

Grammatical Role, Thematic Role, and Coherence Relation in the L2 Production of Discourse

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Abstract: Sentences in discourse must be linked cohesively and coherently. This study first examines whether second language learners can establish a coherence relation between two sentences by taking into account the thematic role of the entity mentioned in them. It then investigates whether the thematic and grammatical roles of the entity and coherence relation increase the likelihood of using a pronoun (rather than a name) to refer to the entity. Japanese learners of English participated in an experiment in which they created a sentence following each prompt that described a transfer-of-possession event between two individuals of different genders. The results showed that the learners were likely to produce continuations describing either an event occurring after the one in the prompt (Occasion relation) or the outcome of the event (Result relation) when the target referent had the Goal role and when it had the Indirect Object role. It was also found that participants produced pronouns more frequently when the referent had the Subject role and when they created coherence relations whose inference focuses on the start state of the preceding event (Elaboration and Explanation relations). These results suggest that thematic role and grammatical role (or the order of mention) influence learners' construction of coherence relations, whereas grammatical role and coherence relation influence their choice of pronouns. Further testing with prompts mentioning same-gender individuals is necessary to confirm the (lack of) thematic-role effects on learners' choice of pronouns.

Key words: discourse coherence, grammatical roles, thematic roles, referring expressions,
Japanese learners of English

1. Introduction

Discourse is not a collection of random sentences. The sentences must be linked to one another through cohesive devices such as pronouns and transitional phrases. Also, the messages conveyed in these sentences must semantically fit together to form a coherent text. The production of discourse requires attention to various aspects of language, and many language-acquisition researchers have been interested in whether and how second language (L2) learners accomplish this complex task.

Each individual mentioned in a sentence, referred to as a (discourse) *entity* in this paper, is assigned a thematic role. In the sentence *John sent a letter to Mary*, John is assigned the Source role, as he is the starting point of the letter's movement, while Mary, positioned at the end point, is assigned the Goal role. If

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we continue the story by mentioning the Source entity again, we may describe the cause or reason for the transfer event (e.g., *John wanted to tell her something important*). In contrast, if the Goal entity is rementioned, the continuation may describe the result of the event (e.g., *Mary thanked him for that*). Although it is possible to produce a sentence starting with a Goal entity and explaining the cause of the event (e.g., *Mary asked him to do so*), some coherence relations focus on the start state of an event and others focus on the end state. Can L2 learners establish a coherence relation between two sentences that aligns with the thematic role of the target entity in the first sentence? This is the main question addressed in this paper.

Another issue is how learners refer to discourse entities in their story continuations. John and Mary can be referred to by repeating their names, using a pronoun, or employing a noun phrase like *the man/woman*, depending on the context. These linguistic elements are called *referring expressions* (REs), and speakers need to choose one form over another based on cues such as the thematic roles and/or grammatical roles (e.g., Subject, Object) that the referent had in the preceding sentence. It is interesting to see what type(s) of information influence L2 learners' choice of RE forms.

This paper will first review the literature on factors affecting the expectation or likelihood of next mention and the choice of RE forms. It then presents the results of a story continuation experiment that examined the characteristics of discourse produced by Japanese learners of English.

2. Background

2.1. Likelihood of next mention and coherence relation

When two human entities are mentioned in a sentence, who do we expect to be mentioned again in the next sentence? If one is preferred over the other, what information influences this preference? One such factor is the grammatical roles assigned to the entities. Crawley et al. (1990) examined how referentially ambiguous object pronouns are interpreted in discourse. Participants read three-sentence stories like *Brenda and Harriet were starring in the local musical. Bill was in it too and none of them were very sure of their lines or the dance steps. Brenda copied Harriet and Bill watched her*. The referent of the underlined pronoun can be either Brenda or Harriet, but participants were more likely to answer "true" to the question *Bill watched Brenda?* than to the question *Bill watched Harriet?*¹⁾ Crawley et al. claimed that English speakers have a strategy to interpret the entity mentioned in subject position (Brenda) as being referred to again in the following sentence, possibly because this position makes the entity salient. Grammatical role or subjecthood is also important in Centering Theory (Grosz et al., 1995). This theory states that entities mentioned in an utterance, called *forward-looking centers* (C_i), are partially ranked in the order of prominence, and that the higher a C_i is ranked, the more likely it is to be mentioned again in the following utterance. A major factor influencing the C_i ranking is grammatical role: The entity in subject position ranks higher than the other entities in the same utterance.

Other researchers have reported that thematic role interacts with grammatical role and they both contribute to the next-mention bias. Stevenson et al. (1994) asked English speakers to create sentences following prompts such as (1).

