressions corresponding to each Japanese example.

Table 3

Classification of Japanese Connective Expressions in Nihongo Kizyutu Bunpô Kenkyûkai (2009, p.58)

Type		Example
論理的展開 logical development	確定条件 decisively conditional	*dakara* (so)
	仮定条件 hypothetically conditional	*sorenara* (if so)
	否定条件 negatively conditional	*samonakereba* (otherwise)
	理由 causal	*nazenara* (because)
	逆接 adversative	*shikashi* (but)
加算的関係 additional relationship	添加 additional	*soshite* (and)
	累加 cumulative	*soreni* (moreover)
	換言 replaceable	*tsumari* (that is to say)
	例示 illustrative	*tatoeba* (for example)
	卓立 prominent	*tokuni* (in particular)

Table 3

Classification of Japanese Connective Expressions in Nihongo Kizyutu Bunpô Kenkyûkai (2009, p.58; continued)

加算的関係 additional relationship	代替 alternative	*kawarini* (instead)
対等な関係 relationship of equality	並列的提示 parallel	*oyobi* (and)
	選択的提示 selective	*matawa* (or)
話題の展開 development of a topic	転換 switchable	*sate* (by the way)
	列挙 enumerative	*dai ichi ni* (first)
	対比 comparative	*ippou* (while)
	まとめ conclusive	*kono you ni* (in this way)
	補足 complementary	*tadashi* (provided that)
	無視 disregardful	*tonikaku* (anyway)

Note. I am the English translator for each type. The English translations of each example are one of the representative expressions corresponding to each Japanese example.

Table 4

Classification of Japanese Connective Expressions in Okimori (2016, pp. 47-49)

Type		Example
展開型 development	仮定 hypothetical	*sousureba* (if so)
	帰結 conclusive	*suruto* (and then)
	因果 causal	*dakara* (so)
	逆接 adversative	*keredomo* (but)
	累加 cumulative	*soreni* (moreover)
	継起 successive	*sokode* (accordingly)
	経緯 summary	*koushite* (in this way)
	規定 prearranged	*tonikaku* (anyway)
列挙型 enumeration	並立 parallel	*oyobi* (and)
	選択 selective	*matawa* (or)
	換言 replaceable	*sunawachi* (that is to say)
	例示 illustrative	*tatoeba* (for example)
	比較 comparative	*ippou* (while)
	順序 sequential	*dai ichi ni* (first)
補足型 complement	制限 restrictive	*tadashi* (provided that)
	補足 complementary	*mochiron* (of course)
	根拠 evidential	*nazenara* (because)
転換型 switch	転換 switchable	*sate* (by the way)

Note. I am the English translator for each type. The English translations of each example are among the representative expressions corresponding to each Japanese example.

context. Okimori (2016) classifies connective expressions into four kinds and 18 classes. He classified the expressions into an adversative or causal/conjunctive relationship, which are classified into a logical type in Ishiguro and into a development type in Nihongo Kizyutu Bunpô Kenkyûkai.

In this way, many previous classifications have been based on Ichikawa's (1978), and they tend to become increasingly fractionalized. On the other hand, the conjunctive type represented by "*dakara*" (corresponding to "so" in general) and the adversative type represented by "*shikashi*" (corresponding to "but" in general) in Ichikawa remain in the following three classifications, even though the type names are unsettled. Moreover, the three classifications contain a common feature; they classify both two types represented by "*dakara*" and "*shikashi*" into expressions for a logical development.

Classifications of English Connective Expressions

There have been many approaches to classify English connective expressions in previous studies. Halliday and Hasan (1976), as described in the previous section, classified connective expressions into the five types based on relationships represented by them: Additive, Adversative, Causal, Temporal, and Continuative. Chaudron and Richards (1986) proposed two types of discourse markers, micro markers and macro markers. They subcategorized micro markers into five types based on relationships represented by the discourse markers: Temporal links, represented by "and" and "then;" Causal links, represented by "because" and "so;" Contrastive relationships, represented by "but" and "actually;" Relative emphasis, represented by "you see" and "of course;" and Framing/segmentation, represented by "well" and "ok." Their subclasses were in accordance with Halliday and Hasan's five classes, except for the Relative emphasis

instead of Additive. Afterward, Morell (2000) added two subcategories of micro markers: Non-interactive micro-markers (e.g., “well” and “note”) and Interactive micro-markers (e.g., “anyway” and “as you know”).

Blakemore (1987) insisted on the importance of distinguishing between a conceptual and a procedural meaning in a classification of discourse markers. Accordingly, Blakemore (1992) classified discourse markers into three types: the markers connected with contextual implication, represented by “so” and “therefore;” the ones connected with strengthening contextual implication, represented by “after all” and “besides;” and the ones connected with contradiction, represented by “but” and “however” (pp. 136−142). Blakemore (1996) also formed one more class, appositive markers, represented by “in other words.” His classification was, like the previous ones, based on the meanings and functions of discourse markers. The markers connecting with contextual implication almost correspond to Causal in Halliday and Hasan (1976) and Chaudron and Richards (1986), and the ones connected with contradiction, almost correspond to Adversative in Halliday and Hasan or Contrastive in Chaudron and Richards.

Fraser (1996) classified pragmatic markers, as linguistic elements that signal speakers’ implicit intention (p. 168), into three types: basic pragmatic markers, commentary pragmatic markers, and parallel pragmatic markers. He also set one more class other than the three types: discourse markers. He subcategorized this class into four types: topic change markers, represented by “incidentally” and “by the way;” contrastive markers, represented by “but” and “however;” elaborative markers, represented by “in other words” and “besides;” and inferential markers, represented by “so” and “therefore” (pp. 187−188, see Matsuo et al., 2015). Accordingly, Fraser (2009) rearranged the classification and set the discourse management marker class, which was

subcategorized into three types: discourse structure markers, represented by “first” and “then;” topic orientation markers, represented by “but” and “by the way;” and attention markers, represented by “so” and “well” (p. 893). In his former classification, many contrastive markers correspond to adversative, contrastive, and contradictive markers in the previous studies, and many inferential markers correspond to causal and contextually implicational markers. In his latter classification, topic orientation markers included many contrastive markers, and attention markers included many inferential markers.

Swan (2016) proposed three functions subcategorized into 21 meanings of discourse markers in writing—discourse markers that can introduce or change a topic; ones that can show the type of communication going on; and ones that can show a writer’s attitude to what they are saying (Section 284). He also proposed that discourse markers in speech can be classified into the same category (Section 301).

The classifications in the previous literature differ in many ways, but they also tend to have in common that expressions with adversative relationships and ones with causal relationships are classified into different classes: Adversative/Causal in Halliday and Hasan (1976); Contrastive/Causal in Chaudron and Richards (1986); the markers connected with contradiction/contextual implication in Blakemore (1992); Contrastive/Inferential in Fraser (1996), Topic-orientation/Attention in Frase (2009); and Showing-a-contrast/Showing-a-logical-or-causal-connection in Swan (2016). In the field of English education in Japan, classifications of English connective expressions tend to include an adversative and a causal relationship. Narita and Hibino (2003a) classified discourse markers into eight types: Concessive, Adversative, Comparative, Illustrative, Replaceable, Enumerative, Similar, and Resultative/Conclusive (pp. 331-334). They present “but” as a representative of Adversative expressions, and “so”

Resultative/Conclusive expressions. Ushiro (2011) classified them into three types: Causal, represented by “so;” Additional/Illustrative, represented by “for example” and “in addition;” and Adversative/Comparative, represented by “but” and “on the other hand” (pp. 111-114). Nomura (2017) classified them into 11 types, including Adversative and Resultative types.

It is also worth noting that the categories’ names of “but” or “so” are characteristic. As for “but,” many categories’ names include the words “adversative,” “contrastive,” or “contractive,” each of which represents a relationship that the preceding context is opposite to the following context. As for “so,” many categories’ names include the words “causal,” “resultative,” or “conclusive,” each of which represents a relationship that the preceding context leads to the following context with a certain cause and effect. These characteristics suggest that the categories of “but” and “so” might be more stable than other discourse markers without regard to classifications, and also suggest that the distinction of the meanings and functions between “but” and “so” might be a basic one in classifying connective expressions.

On the other hand, some classifications in the previous literature did not have such categorization. Matsuo et al. (2015) classified discourse markers into four types and 23 classes. Their classification is based on functions of discourse markers, and it is characteristic of the classification in which one expression can be classified into two or more categories. For example, they classified “actually” into seven types: Strengthening type, Adversative/Concessive type, Corrective type, Discourse-adjusting type, Information-exchanging type, Expressive type, and Respectful/Considerate type. As for “but,” it is categorized into not only Adversative/Concessive type but also Discourse-adjusting type, Discourse-developmental type, and Expressive type. As for “so,” it is categorized into not only Logically-or-inferentially-resultative type but also Discourse-

beginning type, Discourse-adjusting type, Discourse-developmental type, Discourse-ending type, and Information-exchanging type. Even though their classification includes both the Adversative and Resultative categories, it is different from the previous ones in that the markers "but" and "so" can be classified into the same categories. Hyland List in Hyland (2005) classified meta-discourse markers, including not only conjunctions but also modal verbs such as "might," adjectives such as "important," and pronouns such as "me," into two types with ten subcategories. Nuttall (2006) classified discourse markers into three categories: markers that show a sequence of events, represented by "then" and "first;" ones that show discourse structures, represented by "in conclusion" and "for example;" and ones that show writers' opinions, represented by "however" and "so." In their classifications, as well as the one by Matsuo et al., both "but" and "so" were classified into the same subcategory: Transitions in Hyland, which express relationships between clauses, and markers that show writers' opinions in Nuttall.

Relationships Between Connective Expressions and Comprehension of Contexts

The previous literature has proposed that connective expressions are related to reading comprehension, and they have focused on the expressions in reading research. The relationship between them is usually characterized as cohesion and coherence. Baker and Ellece (2018) explain that, in the field of discourse analyses, cohesion is a condition that texts have some meanings grammatically (p. 24), and coherence is a condition that some texts are connected with each other in their meanings based on actors' implicature and backgrounding (p. 25). Halliday and Hasan (1976, 1989) listed five cohesion types: reference, substitution, ellipsis, lexical cohesion, and conjunctions. In the field of Japanese discourse analyses, Nihongo Kizyutu Bunpô Kenkyûkai (2009, p. 6) clarifies that "kessokusei" (結束性 in Japanese), corresponding to cohesion, is a

linguistic interpretation or grammatical behavior determined by relationships with other elements in discourse. “Kessokusei” is illustrated by demonstrative pronouns, response expressions, interjections, word orders, and connective expressions. In the field of English education, Shirahata et al. (2019, p. 48) contend that cohesion is word-to-word or sentence-to-sentence connections, constituting texts. Furthermore, they expound that cohesion is an explicit connection, while coherence is an implicit connection of text meanings, based on an assumption or comprehension from situations, scenes, context, or other factors beyond texts or utterances. They mention anaphoras and conjunctions as linguistic examples giving cohesion to texts. This way creates various definitions of cohesion or coherence, but the general consensus is that connective expressions, including conjunctions, represent cohesion.

Reading comprehension consists of various stages of information processing. It can be divided into two processes: the lower processing in which readers understand the meanings of sentences, and the higher processing in which readers grasp the cohesion of texts. It is necessary to go through both approaches for reading comprehension (Ishii, 2005). On the other hand, the reading process consists of another two procedures: bottom-up processing and top-down processing (Richards et al., 1992; Baba, 2016). Kadota et al. (2010, p. 314) delineate that the bottom-up process asserts that readers deal with smaller units (e.g., words) accruing them into larger units (e.g., paragraphs), while the top-down process posits that readers utilize their background and knowledge about text structures for their comprehension. Connective expressions are thought to be useful in the top-down processing of reading comprehension (Ishiguro et al., 2009a, 2009b). Chaudron and Richards (1986) elucidate that discourse markers are useful for both top-down and bottom-up processes. They classified discourse markers into two categories: micro markers, the signals for bottom-up processing, and macro markers, the

signals for top-down processing.

On the other hand, the literature in the field of Japanese connective expression research has proposed that readers do not need connective expressions for their reading comprehension. Okimori (2016) explains that connective expressions have an effect on the clearer presentation of texts' logic or contexts to readers or listeners (pp. 15−16). Matsuo et al. (2015) mention that it hardly influences the meanings of messages whether they have discourse markers or not, but the markers are essential elements for facilitating communication with each other (p. 336). These explanations suggest that connective expressions are not essential but are useful for reading processing (i.e., understanding of cohesion). Therefore, there are compelling reasons to study the relationships between connective expressions representing cohesion and reading comprehension for clarifying the reading process in more detail.

Relationships Between Connective Expressions and Instructions

The previous literature has proposed the effect of instruction in reading about connective expressions and the cohesion represented by them on foreign language learners' reading comprehension (Konagaya, 1994; Narita & Hibino, 2003a, 2003b; Nishimoto, 1997; Terauchi, 2010; Ushiro, 2011; Yokoyama, 2002). Narita and Hibino (2003a) listed the following Japanese EFL (English as a foreign language) learners' reading problems that can be solved by their focus on connective expressions in their reading (p.7):

- They cannot read English texts fast, even though their knowledge of English vocabulary is not insignificant.
- They remain uneasy about the interpretation of the details of English texts though they understand an outline of the texts.

- They cannot answer when they are asked to describe an outline of English texts.
- They cannot read English texts to the end.
- They forget the earlier part of an English text by the time they read it to the end.
- They do not feel like they can understand English texts unless they translate the whole text into Japanese.
- No matter how many English words they remember, they do not feel that they can understand English texts.
- All they can do is read English texts, and they cannot have their own opinions on the texts.

Ushiro (2011) insists that, by paying attention to connective expressions, it is possible to predict the contents of the following sentences, and thereafter, it is also possible to reduce learners' burdens on their memories required to process English texts (p.111). Therefore, he insists that it is important to focus on connective expressions when learners read English texts more consciously. Konagaya (1994) points out that asking learners what contexts of the previous sentences the connective expressions in the English texts depend on as a schema is not only important as a way to check the extent of learners' understanding comprehension but also as a way to develop their thinking and expression skills. The literature suggests that instruction about connective expressions or learners' focus on them is useful for the development of their reading skills.

Instructions Focusing on Connective Expressions

Several proposals have been made on specific teaching methods of reading, focusing on connective expressions. For example, Grellit (1981) insists that it is important for learners to notice that connective expressions connect words or sentences.

He proposes some activities to enhance such recognition: learning the types of connective expressions explicitly, checking connective expressions in texts, looking for words with similar meanings to connective expressions in texts, filling connective expressions in blanks and completing texts, connecting sentences in an appropriate order based on connective expressions in texts, and adding connective expressions to appropriate places in texts.

In the field of English education in Japan, Kadota et al. (2010) suggest that instruction focusing on five types of cohesive devices in Halliday and Hasan (1976) can replace Japanese-translation methods as a method to facilitate learners' comprehension of English texts. They introduce some methods with connective expressions, including to choose an appropriate phrase or sentence to follow the preceding sentences with a connective expression from alternatives and complete the texts, to stop reading when a connective expression appears and expect the following contexts, and to fill blanks with connective expressions, or choose the most appropriate one from alternatives, and complete texts (pp. 80−81). Kanatani et al. (2011a, 2011b) propose one class model focusing on connective expressions instead of the Japanese-translation model: Paragraph Chart Model. This model utilizes paragraph charts, worksheets displaying the visual flow of English texts with figures, arrows, and discourse markers. The paragraph charts include some blanks, and learners are asked to fill in blanks in Japanese, referring to English texts in their textbooks. They propose that learners can understand English texts through the task instead of Japanese translation of the whole texts, and that they can understand the relationships between sentences and paragraphs from discourse markers and arrows in paragraph charts (2011a, p. 62). Kanatani et al. (2012) suggest that focusing on connective expressions is effective for not only reading instruction but also reading evaluation. They propose that, through questions as to connective

expressions, such as to fill connective expressions in blanks and complete English texts, learners can develop a habit of reading texts focusing on the logical flow. In this way, the literature on English education for Japanese EFL learners has suggested that it is useful to pay attention to connective expressions for the development of their reading skills.

Significant weaknesses characterize the bulk of literature on reading methods focusing on connective expressions; most literature on them has focused on how teachers make learners pay attention to connective expressions in reading. Little literature has also focused on how teachers make learners understand the meanings and functions of connective expressions. Focusing on the expressions is effective for the development of reading skills only when learners understand the meanings and functions of these expressions adequately. However, there have been few proposals on methods for learners' understanding of connective expressions. One possible reason is that the literature depends on two assumptions: (a) learners understand English connective expressions, at least basic expressions, well enough to read English texts, and (b) learners can learn English connective expressions easily with brief explicit explanations or with implicit instructions. Another study is needed to clarify whether these two assumptions are appropriate.

L2 Learners' Use of Connective Expressions

Many previous studies have shown that L2 learners tend to use connective expressions in their L2 writing or speech more than native speakers do (Altenberg & Tapper, 1998; Asai, 2003; Granger & Tyson, 1996; Kim, 2014; Kobayashi, 2009a, 2009b, 2009c, 2010; Liu Jie, 2005; Shimada, 2011, 2014; Tankó, 2004). Asai (2003) compared the writings of Chinese learners of Japanese with those of native Japanese

speakers with regard to the frequency of connective expressions in their writings. The results showed that learners tended to use more connective expressions explicitly than native speakers. Notably, they used "*soshite*" (corresponding to "and" in general) and "*tsumari*" (corresponding to "that is to say" in general)—the conjunctive and the replaceable expressions according to Ichikawa's (1978) classification, respectively—with great frequency. Asai insists that the use frequency is different in each category of connective expressions and that one possible reason could be their learning of them, suggesting that the expressions learners study at the earlier stage of their learning, such as "*soshite*" and "*shikashi*" (corresponding to "but" in general), might tend to appear in their writing. Shimada (2014) conducted a corpus-based conversation analysis of Japanese learners of English, non-Japanese learners of English, and native English speakers. The results showed that Japanese learners tended to use significantly more pragmatic markers than native speakers. They also tended to use "so" much more than native speakers and even non-Japanese learners of English. He suggests that "language instructors and materials writers should provide infrequent and difficult items" (p. 64).

Some previous studies have suggested that the learners' use of connective expressions might differ depending on their linguistic proficiency. Shimada (2011) found that the frequency in learners' use of markers tends to be higher as they become more proficient learners in their linguistic performance. Hori (2013) also found that L2 learners of Japanese tended to use more kinds of connective expressions with a higher frequency depending on their learning developments.

On the other hand, other previous studies have suggested that the kinds of connective expressions in the learners' use might not always increase depending on their linguistic proficiency. Okuyama (2001) analyzed L2 learners' compositions of Japanese, and the results showed that learners of Japanese tended to use more connective

expressions, but fewer kinds of them, than native Japanese speakers. She suggests that teachers should conduct different instructions in connective expressions according to the kinds of them; learners should practice using connective expressions with a high frequency intensively, and they have only to understand the others in their reading comprehension. Ying (2007) found that both Chinese and Japanese learners of English used fewer types of connective expressions than native English speakers.

The previous literature showed that L2 learners' use of connective expressions in the target language might differ depending on their mother language. Hisigslen (2016) analyzed the writings of Mongolian learners of Japanese, and found that they tended to use fewer connective expressions than native Japanese speakers in their writings. He points out that one possible reason is that native Mongolian speakers do not use as many conjunctions, which might influence their infrequent use of the expressions in L2. Kim (2014) showed that Korean learners of Japanese tended to use connective expressions categorized into the Adversative in Ichikawa (1978) in their L2 writings, while Chinese learners of Japanese tended to use connective expressions categorized into the Additive in Ichikawa. She suggests that their native language might influence the difference; also, the difference in their preferences in sentence constructions, depending on their native language, might influence their use. She concludes that teachers of Japanese should understand the characteristics of learners' native languages that influence their L2 learning and apply them to their instruction methods.

The above literature suggests that learners' use of connective expressions in their L2 writing and speaking tends to differ from native speakers' use of them. There are two possible reasons: the influence of their native languages and their learning. However, few previous studies have revealed the relationship between the possible factors and their use of connective expressions in detail.

L2 Learners' Misuse of Connective Expressions

Some previous research has found that learners tend to misuse connective expressions in their L2 writing and speaking. Petersen (1988, 2013) showed some examples of Japanese EFL learners' misuse of connective expressions. He insists that they tend to misuse connective expressions that represent cause-and-effect relationships, such as "so" and "because," suggesting that their native language, Japanese, and their English textbooks might affect their misuse. Scollon and Scollon (1995) pointed out that learners of English often use "and" and "but" without any cohesion, regardless of their mother language. On the other hand, Kobayashi (2010) suggested that the misuse might be related to the influence of language transfer. For example, the Japanese conjunction "*ga* (が)" represents not only an adversative relationship but a conjunctive one, which might be a reason for Japanese EFL learners to use "but" without an adversative meaning. Kai (2016) investigated the influence of Japanese high school students' mother language on their misuse of "before/after" in English. The results suggested that Japanese EFL learners transfer the meanings and structure rules of conjunctions in Japanese to their English output. He concludes that teachers should teach the rules of conjunctions in English to learners with a clear explanation. Lee et al. (2008) point out that Korean learners of English often misuse when- and if-clauses, influenced by their mother language, Korean. Ko (2011a, 2011b) conducted studies on Chinese learners of Japanese, suggesting that their mother language might influence their choices of connective expressions in Japanese explanatory and opinion passages. The previous literature suggests that L2 learners' misuse of connective expressions might depend on their mother language.

Some previous studies also suggest other possible factors for L2 learners' misuse of connective expressions. Pokrovska (2013) surveyed Ukrainian learners' reading

comprehension in Japanese. The study showed that they tended to process connective expressions with a meaning similar to the one in their native language, Ukrainian, more efficiently, such as "*tokuni* (corresponding to "particularly" in general)" and "*shikashi* (corresponding to "but" in general)." The results suggest that the meaning range of connective expressions might influence learners' misuse of them. Kobayashi (2009c) suggests that learners' textbooks might influence their misuse of connective expressions. He discussed why Japanese EFL learners often misuse "because" in English, and one possible reason is that their English textbooks adopted in junior high schools do not include examples with "because" enough for learners to acquire the use of the expression. Kondo (2004) conducted a study on Chinese learners' use of connective expressions in Japanese. The results showed the tendency for learners to use only connective expressions that appeared in their Japanese textbooks. For example, they hardly use the Japanese adversative expression "*ga* (が)" but often use the adversative expression "*demo* (でも)," suggesting that the frequency might reflect the frequency of the appearances in their textbooks and classes. Similarly, Aoki et al. (1994) and Kuramochi and Suzuki (2007) found that L2 learners of Japanese do not understand the meanings and functions of Japanese connective expressions adequately, suggesting the negative influence of their Japanese textbooks. They insist that conjunctions appear even in beginner Japanese textbooks, but they did not pick up the expressions as essential, leading to insufficient instruction.

Kuroda (2010) discussed the influence of textbooks on children's use of connective expressions in their mother language. He presented the general tendency that native Japanese children start to use conjunctions with a cumulative relationship first, such as "*sore kara* (それから)" (corresponding to "then" in general), and "*mata* (また)" (corresponding to "also" in general), according to classifications in Japanese

textbooks within Japan. Later on, they tend to use these expressions less often, and they tend to use connective expressions with an adversative relationship more often, such as "*shikashi* (しかし)" (corresponding to "but" in general). He insists that one possible reason is the high frequency of adversative expressions appearing in their Japanese textbooks.

The previous literature found that learners tend to misuse connective expressions in target languages, regardless of their native and target languages. There are some possible reasons for the misuse, but the main reasons might be the influence of native language and learning, including their textbooks, as mentioned in the previous section. It is essential to follow up on this research.

Connective Expressions in Learners' Textbooks

Some previous studies analyzed the frequency of connective expressions in learners' textbooks and learning materials. Fukazawa (2000) compared the frequency of discourse markers in high school English textbooks in Japan and English-as-a-second-language (ESL) learning materials. The results showed that discourse markers appeared less often in textbooks. Table 5 shows the results in detail. He noted that there were limited kinds of discourse markers in high school textbooks, such as "and," "so," "then," and "but," suggesting that it might be necessary to present more kinds of discourse markers to learners more often so they can acquire them and develop their reading proficiency. Shimada (2012, 2013) also analyzed the frequency of discourse markers in textbooks adopted in Japan, suggesting that textbook writers might pay little attention to discourse markers, even though some, such as "right/alright," tended to appear more often than others. Table 6 shows the results in detail. In addition, the results show that the frequency in textbooks might influence the frequency in learners' use. As

Table 5

Frequency of Connective Expressions in High school Textbooks in Japan (excerpt from Fukazawa, 2000, p. 16)

Type	Temporal	Causal	Contrast	Emphasis
Expression	then (13)	because (7)	but (26)	for example (3)
(Frequency)	and (7)	so (7)	however (6)	moreover (2)
	soon (5)			of course (2)
	after that (3)			

Note. The classification of the four types was based on Chaudron and Richards (1986). The frequency was the total of that in four textbooks.

Table 6

Frequency of Connective Expressions in English Textbooks for Japanese Junior High School and High School Students (excerpt from Shimada, 2013, p. 77)

Expression	Frequency per 10,000 words				
	JHS 1	JHS 2	JHS 3	HS 1	HS 2
and	67.00	79.30	112.92	149.88	142.05
but	34.01	56.45	53.54	54.91	55.06
so	9.64	22.18	19.38	11.94	13.38
then	10.66	12.43	14.15	16.45	17.02
because[a]	1.02	12.77	14.15	20.69	13.38
however	0.00	1.68	1.85	10.61	10.13

Note. JHS 1, 2, and 3 = English textbooks for junior high school grades 1, 2, and 3; HS 1 = English I textbooks for high school; HS 2 = English II textbooks for high school.

[a]because = because/’cause.

for learning materials other than English, Kano (1991) points out that the Japanese connective expressions with a high frequency in technical books are not necessarily the ones that appear in learning materials of Japanese for beginners.

In this way, textbooks or learning materials might have a problem with the appearance of connective expressions in that they tend to include insufficient expressions regardless of the target language. On the other hand, most previous studies have focused on the frequency of connective expressions in textbooks, and fewer analyses of other characteristics than the frequency are available to date. Additional research is needed to reveal the characteristics in more detail to clarify how textbooks influence learners' acquisition of connective expressions.

Acquisition of Connective Expressions Depending on the Types

The previous literature has investigated whether the degree to which learners acquire connective expressions varies depending on their types. Kadota (1998, 2000) investigated how Japanese EFL learners understand logical relationships based on the framework of Rhetorical Structure Theory, proposed by Mann and Hompson (1988). The results showed that the Temporal and Reversed relationships, which are represented by "and" and "but," respectively, tended to be easy for them to understand, suggesting that the relationships might get into the human structures of their conceptual understanding easily, and also, the relationships might be unmarked for learners' cognition. On the other hand, Goldman and Murray (1992) showed that both native English speakers and ESL students tended to recognize an adversative relationship, represented with "but" or "however," with more difficulty than other relationships. Ikeda (1999, 2007) carried out a similar study to Kadota, and the results were opposite; it was easy for Japanese EFL learners to understand the causal relationship, the

relationship represented by “so” and “therefore,” while it was more difficult for them to understand the reversed relationship in English sentences. Ozono (2002) conducted an experiment in which Japanese EFL university students were asked to choose appropriate connective expressions from alternatives for blanks in English passages. The results suggest that an adversative relationship might be more difficult for Japanese EFL learners to recognize than a causal relationship. Other previous studies have shown the tendency that Japanese EFL learners, as well as Chinese EFL learners, overuse the English connective expression “so” (Anping, 2002; Hayasaka, 1992; Shimada, 2013). These studies suggest that “so” and the relationships represented by “so,” such as a causal relationship, might be relatively friendly to learners of English.

However, some previous studies found that the suggestion described above is not so simple. Hayasaka (1992) showed that Japanese EFL learners tend to overuse the connective expressions “so” and “and,” while there is no significant difference between the learners and native English speakers in their understanding of the expressions in reading. The results suggest that the connective expressions with a high frequency of Japanese EFL learners’ use might not necessarily be the ones with a high degree of their acquisition. Ozono and Ito (2003) showed the results suggesting that the difference of the extent to which Japanese EFL learners acquire connective expressions depending on their types varies depending on their linguistic proficiency. Furtheremore, Nishimoto (1997) insists that the extent should vary depending on the specific connective expressions, not depending on their types.

As for learners of Japanese, Okuyama (2001) found that they tend to use the connective expressions with an adversative relationship, such as “*ga* (が)” and “*keredo* (けれど)” more often, reflecting their acquisition of the expressions. She insists that the expressions are introduced at the early stage of their learning, influencing their

acquisition. Kaneniwa (2000) asked learners of Japanese and native Japanese speakers to take written recall tests of television news reports. The results showed that they tended to write connective expressions corresponding to "*shikashi* (しかし)" where the news report said "*shikashi*." On the other hand, they tended not to write connective expressions corresponding to "*sono tame* (そのため)" (corresponding to "therefore" in general) where the news report said, "*sono tame*." She concludes that learners of Japanese can learn connective expressions and use the knowledge of them for listening comprehension, at least as to "*shikashi*." These studies suggest that learners of Japanese might acquire connective expressions with an adversative relationship more easily than other connective expressions. The tendency is different from that of learners of English, as discussed above. On the other hand, Kim (2014) showed that beginner learners of Japanese tend to use "*soshite* (そして)." More research should be conducted about the acquisition of connective expressions other than adversative expressions.

In conclusion, previous studies have aimed to reveal the varying degree to which learners acquire different types of connective expressions, but their findings and suggestions are not consistent. There are three possible reasons for the inconsistency. First, the degree might vary depending on learners' native languages or target languages. Second, there has been insufficient previous research to date. Ishiguro (2008, p. 16) points out that there has been little literature on connective expressions because the expressions are peripheral and not strongly related to sentence structure. Third, there have been no research methods established for studying the acquisition of connective expressions. Some studies have considered the appearance of target connective expressions in learners' writing or speaking as the acquisition of them; others have considered their correctness in the tests as to the meanings and functions of the target connective expressions as the acquisition of them. Additional research is needed to

clarify what research methods can measure learners' acquisition of connective expressions more precisely.

Effects of the Appearances of Connective Expressions on Learners' Comprehension of Contexts

Some previous studies have investigated the effects of the appearances of connective expressions in texts on learners' understanding of them. Ozono and Ito (2005) showed that Japanese EFL learners' reading comprehension improved when connective expressions in texts are highlighted. The results suggest that highlighting connective expressions might help learners activate their metacognition for the expressions, accelerating their proficiency. Mirdamadi (2010) compared Iranian learners' reading scores for English tests with passages that included connective expressions to those for tests with passages that did not include them. The results showed that connective expressions had a significantly positive effect on reading comprehension for Iranian learners of English. Chung (2000) investigated the effects of connective expressions on Chinese EFL learners' reading comprehension. The results showed that learners with low English proficiency tended to depend on explicit discourse signals for their reading comprehension. Koda (2002) showed that the appearance of connective expressions in texts improved learners' reading speed compared to when they read texts without them. As for native speakers, previous studies have shown that they also understand texts with connective expressions better than texts without connective expressions (Graesser et al., 2003; Haberlandt,1982).

On the other hand, there has been previous research showing that connective expressions do not influence learners' reading comprehension, or may even hinder it (Britton et al., 1982; Chung, 2000; Geva, 1986; Irwin, 1982; Meyer et al., 1980; Millis

et al., 1993). For example, Meyer et al. (1980) conclude that the effects of the appearance of connective expressions can be shown only to underachieving learners. Chung (2000) also points out that connective expressions do not influence the reading comprehension of learners with higher English proficiency and that the effect is, if any, weaker than that of headings or titles. As for reading speed, Britton et al. (1982) showed that connective expressions did not influence learners' content recall or their reading speed.

There have been some possible reasons for the weak effect of connective expressions on reading comprehension. VanPatten (2002) points out that learners tend to prefer lexical processing over grammatical processing, which might be one reason. Pokrovska (2003) insists that learners tend to pay little attention to connective expressions because they have similar characteristics as functional words. Watanabe (2004) analyzed Japanese EFL learners' English-Japanese translation data. The results suggest that learners might not pay enough attention to the connection between sentences to understand passages because the bottom-up processing puts a heavy burden on their reading processing. The literature suggests that the effects of the appearance of expressions might vary depending on learners' proficiency level and processing.

Differences in the Effects of the Appearances of Connective Expressions on Learners' Comprehension Depending on the Types

As discussed in the previous section, the effects of the appearance of connective expressions might vary depending on learners' proficiency level and processing, while some previous studies also suggest that the types of expressions might influence the effects. Murray (1994, 1997) presents the results that adversative expressions promote L1 reading. Koda and Amano (2004) showed that Japanese EFL learners' scores of free

recall tests are not significantly different between when they read English passages with causal expressions and ones without connective expressions, suggesting that causal expressions did not influence their retention of English passages. Sato (2015) showed that both “but” and “so” had a significantly positive effect on Japanese EFL learners’ reading comprehension, as seen in written free recall tests. The results suggest that “but” might facilitate their retention of English passages when they read passages written in simple phrases, while both “but” and “so” might facilitate their retention when they read passages written in more difficult phrases. The previous studies point out that the effects on comprehension of contexts vary depending on the roles of connective expressions.

The studies above suggest that adversative expressions might improve learners’ comprehension of contexts better than causal expressions, while other studies show different results. Haberlandt (1982) showed that both adversative and causal expressions improved learners’ reading speed. Golding et al. (1994) showed that, compared to when participants read a passage without connective expressions, recall test scores improved when they read a passage with “therefore” and “but.” The results suggest that both causal and adversative expressions might promote readers’ retention. Caron et al. (1988) analyzed the differences between learners’ recall test scores depending on the four types of passages: the “and”-included type, the “but”-included type, the “because”-included type, and the original type. The results showed that the “because”-included type improved their scores significantly better than the original type, while the “and”-included type did not influence their scores. The “but”-included type worsened their scores significantly. They conclude that the effects of connective expressions differ because learners need more resources of cognitive processing to understand an adversative relationship than other relationships.

Some other studies have conducted research focusing on the differences in the effects between micro markers and macro markers in Chaudron and Richards (1986). They showed that macro markers, indicating topic shifting or rephrasing (e.g., "to begin with"), promoted listeners' comprehension compared to micro markers in lecture listening, suggesting that macro markers might influence their top-down processing. On the other hand, Chaudron (1983) showed that speakers' pauses in their speech promoted listeners' comprehension, regardless of the appearance of discourse markers.

As discussed above, some previous studies have aimed to reveal the differences in the effects of the appearances of connective expressions on learners' comprehension, depending on the types. However, their findings and suggestions are not consistent, similar to their acquisition of connective expressions themselves, as discussed in the previous section. There are three possible reasons here: the differences of languages (i.e., learners' native and target languages), the differences in learners' proficiency level, and the insufficient previous studies. On the other hand, different from the acquisition of connective expressions, research methods to this point have been established to some extent: to compare learners' comprehension or reading/listening speed when they read passages or listen to a speech, including some connective expressions.

Effects of Explicit Instructions in Connective Expressions on Learners' Skills

Some previous studies have investigated the effects of explicit instruction of connective expressions to L2 learners on their skills. Instruction in reading strategies and training in using these strategies are said to contribute to improving learners' reading comprehension (Kern, 1989), and paying attention to connective expressions is one of these reading strategies. Yoshidome (2013) conducted explicit instruction in English connective expressions to Japanese technical college students and analyzed the

effect on their English reading skills. The results showed a significant difference between pre and post-test scores only in the experimental group with lower English proficiency. They also showed that their comprehension of connective expressions improved significantly. Innajih (2007) showed that explicit instruction of English connective expressions facilitated Libyan EFL university students' reading skills. He suggests that students may require explicit teaching of the expressions to improve reading comprehension. Al-Qahtani (2015) showed the same effect for Saudi EFL learners. Behnam and Yaghchi (2013) gave explicit instructions in English demonstrative pronouns and conjunctions to Iranian EFL learners. These results suggest that the instruction might enhance learners' reading comprehension ability.

The studies mentioned above have shown that explicit instruction in connective expressions is useful for improving EFL learners' reading comprehension, regardless of their mother language. However, as Terauchi (2010) points out, the effects of the teaching strategy may vary depending on learners' proficiency level or the extent to which their native language is different from their target language. In addition, in the field of Japanese education, the literature mentions that it is challenging to teach connective expressions (Aoki et al., 1994; Ishiguro, 2000; Tawarayama, 2004). In other words, teachers should change their ways of teaching in connective expressions according to the learners, and there should be better ways of instruction for Japanese EFL learners. Little research has examined the point or even proposed any hypotheses.

Summary of Previous Research

As reviewed above, previous studies on connective expressions have clarified some effects of the expressions on learners' comprehension and proficiency. However, the results are not consistent, and there are some problems with the research methods.

This section summarizes those issues.

Issues of Previous Research Concerning Classifications of Connective Expressions. One of the issues concerning the classifications of connective expressions is that a classification method has not been consistent, and has differed depending on the literature. As for the classifications of Japanese connective expressions, many have been formed according to the relationships represented by the expressions, meaning what kind of meanings the expressions attach to connections between sentences or paragraphs. The tendency is thought to be affiliated with the classification of Halliday and Hasan (1976) and Ichikawa (1978). On the other hand, as for classifications of English connective expressions, there is a tendency to classify the expressions based on the principles away from the concept of sentence-to-sentence connection. Therefore, much previous literature has regarded many expressions other than conjunctions and expressions equivalent to them as connective markers.

There are also some differences in classifications of connective expressions in English education in Japan and other fields. It should be noted that English education in Japan has defined connective expressions as expressions representing the logical development of sentences or paragraphs; the literature has classified the expressions according to the logic represented by each expression. However, as the previous literature has pointed out, connective expressions do not necessarily represent a logical connection. At least, they do not represent mathematically strict logic. Therefore, English education in Japan might have to review the definition and classification of English connective expressions. There is no previous study in terms of the definition and classification that promotes Japanese EFL learners' learning process. Many classifications have been based on mother language speakers' usage, and there has been

no classification based on L2 speakers' usage or learners' interlanguages. In addition, little literature has compared classifications of Japanese connective expressions to those of English connective expressions or classified them based on the comparison.