- (1) a. John seized the comic from Bill. He _____
- b. John passed the comic to Bill. He _____

The sentences in (1a) and (1b) mention the same entities in subject and object-of-preposition positions. If grammatical role were the only factor determining who will be mentioned next, participants would produce a sentence with *He* referring to John in both conditions. However, the results showed that while participants' continuations for (1a) referred to John 85% of the time, the continuations for (1b) did so only 51% of the time. Stevenson et al. suggest that the difference resulted from the thematic roles assigned to the discourse entities. In (1a), the sentence describes an event in which the comic has reached John, so the focus naturally falls on the end state of the event and the Goal entity, John. John is also mentioned in subject position in the first (context) sentence, which led participants to predominantly refer to him in their continuations. In (1b), on the other hand, John fills the Source role and Bill the Goal role. While grammatical role increases the salience of John in subject position, the thematic Goal role increases the salience of Bill. The competition between these roles decreases the likelihood of John being the referent in the continuation.

There are also studies that argue that, rather than examining the effects of surface-level linguistic cues like grammatical and thematic roles, we should view the phenomenon as part of a deeper, discourse-level inference process. Rohde et al. (2006) showed that the Goal reference bias in story continuation arises as a side effect of an event structure bias and the establishment of coherence relations. The sentences in (2) use the same verb and refer to the same entities. What distinguishes them is the verb aspect: The perfective aspect in (2a) indicates a completed event, while the imperfective aspect in (2b) indicates an ongoing event.

- (2) a. Matt passed a sandwich to David. He _____
 b. Matt was passing a sandwich to David. He _____

Given that the two entities fill the same grammatical and thematic roles, one would predict that participants would produce continuations referring back to Matt (or David) at approximately the same rate in the two conditions. However, they produced continuations referring to the Source entity, Matt, significantly more frequently in (2b) than in (2a) (70% vs. 51%). Rohde et al. explained that the event structure in (2b) reduced the focus on the end state and thus the number of Source continuations increased.

Rohde et al. (2006) also found that whether participants rementioned the Source or Goal entity depended on the semantic relationship between the context sentence and the continuation. In (2) above, participants were allowed to freely create a sentence following *He*, so one participant produced *He didn't want David to starve*, stating the cause for the event described in the context sentence, while another produced *He ate it up*, stating what happened next. These continuations require different types of inferences regarding how the discourse unfolds. Some of the coherence relations discussed in Kehler (2004) are listed in (3).²⁾ The definition of continuations for each relation, as provided by Ueno and Kehler (2010), is also included.

- (3) a. Elaboration
 Infer $p(a_1, a_2, \dots)$ from the assertions of S_1 and S_2 .
 [Continuations that provide additional details about the eventuality described in the context sentence]
 b. Explanation
 Infer P from the assertion of S_1 and Q from the assertion of S_2 , where normally $Q \rightarrow P$
 [Continuations that describe the cause of the eventuality described in the context sentence]

c. Occasion

Infer a change of state for a system of entities from the assertion of S_2 , establishing the initial state for this system from the final state of the assertion of S_1 .

[Continuations that describe an eventuality that initiates from the end state of affairs of the eventuality described in the context sentence]

d. Result

Infer P from the assertion of S_1 and Q from the assertion of S_2 , where normally $P \rightarrow Q$

[Continuations that describe the effect or result of the eventuality described in the context sentence]

These definitions imply that the focus of Elaboration and Explanation relations is on the start state of the transfer event, while the focus of Occasion and Result relations is on the end state of the event. Therefore, it was predicted that participants would preferentially refer to the Source entity when establishing Elaboration/Explanation relations between the context sentence and their continuation, and to the Goal entity when establishing Occasion/Result relations. As expected, Rohde et al. (2006) found that even in the perfective condition (2a), almost all Elaboration/Explanation continuations referred back to the Source entities, and most Occasion/Result continuations referred to the Goal entities. The authors concluded that “the thematic-role bias depends on the availability of a salient Goal at the endpoint of the event, and similarly, the effects of the event-structure bias are contingent on the type of coherence relation at work” (p. 5).

To sum up, the studies above suggest that native English speakers tend to expect entities with a Subject role and those with a Goal role to be mentioned again in the next sentence, but their expectation depends on the type of coherence relation they establish between the two sentences. The Goal-reference bias observed in (1a) above likely occurred because participants mostly created Occasion/Result continuations.

2.2. Factors affecting the choice of referring expressions

The question of how an entity is referred to in a discourse has also been debated in the literature. Traditional theories claim that the more salient/accessible/activated an entity is in the discourse representation, the less explicit RE form is used to refer to the entity (Ariel, 1990; Givón, 1983; Gundel et al., 1993). Many factors could determine discourse salience. Recency is one factor; an entity mentioned in the preceding sentence is considered more salient than one mentioned a few sentences earlier. Grammatical role is also important in the choice of RE forms. Centering Theory (Grosz et al., 1995) mentioned above has a rule that, when two entities are rementioned in the next utterance and when a pronoun is used to refer to the lower-ranked C_i , the higher-ranked C_j must also be referred to by a pronoun. An entity in subject position is generally ranked higher than the other entities, so a pronoun should be used for the Subject entity. This theoretical prediction was supported by empirical evidence from Gordon et al. (1993), who showed that native English speakers comprehended the sentence *He never thinks about how others might feel* significantly faster than *George never thinks about how others might feel* when George had the Subject role in the preceding sentence. These studies imply that salience arising from grammatical role influences both which entity is mentioned again and how it is referred to.

Rosa and Arnold (2017) examined whether thematic role contributes to the next-mention bias and pronoun use. In their Experiment 1, participants viewed 53 pairs of pictures one at a time. These materials collectively represented a sequence of events in a mystery story, rather than unrelated short stories. For each pair, participants heard the description of the event depicted in the first picture and then narrated the

subsequent event depicted in the second picture. Four test conditions were created as in (4). In each condition, the two human entities were shown in the first picture, but only the referent of the underlined noun phrase appeared in the second picture to prompt reference to it.

- (4) a. The chef handed a cookbook to the maid. (Subject, Source)
 b. The maid took a cookbook from the chef. (Nonsubject, Source)
 c. Sir Barnes got a backrub from Lady Mannerly. (Subject, Goal)
 d. Lady Mannerly gave a backrub to Sir Barnes. (Nonsubject, Goal)

The target entities differed in terms of their grammatical and thematic roles (shown in parentheses). Participants' narrations for the second pictures showed that they produced pronouns more frequently when referring back to the entities in subject position than to the ones in nonsubject position. Also, crucially, the proportion of pronouns was higher for the Goal entities than for the Source entities, especially when they were in subject position. Rosa and Arnold (2017) conducted another study using the same stimuli in (4) and asked participants to indicate which entity they thought would be more likely to be talked about next. They found a significantly higher proportion for the Goal (71%) than for the Source. These two sets of data led to the conclusion that a Goal role increases the expectation of who will be mentioned next *and* the use of pronouns. Note that the authors used a standard story-continuation paradigm in Experiments 2 and 3 and again found a higher proportion of pronouns for the Goal than for the Source, especially in contexts with same-gender entities.

However, Fukumura and van Gompel (2010) reported conflicting results, claiming that thematic role bias affects only the likelihood of next mention. They had native English speakers continue the story following prompts containing an implicit-causality verb, like *Gary [scared / feared] Anna after the long discussion ended in a row. This was because _____*. The verb *scare* assigns a Stimulus role to Gary and an Experiencer role to Anna, and it attributes the underlying cause of the event to Gary. The verb *fear* reverses the thematic roles, assigning an Experiencer role to Gary and a Stimulus role to Anna and attributing the cause to Anna. Fukumura and van Gompel first confirmed that participants referred to the Stimulus entities more often than the Experiencer entities in their continuations, regardless of the verb type. Next, they examined the use of pronouns by specifying the target referent (Gary or Anna). They found only a main effect of referent position, indicating that participants produced pronouns more frequently for the Subject entities than for the Object entities, regardless of their thematic roles. A similar experiment with two same-gender entities in Rohde and Kehler (2014) also found only the effects of grammatical role on pronominalization; the Stimulus role did not increase the proportion of pronouns.

It remains unclear why a story continuation task with transfer verbs and a task with implicit-causality verbs yield different results. Nevertheless, evidence suggests that the Goal bias associated with transfer verbs increases both the likelihood of next mention and the rate of pronoun use.

2.3. Choice of coherence relations and reference form by L2 learners

How L2 learners interpret ambiguous pronouns and what RE forms they use to refer to entities have been actively investigated in the field. Here, our discussion will focus on the work by Grüter et al. (2017), which looked at story continuations by Japanese and Korean learners of English using stimuli similar to those used in Rohde et al. (2006). The learners and native English speakers read prompts with a transfer verb like *Emily [brought / was bringing] a drink to Melissa. [She / ø] _____* and wrote a continuation.

In addition to manipulating the perfective vs. imperfective aspect in the context sentence, Grüter et al. varied the type of subject in the continuation prompt (pronoun vs. blank) to examine the participants' choice of RE forms in the blank (or "free prompt") condition. The results showed that, like the native English speaker controls, the learners constructed completed-event-driven coherence relations (Occasion and Result relations) more frequently in the perfective condition than in the imperfective condition. Moreover, in the free prompt condition, they produced pronouns more frequently when referring to the Source entity than the Goal entity (81% vs. 21% for the learners; 65% vs. 3% for the native controls).

The first finding suggests that event structure influences L2 learners' choice of coherence relations. The L2 participants recognized the aspectual differences in the transfer events and expected Occasion/Result relations more when the event was complete than when it was ongoing. There is room to further investigate whether factors beyond verbal aspect also trigger the expectation or choice of a particular type of coherence relation. The second finding *could* be interpreted as indicating that both the Subject role and the Source role of the referent influenced learners' choice of pronouns, as these roles coincided in all items in this study. However, evidence from native speakers in Rosa and Arnold (2017) indicates that Subject entities and Goal—but not Source—entities are likely to be referred to with pronouns. While grammatical role may have strongly influenced the learners' pronoun use, the impact of thematic role needs to be clarified.