Issues of Previous Research Concerning the Acquisition of Connective Expressions. Previous studies have shown that learners tend to overuse and misuse connective expressions. In this regard, the studies have observed the same tendency regardless of learners' mother languages or target languages. On the other hand, few studies have revealed further details. First, there has been no unified view on whether the kinds of connective expressions overused or misused are different depending on learners' mother languages or target languages. Some previous studies have revealed that learners tend to use connective expressions more often in their target language if the expressions correspond to connective expressions often used in their mother language, and reversely, they tend to use connective expressions less often in their target language if the expressions correspond to connective expressions less used in their mother language. Wilson and Sperber (1993) and Charolles (1994) revealed that readers tend to read causal relationships between sentences in texts with no connective expressions. Actually, in Japanese, connective expressions representing causal relationships tend not to appear explicitly in the relationships in texts (Ishiguro, 2008; Sato, 2011; Takagaki, 2010). On the other hand, Takagaki showed that the French often do not use connective expressions in adding or reversed relationships. The results suggest that the tendency of the appearance of connective expressions might differ depending on languages. It is quite possible that these different tendencies in mother languages influence the degree of acquiring and understanding of connective expressions in second languages.

Second, previous studies have little revealed about the influences of textbooks on

learners' acquisition of connective expressions. Previous studies have shown that the frequency of the appearance of connective expressions in L2 textbooks tends not to be high. This tendency might influence learners' acquisition of connective expressions, leading to their overuse or misuse. However, few previous studies have discussed the relationship between textbooks and acquisition directly with regard to connective expressions. In addition, connective expressions with a high frequency of the appearance in use are generally thought to appear in textbooks with a high frequency, and inversely, those with a low frequency of the appearance in use are generally thought to appear in textbooks with a low frequency. Therefore, even if some relationships are recognized between textbooks and acquisition, it is difficult to distinguish whether this is due to the influence of textbooks, the influence of mother-language-specific characteristics, or the influence of expression-specific characteristics. Many previous studies have also focused only on the frequency of appearance in textbooks. In other words, other factors than the frequency in textbooks have hardly been examined. The influence of textbooks should be discussed carefully based on multiple factors.

Third, previous studies have not distinguished whether the tendency is specific to each connective expression or the relationship-specific tendency that connective expressions represent. For example, even if a study's results show that learners do not correctly use connective expressions such as "so" and "because," it does not always suggest that they have not acquired connective expressions representing causal relationships. Conversely, even if a study's results show that learners correctly use connective expressions such as "but" and "however," this does not always suggest that they have acquired connective expressions representing adversative relationships. There should be a more careful discussion on this point.

Finally, few previous studies have conducted error analyses. Some previous

studies have adopted a task to fill appropriate connective expressions in blanks in passages. They considered the expressions that participants filled correctly as the expressions they understood or acquired, and the expressions they did not fill correctly as those that they did not understand or acquire. In the latter case, few previous studies have investigated in detail why participants made a mistake. The interpretation and suggestion of research results should differ depending on whether participants do not know alternatives of connective expressions or whether they misinterpret the meanings. The interpretation should also differ depending on whether they understand the meanings of connective expressions or sentences incorrectly.

Issues in Previous Research Concerning the Effects of Connective Expressions on Learners' Comprehension of Contexts. Many previous studies have adopted a research method in which they compared participants' reading scores when they read passages with connective expressions or highlighted connective expressions with when they read passages without the expressions. This research method is considered to be appropriate and consistent. However, the results have not been consistent. There are some possible factors: the influence of learners' mother languages, the influence of their target languages, the influence of learners' language proficiency, and the influence of the text level used in research. The relationships between the factors have not been fully revealed.

Previous studies have also obtained inconsistent results regarding whether the effects of connective expressions on reading differ depending on the types of expressions. The results might differ depending on the influence of learners' mother languages and their proficiency. Also, as mentioned in the previous section, whether the tendency is specific to the connective expressions or the relationships represented by

connective expressions should be discussed carefully.

Purpose of the Current Research

The purpose of this current research is twofold: (a) to clarify the influences that English connective expressions have on Japanese EFL learners' comprehension of contexts, and (b) to explore the factors that influence the tendency. To remove the influence of learners' mother languages and target languages, which previous studies claim are factors of their inconsistent results, this present research focused on Japanese EFL learners.

There are three significant points that highlight the current research's difference from previous studies. First, this study adopted a different research method for clarifying the degree to which learners acquire connective expressions. This study used a method to directly elucidate the way learners recognize connective expressions. Second, the current research aimed to illuminate the exact relationship between how learners acquire the meanings of connective expressions and the effects of the expressions on their comprehension of contexts. Numerous previous studies have focused on only one of the two points; hence, they considered the relationship indirectly by comparing research results, in which learners' mother languages, target languages, and language proficiency are distinct from each other. In this study, investigating both points with the same participants and learning contexts was possible by considering the relationship directly. Third, this research examined some characteristics of connective expressions, including their frequency of appearance, in learners' English textbooks. This study made it possible to consider the detailed influence of textbooks on learners' acquisition of connective expressions and the relationship between the acquisition and their comprehension of contexts. Moreover, it aimed to reveal that textbook-specific

influences are different from language-specific influences.

Reasons for Focusing on "But" and "So" in the Current Research

Coordinate conjunctions ("and," "or," "but," "so," and "for") are basic connective expressions, and some of them are considered as a matched pair. First, "and" and "or" have a relationship corresponding to "all" and "some," which means universal quantification and existential quantification (Huddleston & Pullum, 2019, p. 43). Second, "and" and "but" have a relationship corresponding to a conjunctive and an adversative connective expression (e.g., Takeuchi, 2003). Third, "but" and "so" also have a relationship corresponding to an adversative and a conjunctive/causal connective expression (e.g., Ikeda, 1999, 2007).

This study focused on the third matched pairs of two English connective expressions: "but" and "so." There are two reasons for this. First, the expressions are stable in the classifications of connective expressions in previous studies. Several studies have considered "but" and "so" as connective expressions. Also, many classifications categorized "but" and "so" into distinctive groups. The category groups in "but" and "so," respectively, tend not to vary depending on classifications. Most of the previous studies have generally considered that "but" belongs to a category group of connective expressions representing an adversative relationship and that "so" belongs to a category group of connective expressions representing a causal or conjunctive relationship. Furthermore, many classifications have presented "but" and "so" as a representative expression of each category group. These characteristics suggest that "but" and "so" are stable as to their positions in classifications. Therefore, by studying the two connective expressions, this study may gain a better understanding of the relationships between the results in previous studies and those in the current study. Also,

it may be easier to consider the possibility of the generalization of the results from “but” and “so” than other connective expressions.

Second, the connective expressions “but” and “so” are considered familiar to Japanese EFL learners. Many previous studies of Japanese EFL learners’ acquisition of connective expressions or the effects on their reading comprehension have addressed “but” and “so” or adversative and causal/conjunctive relationships. Also, as Fukazawa (2000) and Shimada (2013) showed, English textbooks in Japan tend to include “but” and “so” more frequently than other connective expressions. They suggest that the two connective expressions are familiar to Japanese EFL learners, and I have judged that the expressions are suitable for the research of their meaning recognition and the effects on their comprehension of contexts.

“And” is also one of the primary connective expressions, but the current research has not much focused on the expression because it has a broader meaning range than “but” and “so.” Huddleston and Pullum (2019, pp. 57−60) explain that “and” can represent a temporal order, a causal relationship, a concessive relationship, and a temporal inclusion which can also be represented by “while.” I have judged that the broadness of the meanings of “and” leads to the complexity of an interpretation of the relationship between learners’ meaning recognition of the word and the effect of the word on their comprehension of contexts. Moreover, Koda (1998) mentions that an adversative relationship is likely to be considered with a conjunctive relationship in Japanese. Therefore, it is appropriate to compare an adversative connective expression “but” with a conjunctive/causal connective expression “so.”

It is worth noting that not all of the “but” and “so” elements are on equal terms. Huddleston and Pullum (2019) explain that “so” is not a coordinate conjunction but an adverb in that the word can connect uncoordinated elements (e.g., “The mill could be

sold off, so providing much-needed capital", p. 100) and it can be used with another coordinate conjunction (e.g., "This may make the task seem easier and so increase self-confidence.", p. 101). "But" was originally a preposition which meant "without, except," and then it has also been used as a conjunction which means "except that; if not; that not" (Ukaji, 2000, p. 259). The two connective expressions have different origins in this way. On the other hand, Huddleston and Pullum also explain that it is appropriate to analyze "so" as a coordinate conjunction because the word has some characteristics of conjunctions, such as it can be placed at the beginning of a sentence and it can connect sentences without other conjunctions. Yamakawa (1949) explains that "swa," the origin of "so," was a demonstrative adverb which meant "in like manner," and the word started to be used as a conjunction. As for "but," Kuya (2020) found that the frequency of sentence-initial "but" has increased in the last 200 years, suggesting that the conjunction "but" has been becoming acceptable as an adverb. The literature suggests that both "but" and "so" can be analyzed as a conjunction or an adverb placed at the beginning of a sentence in spite of the different origins.

Main Research Questions and Hypotheses

This current research addressed six main research questions (MRQ). This section describes each MRQ and hypotheses corresponding to each MRQ.

(1) How is the Effect of the Appearance of Connective Expressions in English Texts on Japanese EFL Learners' Comprehension of Contexts? As many previous studies have shown, the appearance of connective expressions affects learners' comprehension of contexts positively. However, as described in MRQ (2), the degree to which Japanese EFL learners recognize the meanings might vary depending on

expressions. Therefore, the effects on comprehension also might vary depending on expressions. As Koda and Amano (2004) and Sato (2015) have shown, the current research hypothesized that the connective expression “but” would have a positive effect on Japanese EFL learners’ comprehension of contexts. On the other hand, the effects of the expression “so” might be limited.

(2) How do Japanese EFL Learners Recognize the Meanings of Connective Expressions? Both “but” and “so” appear more frequently in textbooks used by Japanese EFL learners than other connective expressions. Therefore, the current research hypothesized that they would recognize the meanings of the two expressions at a certain level. On the other hand, as previous studies have shown, it is challenging to teach connective expressions, and there have been few established instruction methods. From these viewpoints, the current research hypothesized that Japanese EFL learners would not recognize the meaning of the connective expressions as correctly as teachers and researchers think.

(3) What are the Relationships Between Japanese EFL Learners’ Meaning Recognition of Connective Expressions and the Appearance in Their Learning Environment? As mentioned above, this current study hypothesized that Japanese EFL learners would not recognize the meanings of the two connective expressions as correctly as teachers and researchers think. If so, their recognition would be related to the appearance of the expressions in their learning environment, such as their textbooks. Previous studies have shown that the connective expression “but” tends to appear more frequently than “so” in English textbooks in Japan. Therefore, the current research hypothesized that Japanese EFL learners would recognize the meanings of “but” more

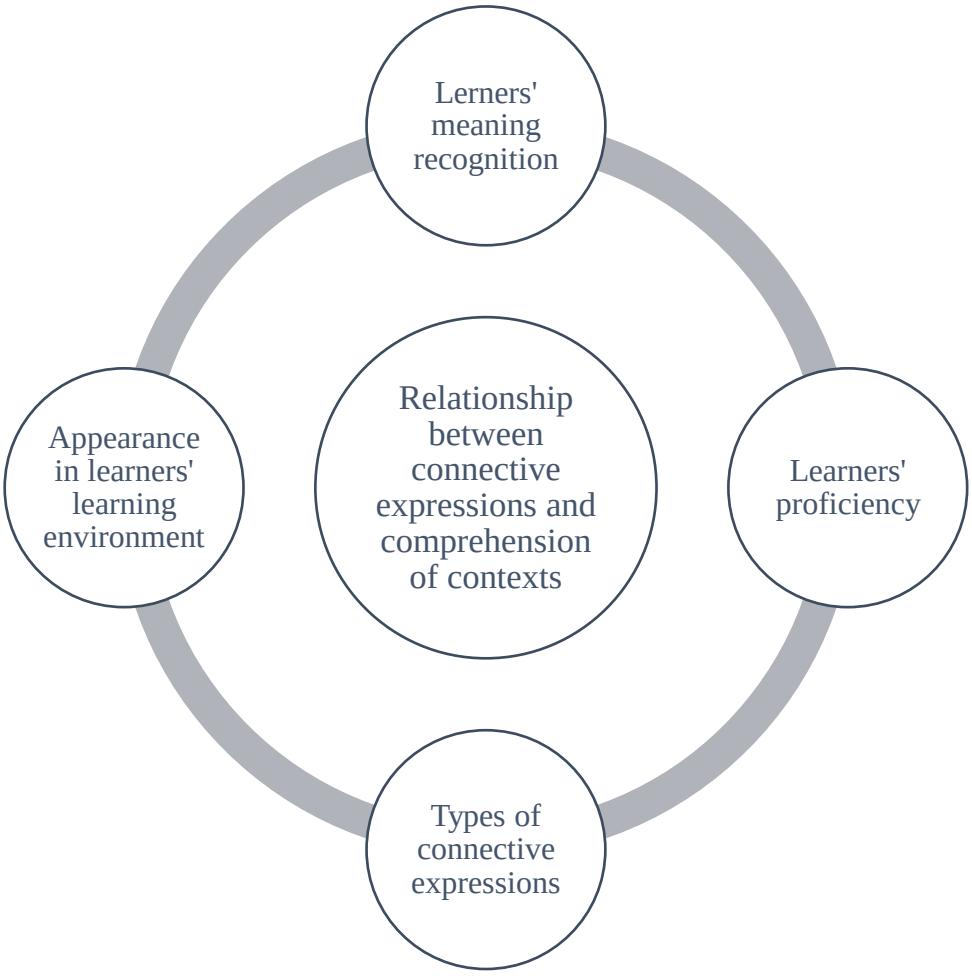
appropriately than “so.” Also, the characteristics of the expressions other than the frequency in textbooks would be related to their meaning recognition, such as the first appearance of each expression, and the frequency in materials other than textbooks.

(4) How are the Relationships Between MRQs (1) to (3)? The current research hypothesized that, if Japanese EFL learners recognize a connective expression less correctly, the effects of the expression on their comprehension of contexts would be smaller or even negative. In other words, a connective expression with a positive effect on learners’ comprehension of contexts would be one that they can correctly recognize its meanings. As mentioned in MRQ1, the connective expression “but” would have a positive effect on Japanese EFL learners’ comprehension of contexts. Also, as mentioned in MRQ3, Japanese EFL learners would recognize the meanings of “but” more appropriately than “so,” and it would be related to the appearance in their learning environment. If so, the results would be related to each other. Figure 1 outlines the relationships between the factors in the current research.

(5) Are the Results of MRQs (1) to (4) Specific to Japanese EFL Learners or Not? The results of previous studies have not been consistent, and possible factors of the differences might be participants’ mother languages and target languages. Therefore, the results of this research might be influenced by the learners’ mother language, Japanese. In particular, with regard to learners’ meaning recognition of the connective expressions, MRQ (2), the influence of their mother language would be vital. Therefore, the current research hypothesized that the influence of Japanese EFL learners’ mother language would be an indirect factor of the effect difference on their comprehension of contexts between expressions.

Figure 1

An Outline of the Relationships Between the Factors in the Current Research



(6) Are the Results of MRQs (1) to (4) Word-specific or Not? Figure 2 shows the possible theories as to the effects of connective expressions on comprehension of contexts. At the first level, each connective expression may have a different influence on comprehension of contexts. For example, "but" might contribute to comprehension of contexts more significantly than the similar expression "however." At the second level, connective expressions belonging to a certain category may have a different influence on comprehension of contexts than connective expressions belonging to another category. For example, adversative expressions, such as "but" and "however," might have a more significant contribution to comprehension of contexts than causal expressions, such as "so" and "therefore." Finally, at the third level, learners' understanding of a textual relationship, whether it appears with or without a connective expression, may have a different influence on comprehension of contexts than their understanding of another relationship. For example, understanding an adversative relationship in a text might contribute to comprehension of contexts more significantly than understanding a causal relationship.

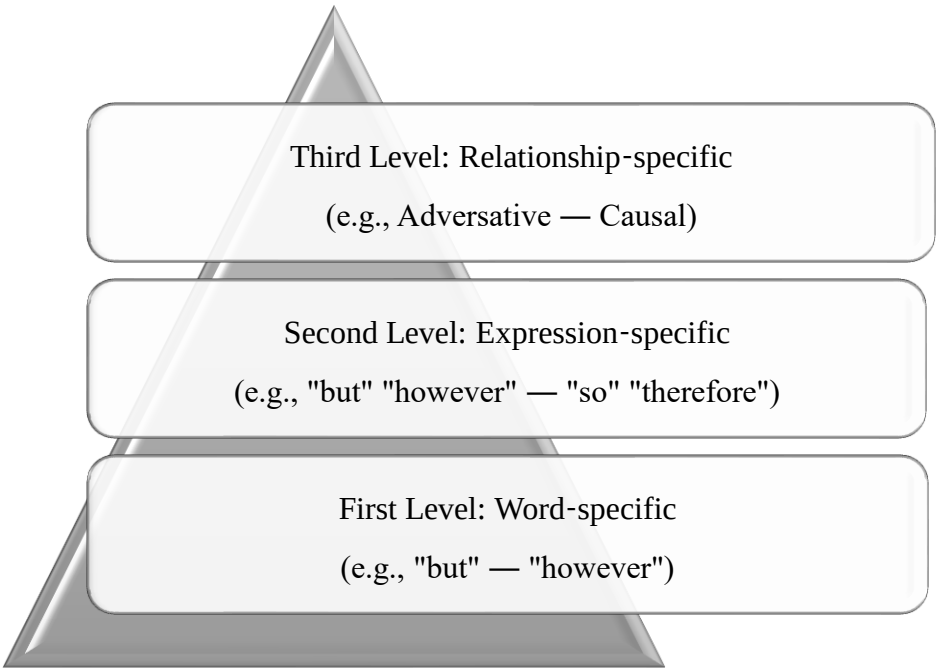
The current research focused on two connective expressions, "but" and "so." Therefore, it is possible to consider the influence at the first level. This research also considered the influence at a higher level. The current research hypothesized that the results would be generalized at the second level, as considered in many previous studies.

Construction of Studies 1 to 3 and Relationships Between Each Study and MRQs

The current research consisted of three studies. Study 1 investigated how Japanese EFL learners recognize the meanings of the connective expressions "but" and "so." The purpose of this study was to clarify MRQ (2), and a portion of MRQ (5) by comparing

Figure 2

Possible Theories as to the Effects of Connective Expressions on Comprehension of Contexts



Japanese EFL learners' results to the results of native English speakers.

Study 2 investigated the characteristics of the appearance of "but" and "so" in English texts in Japanese EFL learners' learning environment. The purpose of this study was to clarify MRQ (3), and a portion of MRQ (6) through the investigation of other similar expressions.

Study 3 investigated the effects of the connective expressions "but" and "so" on Japanese EFL learners' comprehension of contexts and the relationships between meaning recognition and the connective expression's effect. The purpose of this study was to clarify MRQs (1) and (4) and a portion of MRQs (5) and (6) by comparing the results of Studies 1 through 3.

The next three chapters describe each study, respectively. The general-discussion chapter comprehensively discusses MRQs (1) through (6) based on the results and discussions of Studies 1 through 3, with a conclusion and pedagogical implications.

Study 1[1]

Purpose of Study 1

The purpose of this study is to investigate the extent to which Japanese EFL learners have acquired the meanings of the connective expressions “but” and “so.” This study addressed the following five research questions:

(1) What do Japanese EFL learners tend to think of the meanings of the connective expression “but”?

(2) What do they tend to think of the meanings of the connective expression “so”?

(3) Are there any differences between the tendencies of RQ1 and RQ2?

(4) Are there any different tendencies in RQ1 to RQ3 depending on their English proficiency?

(5) Are there any different tendencies in RQ1 to RQ3 between Japanese EFL learners and native English speakers?

Method

Participants

This study conducted three tasks, and participants completed different tasks. Therefore, this section describes all of the information on the participants of the three tasks together.

Participants for Task 1. The participants for Task 1, using Material 1, were 667 Japanese students at either a public or private university located in Tokyo or Yamanashi prefecture, and 11 native English speakers. I categorized 470 Japanese participants

[1] An earlier version of this chapter was originally published as Sato (2019b).

(Freshman = 463; Sophomore = 5; Junior = 1; Senior = 1) as lower in English ability (the lower group) and 197 Japanese participants (Freshman = 73; Sophomore = 80; Junior = 30; Senior = 14) as higher in English ability (the higher group). All of the lower group participants were the same university students, and none majored in English or other languages. The university had conducted a placement test for separating students into English classes. The test consisted of collecting TOEIC Bridge questions, 50 questions from listening parts, and 50 questions from reading parts. The time limit was 70 minutes. A score of 1 was given when the participants chose one correct answer, and therefore, the tests were marked based on 100 points. There were 433 out of the 470 participants in the lower group that completed the placement test and the average score was 54.6 (*Md* = 57.0, *SD* = 15.9).

The participants in the higher group were students from two universities. One group contained 106 national university students (Freshman = 30; Sophomore = 32; Junior = 30; Senior = 14) who were majoring in English education. This paper cannot present any objective indicators as to their English proficiency, but their entrance examinations include English, and they were obliged to obtain a teacher's license in English. Considering the results from the lower group's placement test, I judged the 106 students to be more proficient in English than the participants of the lower group. The other group consisted of was 91 private university students (Freshman = 43; Sophomore = 48) who were majoring in English communication. All of them had taken a TOEIC test within three months of this study, and their average score was 515.7 (*Md* = 485.0, *SD* = 126.0). Considering the results, I judged the 91 students to be more proficient in English than the participants in the lower group.

Participants for Task 2. The participants for Task 2, as well as those for Task 1,

were categorized at the higher and lower groups of English proficiency. The lower group included 302 freshman students and the higher group included 101 national university students (Freshman = 31; Sophomore = 28; Junior = 30; Senior = 12) who were majoring in English education. The participants in the lower group were the same as those of the low group for Task 1, and 99 out of 101 participants in the higher group were the same as those who had been in the higher group for Task 1.

Participants for Task 3. Eleven native English speakers constituted the Task 3 participants. Six of them worked as part-time lecturers at a private university in Japan and two of them worked as assistant language teachers at a private junior high school in Japan. The other three of them were university students in Australia (*N* = 2) and America (*N* = 1).

Material

Material 1: A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Expressions (see Appendix 1). This questionnaire presented 31 Japanese connective expressions and the participants were asked to choose which Japanese expressions included the meanings of "but" and "so," respectively. The 31 Japanese connective expressions were extracted based on Ishiguro's (2008, p. 57) classification. There has been no fixed classification of Japanese connective expressions, as described in the introduction chapter. Therefore, it is necessary to explain why this study adopted Ishiguro's classification: First, almost all of the Japanese connective expressions include his categories; second, it is relatively new as a category, based on previous categories; third, each of the categories presents one or more representative connective expressions. Table 2 shows Ishiguro's classification. This

questionnaire adopted 19 Japanese connective expressions, with each one presented as a representative example of each category, except for the expressions of "enumerative." Also, 12 connective expressions presented as conjunctive or adversative expressions were added in the questionnaire. As a result, the questionnaire in this study adopted 31 Japanese connective expressions in total.

Material 2: A Questionnaire on the Meaning Recognition of "But" and "So" with Japanese Passages (see Appendix 2). This material consisted of 11 Japanese passages, each of which had one blank. The passages were excerpted from Okimori (2016) as examples of Japanese connective expressions. The places of the blanks in this questionnaire were the same as those of the connective expressions that Okimori explained with the passages. The examples from Okimori were adopted as follows: first, there are many relatively new examples in Okimori; second, no other previous studies showed passages as examples of a wide range of Japanese connective expressions comprehensively. The 11 passages were the ones Okimori presented as the examples of 11 expressions adopted in Material 1, respectively.

Material 3: A Questionnaire on the Meaning Recognition of "But" and "So" With English Passages (see Appendix 3). This questionnaire consisted of an English translation of the passages in Material 2. The blanks were also made in the same places as Material 2. Unlike Material 2, on the other hand, there are some choices presented to fill in the blanks: The choice "so" was presented in six passages and the choice "but" was presented in the other five passages. In either case, the participants were able to answer any additional comments.

Procedure

Task 1: The Questionnaire With Material 1. The survey was conducted during the course time that the participants took at the university or during the seminar in their universities. The explanations, procedures, and instructions about the questionnaire were conducted by the person in charge of the class or seminar, including me, in the participants' native language, Japanese. The participants were asked to write their student ID number, but were also told that it had nothing to do with the grade of the class or seminar and that the information regarding them would be carefully handled so that the individual is not identified. The instructors distributed the questionnaires and verbally explained to choose the connective expressions that they think include the meanings of "but" and "so," respectively. There was no time limit to complete the task. As far as the instructors confirmed, they completed the questionnaire in about 5 to 10 minutes.

Task 2: The Questionnaire With Material 2. The survey was conducted during the course time that the participants took at the university or during the seminar in their universities. The explanations, procedures, and instructions about the questionnaire were conducted by the person in charge of the class or seminar, including me, in the participants' native language, Japanese. The participants were asked to write their student ID number but were also told that it had nothing to do with the grade of the class or seminar and that their information would be carefully handled so that they could not be individually identified. The instructors distributed the questionnaires and verbally instructed them to answer the appropriate Japanese expressions in the blank of each passage. There were no pre-set choices in the questionnaire and the participants were asked to write answers freely.

After they completed the task, they were asked to judge whether it is possible to put "but" or "so" in the blank of each passage, in passages that were translated into English. As in Task 1, there was no time limit to complete the task. As far as the instructors confirmed, they completed the questionnaire in about 20 to 30 minutes.

Task 3: The Questionnaire With Material 3. The survey was conducted on paper or online (Google Form). The participants were asked to determine whether the presented choice ("but" or "so") was appropriate for the blanks of each passage, respectively. When they judged the presented choice as not appropriate or thought that there were other possible expressions, they were asked to write answers freely. There was no time limit to complete the task, but they completed the questionnaire in about 20 minutes as far as the instructors confirmed. The questionnaire did not include the form for personal information because some participants did not agree to answer.

Analyses

I conducted all of the data processing.

Scoring for Task 1. The numbers of participants who judged each of the 31 Japanese connective expressions presented to include the meanings of "but" were collected respectively. Likewise, the numbers of participants who judged each of the 31 Japanese connective expressions presented to include the meanings of "so" were collected, respectively.

To answer the research questions (1) to (4), Task 1 was analyzed. The percentages of the number of people who judged each of the 31 Japanese connective expressions presented to include the meanings of "but" and "so" were calculated, respectively. They

were also calculated in each of the higher/higher groups. Besides, cluster analyses (square Euclidean distance and the Ward method) were conducted to reveal what meanings they tend to think of as the meanings of “but” or “so.” To ensure the validity of categorization by the cluster analyses, categorical factor analyses were conducted on some categories to see if connective expressions that were determined to belong to the same category through cluster analyses belong to one factor. Their results, to reveal whether the results are different in the higher group and the lower group, were analyzed in each group, respectively. Cluster analyses were conducted using SPSS (Version 21), and categorical factor analyses were conducted using EasyEstimation (Ver. 2.0.0; see Kumagai & Shojima, 2015).

Next, the percentages of the participants’ choices were calculated regarding each cluster and compared between the higher and lower groups. Further, in the lower group, Pearson’s correlations between their scores on the placement test and the numbers of choices in each cluster were calculated to reveal whether there were any relationships between English proficiency and choice tendencies within the group. Similarly, in the higher group, Pearson’s correlations between their scores on the TOEIC test and the numbers of choices in each cluster were calculated. Pearson’s correlations were calculated using SPSS (version 21).

Scoring for Task 2. For each of the 11 passages presented, free answers and the number of the participants who judged that “but” and “so” can be filled in the blanks were collected, respectively.

To answer the research questions (1) to (4), the acceptance rates of “but” and “so” in each passage were calculated in each of the higher and lower groups, respectively. In addition, in each passage, the answers that were the same or could be regarded as the

same as the original passages were defined as correct answers, and the number of the participants who gave the correct answers was calculated. Furthermore, the percentages of participants' correct answers that allowed "but" and "so" were calculated.

Scoring for Task 3. For each of the 11 passages presented, the number of participants who judged that the presented choices ("but" or "so") were possible was collected, respectively. Also, their free answers were collected. To answer the research question (5), the results were compared with the results of Task 2.

Results

Results of Task 1

The Percentages of the Choices in Each Connective Expression. Table 7 shows the percentages of participants who judged that each of the 31 Japanese connective expressions includes the meanings of "but," and Table 8 shows the percentages of participants who judged that each of the 31 Japanese connective expressions includes the meanings of "so."

First, Table 7 shows the following regarding the participants' recognition of the meanings of "but:" first, all of the participants in the higher group chose "*shikashi*" and "*daga*" as the meanings of "but," followed by "*tokoroga*" with a high choice rate. Besides, the choice rates of more than half of the connective expressions were less than 10%, which shows that individual differences tended to be small regarding the judgment on which expressions are not included in the meanings of "but." As for the lower group, on the other hand, the choice rates for "*shikashi*," "*daga*," and "*tokoroga*" were lower than those in the higher group. However, as in the higher group, "*shikashi*," "*daga*," are connective expressions with the highest choice rates, with around 90%. As for the

Table 7

Ratio of Participants who Judged That Each Japanese Connective Expression Includes the Meanings of "But"

Japanese connective expressions	Group	
	Higher	Lower
しかし (*shikashi*)	1.00	0.98
だが (*daga*)	1.00	0.96
ところが (*tokoroga*)	0.97	0.82
一方 (*ippou*)	0.85	0.75
ただし (*tadashi*)	0.85	0.71
それなのに (*sorenanoni*)	0.80	0.63
それでも (*soredemo*)	0.69	0.53
にもかかわらず (*nimokakawarazu*)	0.64	0.56
ただ (*tada*)	0.61	0.44
さもないと (*samonaito*)	0.33	0.40
むしろ (*mushiro*)	0.29	0.30
さて (*sate*)	0.16	0.23
または (*matawa*)	0.15	0.30
では (*dewa*)	0.10	0.23
かつ (*katsu*)	0.09	0.10
それに (*soreni*)	0.07	0.07
すると (*suruto*)	0.06	0.10
それなら (*sorenara*)	0.05	0.12
とくに (*tokuni*)	0.05	0.07

Table 7

Ratio of Participants who Judged That Each Japanese Connective Expression Includes the Meanings of "But" (continued)

Japanese connective expressions	Group	
	Higher	Lower
とにかく (*tonikaku*)	0.05	0.07
たとえば (*tatoeba*)	0.04	0.06
なぜなら (*nazenara*)	0.02	0.13
だから (*dakara*)	0.02	0.09
それで (*sorede*)	0.01	0.10
よって (*yotte*)	0.01	0.09
そして (*soshite*)	0.01	0.05
つまり (*tsumari*)	0.01	0.04
したがって (*shitagatte*)	0.00	0.09
ゆえに (*yueni*)	0.00	0.08
そのため (*sonotame*)	0.00	0.07
このように (*konoyouni*)	0.00	0.03

Note. $N = 667$ ($n = 197$ in the higher group and 470 in the lower group). The 31 expressions are ordered based on the results of the higher group.

Table 8

Ratio of Participants who Judged That Each Japanese Connective Expression Includes the Meanings of "So"

Japanese Connective Expressions	Group	
	Higher	Lower
だから (*dakara*)	0.97	0.82
したがって (*shitagatte*)	0.95	0.77
よって (*yotte*)	0.91	0.73
つまり (*tsumari*)	0.86	0.83
このように (*konoyouni*)	0.86	0.73
ゆえに (*yueni*)	0.83	0.67
そのため (*sonotame*)	0.83	0.65
それで (*sorede*)	0.71	0.59
そして (*soshite*)	0.61	0.71
すると (*suruto*)	0.57	0.53
さて (*sate*)	0.56	0.45
では (*dewa*)	0.56	0.37
それなら (*sorenara*)	0.46	0.44
とにかく (*tonikaku*)	0.40	0.31
かつ (*katsu*)	0.31	0.53
なぜなら (*nazenara*)	0.30	0.44
それに (*soreni*)	0.24	0.43
たとえば (*tatoeba*)	0.18	0.31
とくに (*tokuni*)	0.18	0.30

Table 8

Ratio of Participants who Judged That Each Japanese Connective Expression Includes the Meanings of "So" (continued)

Japanese Connective Expressions	Group	
	Higher	Lower
さもないと (*samonaito*)	0.18	0.18
または (*matawa*)	0.08	0.18
むしろ (*mushiro*)	0.07	0.23
一方 (*ippou*)	0.04	0.14
ただ (*tada*)	0.03	0.17
それでも (*soredemo*)	0.03	0.12
にもかかわらず (*nimokakawarazu*)	0.03	0.11
ただし (*tadashi*)	0.02	0.07
それなのに (*sorenanoni*)	0.01	0.11
ところが (*tokoroga*)	0.01	0.06
だが (*daga*)	0.01	0.04
しかし (*shikashi*)	0.01	0.03

Note. $N = 667$ ($n = 197$ in the higher group and 470 in the lower group). The 31 expressions are ordered based on the results of the higher group.

connective expressions with lower choice rates, the lower group participants got higher choice rates than those in the higher group. These results showed that the higher group displayed a more decided tendency.

Figure 3 shows the orders of the choice rates in each group. Kendall Tau's correlation was .784, which was a strong positive correlation. The figure shows that the choice tendency concerning "but" is similar between the two groups, especially the connective expressions with high choice rates.

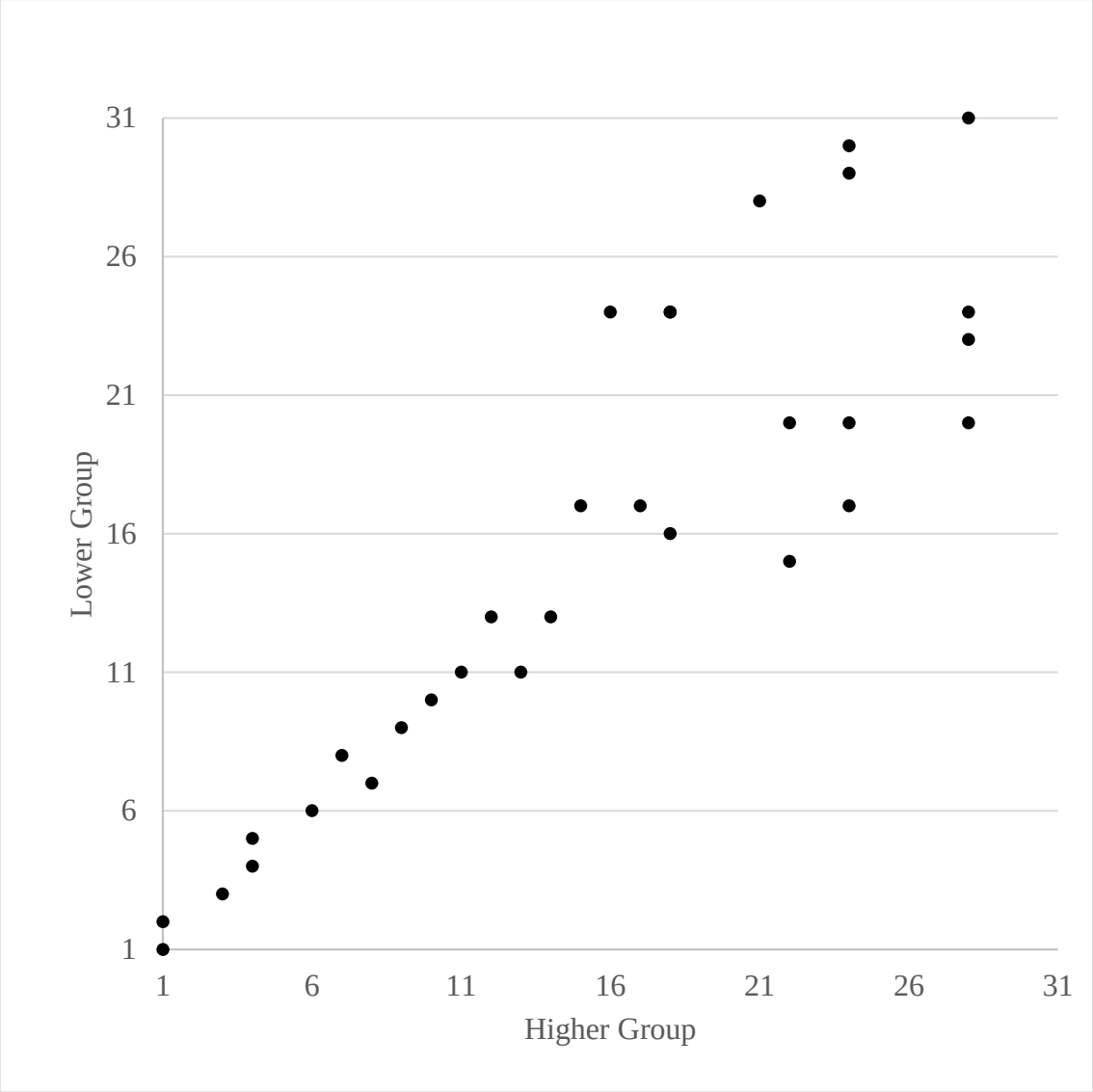
The result of "so" did not have a more decided tendency than that of "but." For the higher group, the highest choice rate is 97% of "*dakara*," followed by 95% of "*shitagatte*," 91% of "*yotte*", and 86% of "*konoyouni*" and "*tsumari*." For the lower group, the choice-rate order was different: the highest choice rate was 83% of "*tsumari*," followed by 82% of "*dakara*," and 77% of "*shitagatte*." The tendency to have a different order at the top of the choice rate was not found in "but." Besides, there were only three connective expressions for which the choice rate was less than 10 percent: "*shikashi*," "*daga*," and "*tokoroga*." For the lower group, the choice rates were lower than the higher group for expressions with a high choice rate, and they tended to be higher than the higher group for those with a low choice rate, which was the same as "but."

Figure 4 shows the orders of the choice rates in each group. Kendall Tau's correlation was .893, which was a strong positive correlation. The figure shows that the choice tendency concerning "so" is similar between the two groups.

Classification of Japanese Connective Expressions for the Meanings of "But." The cluster analysis classified the choice tendency regarding the meanings of "but" into two clusters in both the higher and lower groups. As Table 9 shows, the

Figure 3

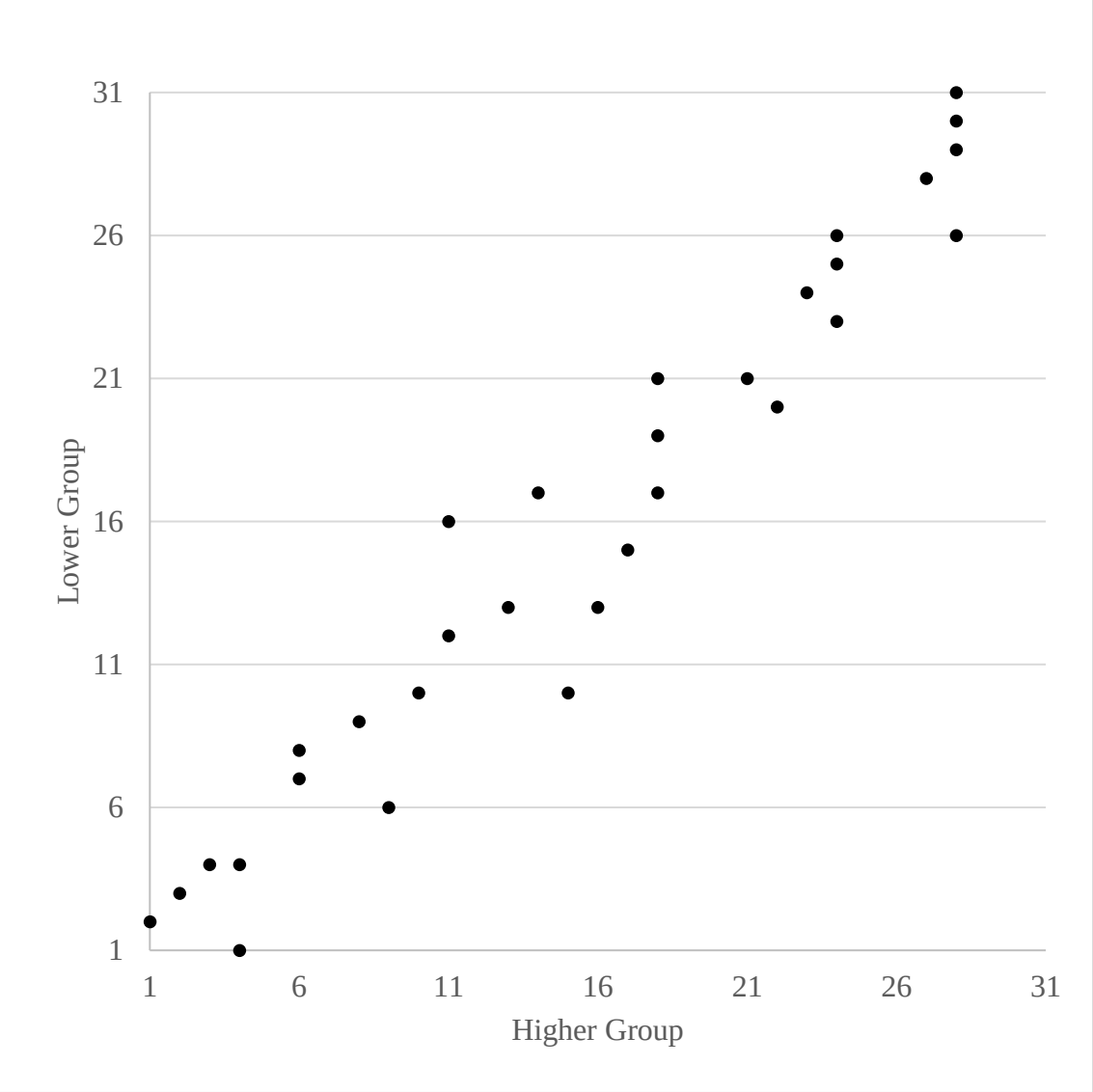
The Orders of the Choice Rates in the Higher and Lower Groups for "But"



Note. Each dot represents a Japanese connective expression in Material 1.

Figure 4

The Orders of the Choice Rates in the Higher and Lower Groups for "So"



Note. Each dot represents a Japanese connective expression in Material 1.

Table 9

Clusters in the Lower Group Regarding the Meanings of "But"

Cluster	Japanese connective expressions	Cronbach's α
Adversative (10 items)	一方 (*ipppou*) さもないと (*samonaito*) しかし (*shikashi*) それでも (*soredemo*) それなのに (*sorenanoni*) だが (*daga*) ただ (*tada*) ただし (*tadashi*) ところが (*tokoroga*) にもかかわらず (*nimokakawarazu*)	.676
Non-adversative (21 items)	かつ (*katsu*) このように (*konoyouni*) さて (*sate*) したがって (*shitagatte*) すると (*suruto*) そして (*soshite*) そのため (*sonotame*) それで (*sorede*) それなら (*sorenara*) それに (*soreni*) だから (*dakara*) たとえば (*tatoeba*) つまり (*tsumari*) では (*deha*) とくに (*tokuni*) とにかく (*tonikaku*) なぜなら (*nazenara*) または (*matawa*) むしろ (*mushiro*) ゆえに (*yueni*) よって (*yotte*)	.755

Note. Participant judgments regarding the relationships between the 31 Japanese connective expressions and "but" are shown.

choices in the lower group were classified into two clusters, one that contains many adversative relationships, represented by "*shikashi*" and "*daga*," and the other cluster that does not contain the relationship. In the higher group, Table 10 shows that "*samonaito*" belongs to a different cluster from the lower group, but other than that, it was the same cluster classification. The first cluster was named "adversative relationship" and the second cluster "non-adversative relationship." Categorical factor analyses were conducted for "adversative" clusters. Figure 5 shows the result of the analysis. The one-factor structure was confirmed in nine items except "*shikashi*," whose choice rate was close to 100%.

Next, Figure 6 shows the result of the categorical factor analysis in the higher group. The one-factor structure was confirmed in six items except "*shikashi*," "*daga*," and "*tokoroga*." The reason was that The two expressions "*shikashi*" and "*daga*" were with a choice rate of 100%, and "*tokoroga*," with a choice rate of close to 100%. For each cluster named "non-adversative," categorical factor analyses were judged to be inappropriate because both clusters contained many connective expressions whose choice rate was shallow.

As shown in Tables 9 and 10, the values of Cronbach's alpha coefficient in "adversative" clusters in the lower and higher groups were .669 and .676, respectively, which was not adequately high. However, no items increased the value of the alpha coefficient significantly by deleting in both clusters. Besides, there were no connective expressions whose meaning was remarkably different from other expressions in the cluster, and the clusters in both groups consisted of almost the same connective expressions. Furthermore, through categorical factor analyses, the one-factor structure was confirmed. From these results, it was judged that it is appropriate to adopt the classification of each of the two clusters shown in Tables 9 and 10.

Table 10

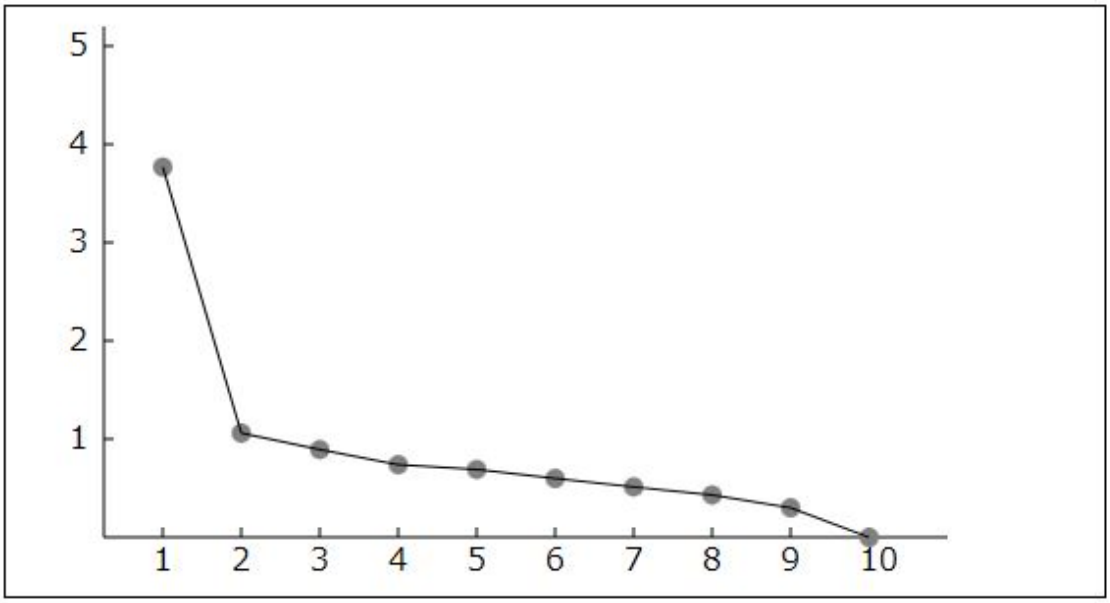
Clusters in the Higher Group Regarding the Meanings of "But"

Cluster	Japanese connective expressions	Cronbach's α
Adversative (9 items)	一方 (*ipppou*) しかし (*shikashi*) それでも (*soredemo*) それなのに (*sorenanoni*) だが (*daga*) ただ (*tada*) ただし (*tadashi*) ところが (*tokoroga*) にもかかわらず (*nimokakawarazu*)	.669
Non-adversative (22 items)	かつ (*katsu*) このように (*konoyouni*) さて (*sate*) したがって (*shitagatte*) すると (*suruto*) そして (*soshite*) そのため (*sonotame*) それで (*sorede*) それなら (*sorenara*) それに (*soreni*) だから (*dakara*) たとえば (*tatoeba*) つまり (*tsumari*) では (*deha*) とくに (*tokuni*) とにかく (*tonikaku*) なぜなら (*nazenara*) または (*matawa*) むしろ (*mushiro*) ゆえに (*yueni*) よって (*yotte*) さもないと (*samonaito*)	.823 .670

Note. Participant judgments regarding the relationships between the 31 Japanese connective expressions and "but" are shown.

Figure 5

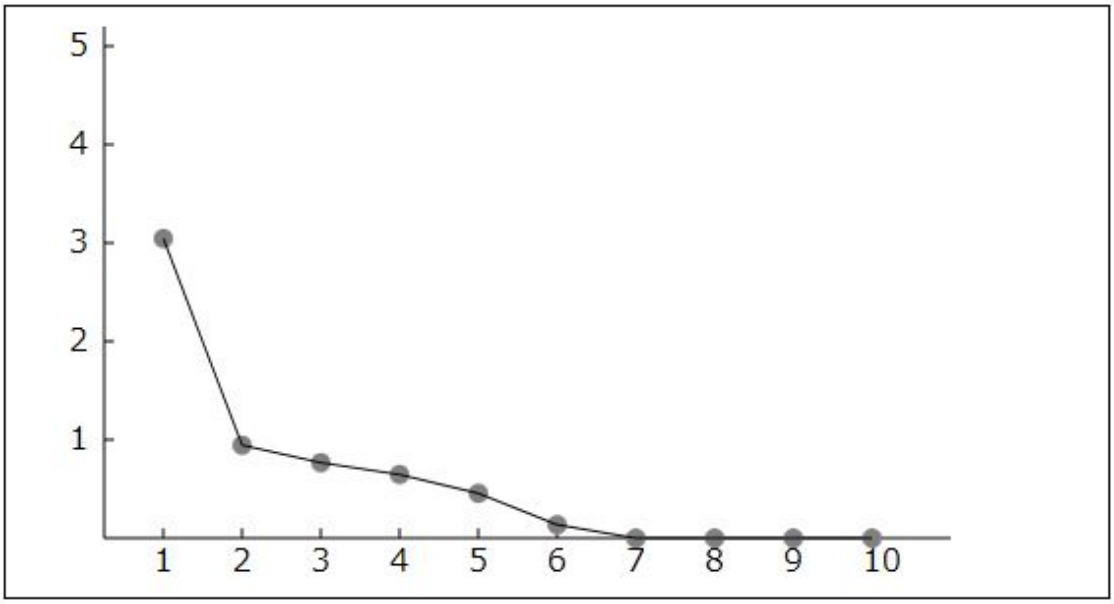
Scree Plot for the "Adversative" Cluster in the Lower Group Regarding the Meanings of "But"



Note. The vertical axis shows eigenvalues; the horizontal axis shows component numbers.

Figure 6

Scree Plot for the "Adversative" Cluster in the Higher Group Regarding the Meanings of "But"



Note. The vertical axis shows eigenvalues; the horizontal axis shows component numbers.

Classification of Japanese Connective Expressions for the Meanings of "So." The results in the higher and lower groups were classified into different clusters regarding the meanings of "so." Tables 11 and 12 show the results. As Table 12 shows, in the higher group, as well as "but," the choice tendency regarding "so" was classified into two clusters. The cluster consisting of 10 connective expressions, including "*dakara*" was named "causal/conjunctive relationship" and the other cluster was named "non-causal/conjunctive relationship." On the other hand, in the lower group, it was classified into three clusters. The cluster consisting of 10 connective expressions, including "*dakara*," was named "causal-admissive relationship." The connective expressions in the cluster were the same as those in the "causal/conjunctive" cluster in the higher group. Next, the cluster consisting of 12 connective expressions containing "*shikashi*" was named as having as "adversative relationship." Finally, the cluster consisting of the remaining nine connective expressions was named "non-causal/conjunctive/adversative relationship."

To verify whether it is appropriate to classify into three clusters in the lower group, categorical factor analysis was conducted for the "casual/conjunctive" cluster. Figure 7 shows the result. As shown in Figure 7, a strong one-factor structure was not confirmed. However, there was not an extremely low value of the tetracolic correlation coefficients. Also, in the Cronbach's alpha coefficient shown in Table 7, there were no items showing that the alpha coefficient was extremely increased by deleting.

Next, categorical factor analysis was conducted for the cluster consisting of nine connective expressions classified as "non-causal/conjunctive/adversative relationship." Figure 8 shows the result. The figure shows that a strong one-factor structure was confirmed for the eight connective expressions, excluding "*sate.*" Regarding "*sate*," the

Table 11

Clusters in the Lower Group Regarding the Meanings of "So"

Cluster	Japanese connective expressions	Cronbach's α	
Causal/ conjunctive (10 items)	このように (*konoyouni*) したがって (*shitagatte*) すると (*suruto*) そして (*soshite*) そのため (*sonotame*) それで (*sorede*) だから (*dakara*) つまり (*tsumari*) ゆえに (*yueni*) よって (*yotte*)	.704	
Non-causal/ conjunctive/ adversative (9 items)	かつ (*katsu*) さて (*sate*) それなら (*sorenara*) それに (*soreni*) たとえば (*tatoeba*) では (*deha*) とくに (*tokuni*) とにかく (*tonikaku*) なぜなら (*nazenara*)	.721	.809
Adversative (12 items)	一方 (*ipppou*) さもないと (*samonaito*) しかし (*shikashi*) それでも (*soredemo*) それなのに (*sorenanoni*) だが (*daga*) ただ (*tada*) ただし (*tadashi*) ところが (*tokoroga*) にもかかわらず (*nimokakawarazu*) または (*matawa*) むしろ (*mushiro*)	.610	

Note. Participant judgments regarding the relationships between the 31 Japanese connective expressions and "so" are shown.

Table 12

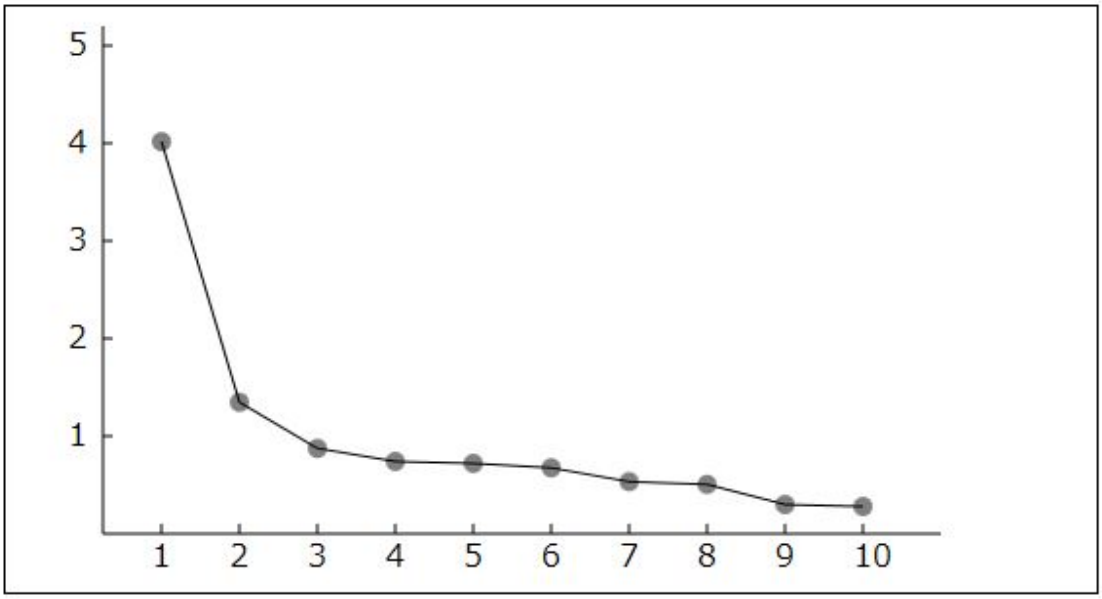
Clusters in the Higher Group Regarding the Meanings of "So"

Cluster	Japanese connective expressions	Cronbach's α
Causal/ conjunctive (10 items)	このように (*konoyouni*) したがって (*shitagatte*) すると (*suruto*) そして (*soshite*) そのため (*sonotame*) それで (*sorede*) だから (*dakara*) つまり (*tsumari*) ゆえに (*yueni*) よって (*yotte*)	.624
Non-causal/ conjunctive (21 items)	かつ (*katsu*) さて (*sate*) それなら (*sorenara*) それに (*soreni*) たとえば (*tatoeba*) では (*deha*) とくに (*tokuni*) とにかく (*tonikaku*) なぜなら (*nazenara*) 一方 (*ipppou*) さもないと (*samonaito*) しかし (*shikashi*) それでも (*soredemo*) それなのに (*sorenanoni*) だが (*daga*) ただ (*tada*) ただし (*tadashi*) ところが (*tokoroga*) にもかかわらず (*nimokakawarazu*) または (*matawa*) むしろ (*mushiro*)	.744 .774

Note. Participant judgments regarding the relationships between the 31 Japanese connective expressions and "so" are shown.

Figure 7

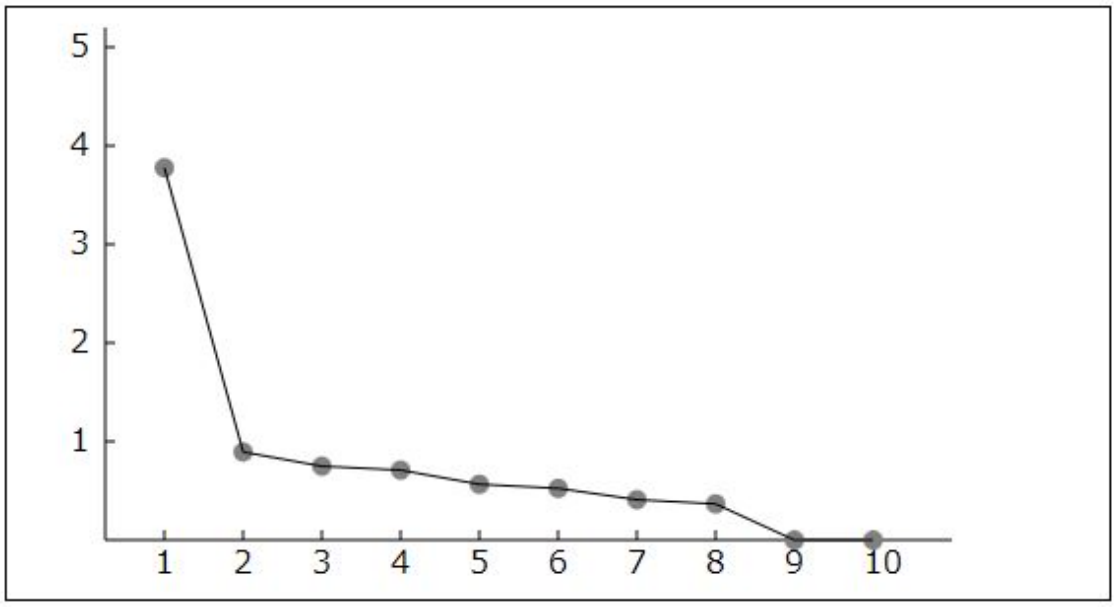
Scree Plot for the "Casual/conjunctive" Cluster in the Lower Group Regarding the Meanings of "So"



Note. The vertical axis shows eigenvalues; the horizontal axis shows component numbers.

Figure 8

Scree Plot for the "Non-casual/conjunctive/adversative" Cluster in the Lower Group Regarding the Meanings of "So"



Note. The vertical axis shows eigenvalues; the horizontal axis shows component numbers.

value of the tetracolic correlation coefficient was generally low from 0.06 to 0.39, and the correlation coefficient with "*katsu*" was particularly low at 0.06. Therefore, a one-factor structure was not confirmed because of "*sate*." However, the Cronbach's alpha coefficient, including "*sate*," was .721, as shown in Table 11, and the alpha coefficient excluding "*sate*" changed little at .720. Therefore, this study classified "*sate*" into the "non-causal/conjunctive/adversative" cluster.

Categorical factor analysis was judged as being inappropriate for the "adversative" cluster because it contained connective expressions with a shallow choice rate. As shown in Table 11, the Cronbach's alpha coefficient's value was not low, so it was appropriate as the third cluster.

For the two clusters in the higher group, considering that the connective expressions contained in the "causal/conjunctive" cluster were the same as those in the lower group and that the value of the Cronbach's alpha coefficient's value in Table 12 did not indicate an extremely low value, it was judged that the two cluster classifications were appropriate.

Choice Rates in Each Cluster. Tables 13 and 14 show a summary of the higher and lower groups' choice rates for each cluster presented in the previous section. The highest choice rate was the "adversative" cluster for the meanings of "but" in the higher group, and the lowest was the "non-adversative" cluster for the meanings of "but" in the higher group. Therefore, the boundary line of the meanings of "but" was more apparent than the lower group and "so" for the higher group participants. Similarly, Table 14 shows that the two clusters were strongly related to the boundary line of the meanings of "so" in the higher group, although not as pronounced as "but." On the other hand, there was no significant tendency in the lower group as it was in the higher group

Table 13

The Choice Rates in Each Cluster for the Meanings of "But" (%)

Lower		Higher	
Cluster	Choice rate	Cluster	Choice rate
Adversative (10 items)	67.8	Adversative (9 items)	82.3
Non-adversative (21 items)	11.4	Non-adversative (22 items)	6.8

Note. $N = 667$ ($n = 197$ in the higher group and 470 in the lower group). The clusters in the lower group are shown in Table 9 in detail; the clusters in the higher group are shown in Table 10 in detail.

Table 14

The Choice Rates in Each Cluster for the Meanings of "So" (%)

Lower		Higher	
Cluster	Choice rate	Cluster	Choice rate
Causal/conjunctive (10 items)	70.1	Causal/conjunctive (10 items)	81.1
Non-causal/conjunctive/ adversative (9 items)	39.9	Non-causal/conjunctive (21 items)	17.6
Adversative (12 items)	12.1		

Note. N = 667 (*n* = 197 in the higher group and 470 in the lower group). The clusters in the lower group are shown in Table 11 in detail; the clusters in the higher group are shown in Table 12 in detail.

regarding the meanings of “but.” Concerning the judgment of “so” in the lower group classified into three clusters, while the choice rate in the “causal-conjunctive” cluster was high and “adversative” was low, “non-causal/conjunctive/adversative” was moderate.

Relationship with English Proficiency. Tables 15 to 18 show the correlation coefficient values between the number of choices in each cluster and the scores of English proficiency indicators. As shown in Table 15, in the lower group, the correlation coefficient between the numbers of choice regarding the meanings of “but” in the “non-adversative” cluster and the scores of TOEIC Bridge was weak but significantly negative. Therefore, the higher the TOEIC Bridge score, the more likely the participants were to judge the connective expressions classified as the “non-adversative” cluster not to be included in the meanings of “but.” Table 16 shows that, in the lower group, the correlation coefficients between the numbers of choice regarding the meanings of “but” in the “non-causal/conjunctive/adversative” cluster or the “adversative” cluster and the scores of TOEIC Bridge were weak but significantly negative. Therefore, the higher the score of TOEIC Bridge, the more likely the participants were to judge the connective expressions classified as the “non-causal/conjunctive/adversative” cluster and the “adversative” cluster not to be included in the meanings of “so.”

For the higher group, as Table 17 shows, and the score of TOEIC, the correlation coefficient between the numbers of choice regarding the meanings of “but” in the “non-adversative” cluster and the scores of TOEIC was weak but significantly negative. Therefore, the higher the score of TOEIC, the more likely the participants were to judge the connective expressions classified as the “non-adversative” cluster not to be included in the meanings of “but.” This is a tendency similar to that of the lower group. On the

Table 15

The Values of the Correlation Coefficient Between the Number of Choices in Each Cluster Regarding the Meaning of "But" and the Scores of English Proficiency Indicators in the Lower Group

Variable	TOEIC Bridge	Adversative	Non-adversative
TOEIC Bridge	—		
Adversative	.031	—	
Non-adversative	-.194**	.194**	—

Notes: $N = 433$. Adversative = "Adversative" cluster in the lower group; Non-adversative = "Non-adversative" cluster in the lower group.

**$p < .01$.

Table 16

The Values of the Correlation Coefficient Between the Number of Choices in Each Cluster Regarding the Meaning of "So" and the Scores of English Proficiency Indicators in the Lower Group

Variable	TOEIC Bridge	Causal/ conjunctive	Non-causal/ conjunctive/ adversative	Adversative
TOEIC Bridge	—			
Causal/ conjunctive	.068	—		
Non-causal/ conjunctive/ adversative	-.121**	.151**	—	
Adversative	-.084*	.512**	.444**	—

Note. N = 433. Causal/conjunctive = "Causal/conjunctive" cluster in the lower group; Non-causal/conjunctive/adversative = "Non-causal/conjunctive/adversative" cluster in the lower group; Adversative = "Adversative" cluster in the lower group.

*$p < .05$; **$p < .01$.

Table 17

The Values of the Correlation Coefficient Between the Number of Choices in Each Cluster Regarding the Meaning of "But" and the Scores of English Proficiency Indicators in the Higher Group

	TOEIC	Adversative	Non-adversative
TOEIC	—		
Adversative	.100	—	
Non-adversative	-.174*	.373**	—

Note. N = 91. Adversative = "Adversative" cluster in the higher group; Non-adversative = "Non-adversative" cluster in the higher group.

*p < .05; **p < .01.

Table 18

The Values of the Correlation Coefficient Between the Number of Choices in Each Cluster Regarding the Meaning of "So" and the Scores of English Proficiency Indicators in the Higher Group

	TOEIC	Causal/ conjunctive	Non-causal/ conjunctive
TOEIC	—		
Causal/ conjunctive	.170	—	
Non-causal/ conjunctive	.153	.563**	—

Note. N = 91. Causal/conjunctive = "Causal/conjunctive" cluster in the higher group; Non-causal/conjunctive = "Non-causal/conjunctive" cluster in the higher group.

**p < .01.

other hand, there were no significant correlations between the choices regarding “so” and TOEIC scores, as shown in Table 18.

Results of Task 2

The Acceptance Rates for Each Passage. Table 19 shows the percentages of the judgment that it is possible to put “but” and “so” in each passage’s blank. The acceptance rate of “so” for Passage 3 is very different between the higher group and the lower group: 28.7% in the higher group and 64.9% in the lower group. Also, in nine out of the 11 passages, the acceptance rate of either “but” or “so” tended to be high, while in the other two passages, Passages 5 and 7, the acceptance rates of both “but” and “so” are moderate.

Acceptable Rates of “But” and “So” Within the Participants Whose Answers Were the Same or Could Be Regarded as the Same Expressions as the Original Passage. Table 20 shows the number of participants whose answers were the same or could be regarded as the same expressions as the original passage and the acceptance rates of “but” and “so” within them. As shown in the table, the acceptance rate of “so” in Passage 3 was much different between the higher and lower groups, which was the same tendency as the results shown in Table 19. This tendency means that the higher group participants who were able to understand that “*soshite*” shows the relationship of the passage tended to consider that the relationship cannot be represented by “so” in English. Also, it means that the lower group participants who were able to understand it were less likely to consider that it is possible to represent the relationship with “so” in English.

Table 19

The Japanese EFL Learners' Acceptance Rates of "But" and "So" for the Blank of Each Passage (%)

Passage	Expressions in the original passage	"But"		"So"	
		Higher	Lower	Higher	Lower
1	つまり (*tsumari*)	1.0	3.6	83.2	80.8
2	しかし (*shikashi*)	100.0	96.0	12.9	22.5
3	そして (*soshite*)	0.0	5.6	28.7	64.9
4	ところが (*tokoroga*)	99.0	94.0	6.9	16.9
5	にもかかわらず (*nimokakawarazu*)	33.7	31.8	65.3	67.2
6	だから (*dakara*)	5.0	8.6	96.0	84.4
7	したがって (*shitagatte*)	52.5	56.6	45.5	43.7
8	一方 (*ippou*)	92.1	78.5	7.9	23.5
9	ただし (*tadashi*)	94.1	86.1	3.0	16.2

Table 19

The Japanese EFL Learners' Acceptance Rates of "But" and "So" for the Blank of Each Passage (%; continued)

Passage	Expressions in the original passage	"But"		"So"	
		Higher	Lower	Higher	Lower
10	このように (*konoyouni*)	1.0	8.9	71.3	74.2
11	それで (*sorede*)	1.0	10.9	96.0	87.1

Note. $N = 403$ ($n = 101$ in the higher group; $n = 302$ in the lower group).

Table 20

The Japanese EFL Learners' Acceptance Rates Within the Participants Whose Answers Were the Same or Could Be Regarded as the Same Expressions as the Original Passage (%)

Passage	"But"		"So"		Answers that were the same or could be regarded as the same as the original passage
	Higher	Lower	Higher	Lower	
1			*N* = 80 87.5	*N* = 111 94.6	つまり (*tsumari*) すなわち (*sunawachi*)
2	*N* = 86 100.0	*N* = 213 99.1			しかし (*shikashi*) しかしながら (*shikashinagara*)
3			*N* = 82 29.3	*N* = 230 72.2	そして (*soshite*)
4	*N* = 5 100.0	*N* = 5 100.0			ところが (*tokoroga*)
5	*N* = 4 50.0	*N* = 2 100.0			(それ)にもかかわらず ([*sore*]*nimokakawarazu*)
6			*N* = 59 98.3	*N* = 217 91.2	だから (*dakara*) であるから (*dearukara*) なので (*nanode*)
7			*N* = 1 100.0	*N* = 4 100.0	したがって/従って (*shitagatte*)

Table 20

The Japanese EFL Learners' Acceptance Rates Within the Participants Whose Answers Were the Same or Could Be Regarded as the Same Expressions as the Original Passage (%; continued)

8	*N* = 49 93.9	*N* = 60 80.0			いっぽう一方（で） (*ippou[de]*) その一方（で） (*sonoippou[de]*)
9	*N* = 44 97.7	*N* = 42 90.5			ただし (*tadashi*)
10			*N* = 66 71.2	*N* = 84 83.3	このように (*konoyouni*)
11			*N* = 0	*N* = 0	それで (*sorede*)

Results of Task 3

Table 21 shows the native speaker participants' numbers that judged "but" and "so" to be acceptable in each passage and their free answers. For the five passages where "but" was presented as the choice, nine to 11 out of the 11 participants answered that "but" or "however" was acceptable. On the other hand, for the six passages where "so" was presented as the choice, the acceptable rates of "so" differed depending on the passage. In particular, in Passages 1 and 10, where most Japanese EFL learners judged that "so" was acceptable for the blanks, only 3 out of the 11 native speakers judged that "so" was acceptable. Besides, in Passage 3, where the acceptance was different in the higher and lower groups of Japanese EFL learners, there were no native speakers who judged that "so" was acceptable.

The range of free answers other than "but" and "so" was different depending on the passages. Table 21 shows that the six "so" passages tended to have more free answers than the five "but" passages.

Discussions

Discussion for Research Question 1

Research Question 1 is, "What do Japanese EFL learners tend to think of the meanings of the connective expression 'but'?" The results of this study suggest that Japanese EFL learners tend to recognize "but" as a word that represents an adversative relationship. First, from the results of Task 1, almost 100% of the Japanese participants judged "*shikashi*" and "*daga*" to be the meanings of "but." Also, the connective expressions were classified into two clusters and 10 expressions, including "*shikashi*" and "*daga*," belonging to the same cluster named "adversative." Table 22 shows that the relationships between the 10 expressions in the "adversative" cluster and Ishiguro's

Table 21

Native Speaker Participants' Acceptance Rates and Free Answers in Each Passage

Passage	Expressions in the original passage	Numbers of participants who accepted "but/so"	Free answers (numbers)
1	つまり (*tsumari*)	3 (so)	and (2) / therefore / in other words / by doing so / overall / [no words needed] / [change "that" to "this"]
2	しかし (*shikashi*)	6 (but)	however (3) / that being said / ,
3	そして (*soshite*)	0 (so)	then (5) / after that (3) / standing / at that point / [no words needed]
4	ところが (*tokoroga*)	9 (but)	however / therefore / ,
5	にもかかわらず (*nimokakawarazu*)	5 (but)	however (4) / and / so / [no words needed]
6	だから (*dakara*)	7 (so)	therefore (2) / that's why / [no words needed]
7	したがって (*shitagatte*)	4 (so)	but (3) / therefore / [no words needed] (3)
8	一方 (*ippou*)	7 (but)	however (2) / [no words needed] (3)

Table 21

Native Speaker Participants' Acceptance Rates and Free Answers in Each Passage (continued)

Passage	Expressions in the original passage	Numbers of participants who accepted "but/so"	Free answers (numbers)
9	ただし (*tadashi*)	10 (but)	however / just / [no words needed]
10	このように (*konoyouni*)	3 (so)	evidently (2) / in this way / clearly / this is an example where / [no words needed] (4)
11	それで (*sorede*)	7 (so)	therefore (2) / consequently / thus

Notes. N = 11.

Table 22

The Classifications of Representative Previous Studies Regarding 10 Expressions in "Adversative" Cluster

Japanese connective expressions	Classification		
	Okimori (2016)	Nihongo Kizyutu Bunpô Kenkyûkai (2009)	Ishiguro (2008)
一方 (*ippou*)	比較 [a]	対比 [a]	対比 [a]
さもないと (*samonaito*)	仮定（否定の仮定条件）[b]	否定条件 [e]	順接（それなら系）[g]
しかし (*shikashi*)	逆接 [c]	逆接 [c]	逆接（しかし系）[h]
それでも (*soredemo*)	逆接 [c]	逆接 [c]	逆接（しかし系）[h]
それなのに (*sorenanoni*)	逆接 [c]	逆接 [c]	逆接（ところが系）[i]
だが (*daga*)	逆接 [c]	逆接 [c]	逆接（しかし系）[h]
ただ (*tada*)	制限 [d]	補足 [f]	逆接（しかし系）[h]
ただし (*tadashi*)	制限 [d]	補足 [f]	補足 [f]

Table 22

The Classifications of Representative Previous Studies Regarding 10 Expressions in "Adversative" Cluster (continued)

Japanese connective expressions	Classification		
	Okimori (2016)	Nihongo Kizyutu Bunpô Kenkyûkai (2009)	Ishiguro (2008)
ところが (*tokoroga*)	逆接 [c]	逆接 [c]	逆接（ところが系）[i]
にもかかわらず (*nimokakawarazu*)	逆接 [c]	[No description]	逆接（ところが系）[i]

Note. [a] 比較/対比 = comparative. [b] 仮定（否定の仮定条件）= conditional (negative condition). [c] 逆接 = adversative. [d] 制限 = restrictive. [e] 否定条件 = negatively conditional. [f] 補足 = additional. [g] 順接（それなら系）= conjunctive, represented by "*sorenara*." [h] 逆接（しかし系）= adversative, represented by "*shikashi*." [i] 逆接（ところが系）= adversative, represented by "*tokoroga*."

(2008), Nihongo Kizyutu Bunpô Kenkyûkai's (2009), and Okimori's (2016) classifications. Table 23 shows the relationships between the 10 expressions and the descriptions of "but" in dictionaries.

The tables show that the nine connective expressions (with the exception of "*samonaito*") are related to "but" or "*shikashi*." First, seven connective expressions are classified as being the same or similar to "*shikashi*" in the three previous studies. Furthermore, Nihongo Kizyutu Bunpô Kenkyûkai and Okimori's classification includes "*tadashi*" in the same category as "*tada*." Kawagoe (2003) analyzed some distinctions in their meanings and functions of "*tadashi*" and "*tada*." However, as Kashima (2005) points out, they are often considered as synonyms, and the difference remains ambiguous. Because of this ambiguity, it is natural that both "*tada*" and "*tadashi*" are considered to mean "but"—even though the association between "but" and "*tada*" is relatively weak. It is also worth noting that although "*ippou*" does not belong to the same categories as "*shikashi*" in the three previous studies, all four Japanese-English dictionaries show "but" as a translation example of "*ippou.*"

These results indicate the following two conclusions. First, Japanese EFL learners' standards of judgment regarding whether each Japanese connective expression is included in the meaning range of "but" are based on whether they are related to "but" or "*shikashi*," and the classification by the cluster analysis in this study is highly valid. Second, Japanese EFL learners tend to recognize the meanings of "but" correctly.

Discussion for Research Question 2

Research Question 2 is, "What do they tend to think of the meanings of the connective expression 'so'?" This study suggests that Japanese EFL learners cannot fully understand the meanings of "so." First, as Table 8 shows, a large number of

Table 23

The Relationships Between the Descriptions of "But" in Dictionaries and 10 Expressions in the "Adversative" Cluster

Japanese connective expressions	English-Japanese dictionaries[a] (n = 6)	Japanese-English dictionaries[b] (n = 4)	English thesaurus dictionary[c]
一方 (*ippou*)	1 (cf. however: 2)	4	A
さもないと (*samonaito*)	0	0	A
しかし (*shikashi*)	6	4	P
それでも (*soredemo*)	1 (cf. yet: 5)	4	P
それなのに (*sorenanoni*)	0	2	A
だが (*daga*)	5	4	P
ただ (*tada*)	0	4	A
ただし (*tadashi*)	2	4	P
ところが (*tokoroga*)	2	4	A

Table 23

The Relationships Between the Descriptions of "But" in Dictionaries and 10 Expressions in the "Adversative" Cluster (continued)

Japanese connective expressions	English-Japanese dictionaries[a] (n = 6)	Japanese-English dictionaries[b] (n = 4)	English thesaurus dictionary[c]
にもかかわらず (*nimokakawarazu*)	0 (cf. however: 2; yet: 6)	0	P

Note. [a]English-Japanese dictionaries = English-Japanese dictionaries (Inoue & Akano, 2013; Konishi & Minamide, 2001; Nomura & Hanamoto, 2013; Shogakukan, 1993; Takahashi et al., 2012; Takebayashi, 2002) with translation examples of each Japanese connective expression in the section "but." [b]Japanese-English dictionaries = Japanese-English dictionaries (Kishino, 2013; Minamide & Nakamura, 2011; Nomura et al., 2016; Watanabe et al., 2003) with example sentences using "but" in the section of each Japanese connective expression. [c]English thesaurus dictionary = Presence (P)/Absence (A) of the description of each Japanese connective expression in the section "but" in Taishukan (1998).