3. The present study

Building on the research reviewed above, this study conducted an experiment testing Japanese learners of English in a written story continuation task. To facilitate understanding of the research questions and predictions, Table 1 presents a sample item from the stimuli.

Table 1. A sample item used in this study

Grammatical role of the target entity	Thematic role of the target entity	Context sentence
Subject	Source	<u>Misaki</u> gave a bottle of water to Kenta.
Subject	Goal	<u>Kenta</u> got a bottle of water from Misaki.
Nonsubject	Source	Kenta got a bottle of water from <u>Misaki</u> .
Nonsubject	Goal	Misaki gave a bottle of water to <u>Kenta</u> .

As in Rosa and Arnold (2017), but unlike in Grüter et al. (2017), the stimuli included four conditions that varied in terms of the grammatical and thematic roles of the target entity (underlined). The target entity was either in subject position or in object-of-preposition position, but following Rosa and Arnold (2017), this paper will refer to the latter position as *nonsubject* position. For each item, participants were asked to write a sentence that naturally follows the context sentence and mentions the target entity in subject position. Two research questions were addressed.

RQ1: Do L2 learners choose and construct a coherence relation based on the thematic-role information of the target entity?

The L2 learners in Grüter et al. (2017) varied the type of coherence relations they constructed based on the verbal aspect of the context sentence (e.g., *brought* vs. *was bringing*). This raises the question of what would happen if the context sentences in all conditions describe completed transfer events. The stimuli in Table 1 manipulate the grammatical and thematic roles of the target entity while keeping the verb tense and aspect constant. When L2 learners are asked to produce continuations following these prompts, will they always construct Occasion or Result relations? Or will they pay attention to the thematic roles and associate them with the focus of coherence relations (the start state vs. end state of the event)? If the latter, they are predicted to create Elaboration or Explanation continuations when the target entity is the Source, and Occasion or Result continuations when it is the Goal.

The extent to which grammatical role influences learners' decisions on coherence relations is an open question. As mentioned in the previous section, Grüter et al.'s (2017) and Rohde et al.'s (2006) stimuli always placed the Source in subject position and the Goal in nonsubject position. Thus, the grammatical role *and* the thematic role of the referent may have affected the learners' choice of coherence relations. Rosa and Arnold (2017), on the other hand, separated grammatical roles from thematic roles by adding the Subject-Goal and Nonsubject-Source conditions, but they did not compare the rate of coherence relations across conditions. Since none of the definitions in (3) seem to concern grammatical roles, learners' choice of coherence relations is not predicted to be influenced by grammatical role.

RQ2: Is L2 learners' choice of pronouns constrained solely by grammatical role, or is it also influenced by thematic role and coherence relation?

There is robust evidence that participants prefer using pronouns, rather than names, to refer to an entity mentioned in the subject position of the preceding sentence. Fukumura and van Gompel (2010) and Rohde and Kehler (2014) found a clear effect of grammatical role on native English speakers' pronoun use. However, they found no evidence that the likelihood of a Stimulus entity being referred to again increased the use of a pronoun for that entity. Similarly, while Grüter et al.'s (2017) L2 learners produced more Goal continuations than Source continuations overall (308 vs. 37 responses), the salience of the Goal entities (in nonsubject position) did not result in a higher proportion of pronouns. Thus, it is possible that the present study will find a difference in the proportion of pronouns only between the Subject and Nonsubject conditions.

Another possibility is that, in addition to grammatical role, thematic role and coherence relation influence learners' use of pronouns. Rosa and Arnold's (2017) event-retelling task in Experiment 1 found that native English speakers have a tendency to use pronouns more frequently for the Goal than for the Source when the referents were mentioned in the subject position of the context sentences. Also, in their story continuation task in Experiment 2, Rosa and Arnold observed a higher proportion of pronouns used for the Goal in the Occasion and Result continuations. Notably, this effect of thematic role was observed in contexts with two same-gender entities. The stimuli of the present study use two different-gender entities instead, in order to prevent learners from relying heavily on repeated names to refer to entities; if they do not produce enough pronouns, we will not be able to observe any effects on their pronoun use. Although this experimental design may not elicit the effects of thematic role, it is still worth investigating whether learners exhibit a pattern distinct from that of native speakers.

3.1. Participants

Forty-nine undergraduate students participated in this experiment. They were native speakers of Japanese studying at a university in Japan, and they were learning English as a foreign language at the time of the experiment. They were unaware of the purpose of the study or the linguistic phenomenon being studied. All participants provided informed consent prior to the experiment and participated voluntarily.