Japanese EFL learners judge that "*tsumari*" is included in the meanings of "so." Also, many learners judge that "*soshite*" is included in the meanings of "so," even though the higher and lower groups showed some different tendencies. Both "*tsumari*" and "*soshite*" were classified into the same cluster as the causal expressions represented by "*dakara*." Table 24 shows that the relationships between the 10 expressions in the "causal/conjunctive" cluster and Ishiguro's (2008), Nihongo Kizyutu Bunpô Kenkyûkai's (2009), and Okimori's (2016) classifications. Table 25 shows the relationships between the 10 expressions and the descriptions of "but" in dictionaries.

The tables show that the three connective expressions "*soshite*," "*tsumari*," and "*konoyouni*," are weakly related to "so" or "*dakara*." First, in Japanese classification, seven of the ten expressions except "*soshite*," "*tsumari*," and "*konoyouni*" are classified into almost the same category. These seven connective expressions are also related to "so" in English-Japanese or Japanese-English dictionaries. On the other hand, none of the three connective expressions "*soshite*," "*tsumari*," and "*konoyouni*," are classified in the same category as the other seven expressions.

In the section of "*konoyouni*" in Japanese-English dictionaries, there is no example sentence with "so." Besides, in the section of "so" in English-Japanese dictionaries, there is no translation example with "*konoyouni*," even though five of the six dictionaries have "*konoyouni*" in the section of "thus," one of the related expressions of "so." "*Konoyouni*" is also confirmed in "so" section of the English Thesaurus Dictionary. Therefore, "*konoyouni*" is weakly related to "*dakara*" but moderately related to "so."

As for "*soshite*," only one of the six English-Japanese dictionaries puts the Japanese expression in the "so" section, and none of the Japanese-English dictionaries puts any example sentences with "so" in the "*soshite*" section. As for "*tsumari*," only

Table 24

The Classifications of Representative Previous Studies Regarding 10 Expressions in the "Causal/conjunctive" Cluster

Japanese connective expressions	Classification		
	Okimori (2016)	Nihongo Kizyutu Bunpô Kenkyûkai (2009)	Ishiguro (2008)
このように (*konoyouni*)	経緯 [a]	まとめ [g]	結論 [c]
したがって (*shitagatte*)	因果 [b]	確定条件 [h]	順接（だから系）[k]
すると (*suruto*)	帰結 [c]/継起 [d]	仮定条件 [i]	順接（それなら系）[l]
そして (*soshite*)	継起 [d]/並立 [e]	添加 [j]	並列 [e]
そのため (*sonotame*)	因果 [b]	確定条件 [h]	順接（だから系）[k]
それで (*sorede*)	因果 [b]/継起 [d]	確定条件 [h] /添加 [j]	順接（だから系）[k]
だから (*dakara*)	因果 [b]	確定条件 [h]	順接（だから系）[k]
つまり (*tsumari*)	換言 [f]	換言 [f]	換言 [f]

Table 24

The Classifications of Representative Previous Studies Regarding 10 Expressions in the "Causal/conjunctive" Cluster (continued)

Japanese connective expressions	Classification		
	Okimori (2016)	Nihongo Kizyutu Bunpô Kenkyûkai (2009)	Ishiguro (2008)
ゆえに (*yueni*)	因果 [b]	確定条件 [h]	順接（だから系）[k]
よって (*yotte*)	因果 [b]	確定条件 [h]	順接（だから系）[k]

Note. [a] 経緯 = circumstantial. [b] 因果 = causal. [c] 帰結/結論 = conclusive. [d] 継起 = successive. [e] 並立/並列 = parallel. [f] 換言 = brief. [g] まとめ = summarizable. [h] 確定条件 = decisively conditional. [i] 仮定条件 = hypothetically conditional. [j] 添加 = additional. [k] 順接（だから系）= conjunctive, represented by "*dakara*." [l] 順接（それなら系）= conjunctive, represented by "*sorenara*."

Table 25

The Relationships Between the Descriptions of "So" in Dictionaries and 10 Expressions in the "Causal/conjunctive" Cluster

Japanese connective expressions	English-Japanese dictionaries[a] (n = 6)	Japanese-English dictionaries[b] (n = 4)	English thesaurus dictionary[c]
このように (*konoyouni*)	0 (cf. thus: 5)	0	P
したがって (*shitagatte*)	2	4	P
すると (*suruto*)	0	3	A
そして (*soshite*)	1	0	P
そのため (*sonotame*)	2	3	A
それで (*sorede*)	6	3	P
だから (*dakara*)	6	4	P
つまり (*tsumari*)	1 (cf. thus: 1)	0	A
ゆえに (*yueni*)	3	1	P

Table 25

The Relationships Between the Descriptions of "So" in Dictionaries and 10 Expressions in the "Causal/conjunctive" Cluster (continued)

Japanese connective expressions	English-Japanese dictionaries[a] (n = 6)	Japanese-English dictionaries[b] (n = 4)	English thesaurus dictionary[c]
よって (*yotte*)	0 (cf. therefore: 2; thus: 1)	2	A

Note. [a]English-Japanese dictionaries = English-Japanese dictionaries (Inoue & Akano, 2013; Konishi & Minamide, 2001; Nomura & Hanamoto, 2013; Shogakukan, 1993; Takahashi et al., 2012; Takebayashi, 2002) with translation examples of each Japanese connective expression in the section "but." [b]Japanese-English dictionaries = Japanese-English dictionaries (Kishino, 2013; Minamide & Nakamura, 2011; Nomura et al., 2016; Watanabe et al., 2003) with example sentences using "but" in the section of each Japanese connective expression. [c]English thesaurus dictionary = Presence (P)/Absence (A) of the description of each Japanese connective expression in the section "but" in Taishukan (1998).

one of the six English-Japanese dictionaries puts the translation example of the Japanese expression in the "so" section, and none of the Japanese-English dictionaries puts any example sentences with "so" in the "*tsumari*" section. These results indicate that "*soshite*" and "*tsumari*" are both weakly related to "*dakara*" or "so."

Nevertheless, many Japanese EFL learners judged that both "*tsumari*" and "*dakara*" were included in the meanings of "so," and "*tsumari*" had the highest choice rate of the 31 Japanese expressions in the lower group. These results suggest different tendencies between the classifications of connective expressions or the descriptions in dictionaries and learners' recognition. In other words, Japanese EFL learners may not fully acquire the meanings of "so,"

There may be some factors as follows that cause such recognition: The first possible factor is the replaceable phenomenon of Japanese connective expressions. As Ito (2014) and Baba (1993) point out, even though their meanings and functions are not the same, the Japanese connective expressions "*konoyouni*," "*shitagatte*," and "*tsumari*" are often replaceable without changing the meaning of sentences. Such similarity may influence the learners' recognition of the meaning range of "so." Second, the wide range of Japanese connective expressions may influence their recognition of the meaning range. For example, as Ishiguro (2000) points out, the meaning range of the Japanese conjunctive expression "*soshite*" is wide, and it can also represent a weak causal relationship. Such characteristics of the learners' mother language may have influenced the choice in Task 1.

Discussion for Research Question 3

Research Question 3 is, "Are there any differences between the tendencies of RQ1 and RQ2?" As for "but," the almost 100% choice rate of "*shikashi*" and "*daga*"

suggests to a great extent the acquisition of the meanings of "but." On the other hand, as for "so," there were no Japanese connective expressions with a remarkably high choice rate like "but." In particular, in the lower group, the highest choice rate was 83% of "*tsumari*," a Japanese conjunctive expression. These results suggest that Japanese EFL learners do not acquire the meanings of "so" as adequately as "but."

The results of the cluster analyses showed that the choice tendency of "but" was classified into two clusters: "adversative" and "non-adversative." The 10 expressions in the "adversative" cluster are strongly related to "but," except for "*samonaito*." On the other hand, as for "so," the cluster analysis showed a cluster named "causal/conjunctive relationship." Still, not all Japanese expressions in the cluster have a healthy relationship to "so" or "*dakara*." These results indicate that Japanese EFL learners' judgment standard regarding the meaning range of "but" is based on the relationship with "but" or "*shikashi*," while their judgment standard regarding the meaning range of "so" is not necessarily based on the relationship with "so" or "*dakara*." This suggests that their range of meanings of "so" is not accurate.

Discussion for Research Question 4

Research Question 4 is, "Are there any different tendencies in RQ1 to RQ3 depending on their English proficiency?" First, there was not a massive difference regarding the higher and lower groups' meaning recognition of "but." In both groups, "*shikashi*," "*daga*," and "*tokoroga*" had very high choice rates. The results of the cluster analysis showed the same tendency. "*Samonaito*" was in the "adversative" cluster in the lower group but not in that cluster in the higher group. There could be two reasons for this difference. First, "*samonaito*" has a negative meaning. Ishiguro (2008) classified "*samonaito*" in the category of a negative version of "*sorenara*" (p.65). As described in

the previous studies, the central meaning of "but" is "contrast," but as Matsuo, Hirose, and Matsuo et al. (2015) point out, English speakers use "but" when they reject assumptions and expectations (p.186). Therefore, "but" can be an expression that denies the content mentioned above, which could cause learners in the lower group to include "*samonaito*" in the meaning range of "but." However, "*samonaito*" is a connective expression that represents a hypothesis, while "but" is a connective expression that represents a contrast. Understanding the differences between these core functions according to their learning stage, the higher group learners judged that "*samonaito*" is not included in the meaning range of "but." Second, Japanese EFL learners might have few opportunities to learn English expressions that correspond to "*samonaito*." "*Samonaito*" is described as a translation example of "or," and because the lower group learners might not have sufficient experience with this expression, they might include "*samonaito*" in the meaning range of "but" because it is close to the adversative relationship. On the other hand, the higher group learners might have had more opportunities to experience the expression "or" as corresponding to "*samonaito*," and therefore, have removed the expression from the meaning range of "but." There may be some factors, but in any case, the difference between the "adversative" cluster of the higher and lower group is only "*samonaito*," which may not be a big difference.

As for the meaning recognition of "so," there were some large differences between the higher and lower groups. First, the Japanese connective expression with the highest choice rate was "*dakara*" in the higher group and "*tsumari*" in the lower group. As mentioned above, "*tsumari*" is weakly related to "so" or "*dakara,*" suggesting that the lower group learners have not adequately acquired the meanings of "so." Similarly, for "*soshite,*" Table 8 shows that the lower group learners were more likely than the higher group to judge the expression to be included in the meanings of "so." It is also a

difference between the groups. Next, the 31 Japanese connective expressions were classified into two clusters in the higher group and three clusters in the lower group. This is a clear difference between the groups, which the results of "but" did not show. The results suggest a more comprehensive range of individual differences in the meaning recognition of "so" in the lower group. Table 14 shows that the choice rate of Japanese connective expressions included in the "non-causal/conjunctive/adversative" cluster was 39.9%. The result suggests that there may be a certain number of learners in the lower group who judge any connective expressions without an adversative relationship to be included in the meaning range of "so." On the other hand, because the higher group learners are less likely to have such a tendency, their recognition is classified into two clusters.

Discussion for Research Question 5

Research Question 5 is, "Are there any different tendencies in RQ1 to RQ3 between Japanese EFL learners and native English speakers?" Concerning "but," the results indicate that the judgments of Japanese EFL learners and native English speakers are almost the same. On the other hand, when it comes to "so," their judgment was much different. First, as for Passages 2 and 3, Japanese EFL learners, especially in the lower group, tended to accept "so," whereas none of the native English speakers accepted the expression. This result suggests that native English speakers may consider that "so" cannot represent the relationship represented by "*soshite*" in Japanese, which is the same as the descriptions in dictionaries. However, Japanese EFL learners have not understood the difference between "so" and "*soshite*" thoroughly. Next, the results of Passage 1 suggest that native English speakers may also consider that "so" cannot represent the relationship represented by "*tsumari*" in Japanese. In this regard, both the

higher and lower groups judged the expression to be included in the meaning range of "so." Meaning recognition of "so" may be one of the biggest differences between Japanese EFL learners and native English speakers.

There are some individual differences in the acceptance range of "so." The results of Passages 1, 7, and 10 show that even native English speakers had different opinions as to whether "so" is acceptable. In the passages regarding "but," Passages 2, 4, 5, 8, and 9, the native speakers showed uniform judgment as to whether but/however is acceptable or not. Furthermore, in the passages regarding "but," native speakers' free answers were limited: they were concentrated on "however," On the other hand, in the passages regarding "so," there was a wide range of answers, which indicates that individual differences are larger than "but." The results suggest that the connective expressions' judgment as a causal/conjunctive relationship may include more individual differences than those in the adversative relationship. This suggests that some relationships, such as "adversative" or "causal/conjunctive," may be easier to acquire than other relationships, not a word-specific problem of "but" and "so."

Summary of Findings

(1) Japanese EFL learners are likely to understand the meaning of the connective expression "but"—that it is a connective expression representing an adversative relationship. On the other hand, they are less likely to understand the meanings of the connective expression "so." Even though they have a certain level of recognition that the meanings of "so" include "causal/conjunctive relationship," they tend to consider the meanings to be broader than the descriptions in dictionaries. In particular, the relationships corresponding to "*tsumari*" and "*soshite*" in Japanese are also included in their recognition of the meaning range of "so."

(2) Regardless of the learners' English proficiency, Japanese EFL learners can understand that the connective expression "but" represents an adversative relationship. Also, their judgment as to the meaning range of "but" is almost unchangeable according to their English proficiency. On the other hand, for the meaning range of "so," there are some differences according to their English proficiency. Japanese EFL learners with lower proficiency tend to consider the meaning range of "so" more broadly than those with higher proficiency. The individual difference is also larger regarding "so" than "but."

(3) For the meaning recognition of "but," native English speakers are likely to have almost the same tendency as Japanese EFL learners. On the other hand, as to the meaning recognition of "so," there is a different tendency between native English speakers and Japanese EFL speakers. There are also some individual differences in the judgment standard regarding accepting "so" even within native English speakers, suggesting that there may be some connective relationships that are easier to acquire than others, beyond the word-specific problem.

Conclusion

The purpose of this study is to reveal how Japanese EFL learners recognize the meanings of the primary connective expressions "but" and "so." The questionnaire survey results indicate that they can recognize the meaning range of "but" nearly as well as native English speakers, classifications in Japanese, and descriptions in dictionaries, regardless of English proficiency. On the other hand, they had different meaning recognitions of "so" depending on their English proficiency. Also, their recognition

tendency is different from native English speakers, classifications in Japanese, and descriptions in dictionaries. Therefore, this study concludes that Japanese EFL learners can acquire the meanings of “but” but not adequately acquire “so” meanings.

Study 2[2]

Purpose of Study 2

This study investigated the appearance of English connective expressions “but” and “so” in the passages that Japanese EFL learners encounter while learning. Different from most previous studies, this study did not only the frequency of the connective expressions but also some other characteristics. There are six research questions:

(1) How often do the connective expressions “but” and “so” appear in the English textbooks adopted in Japanese junior high schools? Is there a difference in the frequency of each expression’s appearance?

(2) Which parts in the English textbooks adopted in Japanese junior high schools include the expressions “but” and “so” first, and what are the meanings that appear first in each textbook? Is there a difference in the tendency of the two expressions?

(3) How broad are the meanings of “but” and “so” in the English textbooks adopted in junior high schools? Is there a difference in the broadness of the two expressions?

(4) As to Research Question (1) through (3), what about expressions similar to “but” and “so”?

(5) As to Research Questions (1), (3), and (4), what about “but” and “so” in Japanese public high school entrance examinations?

(6) As to Research Questions (1), (3), and (4), what about “but” and “so” in Japanese national university entrance examinations?

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[2] An earlier version of this chapter was originally published as Sato (2019a).

Method

Textbooks/Tests

This study applied three types of passages to the subjects.

English Textbooks Adopted in Junior High Schools in Japan. This study adopted junior high school English textbooks authorized by the Ministry of Education, Culture, Sports, Science, and Technology in 2015 as a subject. The purpose was to reveal how Japanese EFL learners have encountered "but" and "so" in their three years of junior high school, where they acquire the basics of English proficiency. There are six textbooks authorized in 2015, and this study investigated all six textbooks for three grades. This study did not investigate the audio scripts that are not in the textbooks and the passages in teachers' manuals. Table 26 shows the details of the textbooks.

Entrance Examinations of Public High Schools. This study also investigated the passages in entrance examinations of public high schools in Japan. There were two reasons. First, by investigating the examinations, this study aimed to reveal what meanings and functions of "but" and "so" junior high school students in Japan should learn. Second, the results might give useful suggestions for how these expressions contribute to Japanese EFL learners' understanding of English passages.

This study investigated the passages in public high school entrance examinations conducted in each of the 47 prefectures in 2016, printed in Obunsha (2016). This study analyzed passages in one entrance examination in each prefecture, but for Aichi Prefecture, there were two types of examinations, and all of the questions and passages were different in the two types. Furthermore, almost the same number of high schools in the prefecture adopted one test as the other. For these reasons, this study investigated

Table 26

Six Textbooks Adopted in Junior High Schools in Japan

Abbreviation	Title	Publishing company
NH	New Horizon English Course	*Tokyo Shoseki*
NC	New Crown English Series New Edition	*Sanseido*
SS	Sunshine English Course	*Kairyudo*
TE	Total English	*Gakko Tosho*
OW	One World English Course	*Kyoiku Shuppan*
CO	Columbus 21 English Course	*Mitsumura Tosho*

Note. The junior high school English textbooks were authorized by the Ministry of Education, Culture, Sports, Science, and Technology in 2015. There are three books for each textbook.

both types, and there were 48 entrance examinations analyzed in total. There were reading and listening sections and no writing and speaking sections in each examination. As for listening sections, this study also analyzed audio scripts.

Entrance Examinations of National Universities. This study investigated the National Center Test, the standardized preliminary examination for university applicants in Japan (the Center Test), conducted by the National Center for University Entrance Examinations. The score of the Center Test was used in the entrance examinations of almost all of the national public universities and many private universities, and over 500,000 people took the exam every year. Therefore, analyses of the Center Test might lead to useful suggestions about what meanings and functions Japanese EFL learners should aim to learn about "but" and "so" by the time they graduate from high school. It is also possible to reveal how these expressions influence Japanese EFL learners' comprehension of contexts by comparing the behavior of "but" and "so" in the examinations as well as the examinations for high schools.

This study investigated the passages in 10 Center Tests, conducted from 2009 to 2018. The Center Test consisted of a written test and a listening test, and regarding a written test, this study analyzed every word and sentence on paper, including a pronunciation/accent section and a grammar section. Regarding a listening test, this study analyzed all words/sentences on paper and audio scripts.

Procedure

I conducted all data collections and analyses.

First, the number of "but" and "so" appearances in each textbook and entrance examination were collected. They were classified into two types: the ones that function

as a connective expression and the ones that do not function so. This study adopted the descriptions of Taishukan (2001), in Figures 9 and 10, and the examples corresponding to the descriptions were classified as a “but” and a “so” that functions as a connective expression.

This study regarded the first “but” and “so” appearing in each junior high school English textbook as the first time of appearance. This study investigated the time when “but” and “so” appeared for the first time in each of the six textbooks. The first time of the appearance of “but” and “so” that functions as a connective expression and with other functions was investigated, respectively.

This study also investigated the appearance of similar expressions of “but” and “so.” As for junior high school English textbooks, this study also investigated subordinate conjunctions representing adversative and causal/conjunctive expressions such as “because” and “although.” This study also investigated the number of appearances of “and” and their meanings. This expression is a representative one as a connective expression with a conjunctive relationship, and this study supposed that “and” appears at a relatively early time, as well as “but” and “so.” Besides, the number of the appearance of “and” might be more significant than other connective expressions, and therefore, it might not be appropriate to ignore the effect of “and” considering the acquisition of “but” and “so.”

Analyses

This study targeted all passages and words that appeared in each textbook and examination, so it conducted only descriptive statistics for the results. All of the descriptive statistics were calculated with SPSS (version 21).

Figure 9

Descriptions of "But" as a Connective Expression in Taishukan (2001)

but　[接]　I[等位接続詞]
1 a　[対立関係にある語・句・節・文を結合して] しかし，だが，けれども，ところが
b　[but then で]（前述のことはある程度は認めるが）しかしながら、とはいえ（however），（そうはいうものの）一方では
2 [2 つの発話行為をつないで]（申し訳ありませんが）…を依頼[提案]します
5 [文頭で]
a 《主に女性語》いや，でも；おや，まあ《◆不同意・驚きなどを表す》

Figure 10

Descriptions of "So" as a Connective Expression in Taishukan (2001)

so[1] [接]

2 [結果]《略式》[so の前にコンマを置いて]それで，だから，その結果《◆(1) so that, and so の省略表現，(2)相手の発言を受けて(※)でいらだちの気持をこめて「それでどうなったのか」という意味になる》

3 [結論・要約][文頭で]それでは，してみると，じゃあ《◆(1)相手の言いたいことを先回りして言う場合に用いることが多い．(2)〜, therefore / 〜, consequently のような連語を重ねることもある．(3)脱線した話題をもとに戻すときにも用いられる》

4 《略式》[後にポーズを置いて；相手に話を引き継いでほしい気持をこめて]それで（…）.

Results

Analyses of Junior High School English Textbooks

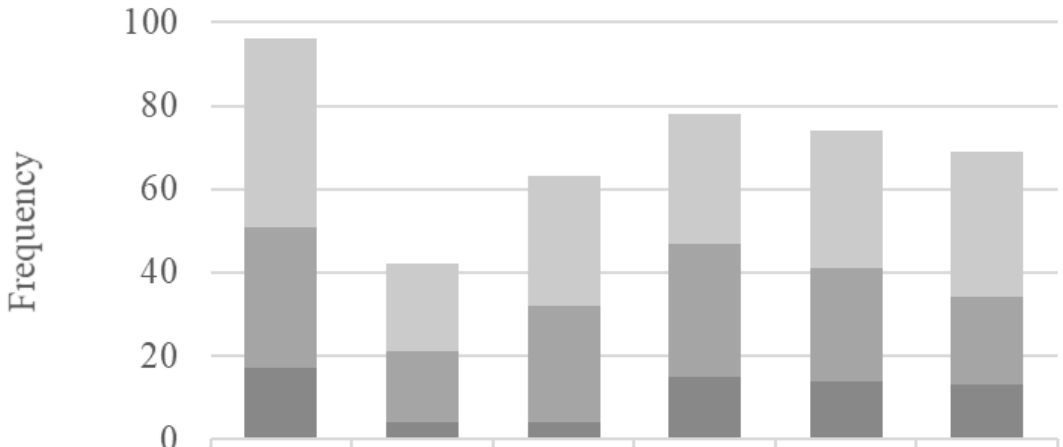
Figure 11 shows the frequency of the appearance of “but” as a connective expression, and Figure 12 shows the frequency of the appearance of “so” as a connective expression, in junior high school textbooks. These figures indicate that the number of the appearance of “but” as a connective expression was larger than that of “so” as a connective expression in each grade version of every textbook. Figure 13 also illustrates that the number of the appearance of “but” tended to be higher in the second year than the first year, and greater in the third year than the second year. The number of appearances increased in all six textbooks from the first to the second year, and it elevated in five textbooks, excluding TE, from the second year to the third.

As for “so,” Figure 13 demonstrates that its number of appearances tended to grow from the first year to the second, but it decreased from the second year to the third. Moreover, Figure 12 exhibits that this result was mostly due to NH, in which the number of appearances of “so” decreased significantly. However, TE and OW lessened the frequency from the second year to the third.

Next, Tables 27 and 28 display the first appearance of “but” and “so” as connective expressions in junior high school textbooks, respectively. Table 27 shows that the first time “but” appeared as a connective expression was the first year in all textbooks. Besides, it appears in Lesson 1 at the earliest and Lesson 3 at the latest. The contexts of the first appearance of “but” indicate that the expression was used with the meanings of an adversative relationship in all six textbooks. It is worth noting that, in five of the six textbooks, there was a matched set of expressions before and after “but.” For example, in NH, the verb “play” came out before “but” and “sing” came out after “but.” Likewise, in SS and NC, the verb phrases before and after “but” constituted a

Figure 11

Frequency of the Appearance of "But" as a Connective Expression in Junior High School Textbooks in Japan

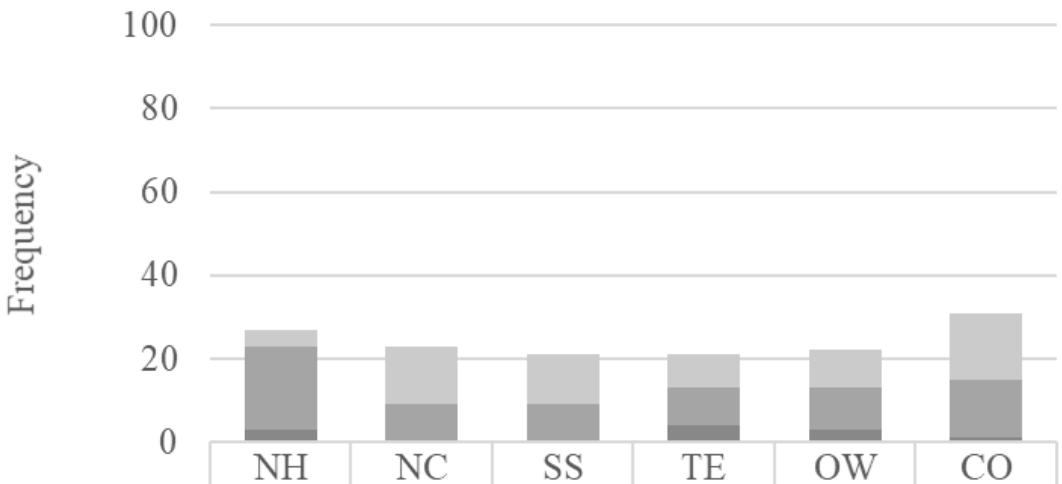


	NH	NC	SS	TE	OW	CO
9th Grade	45	21	31	31	33	35
8th Grade	34	17	28	32	27	21
7th Grade	17	4	4	15	14	13

Note. NH = New Horizon English Course; NC = New Crown English Series New Edition; SS = Sunshine English Course; TE = Total English; OW = One World English Course; CO = Columbus 21 English Course.

Figure 12

Frequency of the Appearance of "So" as a Connective Expression in Junior High School Textbooks in Japan

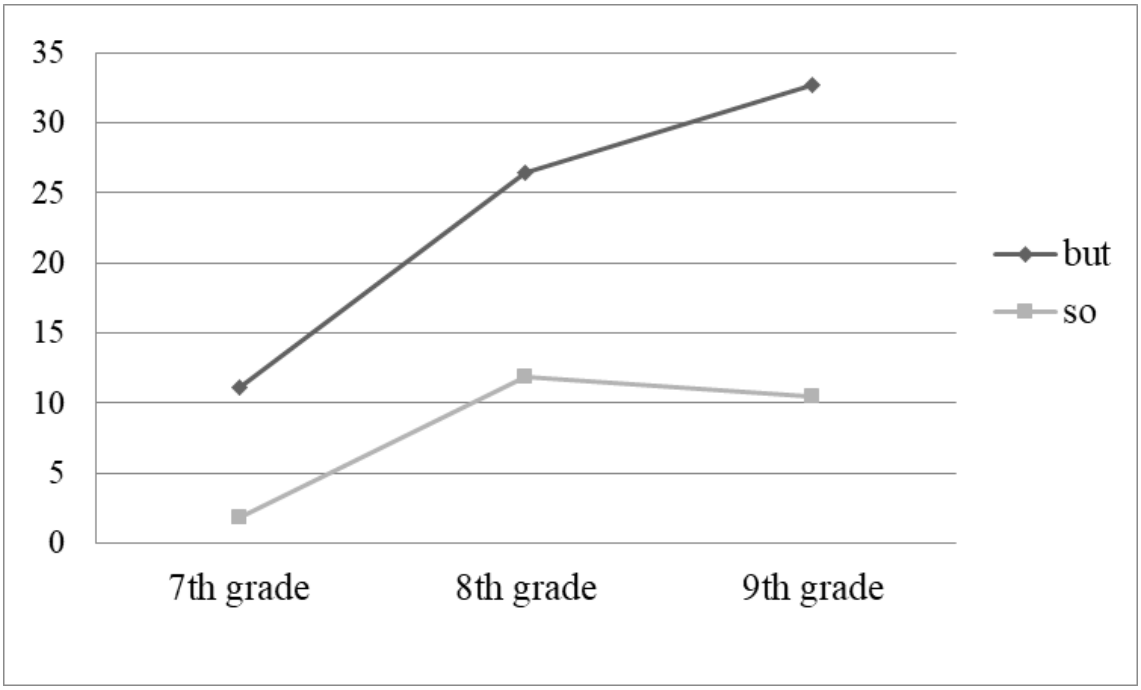


	NH	NC	SS	TE	OW	CO
9th Grade	4	14	12	8	9	16
8th Grade	20	9	9	9	10	14
7th Grade	3	0	0	4	3	1

Note. NH = New Horizon English Course; NC = New Crown English Series New Edition; SS = Sunshine English Course; TE = Total English; OW = One World English Course; CO = Columbus 21 English Course.

Figure 13

Average Frequency of the Appearance of "But" and "So" as a Connective Expression in Junior High School Textbooks in Japan



Note. The vertical axis shows the average frequency of the appearance of "but" and "so" as a connective expression in Junior High School Textbooks in Japan.

Table 27

First Appearance of "But" as a Connective Expression in Junior High School Textbooks

Textbook	First appearance	Sentence[a]	Meanings of "but" in a supplement[b]
NH	7th grade p.40 Unit 3	A: Do you play the piano, too? B: No, I don't. **But** I sing.	[接]しかし
NC	7th grade p.25 Lesson 1	I'm not tired. **But** I'm hot.	[接]しかし、だが
SS	7th grade p.33 Program 3	I don't like *manga*. **But** I watch Japanese *anime*.	[接]しかし
TE	7th grade p.22 Lesson 1	A: Do you play soccer, Ms. Allen? B: No, I don't. **But** I play basketball.	[接]しかし、でも
OW	7th grade p.36 Lesson 3	I'm on the tennis team. **But** I don't have a good racket.	[接]しかし、ところが
CO	7th grade p.36 Unit 3	A: He's very strict. B: **But** he's popular.	[接]しかし

Note. NH = New Horizon English Course; NC = New Crown English Series New Edition; SS = Sunshine English Course; TE = Total English; OW = One World English

Course; CO = Columbus 21 English Course. [a]Sentence = the context including the first appearance of “but” and the targeted “but” is bold and underlined. [b]Meanings of “but” in a supplement = meanings of “but” presented in a supplement of each textbook’s 7th grade versions. [接] = 接続詞 (conjunction).

Table 28

First Appearance of "So" as a Connective Expression in Junior High School Textbooks

Textbook	First appearance	Sentence[a]	Meanings of "so" in a supplement[b]
NH	7th grade p.26 Unit 1	A: I'm from Boston. B: **<u>So</u>** are you a Boston Red Sox fan?	[接] それで、そこで、だから [副] そんなに、それほど、とても、非常に
NC	8th grade p.115 Let's Read	I was deeply moved by these events. **<u>So</u>** I opened the Landmine Museum.	[副] そのように、そう [接] だから、それで
SS	8th grade p.19 Program 2	They speak Finnish, Swedish, and English. **<u>So</u>** I can talk with them in English.	[接] それで [副] そんなに、とても、そう
TE	7th grade p.128 Reading 3	"You mean OUR group!? **<u>So</u>**, it's Jenny or Kate."	[副] それほど～ない、とても、非常に [接] それで、だから、それでは、じゃあ

Table 28

First Appearance of "So" as a Connective Expression in Junior High School Textbooks (continued)

Textbook	First appearance	Sentence	Meanings of "so" in a supplement
OW	7th grade p.102 Lesson 8	It's about 4,200 meters, **so** it has snow on its top.	[副] そんなに、とても、そう、そのように [接] それで、だから
CO	8th grade p.10 Unit 1	We worked in groups, **so** that was fun.	[副] とても、非常に、それほど、そんなに、そのように、そう [接] それで、だから

Note. NH = New Horizon English Course; NC = New Crown English Series New Edition; SS = Sunshine English Course; TE = Total English; OW = One World English Course; CO = Columbus 21 English Course. [a]Sentence = the context including the first appearance of "so," and the targeted "so" is bold and underlined. [b]Meanings of "so" in a supplement = meanings of "so" presented in a supplement of the versions with the first appearance of "so" as a connective expression of each textbook. [接] = 接続詞 (conjunction); [副] = 副詞 (adverb).

matched set. There was also an adjective matched set in CO, and a noun matched set in TE.

On the other hand, Table 28 indicates that the first appearance of “so” as a connective expression was different from “but.” The time of the first appearance of “so” was different depending on the textbooks. In the fastest one, NH, “so” appeared in Unit 1 in the first year, which was earlier than “but.” On the other hand, in the other five textbooks, it appeared later than “but.” In addition, three textbooks did not include “so” as a connective expression in the first year. In NC, the textbooks with the latest first appearance of “so” as a connective expression, “but” appeared in Unit 1 in the first year and “so” in its almost final lesson in the second year. It means there was a gap of a little less than two years between the first appearances of “but” and “so” as connective expressions.

The results also indicate that the range of meanings of “so” appearing in junior high school textbooks was more comprehensive than for “but.” Table 28 shows the meanings of “so” presented in a supplement of the versions with the first appearance of “so” as a connective expression of each textbook (7th or 8th grade), and the following two points can be mentioned as a feature. First, all textbooks had both the meanings of “so” as a conjunction and as an adverb. Only two of the six textbooks described the meanings of the conjunction “so” first. Compared to the descriptions of the meanings of “but,” as Table 27 shows, there were more meanings described for “so.”

Second, the meanings described for “so” as a conjunction were different depending on textbooks. Regarding “but,” three of the six textbooks described only “*shikashi*” for the meanings of “but,” and the other textbooks described only two meanings, including “*shikashi*.” On the other hand, regarding the conjunction “so,” the textbooks described one (in SS) to four (in TE) meanings. Thus, the range of the

descriptions for “so” was wider than for “but,” even when considering their use as conjunctions only, and the descriptions were different between textbooks.

Next, Table 29 shows the frequency of the appearance of “but” and “so” that did not function as a connective expression. The word “but” that did not function as a connective expression appeared in the third year of the textbooks, excluding NC. The frequency of the appearance was three times in a year at most. On the other hand, “so” that did not function as a connective expression appeared from the first year in all textbooks, and the number of appearances was larger than that of “but.”

Tables 30 and 31 show examples of “but” and “so” other than connective expressions appearing in junior high school textbooks, respectively. The tables show that the examples of “but” other than a connective expression were limited; the types of examples of “so” other than a connective expression is broader than “but.”

Table 32 shows the first appearance of “so” other than a connective expression in junior high school textbooks. The table indicates the following two points as a feature of the appearance of “so.” First, the first appearance of “so” was in the first year of all textbooks. It can be said to be uniform. However, compared to “but,” whose first appearance was by Lesson 3 at the latest, the appearance of “so” was different between textbooks. Second, the first appearance of “so” included varied meanings depending on textbooks. In NH and SS, “so” as a conjunction is the first one. In the other four textbooks, on the other hand, “so” as an adverb appeared first. In OW and CO, “so” was first used to modify an adjective. TE’s first appearance of “so” was similar, but it appeared in a negative sentence, so its meaning was not the same as OW and CO. In NC, “so” was first used as a substitute for a that-clause. In this way, the first “so” was significantly different in each textbook.

Finally, this section describes the results of the appearance of connective

Table 29

Frequency of the Appearance of "But" and "So" That Did Not Function as a Connective Expression

Textbook	But			So		
	7th	8th	9th	7th	8th	9th
NH	0	0	2	6	13	9
NC	0	1	3	1	12	6
SS	0	0	1	7	10	19
TE	0	0	2	5	14	12
OW	0	0	1	3	9	8
CO	0	0	0	3	12	20

Note. NH = New Horizon English Course; NC = New Crown English Series New Edition; SS = Sunshine English Course; TE = Total English; OW = One World English Course; CO = Columbus 21 English Course.

Table 30

Types of "But" Other Than Connective Expressions Appearing in Junior High School Textbooks

Type	Frequency
not A but B	5
not only A but also B	4
nothing but	1

Note. Frequency = the number of appearances in the 18 textbooks in total.

Table 31

Types of "So" Other Than Connective Expressions Appearing in Junior High School Textbooks

Type	Frequency
[Modification of adjectives/adverbs]	87
[Substitution for that-clause] (e.g., "I think so.")	33
so ... that ...	13
and so on	5
so far	4
[Synonym with "true"] (e.g., "Is that so?")	4
So V S	2
[Substitution for verb phrase] (e.g., "do so")	2
even so	1
or so	1
so that	1

Note. Frequency = the number of appearances in the 18 textbooks in total.

Table 32

First Appearance of "So" Other Than a Connective Expression in Junior High School Textbooks

Textbook	First appearance	Sentence	"So" as a connective expression
NH	7th grade p.65 Daily Scene 1	A: Erika, how are you today? B: Not **so** good.	Done
NC	8th grade p.122 Let's Talk 9	I think **so** too.	Undone
SS	7th grade p.104 Program 10	Why do you study it **so** hard?	Done
TE	7th grade p.45 Word Tree	A: How are you, Sarah? B: I'm not **so** good.	Undone
OW	7th grade p.54 Lesson 4	A: Sofia is very pretty. B: Yes, and she is **so** sweet.	Undone
CO	7th grade p.50 Unit 4	You know **so** many things, Taku.	Undone

Note. NH = New Horizon English Course; NC = New Crown English Series New

Edition; SS = Sunshine English Course; TE = Total English; OW = One World English Course; CO = Columbus 21 English Course. Sentence = the context includes the first appearance of “so,” and the targeted “so” is bold and underlined. “So” as a connective expression = whether “so” as a connective expression appears before another “so” in each textbook; Done = “so” as a connective expression appeared before another “so;” Undone = “so” as a connective expression did not appear before another “so.”