Although these participants completed the task, about a half of them were eventually excluded from the analysis: (i) 24 participants met the participant-exclusion criteria in Rosa and Arnold (2017), producing fewer than two pronouns or fewer than two repeated names throughout the task; (ii) two often created continuations that were not closely related to the event in the context sentence (e.g., producing *She loves him* for several items); and (iii) one failed to create continuations referring back to the specified target entities over 60% of the time. Only the data from the remaining 22 participants (13 males and 9 females) will be considered below. Their self-reported scores from the most recent Test of English for International Communication (TOEIC) ranged from 450 to 825, with an average of 614.8.

3.2. Materials

Twenty sets of context sentences like the ones in Table 1 were created as experimental items. They contained 12 transfer-of-possession verbs: 6 Source-Goal verbs (***give, hand, pass, bring, throw, send***) and 6 Goal-Source verbs (***get, receive, take, catch, obtain, steal***). The verbs in bold were used twice in the stimuli to create 20 items. The Source-Goal verbs assign the Source role to the entity in subject position and the Goal role to the entity in nonsubject position, while the Goal-Source verbs assign the Goal role to the entity in subject position and the Source role to the entity in nonsubject position. The human entities were referred to using common Japanese names whose genders are easily identifiable (e.g., *Misaki* for a female, *Kenta* for a male). No names were repeated in the stimuli because previously used names tend to be pronominalized. The genders of the entities were counterbalanced between the subject and nonsubject positions. All context sentences were written in simple English to help L2 learners easily build the expected discourse representations.

These items were distributed into four lists using a Latin square design, such that each participant saw only one version from each item and five different items in each of the four conditions. The items were then mixed with 20 filler items. Psycholinguistic experiments generally include substantially more fillers than experimental items in their stimuli, but given that L2 learners require relatively more time to generate story continuations, the number of fillers was limited to 20. Each filler item contained a non-transfer verb and two Japanese names, with one of the names underlined (e.g., *Haruki danced with Reiko*).

3.3. Procedure

Participants were seated in a quiet room and provided with a paper-and-pencil questionnaire. The first page provided the task instructions in Japanese. Participants were asked to read 40 short English sentences one by one and write an English sentence that would naturally continue the story. They were also instructed to use the underlined name as the subject of their continuation. To help them understand the task, two context sentences with non-transfer verbs and their corresponding continuations were provided as examples. The continuation in the first example used a pronoun for the target entity, and the continuation in the second sample used a repeated name. The experiment began on the second page. Participants completed the experiment in about 30 minutes.

3.4. Results

Data exclusion and coding

A total of 440 continuations were collected for the experimental items. The responses often contained spelling errors and grammar errors like missing articles and plural *-s*, but these errors were ignored since they do not affect the establishment of coherence relations or the choice of RE forms. However, 30 responses with other types of errors had to be excluded from the analysis. Continuations that mentioned non-target entities in subject position, as well as those containing pronouns or repeated names that did not match the genders or names of the target entities, were marked as “Wrong.” In addition, continuations that are incomprehensible (e.g., *Hiroiyuki took a red pen from Kana. Hiroiyuki must be to score.*) or implausible (e.g., *Kenta got a bottle of water from Misaki. Misaki took it to running; Kana handed a red pen to Hiroiyuki. She forgot to bring a red pen.*) were marked as “N/A.”

After excluding these Wrong and N/A responses, I coded the coherence relations between the context sentences and continuations, as well as the RE forms in the subject position of the continuations. Whenever possible, each continuation was categorized into one of the six coherence relations from Grüter et al. (2017): Elaboration, Explanation, Occasion, Result, Parallel, and Violated Expectation. If a continuation did not fit into any of these categories, it was coded as “Other.” Some of participants’ continuations are presented in (5). The grammatical and thematic roles of the target entity in the context sentence and the RE form used in the continuation are also noted.

(5) a. Elaboration

Keita sent an email to Ayumi. He sent files about class. (Subject, Source; Pronoun)

b. Explanation

Kenta got a bottle of water from Misaki. Misaki thought Kenta is thirsty.

(Nonsubject, Source; Name)

c. Occasion

Ryota took a textbook from Ayano. He returned it after class. (Subject, Goal; Pronoun)

d. Result

Junpei sent a birthday card to Miho. She was very happy. (Nonsubject, Goal; Pronoun)

e. Parallel

Atsushi got a cup of coffee from Hiromi. Hiromi also got a cup of coffee. (Nonsubject, Source; Name)

f. Violated Expectation

Maki passed important information to Takashi. She lied. (Subject, Source; Pronoun)

g. Other

(i) Taichi threw a baseball to Nanami. Nanami likes baseball. (Nonsubject, Goal; Name)

(ii) Nanako handed a key to Tomoya. She locked the door. (Subject, Source; Pronoun)

Among these seven categories, Other had the largest number of responses. The most common type was continuations like (5g-i), which provide background information about the entities. There were also continuations like (5g-ii), which likely describe an event that occurred before the event described in the context sentence but do not create a causal relationship between them. Following Ueno and Kehler (2010), only the continuations in Elaboration and Explanation relations (Source-biased) and those in Occasion and Result relations (Goal-biased) were statistically analyzed (263 responses).