Figure 14

First Appearances of "But" and Similar Connective Expressions in Junior High School Textbooks

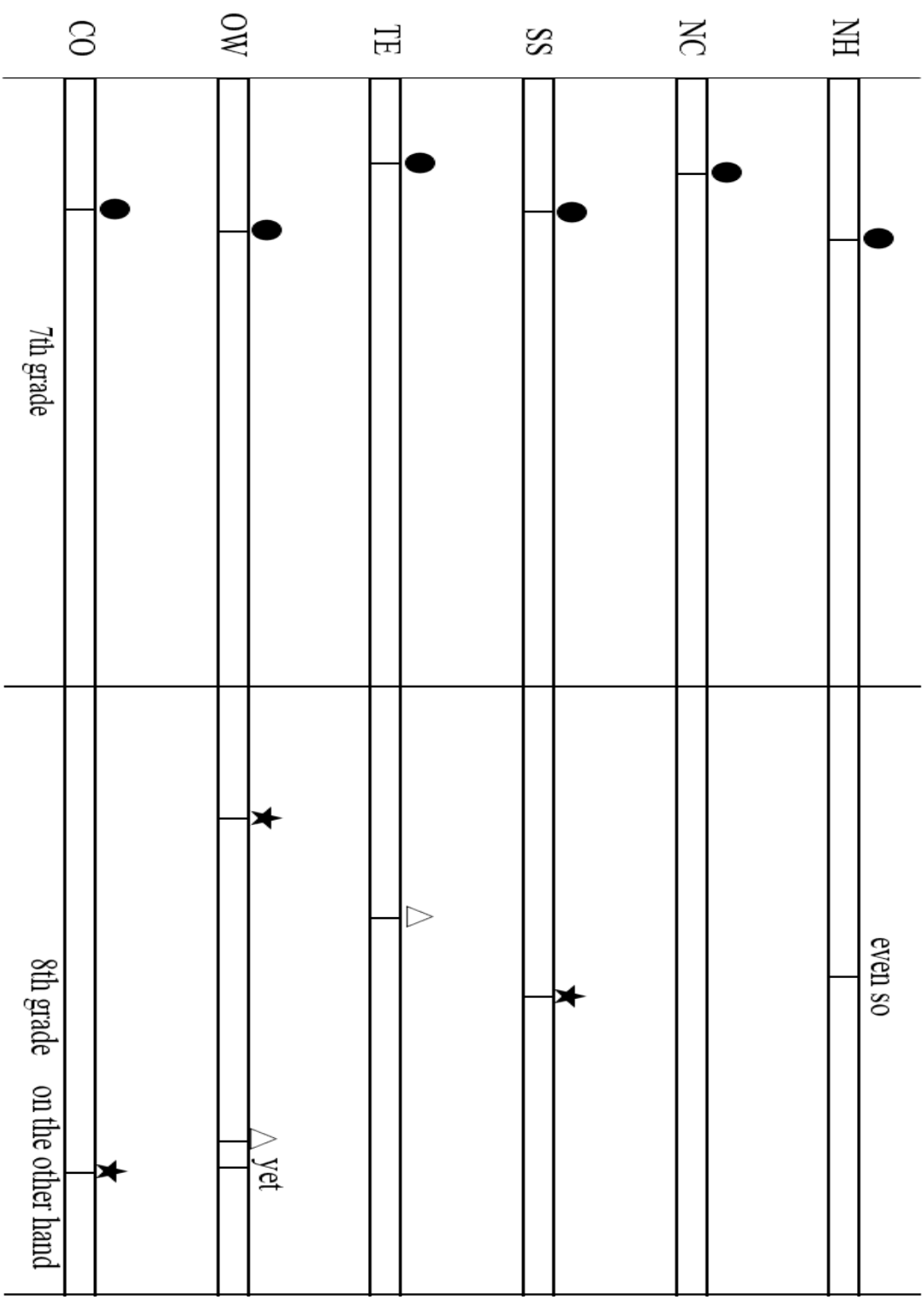
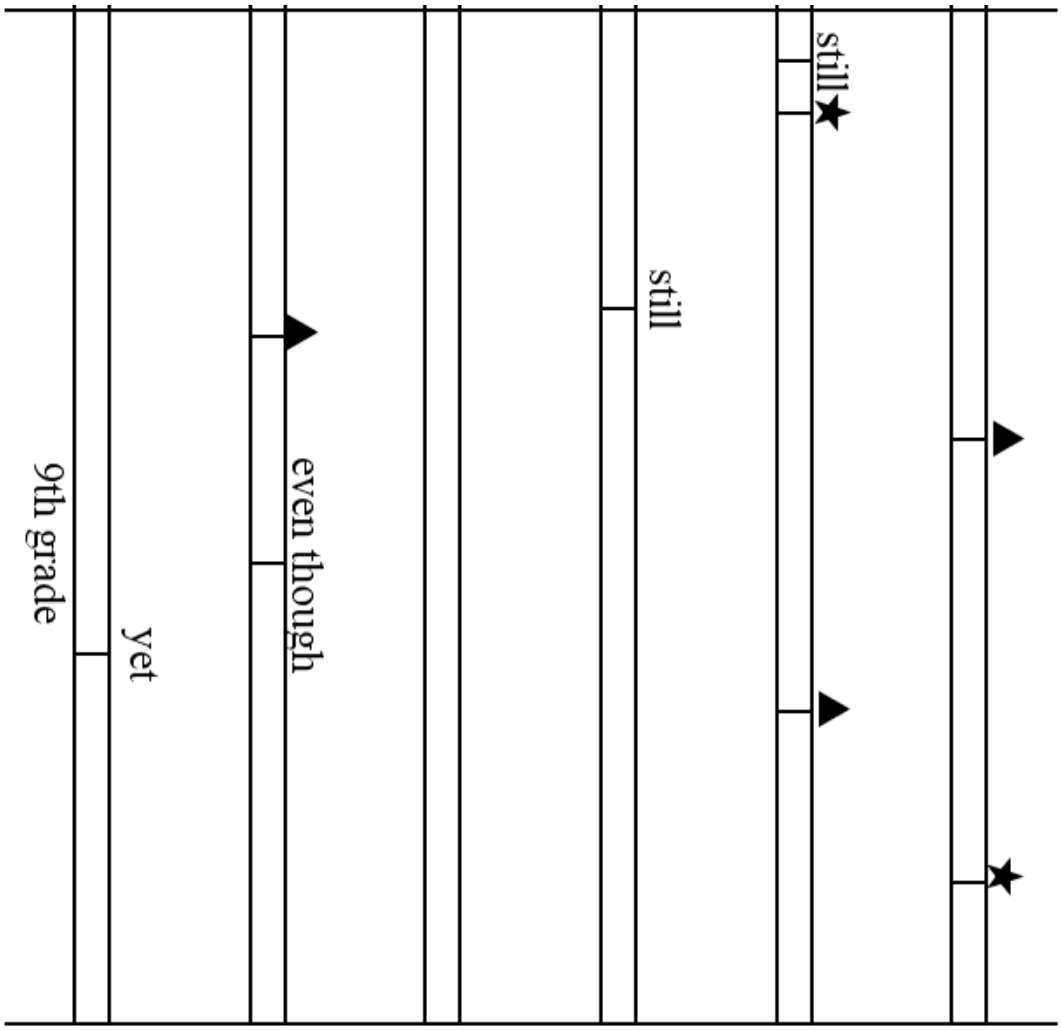


Figure 14

First Appearances of "But" and Similar Connective Expressions in Junior High School Textbooks (continued)



Note. NH = New Horizon English Course; NC = New Crown English Series New Edition; SS = Sunshine English Course; TE = Total English; OW = One World English Course; CO = Columbus 21 English Course.● = "but" with an adversative relationship ("*shikashi*" in Japanese); ★ = "however" with an adversative relationship ("*shikashi*" in Japanese); ▲ = "though"; △ = "although".

Figure 15

First Appearances of "So" and Similar Connective Expressions in Junior High School Textbooks

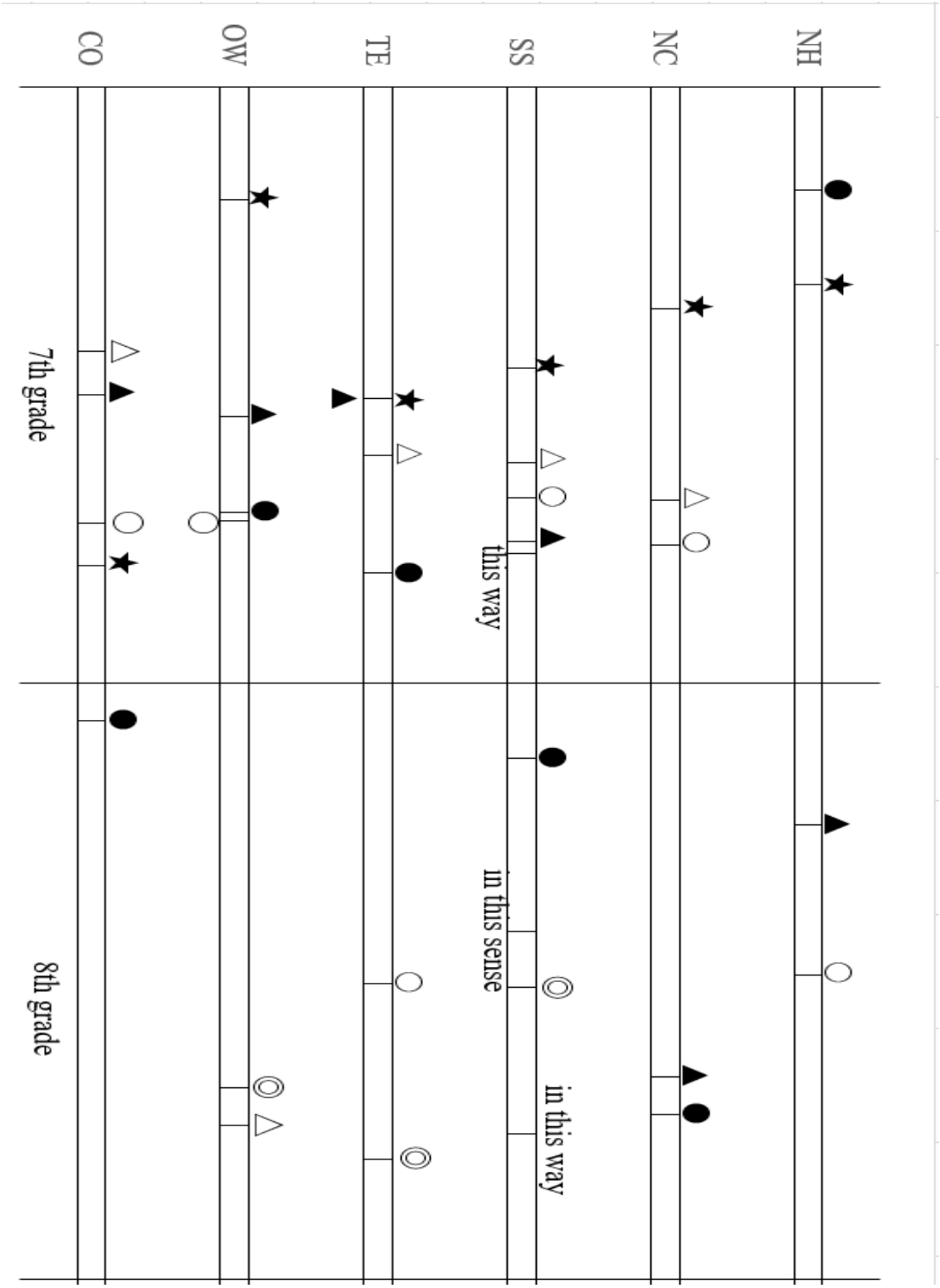
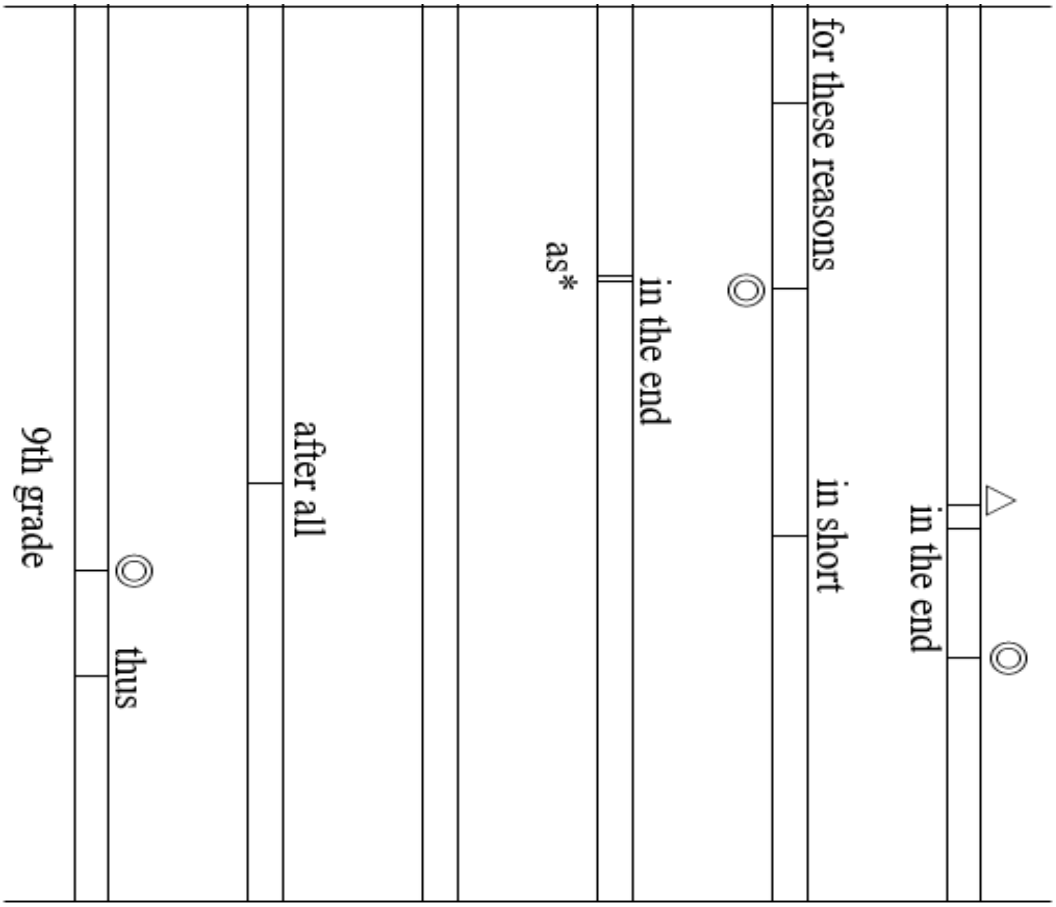


Figure 15

First Appearances of "So" and Similar Connective Expressions in Junior High School Textbooks (continued)



Note. NH = New Horizon English Course; NC = New Crown English Series New Edition; SS = Sunshine English Course; TE = Total English; OW = One World English Course; CO = Columbus 21 English Course.● = "so" with a causal/conjunctive relationship ("*dakara*" in Japanese); ★ = "and" with a conjunctive relationship ("*soshite*" in Japanese); ▲ = "then" with a conjunctive relationship ("*sorekara*" in Japanese); △ = "then" with a causal relationship ("*sorenara*" in Japanese); ○ = because; ◎ = because of.

*as = "as" with a causal relationship (a synonym for "because/since").

expressions other than “but” and “so” in junior high school textbooks. Figures 14 and 15 show the first appearances of connective expressions in textbooks. As Figure 14 shows, the first appearance of a connective expression with an adversative relationship was “but” in all textbooks. Also, no other connective expressions with an adversative relationship appeared in the first year of all textbooks. From the second to the third year, one (in TE) to five (in OW) other expressions appeared: “however” appeared in five textbooks; “still” and “yet” in three textbooks, with an explanation that they are expressions representing an adversative relationship; two subordinate conjunctions, “though” in two textbooks and “although” in one textbook. As Figure 15 shows, the first appearance of a connective expression with a causal/conjunctive relationship was “and” in four textbooks and “so” in only one textbook. In three years, five (in TE) to ten (in SS) expressions appeared other than “so.” There were five connective expressions other than “so” with a causal/conjunctive relationship that all of the textbooks included: “and,” “because,” “because of,” “then” with a conjunctive relationship, and “then” with a causal relationship.

Table 33 shows the frequency of the appearance of “and” with a conjunctive relationship. As the table shows, the number of “and” appearances was 30.8 in the first year, 56.2 in the second year, and 96.0 in the third year on average. The frequency was higher than “but” or “so” in each grade. On the other hand, when restricted to “and” linking clauses or used in the head of a sentence, like “so,” the frequency was as high as or lower than “so” as a connective expression.

Analyses of High School Entrance Examinations

This section describes the results of the analyses of high school entrance examinations. Table 34 shows descriptive statistics on the frequency of the appearance

Table 33

Frequency of the Appearance of "And" as a Connective Expression of a Conjunctive Relationship in Each Grade of Junior High School Textbooks in Japan

Textbook	Frequency of "and"			Frequency of "and" linking clauses or used in the head of a sentence		
	7th	8th	9th	7th	8th	9th
NH	39	58	114	5	7	39
NC	24	75	100	1	3	12
SS	32	60	82	3	7	10
TE	45	53	76	0	6	6
OW	31	48	98	0	6	10
CO	14	43	106	0	3	7
M	30.8	56.2	96.0	1.5	5.3	14.0

Note. NH = New Horizon English Course; NC = New Crown English Series New Edition; SS = Sunshine English Course; TE = Total English; OW = One World English Course; CO = Columbus 21 English Course.

Table 34

Descriptive Statistics on the Frequency of the Appearance of "But" and "So" as a Connective Expression in High School Entrance Examinations in Japan

	Paper		Audio		Sum	
	But	So	But	So	But	So
M	6.58	4.50	2.33	1.48	8.92	5.98
Md	6.0	4.0	2.0	1.0	8.0	6.0
SD	2.97	2.86	1.68	1.52	3.48	3.07
Min	1	0	0	0	1	1
Max	13	13	8	6	17	13

Note. N = 48. Paper = the numbers of the appearances of "but" and "so" in examination papers, including reading, listening, grammar, and pronunciation sections. Audio = the numbers of the appearances of "but" and "so" in audio scripts of examinations in listening sections. Sum = the numbers of the appearances of "but" and "so" in both papers and audio scripts of each examination, including all sections.

of “but” and “so” as a connective expression in the examinations.

As the table shows, both “but” and “so” appeared at least once in all high school entrance examinations, respectively. As for examination papers, there was also at least one “but” in them. However, some paper tests did not include any “so” and neither did some audio scripts. In terms of the number of appearances, “but” had a tendency to appear more times than “so.” This tendency was displayed on both paper and audio scripts.

Next, Table 35 shows the appearances of “but” and “so” in instances other than a connective expression. As shown in the table, there was no example of “but” other than a connective expression in the examinations. As Table 30 shows, “but” other than a connective expression also appeared in junior high school English textbooks, so it might be natural that the kinds of “but” also appear in high school entrance examinations. However, it did not appear in the examinations that could be analyzed. On the other hand, there were 85 examples of “so” other than a connective expression in total (M = 1.77). The frequency was high, compared to “but,” while it was limited when compared with the frequency of “so” as a connective expression (M = 5.98). The types of examples in the examinations corresponded to the examples that appeared in junior high school English textbooks, except for the expression “if so.”

Finally, this section shows the appearances of similar expressions of “but” and “so” in the examinations. As for connective expressions representing an adversative relationship, there were 16 examples of “however” in the 48 examinations in total. No other expressions with an adversative relationship were shown in any examinations, such as “though” or “yet.” As for connective expressions representing a causal relationship, there was only one example of “for these reasons,” and other expressions such as “therefore” and “thus” could not be confirmed.

Table 35

Types of "But" and "So" Other Than Connective Expressions Appearing in High School Entrance Examinations in Japan

Expression	Type	Frequency
But	[No examples]	—
So	[Modification of adjectives/adverbs]	53
	[Substitution for that-clause] (e.g., "I think so.")	23
	and so on	6
	[Synonym with "true"] (e.g., "Is that so?")	1
	[Substitution for verb phrase] (e.g., "do so")	1
	if so	1

Note. Frequency = the number of appearances in the 48 examinations in total.

Analyses of the Center Test

This section describes the results of the analyses of the Center Test. Table 36 shows descriptive statistics on the frequency of the appearance of “but” and “so” as connective expressions in the tests. As the table shows, as well as junior high school English textbooks and high school entrance examinations, “but” functioning as a connective expression appeared more than “so” functioning as a connective expression in the Center Test. On paper, in only one year out of ten, the number of appearances of “so” exceeded that of “but.” However, the average number of appearances of “but” is nearly twice the average number of “so,” and the ratio was higher than “but” and “so” in high school entrance examinations. The tendency was more remarkable in audio scripts: The frequency of the appearance of “but” as a connective expression never fell below that of “so” in the 10-year analysis. The average number of appearances was nearly five times as high as that of “so.”

As for the tendency of “but” and “so” to be terms other than a connective expression, there were a few “but” that appeared in the Center Test. On paper, it emerged less than once a year on average, materializing only once in the 10-year analysis. Conversely, the frequency of the appearance of “so” other than as a connective expression was relatively high. On paper, it exceeded that of “so” as a connective expression in 5 of the 10 years. Similarly, in audio scripts, the frequency of the appearance of “so” other than as a connective expression was equal or higher than that of “so” in 5 of the 10 years. The frequency of the appearance of the two types of “so” was about the same, considering the averages. The feature was different from that in high school entrance examinations.

Next, Table 37 displays the appearances of “but” and “so” as terms other than a connective expression in the Center Test. As the table shows, the examples of “but”

Table 36

Descriptive Statistics on the Frequency of the Appearance of "But" and "So" in the Center Test

Year	Paper				Audio			
	But		So		But		So	
	CE	Others	CE	Others	CE	Others	CE	Others
2018	17	1	6	6	10	0	3	1
2017	20	3	7	7	14	0	1	1
2016	14	0	11	5	17	0	5	3
2015	14	1	9	7	7	1	3	2
2014	18	0	5	5	4	0	1	2
2013	10	0	6	5	10	0	3	3
2012	13	0	4	8	10	0	0	1
2011	13	1	16	9	11	0	3	1
2010	19	1	5	7	6	0	1	5
2009	8	2	4	11	14	0	3	1
M	14.6	0.9	7.3	7.0	10.3	0.1	2.3	2.0
SD	3.9	1.0	3.8	1.9	4.0	0.3	1.5	1.3

Note. N = 10. Paper = the numbers of the appearances of "but" and "so" on papers of tests, including reading, listening, grammar, and pronunciation sections. Audio = the numbers of the appearances of "but" and "so" on audio scripts of tests in listening sections. CE = the frequency of the appearance of "but" or "so" as a connective expression. Others = the frequency of the appearance of "but" or "so" as other than a connective expression.

Table 37

Types of "But" and "So" Other Than Connective Expressions Appearing in the Center Test

Expression	Type	Frequency
But	not only A but also B	8
	not A but B	1
	anything but	1
So	[Modification of adjectives/adverbs]	43
	so ... that ...	15
	[Substitution for that-clause] (e.g., "I think so.")	9
	so (that)	9
	so far	4
	even so	2
	or so	2
	[Synonym of "true"] (e.g., "Is that so?")	1
	So V S	1
	[Substitution for verb phrase] (e.g., "do so")	1
	[Synonym of "in such a manner"] (e.g., "You must not believe so.")	1
	go so far as to	1
	[Presented as an alternative]	1

Note. Frequency = the number of appearances in the 10 Center Tests in total.

other than connective expressions were limited. Compared with the results shown in Table 30, “but” that appeared in the Center Test corresponded to the examples of “but” that appeared in junior high school English textbooks. On the other hand, the types of the examples of “so” other than a connective expression were broader than “but,” and the tendency was similar to that in junior high school English textbooks and high school entrance examinations. Compared with the results shown in Table 31, most of the “so” that appeared in the Center Test corresponded to the examples of “so” that appeared in junior high school English textbooks. It showed the same tendency as “but.”

Finally, this section describes the results of the appearance of connective expressions other than “but” and “so.” First, as for the connective expressions representing an adversative relationship other than “but,” there were 55 examples of “however,” six examples of “though” as an adverb, two examples of “still,” and one example of “in contrast” and “yet,” respectively, in the 10 Center Tests in total. As for connective expressions representing a causal/conjunctive relationship other than “so,” there were nine examples of “therefore,” six examples of “thus,” two examples of “as a result,” and one example of “in conclusion” in the 10 Center Tests in total, respectively. As for the connective expressions representing a replacing relationship, there were two examples of “in conclusion” and one example of “to put it another way” in total. These results indicate that connective expressions representing an adversative relationship other than “but” appeared more than those representing a causal/conjunctive relationship other than “so,” and the tendency corresponded to the tendency of “but” and “so.”

Discussions

Discussion for Research Question 1

Research Questions 1 is, “How often do the connective expressions ‘but’ and ‘so’ appear in the English textbooks adopted in Japanese junior high schools? Is there a difference in the frequency of each expression’s appearance?” The results of this study indicate that there was a difference in the frequency of the connective expressions “but” and “so” in Japanese junior high school English textbooks. The number of appearances of “but” in textbooks increased each year, but this tendency might be natural as the total word count of each textbook was likely to increase. On the other hand, “so” did not necessarily have such a tendency. These results suggest that “so” as a connective expression might be less important than “but” as a connective expression for the construction of passages in textbooks.

In addition, the difference in the number of appearances of “but” and “so” in Japanese textbooks might mean a difference in the number of opportunities for Japanese EFL learners to encounter the words. In other words, fewer opportunities to see “so” than “but” in their learning suggest that students might acquire the meaning or functions of “so” more slowly than “but.” The results of this study show that the number of appearances of “but” in textbooks was greater than that of “so” in each grade. Of the six textbooks, there were none in which the number of appearances of “so” exceeded that of “but” in all three years, even if the frequency of “but” and “so” as other than connective expressions was added. The results suggest that Japanese junior high school EFL learners might have fewer opportunities to see “so” than “but” during their learning.

Discussion for Research Question 2

Research Question 2 is, “Which parts in the English textbooks adopted in Japanese junior high schools include the expressions ‘but’ and ‘so’ first, and what are the meanings that appear first in each textbook? Is there a difference in the tendency of

the two expressions?" The results of this study indicate that "so" as a connective expression appeared later than "but" as a connective expression in junior high school English textbooks in Japan, and the time varied greatly depending on the textbook. The results lead to the following two suggestions. First, as described in the section above, the results suggest that Japanese EFL learners might acquire the meanings and functions of "so" as a connective expression more slowly than those of "but" as a connective expression. In MEXT (2017), "but" and "so" as a connective expression have not been targeted for any lessons as an important grammar rule, and junior high school English textbooks treated the words just as a new word. However, as for "but," the first appearance was early, and it appeared with an adversative relationship. It also might be easier for learners to understand the meanings and functions of "but" because textbooks presented the first "but" with a clear adversative relationship, using a pair of words or phrases. On the other hand, the first "so" in textbooks did not necessarily have the meanings and functions of a casual/conjunctive relationship as a connective expression. The results indicate that "so" as a connective expression was not treated as a new word in some textbooks. There were two kinds of textbooks in which "so" appeared first as a connective expression, NH and SS. In SS, the first "so" appeared in the first year with the meaning of a causal relationship, but it did not appear in passages in textbooks but in audio scripts, which meant it did not appear in the textbook with printed characters. The second "so" in SS appeared as an adverb, but the "so" was not treated as a new word in the textbook at the time. The reappearance of "so" with a causal/conjunctive relationship was in the second year, and of course, this "so" was also not treated as a new word. In other words, there was only one textbook in which "so" with a causal/conjunctive relationship was treated as a new word: NH. The results suggest that even teachers might not realize that they have never explained the use of "so" as a

connective expression because it does not appear as a new word. In addition, in NC and TE, the first "so" as a connective expression appeared in the passages of an additional lesson, making it less likely to be treated as a new word than in the regular lessons, depending on class progress. It suggests that the textbooks actually might further delay the first appearance of that kind of "so." From these suggestions, it is possible that there is not sufficient teaching instruction—or even any teaching instruction—on the meanings and functions of "so" as a connective expression.

Second, the results suggest that textbook writers and editors may not pay enough attention to the word "so." As described in the introduction chapter, learners' attention to connective expressions is thought to contribute to their understanding of passages. However, junior high school English textbooks might not present "so," one of the most basic connective expressions. In fact, MEXT (2017) does not clearly stipulate the instruction on the connective expression "so." The little attention to "so" and other connective expressions might have a negative impact on understanding a causal/conjunctive relationship and passages with the relationship, as well as the word-specific acquisition of "so." The time and way for Japanese EFL learners to recognize that "so" represents a causal/conjunctive relationship might not be clear, and MEXT also does not state this point. In other words, MEXT stipulates the instruction on the reading of passages with a certain amount of words or sentences clearly, while it pays little attention to the expressions necessary for learners to acquire the ability.

Discussion for Research Question 3

Research Question 3 is, "How broad are the meanings of 'but' and 'so' in the English textbooks adopted in junior high schools? Is there a difference in the broadness of the two expressions?" The results of this study indicate that "so" was presented in a

broader sense in junior high school English textbooks in Japan than "but." It suggests that it might be more difficult for Japanese junior high school EFL learners to acquire the meanings and functions of "so" as a connective expression than those of "but."

As mentioned in the previous section, junior high school English textbooks in Japan treat a word as a new word only once in principle, and even when the same word is presented in a different meaning, the word is not treated as a new word. The results show that the textbooks presented the word "so" with many different meanings, compared with "but." It suggests that teachers and learners might pay little attention to the second or third meanings of "so" unless teachers recognize which meanings of "so" they treat or do not treat in their class, or learners realize that the "so" presented later is different from the "so" they learned before. The suggestion leads to the need to treat the word "so" as a new word repeatedly when it appeared in a different meaning from the previous one in textbooks. Also, it might be necessary to form a unit that summarizes the meanings and functions of "so."

Discussion for Research Question 4

Research Question 4 is, "As to Research Question (1) through (3), what about expressions similar to 'but' and 'so'?" The results of this study indicate that "but" appeared in junior high school English textbooks in Japan more than "so." By adding the number of appearances of "and," a representative connective expression with a conjunctive relationship, the frequency of the appearance managed to overtake that of "but." These results suggest the importance of the word "but" in junior high school English textbooks in Japan. The results also show that "and" as well as "so" was used in various examples in textbooks. This means that both "and" and "so" do not necessarily appear as connective expressions representing a causal/conjunctive relationship, which

suggests that “and” and “so” might not function as connective expressions for Japanese EFL beginners or poor learners.

As for “but,” it mostly appeared as a connective expression representing an adversative relationship, and there were very limited examples of other expressions representing the relationship such as “however.” These results mean that junior high school English textbooks in Japan implicitly show Japanese EFL learners that “but” is mostly used as a connective expression representing an adversative relationship when it appears, and conversely, when an adversative relationship appears in passages, “but” is most likely to appear. This suggests that it might be easy for Japanese EFL learners to unconsciously acquire the relationship between “but” and an adversative relationship in passages.

Discussion for Research Question 5

Research Question 5 is, “As to Research Questions (1), (3), and (4), what about ‘but’ and ‘so’ in Japanese public high school entrance examinations?” The results of this study show that “but” appeared more frequently than “so” in high school entrance examinations, as well as junior high school English textbooks. The results suggest that the importance of learners’ understanding of “but” might be higher for understanding the passages or audio scripts in high school entrance examinations than “so.”

However, even though the importance of “so” might be lower than that of “but,” it does not necessarily mean that the importance itself is low absolutely. The results show that “so” appeared about six times in one test on average. If students do not understand the meanings of “so,” it means that they do not understand at least six places in the test sufficiently. Based solely on the fact that it appeared less than “but,” “so” cannot be said to be less important for learners to understand in passages.

There are two points worth noting here. The first point is the diversity of the meanings of “so” as a connective expression. The word means not only a causal relationship but also a conclusive relationship, corresponding to “*jaa* (じゃあ)” in Japanese, and a function to switch the topic of a conversation or a passage. “So” which appeared in junior high school English textbooks in Japan had these kinds of meanings, which suggests that the “so” in high school entrance examinations might have the same diversity. In other words, even if learners can understand that “so” is a connective expression, they must be able to understand the context including the word in order to understand its meanings. The suggestion might conflict with the premise described in the introduction chapter that said it is easier to understand the contexts including a connective expression by paying attention to the marker.

Second, there are many “so” instances other than a connective expression. Table 35 shows that there were 85 examples of “so” other than a connective expression in high school entrance examinations in total, such as “so” modifying an adjective or an adverb and “so” used for a substitute for a that-clause. The number of the appearance was small compared to 287 examples of “so” that functioned as a connective expression in total, but the frequency might not be ignored. On the other hand, there was no example of “but” other than connective expressions in the examinations that could be analyzed in this study, even though some expressions like “not A but B” and “not only A but also B” appeared in junior high school English textbooks. The results suggest that the relationship between the appearance of “but” and an adversative relationship might be strong for Japanese EFL learners, as discussed in the previous section. As for “so,” it is not possible to establish such a strong equal-relationship. In other words, these results suggest that the broader range of the meanings of “so” might influence the effect of the word on learners’ understanding of passages as a connective expression. Especially for

beginners or poor learners, it might be extremely difficult to make use of "so" for understanding passages compared to "but." It is possible to cope with most appearances of "but" from junior high school English textbooks to high school entrance examinations only by the recognition of the word as an adversative relationship, corresponding to "*shikashi*" or "*daga*" in Japanese, while as for "so," it does not necessarily appear as a connective expression; even if it is a connective expression, there are several meanings and functions, and it does not always correspond to Japanese connective expression "*dakara*."

As for the frequency of the appearance of connective expressions that have similar meanings or functions of "but" and "so," there was a very limited number of its appearance in high school entrance examinations. Although the investigation of high school entrance examinations did not include subordinate conjunctions such as "because" and "although," the results suggest that the representative examples of connective expressions of an adversative and causal/conjunctive expression in high school entrance examinations are "but" and "so," respectively. The appearance of "but" leads to the appearance of an adversative relationship and the reverse is also mostly true; the appearance of a causal/conjunctive relationship leads to the appearance of "so." However, the appearance of "so" does not always mean the appearance of the relationship, which suggests that "so" might be less effective in understanding the contexts of passages.

Discussion for Research Question 6

Research Question 6 is, "As to Research Questions (1), (3), and (4), what about 'but' and 'so' in Japanese national university entrance examinations?" The results of this study show that "so" did not appear more frequently than "but" in the Center Test, as

well as in junior high school English textbooks and high school entrance examinations. The average increasing rate of “but” as a connective expression in the Center Test compared to high school entrance examinations was 222% on paper and 442% on audio scripts. On the other hand, the average increasing rate of “so” was 162% on paper and 155% on audio scripts. Since the total word number was different in high school entrance examinations and the Center Test, it is impossible to compare simply, but the results suggest that the importance of “but” for understanding passages might increase from high school entrance examinations to the Center Test, and the importance of “so” might not increase as remarkably as “but.”

It is worth noting that the difference between the frequency of the appearance of “so” as a connective expression and other uses of “so” in the Center Test was not as high as that in junior high school English textbooks and high school entrance examinations. Some examples of “so” other than as a connective expression appeared in the Center Test that did not appear in high school entrance examinations: “so that” representing a purposive relationship; a sentence structure with “so ... that ...;” “even so;” “or so;” “so far;” and a sentence structure with “So V S.” The results indicate that “so” is used in a broader range of meanings and functions in the Center Test than in high school entrance examinations. In addition, the frequency of the appearance was as muh as “so” functioning as representing a causal/conjunctive relationship. These results suggest that the efficacy of “so” as a connective expression might be relatively more limited in the Center Test than high school entrance examinations. On the other hand, the examples of “but” other than a connective expression representing an adversative relationship in the Center Test were very limited: “not A but B;” “not only A but also B;” and “anything but.” Even though there are other examples of “but” that may appear in university entrance examinations, the results suggest that it is unlikely

that the range of examples of “but” is not as broad as that of “so,” and the strong relationship between the appearance of “but” and the appearance of an adversative relationship might be retained even in the phase of university entrance examinations.

As for connective expressions similar to “but” and “so” in the Center Test, the results show that there was a very limited number of appearances, whether it is a connective expression representing an adversative relationship or a causal/conjunctive relationship. The results suggest that the lower frequency of the appearance of “so” might not be due to an increase in the frequency of other expressions. Therefore, the discussion on the relationship between the representative connective expressions “but” and “so” and the relationship represented by them might spread from the word-specific problem of “but” and “so” to a more general problem of connective expressions representing an adversative or causal/conjunctive relationship. In other words, the results suggest that there might be a strong connection between the appearance of connective expressions representing an adversative relationship and the relationship, but not a strong connection between the appearance of connective expressions representing a causal/conjunctive relationship and the relationship. The suggestion implies that the understanding of connective expressions representing a causal/conjunctive relationship might not influence the understanding of the contexts or the passages as much as an adversative relationship.

Summary of Findings

(1) “But” appeared more often than “so” in junior high school English textbooks adopted in Japan. Also, the first time of the appearance of “but” as a connective expression was unified in the first half of the first year in all textbooks, and all of the first “but” appeared with an adversative relationship, which was easy to understand with

a pair set of words or phrases. On the other hand, the first time of the appearance of “so” as a connective expression was not unified in textbooks, and it took a period of a little less than two years from the first “but” at the latest. The meanings and functions in the first “so” were different depending on textbooks, and it is not necessarily “so” as a connective expression.

(2) In high school entrance examinations and the Center Test, “but” appeared more often than “so” as well as junior high school English textbooks. Both on paper and on audio scripts in each examination had the same tendency, respectively. In addition, the increasing rate of the appearance of “but” in the Center Test compared to in high school entrance examinations was higher than that of “so,” which suggests that the importance of “but” for the understanding of passages might be higher, but the importance of “so” might not heighten as much as that of “but.”

(3) The appearance of “but” other than a connective expression was very limited in junior high school English textbooks, high school entrance examinations, and the Center Test, respectively. In addition, there was a very limited appearance of connective expressions representing an adversative relationship other than “but,” such as “however,” in the passages. The results suggest that the relationship between the appearance of “but” and an adversative relationship might be strong for Japanese junior high school and high school EFL learners.

On the other hand, “so” appeared in very diverse meanings in junior high school English textbooks, including “so” other than a connective expression. The tendency continued in high school entrance examinations and the Center Test. Particularly, in the Center Test, the frequency of “so” other than in connective expressions increased to the

same extent as that of “so” as a connective expression. In addition, there were only limited examples of connective expressions representing a causal/conjunctive relationship other than “so,” as well as those representing an adversative relationship. These results suggest that, even though the relationship between “so” and a causal/conjunctive relationship is not considered to be weak, the appearance of “so” does not imply the presence of a causal/conjunctive relationship. This implies that “so” might influence Japanese EFL learners’ understanding of passages as a connective expression less than “but.”

Conclusion

The purpose of this study is to clarify the appearance of connective expressions “but” and “so” and other similar English expressions that Japanese EFL learners have encountered in their learning. Through the analyses of junior high school English textbooks, high school entrance examinations, and the Center Test, this study concludes that the relationship between the appearance of “but” and the presence of an adversative relationship might be very strong. In addition, as for “so,” the relationship might not be that weak, but it is also not so strong as “but.” Therefore, this study concludes that Japanese EFL learners can adequately recognize that “but” is a connective expression representing an adversative relationship in their textbooks and tests, whereas they cannot fully recognize that “so” is a connective expression representing a causal/conjunctive relationship. Also, the results suggest that “but” might work strongly as a connective expression for Japanese EFL learners to understand that the context includes an adversative relationship, whereas “so” might not work as strongly as “but.”

Study 3[3]

Purpose of Study 3

The purpose of this study is to reveal the relationship between how Japanese EFL learners recognize the meanings and functions of the representative connective expressions "but" and "so" and how the expressions contribute to their understanding of English. This study addressed five research questions as follows:

(1) Are there any differences in the degree of Japanese EFL learners' understanding of English passages with "but" and passages without "but," the connective expression representing an adversative relationship?

(2) Are there any differences in the degree of the learners' understanding of English passages with "so" and passages without "so," the connective expression representing a causal/conjunctive relationship?

(3) Are there any differences in the results of Research Questions (1) and (2) depending on the learners' English proficiency?

(4) Are there any differences in the results of Research Questions (1) and (2) depending on how learners recognize the meanings of "but" and "so"?

(5) Do Japanese phrases corresponding to "but" and "so" tend to appear when the learners are asked to translate passages with "but" and "so" into Japanese, their native language? Is there a difference between the ratio of Japanese phrases corresponding to "but" and "so" in their translations? Are there any relationships between the presence or absence of the Japanese phrases and their understanding of English passages?

[3] An earlier version of this chapter was originally published as Sato (2018).

Method

Participants

The participants were 305 Japanese students at a private university in Tokyo or Yamanashi prefecture. None of the participants majored in English or other languages. Of the 305 participants, 159 (Freshman = 152; Sophomore = 5; Junior = 1; Senior = 1) participated in Experiment 1. The remaining 146 participants, all of whom were first-year students, participated in Experiment 2. All of the participants in this study were the participants in the lower group in Study 1. There were 297 out of the 305 participants who completed the placement test consisting of 50 listening questions and 50 reading questions extracted from a collection of questions for TOEIC Bridge; Table 38 summarized the key characteristics of the results. As the table shows, the participants of this study were not proficient in English on average. In fact, all of them were categorized as the lower group in Study 1.

Materials

Material 1: Japanese Translation Test (see Appendices 4−6). Material 1 consisted of five conversational passages in English. Each passage consisted of a conversation between two people. They gave two utterances, each, so each passage had four utterances in total. All the scripts of the passages were extracted and modified from the listening question of the Center Test. Considering that the participants' proficiency was not high and "but" and "so" tend to be used more in conversation, this study used the paper test of this material from the excerpt from the listening section. Table 39 shows the readability indicators of each passage: Flesch Reading Ease and Flesch−Kincaid Grade Level. The values of Flesch Reading Ease showed that all of the five passages were from grade levels 5 and 6. Flesch−Kincaid Grade Level showed that all

Table 38

Descriptive Statistics of the Participants' Placement Test in Study 3

Descriptive statistics	Participants 1	Participants 2
N	151	146
M	62.1	47.5
Md	65.0	45.0
SD	14.8	10.6

Note. Participants 1 = participants in Experiment 1; Participants 2 = participants in Experiment 2. The highest possible score is 100; The lowest possible score is 0.

Table 39

Indicators of Readability of Each Passage in Material 1

Passage	Flesch Reading Ease	Flesch−Kincaid Grade Level
1	89.8	2.3
2	87.3	2.7
3	95.0	1.6
4	86.3	3.3
5	88.7	2.9
M	89.4	2.6

Note. According to the Flesch Reading Ease test, higher scores mean that the passage is easier to read, and lower scores mean that the passage is more difficult to read. The Flesch−Kincaid Grade Level is a readability score presented as a grade level.

the passages were from grade levels 1–3.

The translation tests (Material 1) have three types. Table 40 shows the details. There were three patterns for each passage. Passages with a BS pattern included both "but" and "so" as a connective expression at least once, respectively. Passages with a B pattern included "but" in the same position as the BS pattern, but "so" was removed. Passages with an S pattern included "so" in the same position as the BS pattern, but "but" was removed. Each of the three test types consisted of a combination of the five passages with one of the three patterns, BS, B, and S, taking into account a counterbalance. For example, Test Type 1 consisted of five passages: Passage 1 with a BS pattern, Passage 2 with an S pattern, Passage 3 with a B pattern, Passage 4 with a BS pattern, and Passage 5 with an S pattern.

Material 2: TF Test (see Appendices 7–9). The TF test consisted of five conversational passages, which were the same as those in Material 1. There were three types of tests, as described in Table 40.

Each passage was attached to four true-or-false questions. The questions were created as follows. First, one of the four questions was about whether participants understood the meanings just before and after "but" in BS and B patterns of passages. Second, one of the four questions was whether they understood the meanings just before and after "so" in the BS and S patterns of the passages. Third, one question was whether they understood the meanings of the entire conversation presented in the passages. Finally, one question was whether they correctly supposed that the actions of the two people in each passage would take place after the conversation; the fourth question was included to determine whether they could read the information presented implicitly in the conversations. The TF test showed all of the questions in Japanese and placed them

Table 40

Details of Each Test Type of the Japanese Translation Test (Material 1)

Test Type	Passage				
	1	2	3	4	5
1	BS	S	B	BS	S
2	S	B	BS	S	B
3	B	BS	S	B	BS

Note. BS = a passage including both “but” and “so” at least once, respectively; B = a passage including “but” in the same position as BS, but with “so” removed from BS pattern; S = a passage including “so” in the same position as BS, but with “but” removed from BS pattern.

immediately after each conversational passage. I made the TF questions, and a professor checked them.

Material 3: A Questionnaire on the Meaning Recognition of "but" and "so" With Japanese Expressions (see Appendix 1). This study used the questionnaire to investigate how the participants recognized the meanings of "but" and "so." This material was the same as Material 1 that was used in Study 1.

Procedure

Task 1: The Test With Material 1. First, this study employed a pilot test to confirm whether the test-takers' translations in Japanese reflected their understanding of the passages in the material. The pilot test participants were eight Japanese first-year students majoring in English education at a national university in Japan. The pilot test took place during the class hours of the university that the participants were attending, and there was no time limit set for the test. The results of the pilot test showed that all of the participants fully understood the five passages, and every participant presented an appropriate Japanese translation for them. Based on the results, this study judged that the Japanese translation test reflected the test-takers' understanding of the passages in the material.

The experiment took place during the course that the participants attended at their university. I, the person in charge of the classes, gave the explanations, procedures, and instructions in the participants' native language, Japanese. The test paper was distributed, and the participants were verbally asked to translate the passages in the material into Japanese. They were also explained that it was not necessary for it to be a direct translation. The participants were asked to write their student ID number, but they

were also told that it had nothing to do with the grade for the class and that the information would be carefully handled so that the individual is not identified. There was no time limit set for the test, and as far as I confirmed, they completed the test in about 20 to 30 minutes.

Task 2: The Test With Material 2. The experiment took place during the course that the participants attended at their university. The explanations, procedures, and instructions regarding the test were given by the person in charge of the class, including me, in the participants' native language, Japanese. The instructors distributed a test sheet and verbally asked the participants to answer the TF questions in each conversation passage. The participants were asked to write their student ID number, but they were also told that it had nothing to do with the grade for the class and that the information would be carefully handled so that the individual is not identified. There was no time limit set for the test, and as far as the instructors confirmed, they completed the test in about 10 to 15 minutes.

Task 3: The Questionnaire With Material 3. As mentioned above, all of the participants in this study were also participants of Study 1, and all of them had already answered the questionnaire in Material 3. Therefore, this study did not conduct the questionnaire survey again and used the results of Study 1 for analyses and discussions. It was less than one month, at the longest, from the implementation of Study 1 to that of Study 2 for each participant.

Analyses

I conducted all of the data processing. The effect sizes were calculated with

Mizumoto (n.d.) and the other statistical analyses were conducted with SPSS (version 21).

Scoring and Analyses for Task 1. The analyses for Task 1 were conducted based on the results of 151 of 159 participants. Eight participants were excluded from the analyses because they did not take the placement test.

This study marked Japanese translation test papers on a maximum of four points. Each conversational passage consisted of four lines, and one point was given per line. When their translation included information that showed they had an incorrect understanding of the passage, no point was given. When their translation did not include all of the information in the passage, one point was given. For example, for the fourth line of Passage 1 in Appendix 1, "let's make one group of six," this study judged that the translation「6 人組を作ろう」(*rokunin-gumi-wo-tsukurou*, "let's make a group of six") was correct and one point was given, even though the translation did not include the information of "one" group. On the other hand, this study judged that the translation「6 グループを作ろう」(*roku-group-wo-tsukurou*, "let's make six groups") was an incorrect one, and no point was given, because the translation clearly included the participants' wrong understanding of the line.

For each pattern of passages, Patterns BS, B, and S, the average points were calculated, respectively. One-way analysis of variance was conducted to reveal whether the difference between the average points was significant, for Research Questions (1) and (2).

For Research Question (3), the analyses were conducted as follows. First, Pearson's correlation coefficient was calculated for the placement test scores and the Japanese translation test. Second, based on the placement test scores, the 151

participants of Task 1 were divided into two groups, the upper-lower group consisting of 75 participants and the middle-lower group consisting of 76 participants. A two-way analysis of variance was conducted to reveal whether there was an interaction in the Japanese translation test's average scores between the two groups, which indicated their English proficiency and the three patterns of passages.

Finally, for Research Question (5), analyses were conducted as follows. First, the number of participants' translations that included the Japanese phrases corresponding to "but" was calculated in Patterns BS and B, including the connective expression. Similarly, in patterns BS and S, which involved "so," the number of participants' translations that encompassed the Japanese phrases corresponding to the connective expression was calculated. A chi-square test was then conducted to reveal whether there was a significant difference in the ratio of the numbers. Moreover, an independent *t*-test was conducted to ascertain whether there was a significant difference in the average scores of the Japanese translation test among participants whose translation included Japanese phrases corresponding to "but" and "so" and those whose translation did not include such phrases.

Scoring and Analyses for Task 2. This study marked the TF test papers on a maximum of 16 points. For each TF question, one point was given when it was correct, and no point was given when it was incorrect. Therefore, the possible highest score was four points for each passage.

For each of the three passage patterns, average scores were calculated. One-way analysis of variance was conducted to reveal whether the difference between the average points was significant, for Research Questions (1) and (2).

For Research Question (3), the analyses were conducted as follows. First,

Pearson's correlation coefficient was calculated for the placement test scores and the TF test. Second, based on the placement test scores, the 146 participants of Task 1 were divided into two groups, the upper-lower group consisting of 72 participants and the middle-lower group consisting of 74 participants. Then, a two-way analysis of variance was conducted to reveal whether there was an interaction in the average scores of the TF test between the two groups, which indicated their English proficiency and the three patterns of passages.

Analyses for Task 3. The analyses of Task 3 were conducted based on the test results of the 305 participants, including the ones who did not take the placement test. First, cluster analyses (square Euclidean distance and the Ward method) were conducted to group the participants based on how they recognized the meanings of "but" (but-participant-cluster). Cluster analyses were also conducted to group the participants based on how they recognized the meanings of "so" (so-participant-cluster). Next, the number of participants who chose each Japanese expression in Task 3 as the meaning of "but" and "so," respectively, was calculated for each participant-cluster group. The purpose of the analyses was to reveal the tendency in how each cluster group judged the meanings of "but" and "so."

As for the category of Japanese expressions regarding "but," this study adopted the two but-expression-clusters—an "adversative relationship" cluster and a "non-adversative relationship" cluster—in the lower group in Study 1. Next, this study calculated the average number of participants' choices of Japanese expressions in each but-expression-cluster for the meanings of "but" in each but-participant-cluster group. As for the category of Japanese expressions regarding "so," this study adopted the three so-expression-clusters—a "causal/conjunctive relationship" cluster, an "adversative

relationship" cluster, and a "non-causal/conjunctive/adversative relationship" cluster—in the lower group in Study 1. Next, this study calculated the average number of participants' choices of Japanese expressions in each so-expression-cluster for the meanings of "so" in each so-participant-cluster group. Through these analyses, this study aimed to reveal how each participant-cluster tended to judge which Japanese expressions meant "but" and "so."

For Research Question (4), the analyses of the results of the tasks with Materials 1 and 3 were conducted as follows. A two-way analysis of variance was conducted to reveal whether there was an interaction in the average scores of the Japanese translation test between the passage patterns, Patterns BS/B, the patterns including "but" and Pattern S without "but," and the but-participant cluster groups. Similarly, a two-way analysis of variance was conducted to reveal whether there was an interaction in the average scores of the Japanese translation test between the passage patterns, Patterns BS/S, the patterns including "so" and Pattern B without "so," and the so-participant cluster groups. In addition, the same analyses of the results of the tasks with Materials 2 and 3 were conducted for Research Question (4).

Results

Results of Task 1

Descriptive Statistics of the Japanese Translation Test. Table 41 shows the basic descriptive statistics of each of the three patterns in the Japanese translation test. As the table shows, Pattern B got a higher average score than Pattern S in all five passages. The Pattern BS scored higher than the other patterns in the passages except for Passage 1. On the other hand, there were no similarities in the difference between the average scores of Patterns BS and B.

Table 41

Descriptive Statistics of the Japanese Translation Test

Pattern	Descriptive statistics	Passage				
		1	2	3	4	5
BS	*n*	49	51	51	49	51
	M	2.39	2.75	3.45	2.14	2.12
	SD	1.27	1.12	1.14	1.43	1.22
B	*n*	51	51	49	51	51
	M	2.70	2.35	3.37	2.25	2.02
	SD	1.28	1.16	1.09	1.51	1.12
S	*n*	51	49	51	51	49
	M	2.47	2.10	3.27	2.04	1.92
	SD	1.33	1.29	1.23	1.55	0.95

Note. N = 151. BS = a passage including both “but” and “so” at least once, respectively; B = a passage including “but” in the same position as BS, but with “so” removed from BS pattern; S = a passage including “so” in the same position as BS, but with “but” removed from BS pattern. The highest possible score is four; the lowest possible score is 0.

Table 42

Average Scores of the Japanese Translation Test of the Two Groups Classified Based on Whether the Passage Pattern Included "But" and "So"

Passage pattern		Descriptive statistics	Passage				
			1	2	3	4	5
But	Include (BS/B)	*n*	100	102	100	100	102
		M	2.56	2.55	3.41	2.20	2.07
	Exclude (S)	*n*	51	49	51	51	49
		M	2.47	2.10	3.27	2.04	1.92
So	Include (BS/S)	*n*	100	100	102	100	100
		M	2.43	2.43	3.36	2.09	2.02
	Exclude (B)	*n*	51	51	49	51	51
		M	2.70	2.35	3.37	2.25	2.02

Note. N = 151. Include = the patterns of passages that include "but" or "so." Exclude = the patterns of passages that exclude "but" or "so" from the Pattern BS. BS = a passage that includes both "but" and "so" at least once. B = a passage that includes "but" in the same position as BS, but with "so" removed from the BS pattern. S = a passage that includes "so" in the same position as BS, but with "but" removed from the BS pattern. The highest possible score is four; the lowest possible score is 0.

Table 42 shows the average scores of the Japanese translation test based on classification according to the presence or absence of "but" and "so" in the passages. As the table shows, the patterns that include "but" in passages got a higher average score than the pattern that excludes "but," Pattern S, in all five passages. On the other hand, there was no specific trend for the average scores of the patterns that included and excluded "so."

A one-way analysis of variance was conducted for each passage, and the results only showed a main effect in Passage 2, $F(2, 148) = 3.680$, $p = .028$; $\eta^2 = .05$ (the effect size was small). Bonferroni post hoc test showed that the average score for Pattern BS ($M = 2.75$) was significantly higher than that for Pattern S ($M = 2.10$; $d = 3.74$, the effect size was large).

Relationship Between Participants' English Proficiency and the Results of the Japanese Translation Test. Table 43 shows the relationship between the placement test score and that of the Japanese translation test in each passage. As the table shows, each pattern of all five passages had a positive correlation with the placement test scores. There was also a positive correlation between the score of the Japanese translation test and that of the reading section in the placement test in all patterns, and so also for the listening section. On the other hand, there was no specific tendency, according to the three patterns.

The two-way analysis of variance showed no significant interaction in the average scores of the Japanese translation test between the two groups based on the placement test (upper-lower/middle-lower) and the three passage patterns in any of the passages. The results indicate that the influence of the pattern difference on participants' translation scores did not change significantly according to their placement test scores.

Table 43

Pearson's Correlation Coefficient Between the Scores of the Placement Test and the Japanese Translation Test

Pattern	Passage				
	1	2	3	4	5
BS	.38	.51	.56	.56	.62
B	.49	.57	.57	.52	.57
S	.59	.42	.54	.57	.48

Note. N = 151. BS = a passage including both "but" and "so" at least once, respectively; B = a passage including "but" in the same position as BS, but with "so" removed from BS pattern; S = a passage including "so" in the same position as BS, but with "but" removed from BS pattern.

Relationship Between the Feature of the Participants' Translations and the Scores of the Japanese Translation Test. Table 44 shows the number of participants whose translations included Japanese phrases corresponding to "but" and "so." As the table shows, both "but" and "so" showed the same frequency in that there were more participants who translated the connective expressions in their answers. The chi-square test showed that there was a significant difference in the ratio of the participants in Passage 1, χ^2 (1) = 36.567, $p < .001$, $\varphi = .43$ (the effect size was medium), Passage 2, χ^2 (1) = 8.509, $p = .004$, $\varphi = .21$ (the effect size was small), Passage 4, χ^2 (1) = 9.514, $p = .003$, $\varphi = .22$ (the effect size was small), and Passage 5, χ^2 (1) = 20.957, $p < .001$, $\varphi = .32$ (the effect size was medium). The results indicate that the ratio of the number of participants who translated "but" was significantly higher than the ratio of the number of people who translated "so."

Table 45 shows the average scores in the Japanese translation test of the two groups of participants. The scores are classified based on whether the translations included Japanese phrases corresponding to "but" and "so." As the table shows, in all five passages, the Japanese translation test scores were higher in participants' groups whose translations included Japanese phrases corresponding to "but" than those of the participants whose translations did not include such phrases. Similarly, in all five passages, the Japanese translation test scores were higher in participants' groups whose translations included Japanese phrases corresponding to "so" than those of the participants whose translations did not include such phrases. An independent *t*-test showed that there was a significant difference in the average scores between the two groups in all passages and targeted expressions, except for the two groups based on "so" in Passage 1 ($M = 2.69, 2.30$).

Table 44

Number of Participants Whose Translations Included Japanese Phrases Corresponding to "But" and "So"

Passage		But	So
1	A	90 (90.0%)	51 (51.0%)
	NA	10 (10.0%)	49 (49.0%)
2	A	93 (91.2%)	76 (76.0%)
	NA	9 (8.8%)	24 (24.0%)
3	A	91 (91.0%)	89 (87.3%)
	NA	9 (9.0%)	13 (12.7%)
4	A	74 (74.0%)	53 (53.0%)
	NA	26 (26.0%)	47 (47.0%)
5	A	87 (85.3%)	56 (56.0%)
	NA	15 (14.7%)	44 (44.0%)

Note. N = 151. But = Division into two groups based on the number of participants whose translations included Japanese phrases corresponding to "but" in the two patterns, including "but" (i.e., patterns BS and B); So = Division into two groups based on the number of participants whose translations included Japanese phrases corresponding to "so" in the two patterns, including "so" (i.e., patterns BS and S); A = Japanese phrases corresponding to "but" and "so" appeared in participants' translations (Appeared); NA = Japanese phrases corresponding to "but" and "so" did not appear in participants' translations (No-Appearance).

Table 45

Participants' Average Scores in the Japanese Translation Test Classified Based on Whether Their Translations Included Japanese Phrases Corresponding to "But" and "So"

Passage	Group	Targeted expression			
		But		So	
		M	*d*	*M*	*d*
1	A	2.89 (*n* = 53)	0.43 (small)	2.69 (*n* = 90)	0.31 (small)
	NA	2.34 (*n* = 98)		2.30 (*n* = 61)	
2	A	2.76 (*n* = 95)	0.84 (large)	2.70 (*n* = 77)	0.51 (medium)
	NA	1.80 (*n* = 56)		2.09 (*n* = 74)	
3	A	3.70 (*n* = 109)	1.17 (large)	3.67 (*n* = 113)	1.20 (large)
	NA	2.50 (*n* = 42)		2.45 (*n* = 38)	
4	A	2.69 (*n* = 54)	0.58 (medium)	2.58 (*n* = 74)	0.60 (medium)
	NA	1.85 (*n* = 97)		1.73 (*n* = 77)	

Table 45

Participants' Average Scores in the Japanese Translation Test Classified Based on Whether Their Translations Included Japanese Phrases Corresponding to "But" and "So" (continued)

Passage	Group	Targeted expression			
		But		So	
		M	*d*	*M*	*d*
5	A	2.33 (*n* = 87)	0.71 (medium)	2.52 (*n* = 56)	0.76 (medium)
	NA	1.59 (*n* = 64)		1.73 (*n* = 95)	

Note. N = 151. But = Division into two groups based on the number of participants whose translations included Japanese phrases corresponding to "but," in the two patterns including "but" (i.e., Patterns BS and B); So = Division into two groups based on the number of participants whose translations included Japanese phrases corresponding to "so" in the two patterns, including "so" (i.e., Patterns BS and S). A = Japanese phrases corresponding to "but" and "so," which appeared in participants' translations (Appeared); NA = Japanese phrases corresponding to "but" and "so" that did not appear in participants' translations (No-Appearance). *d* = the effect sizes of the differences of each pair.

Results of Task 2

Descriptive Statistics of the TF Test. Table 46 shows the basic descriptive statistics of each of the three patterns in the TF test. As the table shows, there was no tendency in the difference between the three patterns' average scores. In Passages 1 and 5, Pattern B got the highest average score, and in the other three passages, Pattern BS got the highest average score of the three patterns.

Table 47 shows the average scores of the Japanese translation test based on the classification by the presence or absence of "but" and "so" in the passages. As the table shows, the patterns including "but" in passages got a higher average score than the pattern that excluded "but," Pattern S, in all five passages even though the difference was slight. On the other hand, there was no specific tendency for the average score between the patterns including and excluding "so." These results showed the same tendency as the results in Task 1. For each passage, however, a one-way analysis of variance was conducted, and the results showed no main effect in any of the passages.

Relationship Between Participants' English Proficiency and the Results of the TF Test. Table 48 shows the relationship between the placement test score and the TF test score in each passage. As the table shows, each pattern of all five passages positively correlated with the placement test scores, even though some values were shallow. There was also a positive correlation between the scores of the Japanese translation and reading section tests in the placement test in all patterns, as also for the listening section. On the other hand, there was no specific tendency depending on the three patterns. The two-way analysis of variance showed no significant interaction in the average scores of the TF test between the two groups based on the scores of the placement test (upper-lower/middle-lower) and the three passage patterns in any of the

Table 46

Descriptive Statistics of the TF Test

Pattern	Descriptive statistics	Passage				
		1	2	3	4	5
BS	*n*	50	48	48	50	48
	M	2.58	2.21	3.04	2.60	2.38
	SD	0.97	0.99	1.03	0.90	0.91
B	*n*	48	48	50	48	48
	M	2.79	2.04	3.00	2.46	2.40
	SD	0.85	0.97	1.03	0.92	1.05
S	*n*	48	50	48	48	50
	M	2.67	2.06	2.94	2.46	2.24
	SD	0.93	0.89	1.04	0.90	1..08

Note. N = 146. BS = a passage including both “but” and “so” at least once, respectively; B = a passage including “but” in the same position as BS, but with “so” removed from BS pattern; S = a passage including “so” in the same position as BS, but with “but” removed from BS pattern. The highest possible score is four; the lowest possible score is 0.

Table 47

Average Scores of the TF Test of the Two Groups Classified Based on Whether the Passage Pattern Included "But" and "So"

Passage pattern		Descriptive statistics	Passage				
			1	2	3	4	5
But	Include (BS/B)	*n*	98	96	98	98	96
		M	2.68	2.13	3.02	2.53	2.39
	Exclude (S)	*n*	48	50	48	48	50
		M	2.67	2.06	2.94	2.46	2.24
So	Include (BS/S)	*n*	98	98	96	98	98
		M	2.62	2.13	2.99	2.53	2.31
	Exclude (B)	*n*	48	48	50	48	48
		M	2.79	2.04	3.00	2.46	2.40

Note. N = 146. Include = the patterns of passages including "but" or "so." Exclude = the patterns of passages excluding "but" or "so" from the Pattern BS. BS = a passage including both "but" and "so" at least once, respectively; B = a passage including "but" in the same position as BS, but with "so" removed from BS pattern; S = a passage including "so" in the same position as BS, but with "but" removed from BS pattern. The highest possible score is four; the lowest possible score is 0.

Table 48

Pearson's Correlation Coefficient Between the Scores of the Placement Test and the TF Test

Pattern	Passage				
	1	2	3	4	5
BS	.39	.42	.35	.09	.03
B	.45	.09	.44	.15	.18
S	.23	.20	.42	.22	.26

Note. N = 146. BS = a passage including both "but" and "so" at least once, respectively; B = a passage including "but" in the same position as BS, but with "so" removed from BS pattern; S = a passage including "so" in the same position as BS, but with "but" removed from BS pattern.

passages. The results indicate that the influence of the pattern difference on participants' TF scores did not change significantly according to their placement test scores.

Results of Task 3

The Relationship Between the Japanese Translation Test and Participants' Meaning Recognition of "But." A cluster analysis was conducted on the 159 participants based on their meaning recognition of "but" in Study 1. The analysis showed that it is possible to classify the participants into four but-participant clusters in terms of the meaning recognition. Table 49 shows the descriptive statistics of the choice numbers of Japanese expressions of each but-expression cluster in the but-participant clusters. The table indicates the following results. For Cluster 1, the average choice number of Japanese expressions in the non-adversative relationship was meager. The tendency indicates Cluster 1 participants' recognition that the English connective expression "but" strongly represents an adversative relationship. For Cluster 2, the average choice number of Japanese expressions in the non-adversative relationship was relatively low, like Cluster 1, but that of Japanese expressions in the adversative relationship was also relatively low. Therefore, the participants' meaning recognition of "but" in Cluster 2 was likely to be narrow. For Cluster 3, the average choice numbers of Japanese expressions in both but-expression clusters were relatively high. The tendency implies that the participants in Cluster 3 were less likely to recognize that the English expression "but" represents an adversative relationship or determine that "but" can represent a broader range of relationships than the participants in other clusters. Finally, for Cluster 4, the tendency of the choice number was similar to that in Cluster 1, but the average choice number of Japanese expressions in the non-adversative relationship was not as low as Cluster 1. Therefore, the tendency denotes that the participants in Cluster

Table 49

Descriptive Statistics of the Choice Numbers of Japanese Expressions That the Participants Judged Included a Meaning of "But" in Each But-expression/But-participant Cluster Based on the Japanese Translation Test

		But-participant cluster			
		1	2	3	4
n		60	40	12	47
But-expression cluster	Adversative	6.07 (1.26)	3.88 (1.36)	7.92 (1.38)	7.68 (2.35)
	Non-adversative	0.47 (0.68)	2.90 (2.73)	7.75 (2.22)	2.43 (2.68)
Average score of the placement test		*n* = 58 65.9 (13.9)	*n* = 38 56.3 (14.0)	*n* = 11 50.2 (15.6)	*n* = 44 64.9 (13.9)

Note. *N* = 159. Standard deviations are presented in parentheses. But-participant clusters = clusters of participants based on their meaning recognition of "but" in Study 1. But-expression clusters = clusters of the Japanese expressions based on the participants' tendency to judge that the expressions include a meaning of "but," which was analyzed in Study 1. The details of the two but-expression clusters are shown in Table 9. The highest possible choice number is 10 in the Adversative cluster and 21 in the Non-adversative cluster. The lowest possible score is 0 in both clusters. The highest possible score for the placement test is 100, while the lowest possible score is 0. Eight of 159 participants did not take the placement test, so *N* = 151 for the placement test.

4 recognized that the English connective expression “but” represents an adversative relationship, but their perception was not as straightforward as those in Cluster 1.

The one-way analysis of variance’s results showed that there was a main effect on the average scores of the placement test in the four but-participant clusters, $F(3, 147) = 6.778$, $p < .001$, $\eta^2 = .12$ (the effect size was small). The Bonferroni post hoc test illustrated a significant difference in the average scores of the placement test between Clusters 1 and 3 ($d = 1.10$, the effect size was large), Clusters 2 and 4 ($d = 0.62$, the effect size was medium), and Clusters 3 and 4 ($d = 1.04$, the effect size was large). The results signify that the participants in Clusters 1 and 4 might have had higher English proficiency than those in Clusters 2 and 3.

The results of a two-way analysis of variance showed no significant interaction on the average scores of the Japanese translation test according to the four but-participant clusters and two passage patterns, including “but” or not, in each passage. However, analyses of simple main effects confirmed that there were significant differences in some conditions. Table 50 shows the details. The table exhibits that but-excluded pattern passages (i.e., Pattern S) have some significant differences in the average scores of the Japanese translation test among but-participant clusters in Passage 1. As for the but-included pattern passages (i.e., Patterns BS/B), there were a few significant differences in the average scores of the Japanese translation test among but-participant clusters in Passages 1, 2, 3, and 4.

For Passage 1, there was a significant difference in the average score of the Japanese translation test in Cluster 1, depending on the two passage patterns. There was also a significant difference in Cluster 2, but the result was contrary to that in Cluster 1: the average score in the passage without “but” was significantly higher than the passage with “but.” As for Passage 2, there was a significant difference in the Japanese

Table 50

Significant Differences on the Average Scores of the Japanese Translation Tests Between the But-participant Clusters and Passage Patterns

Passage	Pattern	Significant difference	
1	But included (BS/B)	C1 > C2 (d = 1.09, large) C1 > C3 (d = 1.70, large)	C1: BS/S > S (d = 0.74, medium)
	But excluded (S)	C2 > C3 (d = 1.22, large) C4 > C3 (d = 1.41, large)	C2: S > BS/S (d = 0.68, medium)
2	But included (BS/B)	C1 > C3 (d = 1.56, large) C2 > C3 (d = 0.99, large) C4 > C3 (d = 1.76, large)	C4: BS/S > S (d = 0.60, large)
	But excluded (S)	—	
3	But included (BS/B)	C1 > C3 (d = 2.10, large) C2 > C3 (d = 1.29, large)	—

Table 50

Significant Differences on the Average Scores of the Japanese Translation Tests Between the But-participant Clusters and Passage Patterns (continued)

Passage	Pattern	Significant difference	
3	But included (BS/B)	C4 > C3 (d = 1.56, large)	—
	But excluded (S)	—	
4	But included (BS/B)	C1 > C2 (d = 0.87, large) C1 > C3 (d = 1.47, large)	—
	But excluded (S)	—	
5	But included (BS/B)	—	—
	But excluded (S)	—	

Note. N = 159. But included = the patterns of passages including "but." But excluded = the patterns of passages excluding "but" from the Pattern BS. BS = a passage including both "but" and "so" at least once, respectively; B = a passage including "but" in the same position as BS, but "so" was removed from BS pattern; S = a passage including "so" in the same position as BS, but "but" was removed from BS pattern. C1 = Cluster 1 (n = 60); C2 = Cluster 2 (n = 40); C3 = Cluster 3 (n = 12); C4 = Cluster 4 (n = 27). The details of each cluster were shown in Table 49. Significant difference = the combinations of clusters or patterns with significant differences in the average scores of the Japanese translation test. For example, "C1 > C2" means the average score in

Cluster 1 was significantly higher than that in Cluster 2; “BS/S > S” means the average score of the but-included pattern was significantly higher than that in the but-excluded pattern. “—” means no combination with any significant differences. *d* = the effect size.

translation test's average score in Cluster 4, depending on the two passage patterns.

The Relationship Between the Japanese Translation Test and Participants' Meaning Recognition of "So." A cluster analysis was conducted on 159 participants based on their meaning recognition of "so" in Study 1. The analysis showed that it is possible to classify the participants into three so-participant clusters concerning the meaning recognition. Table 51 shows the descriptive statistics on the choice numbers of Japanese expressions of each so-expression cluster in so-participant clusters. The table indicates the following results. First, for Cluster 1, the average choice number of Japanese expressions in the causal/conjunctive relationship was large, while the number in the adversative relationship was small. The tendency indicates that the participants in Cluster 1 confidently recognized that the English connective expression "so" represents a causal/conjunctive relationship. Next, for Cluster 2, the participants chose a certain number of Japanese expressions in every cluster. Therefore, the participants in Cluster 2 were less likely than the participants in other clusters to recognize the relationships that the English expression "so" represents, or recognize that "so" can represent a broader range of relationships. Finally, for Cluster 3, the participants' choice number of Japanese expressions in the adversative cluster and the non-causal/conjunctive/adversative cluster was meager. This tendency indicates that the participants in Cluster 3 recognized that the English connective expression "so" represents a causal/conjunctive relationship, and they recognized the meanings very narrowly.

A one-way analysis of variance with the factor of so-participant cluster conditions confirmed a main effect for the placement test's scores, $F(2, 148) = 13.607$, $p < .001$, $\eta^2 = .16$, the effect size was large. Pairwise comparisons using a Bonferroni correlation

Table 51

Descriptive Statistics on the Choice Numbers of Japanese Expressions That the Participants Judged Included a Meaning of "So" in Each So-expression/So-participant Cluster Based on the Japanese Translation Test

		So-participant cluster		
		1	2	3
n		93	23	43
So-expression cluster	Causal/ conjunctive	7.34 (1.60)	5.43 (2.09)	4.49 (2.02)
	Non-causal/ conjunctive/ adversative	3.15 (1.78)	4.48 (1.93)	1.07 (0.99)
	Adversative	0.86 (1.01)	4.09 (1.98)	0.79 (0.91)
Average score of the placement test		*n* = 90 65.6 (14.2)	*n* = 21 48.3 (12.9)	*n* = 40 50.2 (14.9)

Note. N = 159. Standard deviations are presented in parentheses. So-participant clusters = clusters of participants based on their meaning recognition of "so" in Study 1. So-expression clusters = clusters of the Japanese expressions based on the participants' tendency to judge the expressions include a meaning of "so," which was analyzed in Study 1. The details on the three so-expression clusters are shown in Table 11. The highest possible choice number is 10 in the causal/conjunctive cluster, 9 in the non-causal/conjunctive/adversative cluster, and 12 in the non-adversative cluster. The lowest possible score is 0 in all clusters. The highest possible score for the placement test is

100, while the lowest possible score for the placement test is 0. Eight of 159 participants did not take the placement test, so $N = 151$ for the placement test.

indicated significant differences in the scores between the two cluster pairs: Clusters 1 and 2 (d = 1.83, the effect size was large); Clusters 2 and 3 (d = 0.98, the effect size was large; i.e., Cluster 1 = Cluster 3 > Cluster 2). The results showed that participants' English proficiency was significantly different, and the participants in Clusters 1 and 3 had better English proficiency than those in Cluster 2.

A two-way analysis of variance with the factors of the three so-participant clusters and two passage patterns, the patterns including "so" (Patterns BS and S) and the pattern excluding "so" (Pattern B), revealed that no significant interaction in the Japanese translation test's scores of each passage. Analysis of simple main effects confirmed a significant difference in the scores in some conditions. As for the so-excluded pattern passages (i.e., Pattern B), there was no significant difference in the average scores of the Japanese translation test between so-participant clusters in any passages, except for Passage 2 (Cluster 1 > Cluster 3, d = 1.07, the effect size was large). On the other hand, as for the so-included pattern passages (i.e., Pattern BS/S), there was a significant difference in the average scores of the Japanese translation test between so-participant clusters only in Passage 1 (Cluster 1 > Cluster 2, d = 0.81, the effect size was large; Cluster 3 > 2, d = 1.07, the effect size was large). There was no significant difference in the average scores between the two passage patterns (Patterns B and BS/S) in any so-participant clusters of any passages.

The Relationship Between the TF Test and Participants' Meaning Recognition of "But." A cluster analysis was conducted on the 146 participants based on their meaning recognition of "but" in Study 1. The analysis showed that it is possible to classify the participants into three but-participant clusters concerning the meaning recognition. Table 52 shows the descriptive statistics on the choice numbers of Japanese

Table 52

Descriptive Statistics on the Choice Numbers of Japanese Expressions That the Participants Judged that Include a Meaning of "But" in Each But-expression/But-participant Cluster Based on the TF Test

		But-participant clusters		
		1	2	3
n		33	46	67
But-expression clusters	Adversative	8.42 (1.46)	6.63 (2.16)	5.13 (1.98)
	Non-adversative	3.58 (2.34)	8.35 (3.31)	1.19 (1.60)
Average score of the placement test		51.6 (11.0)	42.6 (9.0)	48.8 (10.4)

Note. N = 146. Standard deviations are presented in parentheses. But-participant clusters = clusters of the participants based on their meaning recognition of "but" in Study 1. But-expression clusters = clusters of the Japanese expressions based on the participants' choice tendency to judge the expressions include a meaning of "but," analyzed in Study 1. The details on the two but-expression clusters are shown in Table 9. The highest possible choice number is 10 in the adversative cluster and 21 in the non-adversative cluster; the lowest possible score is 0 in both clusters. The highest possible score for the placement test is 100, while the lowest possible score for the placement test is 0.

expressions of each but-expression cluster in but-participant clusters.

The table indicates the following results. First, for Cluster 1, the choice number of Japanese expressions in the adversative cluster was high, and that in the non-adversative cluster was low. The tendency indicates that the participants in Cluster 1 recognized that "but" represents an adversative relationship strongly. Next, for Cluster 2, the participants chose a certain number of Japanese expressions as a meaning of "but" in both but-expression clusters. Therefore, the participants in Cluster 2 were less likely to recognize the relationships that the English expression "but" represents, or recognize that "but" can represent a broader range of relationships than the participants in other clusters. Finally, for Cluster 3, the tendency of the participants' choice was similar to those in Cluster 1. However, their choice number was fewer than in Cluster 1. Therefore, the participants in Cluster 3 were likely to recognize the meanings of "so" very narrowly.