Coherence relations

First, the proportion of coherence relations was compared across the four conditions. The four types of coherence relations were collapsed into two groups, one with Elaboration and Explanation and the other with Occasion and Result, to make the data interpretation easier. The results are illustrated in Figure 1. For the statistical analysis, mixed-effects logistic regression models were implemented with the lme4 package in R version 4.4.1 (R Core Team, 2024). Grammatical role (Subject vs. Nonsubject) and thematic role (Source vs. Goal) were entered as fixed effects. These were centered using deviation coding (-0.5 for Subject and Source; 0.5 for Nonsubject and Goal). Proficiency (TOEIC scores) was also added as a fixed effect, and random intercepts were included for participants and items. Elaboration/Explanation relations were set as the reference level to see the choice of Occasion/Result relations.

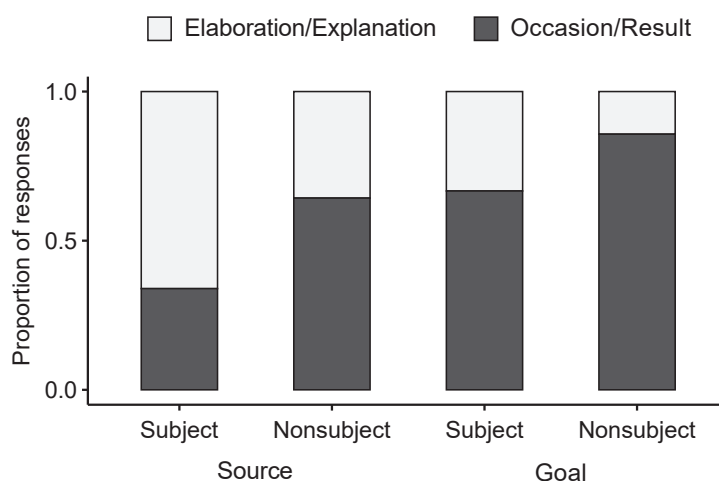


Figure 1. Proportion of coherence relations by grammatical role and thematic role

Overall, participants produced more Occasion/Result continuations than Elaboration/Explanation continuations (169 vs. 94 responses). The statistical analysis revealed a main effect of grammatical role ($b = 1.606$, $p < 0.001$), suggesting that the proportion of Occasion/Result continuations was significantly higher in nonsubject position than in subject position. There was also a main effect of thematic role ($b = 1.707$, $p < 0.001$), with a higher proportion of Occasion/Result continuations for the Goal than for the Source. Neither proficiency ($b = -0.451$, $p = 0.731$) nor the interaction between grammatical and thematic roles ($b = 0.148$, $p = 0.834$) was significant.

Form of referring expressions

Next, the form of REs used to refer to the target entities was examined. Remember that Rosa and Arnold (2017) found in their Experiment 2 that native English speakers produced pronouns more frequently when the coherence relation aligned with the thematic-role bias, i.e., when they generated Occasion/Result continuations referring to the Goal entities. Thus, the results for the Elaboration/Explanation continuations (Figure 2) are presented separately from those for the Occasion/Result continuations (Figure 3).