A one-way analysis of variance with the factor of but-participant cluster conditions confirmed a main effect for the placement test's scores, $F(2, 143) = 8.606$, $p < .001$, $\eta^2 = .11$, the effect size was medium. Pairwise comparisons using a Bonferroni correlation indicated significant differences in the scores between the two cluster pairs: Clusters 1 and 2, $d = 0.91$, the effect size was large; Clusters 2 and 3, $d = 0.63$, the effect size was medium (i.e., Cluster 1 = Cluster 3 > Cluster 2). The results showed that participants' English proficiency was significantly different, and the participants in Clusters 1 and 3 had better English proficiency than those in Cluster 2.

A two-way analysis of variance with the factors of the three so-participant clusters and two passage patterns, the patterns including "but" (Patterns BS and B) and the pattern excluding "but" (Pattern S), revealed that no significant interaction in the Japanese translation test's scores of each passage. An analysis of the simple main effects

confirmed a significant difference in the scores in some conditions. As for the but-excluded pattern passages (i.e., Pattern S), there was a significant difference in the average scores of the TF test between but-participant clusters but only in Passage 5; the score in Cluster 1 was significantly higher than in Cluster 2, $d = 1.02$, the effect size was large. On the other hand, as for the but-included pattern passages (i.e., Pattern BS/B), there was a significant difference in the average scores on the TF test between but-participant clusters only in Passage 3; The scores in Clusters 1 and 3 were significantly higher than in Cluster 2, $d = 0.85$ (the effect size was large) and 0.66 (the effect size was medium), respectively. There was no significant difference in the average scores between the two passage patterns in any but-participant clusters and any passages.

The Relationship Between the TF Test and Participants' Meaning Recognition of "So." A cluster analysis was conducted on the 146 participants based on their meaning recognition of "so" in Study 1. The analysis showed that it is possible to classify the participants into three so-participant clusters concerning meaning recognition. Table 53 shows the descriptive statistics on the choice numbers of Japanese expressions of each so-expression cluster in so-participant clusters.

The table indicates the following results. First, for Cluster 1, the average choice number of Japanese expressions in the causal/conjunctive relationship was large, and the choice numbers in the non-causal/conjunctive/adversative relationship and the adversative relationship were shallow. The tendency indicates that the participants in Cluster 1 recognized that the English connective expression "so" represents a causal/conjunctive relationship strongly. Next, for Cluster 2, the participants' choice number of Japanese expressions in the adversative cluster and the non-causal/conjunctive/adversative cluster was meager. Moreover, the choice number in the

Table 53

Descriptive Statistics on the Choice Numbers of Japanese Expressions That the Participants Judged that Include a Meaning of "So" in Each So-expression/So-participant Cluster Based on the TF Test

		So-participant clusters		
		1	2	3
n		32	40	74
So-expression clusters	Causal/ conjunctive	7.28 (1.31)	3.45 (1.67)	7.72 (2.00)
	Non-causal/ conjunctive/ adversative	3.27 (1.85)	1.83 (1.32)	6.50 (1.95)
	Adversative	2.04 (2.02)	1.53 (1.95)	4.16 (2.17)
Average score of the placement test		47.3 (10.8)	46.6 (11.0)	48.1 (10.5)

Note. N = 146. Standard deviations are presented in parentheses. So-participant clusters = clusters of the participants based on their meaning recognition of "so" in Study 1. So-expression clusters = clusters of the Japanese expressions based on the participants' choice tendency to judge the expressions include a meaning of "so," analyzed in Study 1. The details on the two so-expression clusters are shown in Table 11. The highest possible choice number is 10 in the causal/conjunctive cluster, 9 in the Non-causal/conjunctive/adversative cluster, and 12 in the non-adversative cluster; The lowest possible score is 0 in all clusters. The highest possible score of the placement test is 100, while the lowest possible score of the placement test is 0.

causal/conjunctive cluster was lower than that in Cluster 1. The tendency indicates that the participants in Cluster 2 recognized that the English connective expression "so" represents a causal/conjunctive relationship, and they recognize the meanings very narrowly. Finally, for Cluster 3, the participants chose a certain number of Japanese expressions in every cluster. Therefore, the participants in Cluster 3 were less likely to recognize the relationships that the English expression "so" represents, or recognize that "so" can represent a broader range of relationships than the participants in other clusters.

A one-way analysis of variance with the factor of but-participant cluster conditions confirmed a main effect for the placement test's scores, $F(2, 143) = 0.275$, $p = .760$, $\eta 2 = .00$, the effect size was very small. The result showed that participants' English proficiency was not significantly different in the three clusters.

A two-way analysis of variance with the factors of the three so-participant clusters and two passage patterns, the patterns including "so" (Patterns BS and S) and the pattern excluding "so" (Pattern B), revealed no significant interaction in the TF test's scores of each passage. Also, the analysis of simple main effects confirmed no significant difference in the scores in any conditions.

Discussions

Discussion for Research Question 1

Research Question 1 is, "Are there any differences in the degree of Japanese EFL learners' understanding of English passages with 'but' and passages without 'but,' the connective expression representing an adversative relationship?" The results of this study showed the tendency that the passage patterns including "but" got a higher score than the passage pattern excluding "but." The tendency was confirmed in both the

Japanese translation test and the TF test. Even though the average scores were not significantly different in most cases, except for Passage 2 of the Japanese translation test, it is worth noting that the tendency was confirmed in every passage in both tests. The results suggest that the appearance of "but" in passages might influence Japanese EFL learners' understanding of them—they might understand English passages more deeply when "but" is shown explicitly in an adversative relationship.

Discussion for Research Question 2

Research Question 2 is, "Are there any differences in the degree of the learners' understanding of English passages with 'so' and passages without 'so,' the connective expression representing a causal/conjunctive relationship?" The results of this study showed no certain tendency in the differences in the average score of the tests between the passage patterns including and excluding "so." Also, there is no significant difference indicating that the passage patterns including "so" got a higher score than the passage pattern excluding "so" in the Japanese translation test and the TF test. The descriptive statistics, as shown in Tables 42 and 47, did not show the tendency as well. These results suggest that the appearance of "so" in passages might not influence Japanese EFL learners' understanding of them—the extent to which they understand English passages might not change even if "so" is shown explicitly in a causal/conjunctive relationship or not. Moreover, compared to the suggestion discussed in the previous section, the connective expression "but" might be more likely to influence Japanese EFL learners' understanding of English passages than "so."

Discussion for Research Question 3

Research Question 3 is, "Are there any differences in the results of Research

Questions (1) and (2) depending on the learners' English proficiency?" This study showed no significant interaction between the passage patterns including and excluding "but" in the average scores of the Japanese translation test and the TF. As for the passage patterns including and excluding "so," there was also no significant interaction in the tests. The results suggest that the influence of the appearance of the connective expressions "but" and "so" on Japanese EFL learners' understanding of English passages might not change depending on their English proficiency.

However, the participants of this study were limited to those regarded as Japanese EFL university students with lower English proficiency. Therefore, the suggestion above might be adapted to them; that is, the influence of the appearance of the connective expressions "but" and "so" might not change, at least if learners' proficiency is low. On the other hand, the results of this study suggest that the effect of the connective expression "but" on their understanding of English passages might change under certain conditions. The next section discusses that point in detail.

Discussions for Research Question 4

Research Question 4 is, "Are there any differences in the results of Research Questions (1) and (2) depending on how learners recognize the meanings of 'but' and 'so'?" This section discusses the influence of their recognition of "but" first and their recognition of "so" second.

Discussion as to the Influence of the Participants' Meaning Recognition of "But" on the Test Scores. The results of this study suggest that the influence of the appearance of "but" in English passages on Japanese EFL learners' understanding of those passages might change depending on their recognition of the meanings of "but."

First, the results of the Japanese translation test showed no significant differences between but-participant cluster groups in the but-excluded passage pattern, except for Passage 1, as shown in Table 50. It suggests that the extent to which they understood the English passages without "but" might be almost the same in the four cluster groups. However, the analyses confirmed a significant difference between the but-participant cluster groups in their placement test scores, which suggests that their English proficiency might be different depending on their cluster group. Therefore, the answers to the but-excluded passages in the Japanese translation test might not reflect their English proficiency.

On the other hand, as for the but-included passage patterns, the analyses confirmed a significant difference between but-participant clusters in the Japanese translation test scores for four of the five passages. In the four passages, the participants in Clusters 1 and 4 tended to have a significantly higher score than those in Clusters 2 and 3. As described in the Results section, the participants in Clusters 1 and 4 recognized that the connective expression "but" represents an adversative relationship. and those in Clusters 2 and 3 recognized the relationship of "but" insufficiently. The results suggest that the appearance of the connective expression "but" in English passages might be useful in Japanese EFL learners' understanding of those passages if they recognize the meanings of "but" correctly.

Also, the results suggest that the influence of the connective expression "but" on Japanese EFL learners' understanding of English passages might be revealed when they achieve a certain English proficiency level. The average scores of participants' placement test in Clusters 1 and 4 were significantly higher than in Clusters 2 and 3. The results suggest that Japanese EFL learners' recognition of the meanings of "but" might be related to their English proficiency; the higher their English proficiency is, the

more strongly they might connect the connective expression “but” with an adversative relationship. In other words, Japanese EFL learners with lower English proficiency cannot recognize the meanings and functions of “but” correctly, resulting in the less influence of the connective expression on their understanding of English passages.

In Passages 2 and 3 with the but-included patterns, there was a significant difference in the average scores of the Japanese translation test between Clusters 2 and 3. However, there was no significant difference in their placement test scores between the clusters. The results suggest that Japanese EFL learners’ meaning recognition of “but” might influence the effect of the connective expression on their understanding of English passages more than their English proficiency. As described in the result section, participants in Cluster 2 tended to choose fewer Japanese expressions both in the adversative and non-adversative clusters as a meaning of “but” than those in other clusters. On the contrary, participants in Cluster 3 tended to choose more Japanese expressions both in the adversative and non-adversative clusters. These tendencies suggest that the influence of “but” on Japanese EFL learners’ understanding of English passages might be more substantial for Japanese EFL learners who recognize the meanings and functions of the connective expression “but” more narrowly, even if their English proficiency is the same.

The results of the TF test indicate similar suggestions to those in the previous paragraphs. There was a significant difference in the average score of the TF test between but-participant clusters in one passage with but-included patterns; participants in Clusters 1 and 3 had a higher score than those in Cluster 2. As described in the result section, the participants in Clusters 1 and 3 recognized that the connective expression “but” represents an adversative relationship. Those in Cluster 2 recognized the relationship of “but” insufficiently. The results suggest that the appearance of the

connective expression “but” in English passages might be useful in Japanese EFL learners’ understanding of them if they recognize the meanings of “but” correctly. Also, the average scores of the participants’ placement test in Clusters 1 and 3 were significantly higher than that in Cluster 2. The results suggest that Japanese EFL learners’ English proficiency might be related to their meaning recognition of “but,” and the influence of the connective expression “but” on Japanese EFL learners’ understanding of English passages might be revealed when they achieve a certain level of English proficiency and the meaning recognition of “but.” These suggestions correspond to the suggestions based on the results of the Japanese translation test.

However, one limitation requires consideration concerning the suggestions: Only one passage of the five with but-included patterns confirmed a significant difference between clusters in the TF test. It implies that the appearance of the connective expression “but” might not always contribute to Japanese EFL learners’ understanding of English passages.

Discussion as to the Influence of the Participants’ Meaning Recognition of “So” on the Test Scores. The results of this study suggest that the appearance of the connective expression “so” in English passages might not be likely to influence Japanese EFL learners’ understanding of them. The Japanese translation test results showed no significant differences between so-participant cluster groups in the so-included passage pattern, except for Passage 1. Compared to the results concerning “but,” the significant differences in four of the five passages, the results concerning “so” showed more limited differences. Also, as for the comparison within so-participant clusters, the analyses confirmed no significant differences in the average scores of the Japanese translation test between the so-included patterns and the so-excluded pattern in

any of the five passages. These results suggest that, as far as this study confirmed, the appearance of the connective expression “so” in English passages might contribute little to Japanese EFL learners’ understanding under any conditions. The influence of the appearance of “so” on their understanding might not be as strong as that of the appearance of “but” or might be very limited.

As for the so-participant clusters in Task 1, those in Clusters 1 and 3 recognized that the connective expression “so” represents a causal/conjunctive relationship, as described in the result section. However, their average Japanese translation test scores did not tend to be significantly higher than those of Cluster 2 participants. These tendencies suggest that the influence of the appearance of the connective expression “so” in English passages on Japanese EFL learners’ understanding of them might be small even though they recognize that the connective expression represents a causal/conjunctive relationship. In other words, even if Japanese EFL learners recognize a causal/conjunctive relationship in English passages correctly, the recognition might not tend to contribute to their understanding of the passages. Therefore, the suggestions might be expanded from the word-specific problem to the relationship-specific problem: all of the connective expressions representing a causal/conjunctive relationship, including “so,” might have little influence on Japanese EFL learners’ understanding of English passages.

The results of the TF test indicate similar suggestions to those in the previous paragraphs. As for the passages with so-included patterns, there was no significant difference in the average scores of the TF test between so-participant clusters. There were only a few significant differences in the TF tests concerning “but,” as mentioned in the previous section, but the analyses concerning “so” confirmed no significant differences under any conditions. The results suggest that the influence of the

appearance of the connective expression “so” in English passages on Japanese EFL learners’ understanding of them might be small, and the influence might be smaller than that of “but,” as discussed in the previous section.

There was no significant difference in the placement test scores between the so-participant clusters of the participants in Task 2. The result was different from that of but-participant clusters of the participants in Task 1, the participants in Task 2, and so-participant clusters of the participants in Task 1; as for the but/so-participant cluster groups, the placement test scores were significantly different between the clusters. The results suggest that Japanese EFL learners’ meaning recognition of the connective expression “so” might be less related to their English proficiency than “but.” As described in the result section, as for the three so-participant clusters of the participants in Task 2, Clusters 1 and 2 included participants who recognized the meanings and functions of “so” as a causal/conjunctive relationship to a certain level. In contrast, participants in Cluster 3 did not tend to have a correct recognition of “so.” In other words, Japanese EFL learners with higher English proficiency might not always have a meaning recognition of the connective expression “so” more deeply.

Table 38 shows that the placement test average score of the participants of Task 1 was lower than that of Task 2. Considering the difference, the results described above suggest that a certain level of English proficiency might be necessary for connective expressions to contribute to learners’ understanding of English passages. In other words, even if Japanese EFL learners recognize that the connective expression “so” represents a causal/conjunctive relationship, the recognition might not contribute to their understanding of English passages unless they achieve a certain level of English proficiency. As for “but,” there was a significant difference in some conditions, suggesting that the meaning recognition of “so” is less likely to lead to their deeper

understanding of English passages.

Discussion for Research Question 5

Research Question 5 was, "Do Japanese phrases corresponding to 'but' and 'so' tend to appear when the learners are asked to translate passages with 'but' and 'so' into their native language, Japanese? Is there a difference between the ratio of Japanese phrases corresponding to 'but' and 'so' in their translations? Are there any relationships between the presence or absence of the Japanese phrases and their understanding of English passages?" The results of this study showed that participants' translation tended to include Japanese expressions corresponding to the connective expression "but" more than "so," as shown in Table 44. The analyses confirmed that the ratio of the number of participants who translated "but" was significantly higher than the ratio of the number of people who translated "so" in four of the five passages. The results indicate that they tended to ignore the meanings of "so" when they translated English passages into Japanese, suggesting that the meanings of "so" might not be as important for Japanese EFL learners' understanding of English passages as "but." In other words, the appearance of the connective expression "so" in English passages might not influence their understanding, even though they understand the meanings and functions.

It is worth noting that some Japanese expressions in the participants' translations of "so" were not correct. "So" was translated into "*dakara*" by two participants in Passage 2, seven participants in Passage 3, and seven participants in Passage 4. It might not be natural to translate "so" into "*dakara*" in these three passages. These "so" usages represent an inferential relationship, corresponding to the Japanese expression "*jaa*" (Matsuo et al., 2015, p. 201). Nihongo Kizyutu Bunpô Kenkyûkai (2009) explains that "*dakara*" represents a judgment based on the previous context or an additional

explanation (p. 63). Therefore, the translation "*dakara*" in the passages might indicate that they did not correctly understand the meanings of the connective expression or the whole passages. It suggests that the appearance of "so" in English passages might influence Japanese EFL learners' understanding of them not only a little but also negatively; in other words, it might hinder their understanding.

Summary of Findings

(1) For Japanese EFL learners with low English proficiency, the appearance of the connective expression "but" in English passages might contribute to their understanding of them under some conditions, such as if they recognize that "but" represents an adversative relationship. Also, their English proficiency is related to their meaning recognition of the connective expression "but," and learners might need a certain level of both abilities in order for "but" to contribute to their understanding. Furthermore, even if they do not recognize the meanings of "but" correctly, the influence of the appearance of "but" in English passages on their understanding of them might be different depending on how they recognize the meanings of "but."

(2) For Japanese EFL learners with low English proficiency, the appearance of the connective expression "so" in English passages might contribute little to their understanding of them, and more weakly than "but." Even if they recognize the meanings of "so" to some extent, the connective expression might not influence their understanding of English passages. The connective expressions representing a causal/conjunctive expression other than "so" might have a similar tendency. Also, Japanese EFL learners who recognize the meanings of "so" correctly are not necessarily better at English than learners who do not recognize it incorrectly. It suggests that they

might need both to recognize the meanings of “so” correctly and achieve a certain level of English proficiency in order for the connective expression “so” to contribute to their understanding of English passages.

(3) In Japanese EFL learners’ translation of English passages into Japanese, the Japanese expressions corresponding to the connective expression “so” tended to be less included than “but.” It suggests that they might pay little attention to the connective expression “so” in English passages when they read them. Also, the meanings of the connective expression “so” are broad, suggesting that the expression might not influence learners’ understanding, and it also might hinder their understanding.

Conclusion

The purpose of this study is to reveal the influence of the connective expressions “but” and “so” on Japanese EFL learners’ understanding of English passages. A questionnaire and experiment survey to Japanese EFL university students with their low English proficiency with two comprehension tests suggests that the appearance of “but” in English passages might have a more massive effect on their understanding of them than “so.” Even learners with lower English proficiency tended to recognize that “but” represents an adversative relationship, resulting in a more substantial influence. On the other hand, the appearance of “so” in English passages might have a small, or no, effect. One possible contributor to this finding is that they tend to recognize the meanings of “so” incorrectly, but it is also possible that the extent to which they recognize the meanings of “so” is not related to the extent to which the appearance of “so” in English passages influences their understanding of them. In addition, they did not tend to translate “so” when they translate English passages into Japanese, which suggests that

learners might not emphasize the presence of “so” when they understand English. These findings generally show that the connective expression “but” is more likely to influence, and “so” is less likely to influence, Japanese EFL learners’ understanding of English.

General Discussion

The current research was conducted to answer the six main research questions described in the introduction chapter. This chapter first describes the discussions for each main research question based on the results of the three studies in the previous chapters.

Discussions for Main Research Question 1

Main Research Question (1) is, "How is the effect of the appearance of connective expressions in English texts on Japanese EFL learners' comprehension of contexts?" Partial support was found for the hypothesis that the appearance of connective expressions may influence learners' comprehension of contexts positively. The results of Study 3 showed that, for the Japanese translation test, passages with the "but"-included patterns (Patterns BS and B) got a higher score than the "but"-excluded pattern (Pattern S) in all five passages, even though the difference was significant only in one of the five passages. The results of the TF test also showed the same tendency, even though the average score differences were slight. The results of connective expressions' positive influences on comprehension of contexts were consistent with the findings of previous studies (Chung, 2000; Koda, 2002; Mirdamadi, 2010; Ozono & Ito, 2005), suggesting that Japanese EFL learners might understand English passages more easily when the passages include more connective expressions.

On the other hand, the results also supported the hypothesis that the connective expression "but" would have a positive effect on Japanese EFL learners' comprehension of contexts while the effects of "so" might be limited. Study 3 showed that, for the Japanese translation test, the "so"-included patterns (Patterns BS and S) got a higher score than the "so"-excluded pattern in only one passage, and the difference was small.

Pattern S also got a lower score than Pattern B in all five passages. The results suggest that the effects of connective expressions on Japanese EFL learners' comprehension of contexts might vary depending on the expressions. In other words, the connective expression "but" might have a stronger effect than the connective expression "so." The current results support previous studies concluding that adversative expressions might facilitate reading comprehension better than causal expressions (Koda & Amano, 2004; Murray, 1994; Sato, 2015).

However, the results of the TF tests in Study 3 showed little difference in the mean scores between Pattern B and Pattern S. There are two possible reasons. One is the number of question items. The expectation value of the TF test score from guessing alone was two, resulting in a narrower range of scores than the Japanese translation test. The other reason is that the difference in the effects on the comprehension of contexts between connective expressions might not be so large as to influence the score of multiple-choice tests. Many previous studies that conclude connective expressions influence the comprehension of contexts have adopted free-recall tests in their experiments. These results suggest that connective expressions might improve free recall test scores, but not multiple-choice test scores. One possible reason for the difference is that connective expressions influence readers' retention of a text's content, not their comprehension itself. Sato (2015) showed that Japanese EFL learners tended to retain the sentence following an explicit "but" in English passages through the analysis of free recall tests. Tasks with high cognitive processing, such as reading, require both information processing and short-term information retention of the brain (Kadota & Noro, 2001, p. 127). Based on the literature, the results of the current research imply that the appearance of the connective expression "but" in English texts partially influences Japanese EFL learners' retention of content. On the other hand, if the

hypothesis is correct, it also suggests that the appearance of the connective expression "so" in English texts might not influence their comprehension or retention.

Some previous studies have found that connective expressions influence the reading of learners with a lower proficiency (Chung, 2000; Meyer et al., 1980), and the results of the current research showed a consistent finding. Participants of Study 3 had a relatively low English proficiency, as shown in Table 38, and their reading scores were influenced by connective expressions, at least "but." It partially supports the hypothesis in the previous studies above. One possible reason for the effect only on lower proficient learners is that they cannot recognize relationships between sentences or paragraphs of texts until they find explicit expressions representing the relationships. As Kanatani et al. (2012) mention, connective expressions are guideposts showing the logical development of texts to readers, and therefore, paying attention to the guideposts is thought to facilitate their reading comprehension. In other words, learners with a higher language proficiency might not need to pay attention to the expressions because they can grasp the relationships of texts by themselves, without any guideposts. Taken together, the above results suggest that the appearance of connective expressions might influence Japanese EFL learners' reading ability, at least for learners with low English proficiency. However, the results also showed that the connective expression "so" had little influence on the learners, suggesting that not all connective expressions might influence learners' comprehension of contexts. The difference between "but" and "so" cannot be explained by VanPatten's (2002) hypothesis that learners tend to precede lexical processing over grammatical processing or Pokrovska's (2003) hypothesis that learners tend to pay little attention to connective expressions because of their similar characteristics to functional words; both "but" and "so" belong to the same part of speech, conjunctions. The current research implies that connective expressions' effects

on comprehension of contexts, or reading processing, vary depending on the expressions, or the meanings represented by the expressions.

Discussions for Main Research Question 2

Main Research Question (2) is, "How do Japanese EFL learners recognize the meanings of connective expressions?" Partial support was found for the hypotheses that they would recognize the meanings of "but" and "so" at a certain level, but that they would not recognize them adequately. The results of Study 1 showed that, as for "but," both the higher group and the lower group tended to recognize that the expression represents an adversative relationship. In other words, their meaning recognition of "but" was correct at a certain level. The results of Study 3 showed that participants tended to write Japanese expressions corresponding to "but," such as "*shikashi*," in their Japanese translation when they read a passage including "but." It also suggests Japanese EFL learners' appropriate meaning recognition of the expression. The results were consistent with the suggestions of Kadota (1998). The current research partially illustrated his hypothesis that adversative relationships, the reversed relationship in Kadota, are easy for Japanese EFL learners to understand because the relationships might get into the human structures of their conceptual understanding easily.

On the other hand, the results were not consistent with those of Ikeda (1999, 2007, 2008) and Ozono (2002). They suggested that it might be difficult for Japanese EFL learners to understand adversative, or reversed, relationships. The current research, however, showed that even the lower group understood the meanings of "but" at a certain level. One possible reason is the difference in research methods. Ikeda presented two-sentence pairs without connective expressions to participants and they chose one relationship for each two-sentence pair from alternatives. Ozono presented passages

with blanks to participants and they chose one connective expression for each blank from alternatives. Their methods had in common that participants had to understand the relationships without connective expressions. In the current study, participants chose the relationships of connective expressions themselves. These results lead to the hypothesis that Japanese EFL learners' understanding of adversative relationships strongly depends on the appearance of connective expressions representing the relationship taking the difference into consideration. They might tend to recognize an adversative relationship in English texts only if there is a connective expression such as "but" and "however." The hypothesis can explain the results of the previous studies; it might be difficult for Japanese EFL learners to grasp an adversative relationship without connective expressions. It can also explain the results of the current research; Japanese EFL learners learn the meanings and functions of "but" at their early learning stage because it is essential for reading processing of adversative relationships, and they pay attention to "but" for understanding an adversative relationship, leading to the high frequency of Japanese expressions corresponding to "but" in their translation. However, one problem remains to be solved: inconsistency with Kadota's result.

Another possible explanation is that the participants in Study 1 actually did not understand the meanings of "but" enough to recognize the relationships represented by the expression. First, the results of Study 1 showed that the choice rate of the lower group for the meanings of "but" as to the adversative cluster was 67.8%, and the higher group, 82.3% (see Table 13). They can be interpreted as high rates. On the other hand, Table 7 shows that "*shikashi*," "*daga*," and "*tokoroga*" gained an extremely high choice rate in both lower and higher groups, while other adversative relationships did not tend to gain such a high rate, such as "*soredemo*" (69% in the higher group and 53% in the lower group) and "*sorenanoni*" (80% in the higher group and 63% in the lower group).

Both Japanese expressions belong to the adversative category as well as "*shikashi*," "*daga*," and "*tokoroga,*" as Table 22 shows, but the choice rates for the meanings of "but" were different. The results suggest that Japanese EFL learners, especially with a lower English proficiency, might recognize that "but" corresponds to "*shikashi*" and "*daga*" in Japanese, but might not have a recognition at a higher level: "But" represents an adversative relationship. If the hypothesis is correct that their meaning recognition of "but" remains at the one-to-one or word-to-word level, Ozono's results can be partially explained: Test-takers might not choose "but" or "however" for blanks even if they understand that the relationship is adversative, because the Japanese expression "*shikashi*" is unnatural for blanks in their Japanese translation.

On the contrary, there is also a possibility that Japanese EFL learners' meaning recognition of "but" might be inappropriately wide. The results of Study 1 showed that the lower group tended to recognize that "*samonaito*" is a meaning of "but," while the higher group did not show the tendency. The Japanese expression does not belong to the adversative category in any of the three Japanese classification types in Table 22, and also it is not related to "but" in any dictionaries except for Taishukan (1998). The results suggest that Japanese EFL learners with a lower English proficiency might not grasp the concept of an adversative relationship, or an adversative relationship in their recognition (i.e., their interlanguage) might be wider than the one in the language really is.

Taken together, the discussion implies that the first hypothesis is the most plausible one: Japanese EFL learners' understanding of adversative relationships strongly depends on the appearance of connective expressions representing the relationship. The hypothesis can explain more results of the current and previous research.

As for "so," the results of Study 1 showed that the higher group tended to

recognize that “so” represents a causal/conjunctive relationship, while the lower group did less. Two “so”-expression clusters in the higher group, shown in Tables 12 and 14, suggest that they might judge whether each Japanese expression corresponds to “so” or not based on whether it represents a causal/conjunctive relationship or not. On the other hand, there were three “so”-expression clusters in the lower group: Causal/conjunctive, Non-causal/conjunctive/adversative, and Adversative. As Table 14 shows, 39.9% of the Japanese connective expressions in the non-causal/conjunctive/adversative cluster on average was chosen as a meaning of “so” by the lower group. The results suggest that there were two subgroups in the lower group. The first group judges whether each Japanese expression corresponds to “so” or not based on whether it represents a causal/conjunctive relationship or not. The second group judges whether each Japanese expression corresponds to “so” or not based on whether it represents an adversative relationship or not. The results of Study 3 showed the existence of the latter group, Cluster 3 in Table 53. Moreover, Table 16 shows that the correlation coefficient between TOEIC Bridge scores and the choice numbers of Japanese expressions in the non-causal/conjunctive/adversative cluster as a meaning of “so” in the lower group was significantly negative (r = -.121). It suggests that the more proficient in English Japanese EFL learners become, the fewer Japanese expressions in the cluster they might choose to be a meaning of “so.” Therefore, Japanese EFL learners’ recognition of the meaning of “so” might depend on their English proficiency.

The tendency to recognize the meaning of “so” is consistent with the previous studies that suggested that Japanese EFL learners overuse the expression (Hayasaka, 1992; Shimada, 2013). The results in the current research can explain the overuse-phenomenon: Japanese EFL learners tend to over-recognize the meanings of “so” at the early learning stage, leading to their overuse of “so.” They might use “so” in various

syntactic relationships if they believe that it can represent wider relationships than just an adversative one. Also, the results can explain the findings of Hayasaka (1992): Japanese EFL learners overuse "so," but they can understand it in reading as well as native English speakers. They tend to understand that "so" represents a causal relationship, represented by "*dakara*" or "*shitagatte*" in Japanese, as Table 8 shows, so it might be natural that they can understand it while reading. The problem is that they also recognize that "so" can represent other relationships, which might lead to their overuse of the expression.

There is another piece of evidence for the possibility that Japanese EFL learners' meaning recognition of "so" is inappropriately wide. One Japanese expression of the ten in the causal/conjunctive cluster showed a lower choice rate in the higher group than the lower group: "*soshite*." Table 9 shows that 61% of the higher group chose "*soshite*" as a meaning of "so," while 71% of the lower group did. The tendency was more notable in Task 2: Table 20 shows that only 29.3% of the participants in the higher group who answered the correct answer "*soshite*" for Passage 3 judged that "so" can replace "*soshite*" in English, while 72.2% of the participants in the lower group judged it so. It was a unique characteristic in the causal/conjunctive cluster. The Japanese expression does not belong to the causal or conjunctive categories in any of the three Japanese classification types in Table 24, and also, it is less likely to be related to "so" in dictionaries, as shown in Table 25. These results suggest that Japanese EFL learners might shrink the meaning range of "so" as they develop their English proficiency. Their wide meaning range might influence their overuse of "so."

The results showed that Japanese EFL learners tend to have the meaning recognition of "but" more appropriately than "so." As Table 7 shows, 100% of the participants in the higher group chose "*shikashi*" and "*daga*" as a meaning of "but," and

98% and 96% of those in the lower group chose these words, respectively, as well. As Table 8 shows, on the other hand, not all of the participants in the higher group chose "*dakara*" and "*shitagatte*" as a meaning of "so." Moreover, 83% of those in the lower group chose "*tsumari*," which corresponds to "that is to say" in general as a meaning of "so," which was the highest choice rate of all of the 31 Japanese expressions. The results of Task 2 in Study 1 also showed a similar tendency. Therefore, there is a possibility that Japanese EFL learners with a lower English proficiency recognize that the core meaning of "so" is "*tsumari*" in Japanese, suggesting their insufficient knowledge of the expression. These results imply that the acquisition of "so" might be slower than the acquisition of "but." Some possible reasons are discussed in the following section in detail.

Discussions for Main Research Question 3

Main Research Question (3) is, "what are the relationships between Japanese EFL learners' meaning recognition of connective expressions and the appearance in their learning environment?" The results of Study 2 showed that the frequency of the appearance in textbooks for Japanese EFL learners varied depending on connective expressions. There was a tendency that the connective expression "but" appears more frequently than "so" in general. The result is consistent with the results of Fukazawa's (2000) analysis of high school textbooks and Shimada's (2013) analysis of older versions of junior high school textbooks (see Tables 5 and 6). In addition, the results of the current research showed that entrance examinations in Japan also had the same tendency as textbooks, "so" appears less frequently than "but," both in reading passages and in audio scripts. There are two possible suggestions from the results: The connective expression "so" tends to appear less frequently than "but" in passages and

audio scripts for Japanese EFL learners, or it tends to appear less frequently in general. However, the latter suggestion is plausible for two reasons. First, not all passages in entrance examinations are written for Japanese test-takers from the beginning. They use some existing passages, including ones for native English speakers, even though test-makers usually rewrite a part of the passages. Second, previous studies have found that connective expressions representing an adversative relationship tend to appear explicitly in Japanese passages, and connective expressions representing a causal or conjunctive relationship tend not to appear in Japanese passages (Ishiguro, 2008), suggesting that the tendency might not depend on languages.

The results of the current research also showed that the frequency of the appearance of "but" in textbooks and entrance examinations tended to increase in accordance with their grade, and that of "so" tended to decrease. These results are consistent with Shimada's (2013) research. This might be an explanation of Japanese EFL learners' meaning misrecognition of "so" compared to "but." The low frequency in textbooks and other materials suggests that Japanese EFL learners might not have enough opportunities to reconstruct their meaning recognition. In other words, they might not acquire the meanings and functions of "so" better in accordance with their grade, or possibly their English proficiency. On the other hand, the high frequency in textbooks and other materials suggests that they might have enough opportunities to construct their appropriate meaning recognition. Therefore, they can acquire the meanings and functions of "but" better than "so," as shown in the current research.

The low frequency of "so" in textbooks and other materials can also explain Japanese' EFL learners' overuse of the expression. They might set the meaning range of "so" wide in their interlanguage first, and have no opportunities to reset it narrower because of the low frequency in textbooks. On the other hand, there has been an

insistence that more often, children tend to use connective expressions with a higher frequency in textbooks (Kuroda, 2010). The results in terms of "so" (its low frequency in textbooks and the tendency toward overuse) are inconsistent with the insistence. There are two possible reasons for the inconsistency. First, the frequency of "so" might not actually be low, even though it is relatively low compared to "but." The possibility suggests that the connective expression acquisition might be difficult even if textbooks include connective expressions with a high frequency. Second, Japanese EFL learners might tend to overuse connective expressions regardless of their frequency in textbooks. As mentioned in the introduction, many previous studies have noted this tendency. Furthermore, Shimada's (2011) finding that the frequency with which learners use connective expressions tends to increase as they become more proficient suggests that Japanese EFL learners' developmental stage with the overuse of connective expressions might be broad. Hori's (2013) finding that L2 learners of Japanese tend to use more kinds of connective expressions in accordance with their learning development suggests that Japanese EFL learners might overuse "so" because they use only the expression for a causal/conjunctive relationships. In other words, as they become more proficient in English, they might use connective expressions for causal/conjunctive relationships other than "so" more often, leading to the tendency for it to be used less often. In both cases, the current research can conclude that its frequency in textbooks does not relate directly to the frequency with which learners use it. Its frequency in textbooks should influence learners' acquisition, such as their meaning recognition, therefore resulting in some tendencies in their use.

Furthermore, the low frequency of "so" in textbooks and other materials could explain Ikeda's (1999, 2007, 2008) and Ozono's (2002) findings that Japanese EFL learners understand a causal relationship more easily than an adversative or reversed

relationship. In their respective studies, participants had to understand the relationship between sentences without connective expressions. The low frequency of “so” in textbooks and other materials suggests that learners might get used to reading, or at least have some opportunities to read, English passages that include a causal/conjunctive relationship without explicit connective expressions. Therefore, the participants in their studies were able to grasp a causal relationship more easily.

The results of the current research also showed the difference of the first appearance between “but” and “so,” as well as the frequency, in junior high school textbooks for Japanese EFL learners. The connective expression “but” appears earlier than “so” in most textbooks, and it is a possible explanation for the suggestion that Japanese EFL learners can acquire “but” earlier than “so.” There is a textbook in which the first “so” as a connective expression appears about two years later than the first “but” as a connective expression, suggesting that learners with the textbook might start to learn “so” two years later than “but.” In addition, the first “so” in some textbooks is not always used as a connective expression. In other words, the textbooks do not treat “so” used as a connective expression as a new word, suggesting that Japanese EFL learners might not have an opportunity to study the meanings and functions appropriately. It also suggests that there might not be an established teaching instruction of “so.” As reviewed in the introduction chapter, the previous literature in the field of English education has proposed teaching methods focusing on connective expressions, but few teaching methods of connective expressions themselves have been proposed. One possible and plausible reason is that teachers and researchers think that teaching the meanings of connective expressions such as “so” does not require elaborate skills. However, the results in the current research suggest that teachers might not teach the meanings in the first place, at least for “so.” Ishiguro (2008) points out that it is

challenging for teachers of Japanese to teach connective expressions to learners of Japanese. The current research suggests that it should apply to Japanese EFL learners: Teachers and researchers should recognize that teaching connective expressions is challenging. Also, the following suggestion is possibly necessary: Teachers should teach connective expressions.

Next, the difference between the variety of "but" and "so" in textbooks and entrance examinations should be discussed. The results of Study 2 showed that Japanese junior high school students study three phrases including "but" at most, as well as "but" as an adversative expression, while they study 11 phrases and expressions including "so" at most, as well as "so" as a causal/conjunctive expression. As for the Center Test, test-takers had to understand only three phrases including "but" at most, most of which correspond to the phrases in junior high school textbooks. On the other hand, they had to understand 13 phrases and expressions including "so" at most, as well as the causal/conjunctive "so." The variety of "so" in textbooks and entrance examinations can explain the low extent to which Japanese EFL learners appropriately recognize the meanings and functions of "so," and the wide range of their meaning recognition of "so" in their interlanguage. Many kinds of "so" might lead to learners paying less attention to the function as a causal/connective expression. They might also judge that the meaning range is wide because it is used in many phrases.

Finally, it is worth noting that the first appearance of "but" in junior high school textbooks for Japanese EFL learners tends to be stable, regardless of the kinds of textbooks. It suggests that their first experience of "but," or the way and time of their first learning of "but," might not vary significantly depending on their textbooks. The results of Study 1 showed that even the lower group chose "*shikashi*" and "*daga*" as a meaning of "but" mostly—98% and 96%, respectively—and little individual difference

might be owed to little difference between textbooks. In conclusion, the current research found support for the hypothesis that some characteristics of connective expressions in textbooks and other materials for Japanese EFL learners, such as their frequency and first appearance, would be related to learners' meaning recognition of them.

Discussions for Main Research Question 4

Main Research Question (4) is, "How are the relationships between MRQs (1) to (3)?" As discussed above, the appearance of "but" and "so" in textbooks and entrance examinations for Japanese EFL learners might influence the meaning recognition of their meanings and functions, and the relationship between the appearance and the meaning recognition might also influence the effects of the expressions on their comprehension of contexts. The results of Study 1 showed that they tend to consider "but" in strong relation to an adversative relationship, and the results of Study 2 showed that "but" tends to appear in the role of an adversative expression in most cases in textbooks and entrance examinations. It seems reasonable to suggest that "but" is strongly related to an adversative relationship in their interlanguage. Therefore, "but" in passages functions as a marker of an adversative relationship for them, leading to the improvement of their comprehension of contexts, as shown in Study 3.