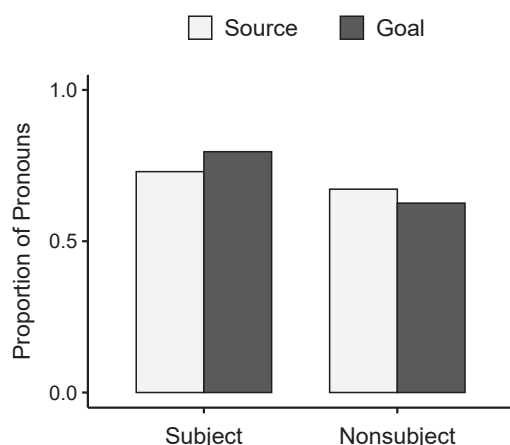


Figure 2. Proportion of pronouns in the Elaboration/Explanation continuations

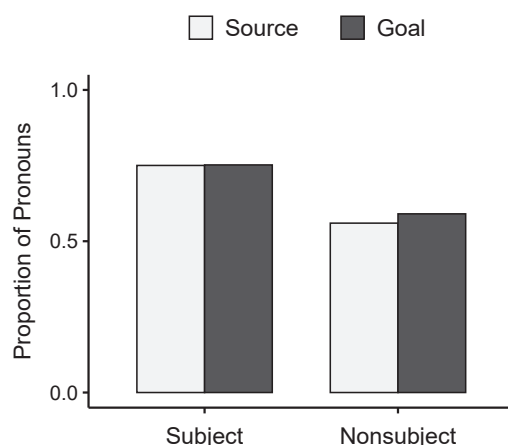


Figure 3. Proportion of pronouns in the Occasion/Result continuations

Mixed-effects logistic regression models were again used for this analysis. Grammatical role, thematic role, and coherence relation (Elaboration/Explanation vs. Occasion/Result) were entered as fixed effects and participants and items as random effects. For deviation coding, -0.5 was used for Nonsubject, Source, and Elaboration/Elaboration, and 0.5 for Subject, Goal, and Occasion/Result. The results showed a main effect of grammatical role ($b = 1.086$, $p = 0.004$). The main effect of coherence relation just reached significance ($b = -0.871$, $p = 0.049$). These suggest that participants produced pronouns more frequently when referring back to the entity mentioned in the subject position of the context sentence and, unexpectedly, when establishing Elaboration or Explanation relations. There was no main effect of thematic role, nor were there interactions among the three predictors (all p s > 0.359).

4. Discussion

The first research question of this study was whether L2 learners choose and construct a coherence relation based on the thematic role information of the target entity. Two key findings emerged from the analysis. One is that learners produced more Occasion and Result continuations when the target was a Goal entity than when it was a Source entity. This can be interpreted as the effect of thematic role on their choice of coherence relations. The Occasion relation is established when a sentence describes an event that starts from the end state of the event described in the preceding sentence. The Result relation is established when a sentence describes the outcome of the event in the preceding sentence. These relations are compatible with a Goal entity at the end point of a transfer event, so learners must have associated them with the Goal. Remember that the learners in Grüter et al. (2017) chose coherence relations based on the event structure encoded by grammatical aspect. If L2 learners were to build coherence relations by considering only aspectual information, then the participants in the present study would have created Occasion/Result continuations in all contexts, regardless of the thematic-role manipulation, because the verb was always in the simple past tense. However, especially in the Subject-Source condition, the majority of the continuations had Elaboration/Explanation relations (68.4%). This clearly indicates that L2 learners have the ability to build a coherence relation whose focus aligns with the thematic role of the target entity.

The other finding is that there were more Occasion/Result continuations when the target entity was in nonsubject position. The high proportion of these continuations in the Nonsubject-Goal condition replicated the findings in Rohde et al. (2006) and Grüter et al. (2017), but the fact that the Nonsubject-Source condition also elicited many Occasion/Result continuations (64.3%) is a novel finding. This is surprising in that grammatical role seems irrelevant in the definitions of coherence relations in (3) in Section 2.1. Even if salience matters in the choice of coherence relations, I am not aware of any literature suggesting that a nonsubject position makes a discourse entity more salient than the subject position does. One might argue that recency is at work. The entity in sentence-final position is closer to the subject of the continuation and thus more salient than the entity in sentence-initial position. However, it may be difficult to explain the patterns in the Source conditions because if recency makes the Source (the start point of a transfer event) salient, participants should create more Elaboration/Explanation continuations (compatible with the start point) in the nonsubject position than in the subject position. This is opposite to what was found. I speculate instead that the linear order of mention influenced learners' choice. It may be that when an entity was mentioned in nonsubject position, being placed after the subject somehow added to the entity a sense of being at the end point of the movement. Learners might have associated this with the end-state focus of Occasion/Result continuations, even when the target entity was the Source. Whether it was grammatical role, recency, or the order of mention, the evidence here suggests that learners considered the position of the target entity within the context sentence when choosing a coherence relation.

The second research question was if L2 learners' choice of RE forms is influenced solely by grammatical role or by thematic role and coherence relation as well. For grammatical role, the learners showed the expected result: They produced pronouns more frequently when the target entity was in subject position in the context sentence. This grammatical-role effect is robust even in contexts where a non-transfer verb is used (Miyao, 2024). The issue is whether thematic role and coherence relation also have an influence, but the results showed no indication of such an influence from thematic role. This is evident in Figures 2 and 3, where the two bars in each grammatical position are of similar length. However, a more frequent use of pronouns was found in the Elaboration/Explanation continuations (Figure 2) than in the Occasion/Result continuations (Figure 3). This pattern seems to arise mainly from the difference in the Nonsubject conditions. I cannot provide a clear explanation for this surprising result, but once again, the linear order of mention might be relevant. When participants produced an Elaboration/Explanation continuation, they must have paid attention to the start state of the transfer event. Even when the target entity was in nonsubject position, their focus on the start state was relatively stronger compared to when they produced an Occasion/Result continuation. If participants perceived this discourse-semantic focus on the *start* state and the *beginning* of a sentence (the position usually filled by the subject) as analogous, they may prefer a pronoun. This remains highly speculative, so future research will need to (dis)confirm this idea.