On the other hand, there can be another explanation suggesting that the relationship between the meaning recognition and the effect on the comprehension of contexts might not be as strong as discussed above. Connective expressions representing an adversative relationship tend to appear explicitly in the relationships in texts (Ishiguro, 2008; Sato, 2011; Takagaki, 2010). In other words, their understanding of an adversative relationship might depend on explicit connective expressions. If the effect called in this research is actually the dependence, it does not seem reasonable to

insist that adversative expressions influence Japanese EFL learners' comprehension of contexts positively; it is more reasonable to insist that excluding adversative expressions influences their comprehension of contexts negatively. In this case, the influence is attributed to no explicit expressions, so the relationship between the meaning recognition of explicit expressions and the comprehension of contexts is less related to each other. The latter explanation also seems to give little pedagogical implications to Japanese EFL teachers, because under few circumstances do they exclude connective expressions from passages.

However, the results of Study 3 showed that there was little influence of their English proficiency on the difference of the effects of "but" on their comprehension of contexts, while there was a stronger influence of their meaning recognition of "but." The results support the hypothesis that their meaning recognition is related to the effect on comprehension of contexts. In addition, the results of Study 1 showed that there is an almost fixed tendency of their meaning recognition of "but" regardless of their English proficiency. In other words, even Japanese EFL learners with a low English proficiency can recognize the meanings of "but" at a certain level. Therefore, a teaching method focusing on adversative expressions might be effective for the improvement of the comprehension of Japanese EFL learners with low English proficiency.

As for "so," the results of the current research partially support the hypothesis that Japanese EFL learners' meaning recognition of "so" is related to the effect of the expression on their comprehension of contexts. The results of Study 1 showed that they tend not to recognize the meanings of "so" adequately, and the results of Study 3 showed that "so" tends not to influence their comprehension of contexts. One possible, simple, and plausible explanation is that "so" is not effective because learners do not understand "so."

On the other hand, again, there can be another explanation suggesting that the relationship between the meaning recognition and the effect on comprehension might not be so strong as discussed above. The results of Study 3 showed that “so” did not influence their comprehension even though they recognize the meanings of “so” at a certain level. Connective expressions representing a causal relationship tend not to appear explicitly in the relationships in texts (Ishiguro, 2008; Sato, 2011; Takagaki, 2010); this suggests that Japanese EFL learners can understand a causal or conjunctive relationship whether or not “so” appears there. If the hypothesis is correct, then the relationship between the meaning recognition of “so” and the comprehension of contexts is less related to each other.

However, the hypothesis above cannot deny the hypothesis that their meaning recognition negatively influences their comprehension of contexts. Different from “but,” Japanese EFL learners might tend not to adequately recognize the meanings of “so,” suggesting that an explicit “so” hinders their comprehension of contexts. It is possible that they can grasp a causal or conjunctive relationship without “so,” but they judge that it is another relationship than causal or conjunctive when “so” is added. In conclusion, as for “so,” it cannot be determined whether Japanese EFL learners’ meaning misrecognition of “so” causes the little effect of the expression on their comprehension of contexts, but there is a possibility that the misrecognition might have a negative effect on their comprehension of contexts.

Finally, the difference of the relationship between the meaning recognition and the effect on comprehension depending on learners’ developmental stage should be discussed. As described in the introduction chapter, Shimada (2011) and Hori (2013) suggest that the use of connective expressions might vary depending on their developmental learning stage, but Okuyama (2001) suggests not. The results of the

current research support both suggestions. The results of Study 1 showed that Japanese EFL learners' meaning recognition of "but" is fixed at a certain level regardless of their English proficiency, while the results of Study 3 showed that "but" is more effective for the comprehension of contexts of Japanese EFL learners who judge more accurately that "but" represents an adversative relationship. These results suggest that the relationship between the meaning recognition and the effect on comprehension of contexts might not vary depending on their proficiency. On the other hand, the results showed that their meaning recognition of "so" is not fixed, and tends to become narrower in accordance with their developmental stage. Also, "so" tends not to be effective for their comprehension of contexts regardless of their meaning recognition. These results suggest that the meaning recognition of "so" might vary depending on their proficiency, but the relationship between the meaning recognition and the effect on comprehension of contexts might not vary depending on their proficiency. In conclusion, it might differ from expression to expression whether the relationship changes according to learners' proficiency or not.

Discussions for Main Research Question 5

Main Research Question (5) is, "Are the results of MRQs (1) to (4) specific to Japanese EFL learners or not?" The findings and suggestions of previous studies suggest that some results in the current research are interpreted as an influence of their mother language, Japanese. First, Petersen (1988, 2013) insists that Japanese EFL learners often make mistakes in the use of cause-and-effect expressions. If the tendency is specific to Japanese, their misrecognition of the meanings of "so" might also be specific to them. Second, as reviewed in the introduction chapter, there have been many classifications as to Japanese connective expressions to date. It might reflect the fact

that Japanese connective expressions are difficult to classify because of their ambiguity. As Tables 22 and 24 show, Japanese connective expressions in the causal/conjunctive cluster are actually categorized into more groups by previous studies' classifications than those in the adversative cluster. The complexity of Japanese connective expressions, in particular causal/conjunctive expressions, might influence the meaning recognition. The hypothesis that the ambiguity or complexity of Japanese connective expressions influences Japanese EFL learners' acquisition of English connective expressions means that the difficulty of acquisition might be specific to Japanese. Third, the tendency that Japanese EFL learners choose "*tsumari*" as a meaning of "so" might be specific to Japanese. As discussed in the Study-1 chapter, "*tsumari*" can replace "*konoyouni*" or "*shitagatte*" without changing the meaning of sentences (Baba, 1993; Ito, 2014). The characteristic specific to Japanese might influence their meaning recognition of "so."

On the other hand, some findings of the current research and previous studies support the hypothesis that the results are not specific to Japanese. Some previous studies have suggested that learners of Japanese acquire adversative expressions more easily than other connective expressions (Kaneniwa, 2000; Okuyama, 2001). Therefore, it is possible that the tendency of Japanese EFL learners' meaning recognition of "but" is the same as that of other EFL learners. As for the problem regarding "*tsumari*," Asai (2003) showed that Chinese learners of Japanese tend to use the expression much often. Therefore, the tendency that Japanese EFL learners choose "*tsumari*" as a meaning of "so" might not be caused by the acquisition of "so" but the acquisition of "*tsumari*." As for the problem regarding the ambiguity and complexity of Japanese causal/conjunctive expressions, the English expression "so" is also ambiguous and complicated.

One of the strongest pieces of evidence supporting the hypothesis that the results

in the current research are not specific to Japanese is that native English speakers showed the same tendency as Japanese EFL learners to the meaning recognition of "but" and "so." Table 21 shows that native English speakers' judgment as to whether they can fill "so" in blanks in passages differed compared to "but." Their judgment as to with what expressions they can show an adversative relationship tended to converge on two types, "but" and "however," while they answered more kinds of expressions for a causal/conjunctive relationship, including "so." Similarly, Table 20 shows that Japanese EFL learners tended to judge that "but" is appropriate for representing an adversative relationship, but their judgment as to "so" as a causal/conjunctive relationship tended to defer depending on passages. These results suggest that (a) the recognition of "but" might not be different between native English speakers and Japanese EFL learners, (b) native English speakers might think that the relationship between "but" and an adversative relationship is as strong as Japanese EFL learners think, and (c) the range of the relationships that native English speakers and Japanese EFL learners think "so" can represent might differ depending on the individual. Therefore, the current research concludes that it is easier to understand the meanings and functions of "but" and more difficult to understand those of "so" regardless of their mother language.

There are two possibilities that can contradict the conclusion above. First, the meaning recognition of "*soshite*" might influence Japanese EFL learners' meaning recognition of "so." The results of Study 1 showed that their judgment as to whether "so" in English can replace "*soshite*" in Japanese differs depending on the individual (see Table 20). On the other hand, none of the native English speaker participants answered that the relationship represented by "*soshite*" in Japanese could also be represented by "so" in English (see Table 21). It is the most notable difference. One possible explanation is that, as discussed in Study 1, the meaning range of "*soshite*" is

wide, including a weak causal relationship (Ishiguro, 2000). In other words, the characteristics specific to Japanese might influence Japanese EFL learners' meaning recognition of "so." Second, the tendency that seems specific to Japanese might be influenced by their textbooks, not by their mother languages. Some previous studies have suggested the influence of learners' textbooks on their use of connective expressions (Aoki et al., 1994; Kondo, 2004; Kuramochi and Suzuki, 2007), and the current research also supports their suggestion; it cannot be determined whether the tendency that seems specific to Japanese is really specific to Japanese or influenced by textbooks and other materials.

Discussions for Main Research Question 6

Main Research Question (6) is, "Are the results of MRQs (1) to (4) word-specific or not?" First, this section discusses whether the results and suggestions of the current research as to "but" and "so" discussed above can apply to other similar expressions, such as "however" and "therefore," or not: the second level in Figure 2. As for their appearance in textbooks for Japanese EFL learners, the current research showed that the adversative expression "however" tended to appear in junior high school textbooks, while no textbooks included the causal expression "therefore" (see Figures 14 and 15). Also, "however" appeared in high school entrance examinations in Japan, and no adversative connective expressions other than "but" and "however" appeared as far as the current research examined. On the other hand, the only causal connective expressions in the entrance examinations were "so" and "for these reasons," and other similar expressions, such as "therefore" and "thus," were not confirmed. Similarly, in the Center Test, "however" appeared more frequently than "therefore," with fifty-five examples to nine examples. The analyses as to the frequency and types of "and" in

junior high school textbooks showed that “and” in the textbooks appeared mostly as an expression connecting phrases (e.g., nouns) in a parallel manner, and “and” as a conjunctive connective expression, linking clauses or being used in the head of a sentence, appeared less frequently than “but” as an adversative connective expression (see Table 12). These results showed that the tendency of “however” and “therefore/and” in textbooks and entrance examinations for Japanese EFL learners was highly similar to the tendency of “but” and “so.” Therefore, the findings support the hypothesis that the influence of textbooks and other materials for Japanese EFL learners on their meaning recognition of “but” and “so” can be generalized to the influence of other adversative and causal/conjunctive expressions.

More evidence for the generalization to the second level lies in the tendencies of native English speakers. The results from Study 1 showed that some native English speakers believed that “but” was appropriate for an adversative relationship, while others judged that “however” was more appropriate. Both “but” and “however” were chosen by at least one native English speaker in each of the five passages including an adversative relationship. One possible reason for the difference is the influence of the content and style of the various passages. The results suggest that the relationship range represented by “however” might be highly similar to, or the same as, the relationship range represented by “but” and that native English speakers might use the two expressions properly depending on the content and style of a given text. If this hypothesis is correct, their meaning recognition of “however” might show a similar tendency to their meaning recognition of “but.” Furthermore, Japanese EFL learners’ judgment regarding whether a connective expression is appropriate or not should differ, whereas native English speakers’ judgment differs depending on the individual. Therefore, research on “however” similar to that conducted on “but” in Study 1 might

show similar results.

Previous studies also partially support the hypothesis that the results and discussions of the current research on “but” and “so” can be generalized to similar expressions. When Ozono (2002) asked participants to choose appropriate connective expressions for blanks in passages from alternatives, he adopted “however” and “therefore” as the alternative expressions rather than “but” and “so.” The results suggested that the connection between Japanese EFL learners’ understanding of an adversative relationship and the appearance of connective expressions might be strong; therefore, the strong connection between the relationship and “but” discussed above might be transferred to the one between the relationship and “however.” It also suggests that the results of Study 3 can be generalized to other expressions. In other words, “however” in passages might influence the improvement of Japanese EFL learners’ comprehension of contexts, like the influence of “but” shown in the current research.

The next point is whether the results and suggestions of the current research as to “but” and “so” can apply to the relationships (that is, an adversative relationship and a causal or conjunctive relationship) or not: the third level in Figure 2. As for the number of types of connective expressions in textbooks, the results of Study 2 showed that the number of types of adversative connective expressions was smaller than that of causal/conjunctive connective expressions (see Tables 10 and 11). The analysis of high school entrance examinations showed similar results. As for the Center Test, there was no tendency in the difference between the number of types of adversative and causal/conjunctive connective expressions, but adversative relationships tended to be represented by “but” and “however” mostly. These results suggest that Japanese EFL learners might understand an adversative relationship, represented by fewer kinds of expressions, more easily than a causal/conjunctive relationship, represented by more

kinds of expressions, leading to them organizing their knowledge on adversative relationships more.

Previous studies have found that adversative relationships in texts tend to accompany explicit connective expressions more frequently than causal/conjunctive relationships (Ishiguro, 2008; Sato, 2011; Takagaki, 2010). Therefore, readers might pay more attention to adversative relationships than causal/conjunctive relationships, regardless of language. Therefore, there is a possibility that the difficulties in the acquisition of connective relationships might differ depending on the relationship. In other words, humans might learn the adversative relationship more easily, such as what the relationship is and how the relationship is presented, than the causal or conjunctive relationship.

Cluster analyses in Study 1 also suggest that the extent to which Japanese EFL learners acquire "but" can be generalized to the extent to which they acquire the adversative relationship. The results showed that Japanese EFL learners with lower English proficiency, such as beginners, might tend to recognize that "but" represents an adversative relationship and that "so" represents the other relationships. In other words, their judgment regarding connective expressions or connective relationships might be based on adversative expressions or relationships. If their fundamental standard of judging is the adversative relationship, Japanese EFL learners' meaning recognition of every connective expression might be set in the classification, adversative or not, at the earliest learning stage. The discussion proposes one possible hypothesis: An adversative relationship is easier to acquire, and therefore understanding the relationship leads to understanding the whole text more than other relationships do.

The third point is whether the results and suggestions of the current research as to "but" and "so" are specific to the words: the first level in Figure 2. The results of Study

2 suggest that the first appearances of “but” and “so” in junior high school textbooks might influence Japanese EFL learners’ meaning recognition of them. The ambiguity and complexity as to the first appearances are thought to be specific to each word. “So” tended to appear in textbooks with other roles than connective expressions, suggesting the considerable difficulty of the acquisition. The tendency does not apply to other causal/conjunctive expressions. For example, “therefore” represents a causal relationship mostly, and it seems reasonable that Japanese EFL learners would encounter the word first with a causal relationship. On the other hand, the adversative connective expressions “yet” and “still” do not always appear with adversative relationships. The extent to which Japanese EFL learners recognize the meanings of these expressions might be closer to “so” than “but.”

The difference in meaning ranges, depending on phrases, offers more support for the hypothesis that the results and suggestions of the current research as to “but” and “so” are specific to each word. As discussed above, “so” has a wide range of meaning and leads to learners’ meaning misrecognition and overuse shown in previous studies. The factor does not apply to other causal relationships such as “therefore.” In conclusion, even though the results and suggestions discussed in the current research might be generalized at the higher levels in some points, there might be some factors specific to each word, not types or relationships.

Conclusion

First, this section summarizes the answers to the main research questions.

(1) Partial support was found for the hypothesis that the appearance of connective expressions may positively influence Japanese EFL learners’ comprehension of contexts. In addition, the adversative connective expression “but” might have a positive

effect on their comprehension of contexts, while the effects of the causal/conjunctive expression “so” might be limited compared to “but.” Another possibility is that the appearance of the connective expression “but” in English texts does not influence their comprehension of contexts but influences their retention of the contents, while the appearance of “so” might not influence their comprehension or retention. The effects might vary depending on their English proficiency; connective expressions might have a more positive influence on learners’ comprehension of contexts with a low proficiency.

(2) Partial support was found for the hypotheses that Japanese EFL learners recognize the meanings of “but” and “so” at a certain level, but that they would not adequately recognize them. Their meaning recognition of “but” was correct at a certain level. They might learn the meanings and functions of “but” at their early learning stage because it is essential for reading processing of adversative relationships, and they pay attention to “but” for understanding an adversative relationship. As for “so,” Japanese EFL learners’ meaning recognition of “so” might vary depending on their English proficiency. They might recognize that the meaning range of “so” is wider than it really is, and therefore, they might have the meaning recognition of “but” more appropriately than “so.” These findings imply that the acquisition of “so” might be slower than the acquisition of “but.”

(3) The frequency of appearances in textbooks and entrance examinations for Japanese EFL learners varied depending on the connective expressions. The connective expression “so” tends to appear less frequently than “but,” which might influence meaning recognition. The tendency of the first appearance and the variety of uses in textbooks was also different between “but” and “so,” suggesting that Japanese EFL

learners might not have an opportunity to study the meanings and functions of “so” appropriately. These findings and suggestions support the hypothesis that some characteristics of connective expressions in textbooks and other materials for Japanese EFL learners are related to their meaning recognition of these expressions.

(4) The results in the current research suggest that the appearance of “but” and “so” in textbooks and entrance examinations for Japanese EFL learners might influence the meaning recognition of their meanings and functions, and the relationship might also influence the effects of the expressions on their comprehension of contexts. “But” might be strongly related to an adversative relationship in their interlanguage, and therefore, “but” in passages functions as a marker of an adversative relationship for them, leading to their better comprehension. Their meaning recognition might influence the effect on comprehension of contexts more than their English proficiency. As for “so,” the results of the current research partially support the hypothesis that Japanese EFL learners’ meaning recognition of “so” is related to the effect of the expression on their comprehension of contexts, but also suggest that “so” might influence their comprehension only a little, regardless of their meaning recognition of “so.”

(5) The findings and suggestions above might be interpreted as an influence of Japanese EFL learners’ native language. However, it cannot be determined whether the tendency that seems specific to Japanese in the current research is really specific to Japanese or influenced by textbooks and other materials. On the other hand, the current research found that the tendency of native English speakers’ meaning recognition of “but” and “so” was similar to that of Japanese EFL learners. Therefore, the meaning recognition of “but” and “so” might vary depending on the individual rather than the

native languages. Furthermore, the meaning recognition of “so” varies depending on the individual more widely than that of “but,” regardless of their mother language.

(6) The findings in the current research partially support the hypothesis that the suggestions above can be generalized to the second or third level in Figure 2. Japanese EFL learners might recognize the meanings and functions of adversative connective expressions other than “but,” such as “however,” appropriately. Also, it is possible that an adversative relationship is easier to acquire, and therefore understanding the relationship leads to understanding the whole text more, than other relationships. In other words, the findings as to “but” in the current research can be generalized to other adversative expressions (the second level) and the adversative relationship (the third level). On the other hand, some characteristics specific to “so” suggest that the problems concerning Japanese EFL learners’ meaning recognition of “so” and the little influence of “so” on their comprehension of contexts might be partially specific to the word.

Pedagogical Implications

The findings of the current research contribute to English education in Japan in a number of ways. First, Japanese EFL teachers should consider effective teaching methods of connective expressions for their learners. The current research implies that Japanese EFL learners might not acquire even one of the most basic connective expressions, “so.” Teachers might have to know how learners recognize connective expressions, and make the most of the findings in their teaching. The current research presents a possibility that there is not an opportunity for Japanese EFL learners to study the word “so” as a causal/conjunctive expression enough to learn it adequately. Teachers should reconsider whether or not there is an omission of the learning opportunities from

their classes. Previous studies suggest that teachers tend to focus on learners' overuse of "so," but they should teach them how to use it explicitly, instead of telling them not to overuse it. One possible instruction method is the connection between English education and Japanese education. For example, when students conduct the same presentation, speech, or discussion both in Japanese and English with connective expressions, they might be able to recognize the meanings and functions more appropriately. Furthermore, textbook writers should consider the need for an opportunity for Japanese EFL learners to study and confirm the meanings and functions of connective expressions in their textbooks. They should also present connective expressions in their textbooks carefully, particularly as to the first appearance.

The findings of the current research imply that the influence of connective expressions on Japanese EFL learners' comprehension of contexts might vary depending on expressions. Accordingly, teaching methods might have to vary depending on expressions. For example, teachers might have to make learners pay more attention to adversative connective expressions, such as "but" and "however," than other connective expressions; the attention is more likely to facilitate their comprehension of contexts. On the other hand, learners might not need to pay attention to causal or conjunctive connective expressions, such as "so." The attention is less likely to facilitate their comprehension, or even it might hinder their comprehension. It might also be effective to rewrite the contents of English passages with some figures and arrows, focusing on connective expressions. Kanatani et al. (2011a, 2011b) propose a teaching model focusing on connective expressions, the Paragraph Chart Model, but worksheets display the expressions in advance in the model. Rather, it might be more effective for learners to write the expressions in a paragraph chart on their own.

The current research also advances the literature on connective expressions by

illustrating the difference between Japanese EFL learners' meaning recognition of "but" and "so." Previous studies have investigated the influence of connective expressions on comprehension of contexts, but most of them have not considered participants' meaning recognition of connective expressions. The findings in the current research showed that Japanese EFL learners do not adequately understand even one of the most basic connective expressions, suggesting that they also do not acquire other expressions. Therefore, studies of the influence of connective expressions should conduct a survey of participants' meaning recognition of them. There is also an implication for other studies than connective-expression studies: Researchers should carefully consider "so" when they make some reading or listening tasks. The current research implies that the expression "so" might hinder Japanese EFL learners' comprehension of contexts because of their misrecognition of the meanings of the word. Therefore, the adjusted version of English passages for Japanese EFL learners with a low English proficiency might not be sufficiently adjusted for them. More explicit information in passages with words that appeared at the early learning stage might not always lead to an easier readability level.

Limitations of the Current Research and Suggestions for Further Studies

Several limitations require consideration concerning the current research. One limitation of the research was its reliance on the two specific connective expressions, "but" and "so." The findings here have a number of strengths, including the multiple research methods for Japanese EFL learners' meaning recognition survey and the effects on comprehension of contexts, respectively, and the consideration of the generalization possibility based on the results. However, further research should examine the hypotheses regarding the generalization. For example, Japanese EFL learners' meaning

recognition of other connective expressions than “but” and “so” should be investigated.

Another question worthy of further research is how Japanese EFL learners acquire connective expressions. The current research provided the findings supporting the hypothesis that the connective expression “so” is more challenging for Japanese EFL learners to acquire than the connective expression “but.” However, the participants of the current research were limited to university students. Clearly, replication of this research is necessary, and further research should examine whether the results of the studies regarding Japanese junior high school or high school students are consistent with those of this research. Also, the results of the current research might be limited to Japanese EFL learners, so they need to be replicated with other populations to clarify whether the findings in this research are specific to Japanese EFL learners or not.

Finally, further research should examine the effect of instructions in connective expressions on Japanese EFL learners’ meaning recognition of them. The current research represents an important step in understanding their meaning recognition of connective expressions, suggesting that it might be necessary to teach the meanings and functions to them more carefully. Therefore, further research should examine which teaching methods about connective expressions are more effective, and research should also examine the effect of teaching methods, depending on connective expressions. Such research would expand our understanding of better teaching methods even further.

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Appendices

Appendix 1

A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Connective Expressions in Studies 1 and 3 (Original Version)

次のそれぞれの日本語について、英語の　but　にその意味が含まれると思うかどうか、また英語の　so　にその意味が含まれると思うかどうかを判断してください。

含まれると思うものについて、〇をつけてください。〇はいくつつけても構いません。

(1)	一方	(　　) but	(　　) so
(2)	かつ	(　　) but	(　　) so
(3)	このように	(　　) but	(　　) so
(4)	さて	(　　) but	(　　) so
(5)	さもないと	(　　) but	(　　) so
(6)	しかし	(　　) but	(　　) so
(7)	したがって	(　　) but	(　　) so
(8)	すると	(　　) but	(　　) so
(9)	そして	(　　) but	(　　) so
(10)	そのため	(　　) but	(　　) so
(11)	それで	(　　) but	(　　) so
(12)	それでも	(　　) but	(　　) so
(13)	それなのに	(　　) but	(　　) so
(14)	それなら	(　　) but	(　　) so
(15)	それに	(　　) but	(　　) so

Appendix 1

A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Connective Expressions in Studies 1 and 3 (Original Version; continued)

(16)	だが	(　　) but	(　　) so
(17)	だから	(　　) but	(　　) so
(18)	ただ	(　　) but	(　　) so
(19)	ただし	(　　) but	(　　) so
(20)	たとえば	(　　) but	(　　) so
(21)	つまり	(　　) but	(　　) so
(22)	では	(　　) but	(　　) so
(23)	とくに	(　　) but	(　　) so
(24)	ところが	(　　) but	(　　) so
(25)	とにかく	(　　) but	(　　) so
(26)	なぜなら	(　　) but	(　　) so
(27)	にもかかわらず	(　　) but	(　　) so
(28)	または	(　　) but	(　　) so
(29)	むしろ	(　　) but	(　　) so
(30)	ゆえに	(　　) but	(　　) so
(31)	よって	(　　) but	(　　) so

Appendix 2[4]

A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Connective Expressions in Studies 1 and 3 (English-translated Version)

Please judge whether each following Japanese expression includes a meaning of English word "but" and "so," respectively.

When you think yes, please mark a circle in the blank.

(1)	*ippou*	( ) but	( ) so
(2)	*katsu*	( ) but	( ) so
(3)	*konoyouni*	( ) but	( ) so
(4)	*sate*	( ) but	( ) so
(5)	*samonaito*	( ) but	( ) so
(6)	*shikashi*	( ) but	( ) so
(7)	*shitagatte*	( ) but	( ) so
(8)	*suruto*	( ) but	( ) so
(9)	*soshite*	( ) but	( ) so
(10)	*sonotame*	( ) but	( ) so
(11)	*sorede*	( ) but	( ) so
(12)	*soredemo*	( ) but	( ) so
(13)	*sorenanoni*	( ) but	( ) so
(14)	*sorenara*	( ) but	( ) so
(15)	*soreni*	( ) but	( ) so

[4] This English-translated version was made for the appendix, and not used in the current research.

Appendix 2

A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Connective Expressions in Studies 1 and 3 (English-translated Version; continued)

(16)	*daga*	( ) but	(	) so
(17)	*dakara*	( ) but	(	) so
(18)	*tada*	( ) but	(	) so
(19)	*tadashi*	( ) but	(	) so
(20)	*tatoeba*	( ) but	(	) so
(21)	*tsumari*	( ) but	(	) so
(22)	*deha*	( ) but	(	) so
(23)	*tokuni*	( ) but	(	) so
(24)	*tokoroga*	( ) but	(	) so
(25)	*tonikaku*	( ) but	(	) so
(26)	*nazenara*	( ) but	(	) so
(27)	*nimokakawarazu*	( ) but	(	) so
(28)	*matawa*	( ) but	(	) so
(29)	*mushiro*	( ) but	(	) so
(30)	*yueni*	( ) but	(	) so
(31)	*yotte*	( ) but	(	) so

Appendix 3[5]

A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Passages in Study 3 (Japanese Version)

1. 学校の役割と目標の一つは、同年の友と遊び、時には競い、協力し、時には争い、その中でそれぞれが、生まれ持ったり、身につけたりした個性を伸ばし、生きる力を養うことだ。(　　) 人としての基盤をつくることなのだ。
2. 今回の企画は完全に失敗した。(　　)、貴重な教訓を得ることができた。
3. そこへ電車が到着し、数人の乗客が降りた。その中にいたサラリーマン風の中年男性は作業員の前を通った時、立ち止まってかばんを置いた。(　　) 自販機の前に立ち、何やら作業員に声を掛けた。
4. そんな涸池の一つに面したレストランのたわわに実るナツメヤシの陰で、私たちはビールを飲みながら彼らの朝食が済むのを待った。私は家では、酒は滅多に飲まない。飲みたくならないのだ。(　　) 外に出ると、こうして飲みたくなる。十月のヨルダンは日本の夏のような陽気で、木陰で冷えたビールを飲むのはこたえられない。
5. たとえば、日本の建設費用が高いことは前述したが、それが跳ね返って高速道路料金が高くなる。したがって、そこを走る輸送量も高くなる。その結果、流通コストが高くなり、消費者の生活費も高くなる。(　　)、建設も、輸送も、流通も、いっこうに合理化される気配がない。

[5] Answer columns and choices following each passage were omitted.

Appendix 3

A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Passages in Study 3 (Japanese Version; continued)

6. 近頃、スマホ代が高くなっている。(　　)、別のプランを考えてみることにしよう。
7. 土間のつくりは、引き戸を開けるとすぐに土間があり、ここから風呂、勝手、板の間（ダイニングに使っていた）にそれぞれ行けるようになっていたように記憶する。(　　)、玄関らしい玄関というのはなかった。
8. 西側の土地が削られると、敷地を失ったり、小規模な敷地が残るだけとなるケースもでてくる。(　　）東側は、道路拡幅しても大規模な近代建築が充分に建てられる敷地を残せる。
9. 肌の乾燥を防ぐには、軟膏クリームが役立ちます。すり込むようにして塗りましょう。(　　)、湿疹やかぶれがひどい場合には、使用を控えてください。
10. 久しぶりに家族と出かけようとした矢先、突然の大雨に見舞われました。足元は一瞬で水たまりとなり、服には泥が跳ねて汚れ、その日の計画が台無しに。道路は川のようになり、車や電車などが冠水し、街の機能が麻痺しました。(　　)、モンスーンは時に手綱が利かない「暴れ馬」となります。
11. ひょうができるためにはたくさんの水分が必要ですが、冬は空気中の水分の量が少なく、夏の方が水分の量が多いのです。(　　)、ひょうのような氷のかたまりをつくるのは夏の方が多いのです。

Appendix 4[6]

A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Passages in Study 3 (Englsih-translated Version)

1. One of the roles and aims the school has is to facilitate each child to cultivate their innate or acquired individuality to obtain their power to live a life through hanging out, competing, cooperating, and fighting with children of the same age. ( ) that is to make a foundation of how they live as a one individual.
2. This time, our project ended in failure. ( ) we got a valuable experience from it.
3. Then, a train arrived and several passengers got off. One of them looked like a middle-aged office worker. He stopped and put his bag on the ground when he walked in front of a worker. ( ) he stood in front of a vending machine and said something to the worker.
4. In the shade of a date palm heavy with fruits near a restaurant adjacent to one of such dry ponds, we were drinking beer and waiting for them finishing their breakfast. I seldom drink at home. I rarely feel like drinking. ( ) when I go out, it makes me want to drink. In Jordan in October, it is like summer in Japan. I cannot help drinking cold beer in the shade of a tree.
5. For example, much money is spent on construction in Japan as I mentioned earlier and it makes the expressway toll higher. Thus the transport costs for using the roads become more expensive. Then it causes the rise in the distribution costs and consumers have to pay much to live. ( ) it is not likely that any of them will be streamlined.

[6] Answer columns and choices following each passage were omitted.

Appendix 4

A Questionnaire on the Meaning Recognition of "But" and "So" With Japanese Passages in Study 3 (Englsih-translated Version; continued)

6. These days, I spend more and more money on my smartphone. ( ) I will look for a new price plan.
7. I remember that we found an earth floor once we opened the sliding door and this earth floor was designed to be adjacent to the bathroom, the kitchen, and the room with a wooden floor we used as a dining room respectively. ( ) we did not have something like a front door.
8. If the western side of the road gets smaller, it could happen that we will lose lots or only small lots will be left. ( ) as to the eastern site, even if we extend the road, we still have enough room to build a huge modern building.
9. In order to prevent dry skin, ointment is useful. Rub it in. ( ) do not use on a serious rush or irritated skin.
10. When I was about to go out with my family after a long time, it started raining heavily. Soon a puddle was formed under my feet, my clothes got dirty because of the splashes of mud, and my plans for that day were ruined. The roads became like rivers, cars and trains were covered with water, and the function of the city was paralyzed. ( ) sometimes monsoon goes beyond our expectation.
11. Hailstones need much water to form themselves. There is little water in the air in winter, and much in summer. ( ) ice blocks like hailstones are formed more often in summer.

Appendix 5[7]

Japanese Translation Test in Study 3 (Test Type 1)

1. Man: Ms. Williams, are we going to discuss our projects today?

   Woman: Yes. So please make groups of five, everyone.

   Man: But there are 31 students here today.

   Woman: OK, then let's make one group of six.

2. Man: Is the soccer game starting now?

   Woman: Yeah. My favorite drama comes on in an hour on another channel.

   Man: So, should I record the game?

   Woman: That is OK. I will record my program.

3. Woman: It's time for dinner. Where shall we eat?

   Man: How about the Chinese restaurant we read about?

   Woman: That would be nice, but I think it is closed on Mondays.

   Man: Let's have Korean food.

4. Woman: When you rent an apartment and have a pet, it will cost 5,000 yen extra a month.

   Man: So, with a cat and a dog, you would pay double?

   Woman: Right.

   Man: But what about four fish in a bowl? Would you have to pay 20,000 yen?

5. Man: The sign says admission is five dollars for each person.

   Woman: We are a group, so we can save a dollar on each ticket.

   Man: We have eleven students, and teachers are free.

   Woman: Sounds good.

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[7] "But" and "so" underlined here were not underlined in the current research. Answer columns following each passage were omitted.

Appendix 6[8]

Japanese Translation Test in Study 3 (Test Type 2)

1. Man: Ms. Williams, are we going to discuss our projects today?

   Woman: Yes. So please make groups of five, everyone.

   Man: There are 31 students here today.

   Woman: OK, then let's make one group of six.

2. Man: Is the soccer game starting now?

   Woman: Yeah, but My favorite drama comes on in an hour on another channel.

   Man: Should I record the game?

   Woman: That is OK. I will record my program.

3. Woman: It's time for dinner. Where shall we eat?

   Man: How about the Chinese restaurant we read about?

   Woman: That would be nice, but I think it is closed on Mondays.

   Man: So, let's have Korean food.

4. Woman: When you rent an apartment and have a pet, it will cost 5,000 yen extra a month.

   Man: So, with a cat and a dog, you would pay double?

   Woman: Right.

   Man: What about four fish in a bowl? Would you have to pay 20,000 yen?

5. Man: The sign says admission is five dollars for each person.

   Woman: But we are a group. We can save a dollar on each ticket.

   Man: We have eleven students, and teachers are free.

   Woman: Sounds good.

---

[8] "But" and "so" underlined here were not underlined in the current research. Answer columns following each passage were omitted.

Appendix 7[9]

Japanese Translation Test in Study 3 (Test Type 3)

1. Man: Ms. Williams, are we going to discuss our projects today?

   Woman: Yes. Please make groups of five, everyone.

   Man: <u>But</u> there are 31 students here today.

   Woman: OK, then let's make one group of six.

2. Man: Is the soccer game starting now?

   Woman: Yeah, <u>but</u> My favorite drama comes on in an hour on another channel.

   Man: <u>So</u>, should I record the game?

   Woman: That is OK. I will record my program.

3. Woman: It's time for dinner. Where shall we eat?

   Man: How about the Chinese restaurant we read about?

   Woman: That would be nice. I think it is closed on Mondays.

   Man: <u>So</u>, let's have Korean food.

4. Woman: When you rent an apartment and have a pet, it will cost 5,000 yen extra a month.

   Man: With a cat and a dog, you would pay double?

   Woman: Right.

   Man: <u>But</u> what about four fish in a bowl? Would you have to pay 20,000 yen?

5. Man: The sign says admission is five dollars for each person.

   Woman: <u>But</u> we are a group, <u>so</u> we can save a dollar on each ticket.

   Man: We have eleven students, and teachers are free.

   Woman: Sounds good.

---

[9] "But" and "so" underlined here were not underlined in the current research. Answer columns following each passage were omitted.

Appendix 8[10]

TF Test in Study 3 (Original Version)

1.

(　　) 女性がグループを作るように指示したのは、話し合いをするためである。

(　　) 男性が３行目を発言したのは、女性の言うようにグループが作れないからである。

(　　) 男性の助言によって、作るグループの数が変更した。

(　　) この会話の後で、学生たちはグループを作る。

2.

(　　) 女性はサッカーの試合を観ようとしている。

(　　) 男性が３行目を発言したのは、サッカーの試合をリアルタイムで見るためである。

(　　) 女性は男性の提案を断っている。

(　　) この後、彼らはサッカーの試合とドラマの両方を録画する。

3.

(　　) 女性は今日、中華料理が食べられると考えている。

(　　) 男性が４行目を発言したのは、中華料理よりも韓国料理が好きだからである。

(　　) この会話は月曜日（Monday）に行われている。

(　　) 彼らはこの後、韓国料理を食べに行く。

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[10] Each question set followed an English conversation passage in the test. The passages were omitted here because they were presented in Appendices 5 to 7.

Appendix 8

TF Test in Study 3 (Original Version; continued)

4.

(　　) 男性は、犬と猫を飼った場合に支払うお金がいくらかを尋ねている。

(　　) 男性が４行目を発言したのは、女性の言う料金設定の内容を確認するためである。

(　　) 女性の説明が正しければ、４行目の男性の発言に対する答えは No である。

(　　) この会話の後で、男性は女性に 5000 円を支払う。

5.

(　　) 女性は、入場料として５ドル支払わなければならないと考えている。

(　　) 女性が２行目を発言したのは、料金が安くなることを男性に伝えるためである。

(　　) 学生たちは、１人につき４ドル支払う必要がある。

(　　) この会話の後で、彼らはより安い入場料で入れる施設を探す。

Appendix 9[11]

TF Test in Study 3 (English-translated Version)

1.

( ) The woman told them to make groups to conduct a discussion.

( ) The man made a statement in the third line because they could not make groups as the woman told them to do so.

( ) The number of groups changed because of the man's advice.

( ) The students would make groups after the conversation.

2.

( ) The woman was going to watch a soccer game.

( ) The man made a statement in the third line because he would watch a soccer game in real time.

( ) The woman turned down the man's suggestion.

( ) They would record both a soccer game and a drama after the conversation.

3.

( ) The woman thought that she could eat Chinese food on that day.

( ) The man made a statement in the fourth line because he liked Korean food better than Chinese food.

( ) They had the conversation on Monday.

( ) They would go to eat Korean food after the conversation.

[11] This English-translated version was made for the appendix, and not used in the current research.

Appendix 9

TF Test in Study 3 (English-translated Version; continued)

4.

( ) The man asked the woman how much he had to pay if he had a dog and a cat.

( ) The man made a statement in the fourth line because he would confirm the detail of the charge system the woman was explaining.

( ) The answer for the man's question in the fourth line would be "No" if the woman's explanation was correct.

( ) The man would pay the woman 5,000 yen after the conversation.

5.

( ) The woman thought that they had to pay $5 as am admission fee.

( ) The woman made a statement in the second line because she would told the man that the fee would be lower.

( ) Each student had to pay $4, respectively.

( ) They would look for other facilities whose admission fee was lower after the conversation.