Overall, for this second question, this study found no evidence supporting the influence of thematic roles on L2 learners' choice of RE forms. The pattern of results observed so far is consistent with the findings from native speakers reported in Fukumura and van Gompel (2010) and Rohde and Kehler (2014). Note, however, that Rosa and Arnold's (2017) story continuation experiments (Experiments 2 & 3) found the thematic-role effects on pronoun use only in contexts with same-gender entities. Therefore, before drawing any conclusions, L2 learners need to be tested using similar stimuli with same-gender entities. I am currently conducting an experiment using such stimuli, and Figure 4 illustrates the preliminary results of coherence relations elicited from six participants.

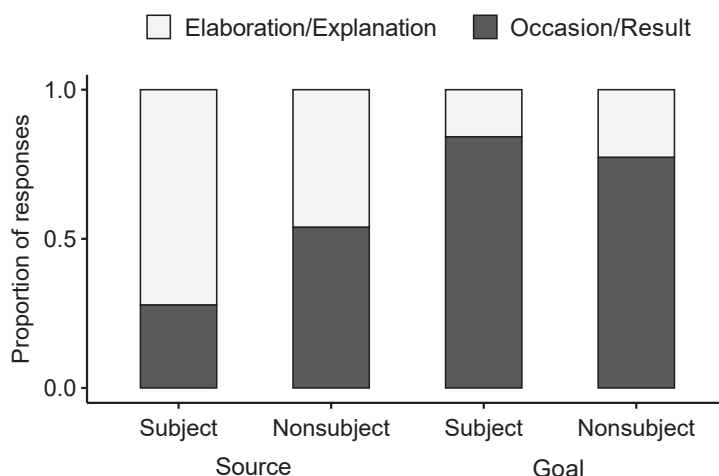


Figure 4. Proportion of coherence relations by grammatical role and thematic role in contexts with same-gender entities (preliminary results)

The general response patterns are very similar to those in Figure 1. The proportion of Occasion/Result continuations is (numerically) higher in the Goal conditions than in the Source conditions. Also, the proportion is higher in the Nonsubject conditions than in the Subject conditions (when the Source and Goal conditions are collapsed). The final results from the analysis of coherence relations and, crucially, the results from the analysis of pronoun use will be reported soon.

5. Conclusion

This study employed the story continuation paradigm to investigate the factors influencing Japanese-speaking learners' construction of coherence relations and choice of reference forms in English discourse. Participants were free to decide how to continue the story following a context sentence and how to refer to the target entity. They could, for instance, choose to explain the cause or result of the event described in the context sentence, and they could consistently use pronouns instead of names in their continuations. It was their preference, not grammatical constraints, that guided their decisions during the experiment. The results showed that even learners with English proficiency clearly distinct from that of native speakers did not produce random continuations; they demonstrated sophistication in establishing coherence relations by considering the thematic role of the target entity and in producing pronouns by accounting for the entity's grammatical role. This study adds to the growing body of evidence that not only verbal aspect but also thematic role influences learners' construction of coherence relations. However, several questions remain unanswered: Whether thematic role indeed has no influence on their use of pronouns, why certain coherence relations (e.g., Elaboration and Explanation relations) increase the rate of pronoun use, and whether it is grammatical role or the order of mention that affects learners' choice of coherence relations and reference form. But to begin, learners need to be tested using the same task and stimuli involving same-gender entities to address the first question.

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Notes

- 1) The authors created comprehension questions by repeating the second clause of the third sentence and replacing the pronoun with the name of one of the two potential referents, instead of using the standard interrogative form (e.g., *Did Bill watch Brenda?*).
- 2) The definitions of coherence relations in (a), (b), and (d) are from Kehler (2004), pp. 247–250. The one in (c) is from Kehler et al. (2008), p. 6.

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第二言語での談話産出における文法役割・意味役割・一貫性関係

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文章が談話として成立するには、文と文が代名詞などで結束するとともに、各文が表す意味の間にも一貫性が存在しなければならない。本研究ではまず、第二言語学習者は談話要素（談話の登場人物）が持つ「起点」（Source）や「着点」（Goal）などの意味役割を考慮しながら、文と文の間に一貫性関係（coherence relation）を構築できるのかを調査した。次に、学習者が談話要素に再言及する際、意味役割・文法役割（主語や目的語など）・一貫性関係の要因が、名前の代わりに代名詞を選択する確率を高めるのかを調査した。実験では日本人英語学習者に筆記式のストーリー継続課題を行なってもらった。参加者は *Misaki gave a bottle of water to Kenta* などの異性の談話要素間で所有の転移が起きる出来事を表す文脈文の後に、下線部の要素（ターゲットの要素）を主語にしながら自然にストーリーが続くように1文を作成した。実験条件は、下線の箇所や動詞の種類を変えることで、ターゲットの要素が (i) 主語であり起点であるもの、(ii) 主語であり着点であるもの、(iii) 間接目的語であり起点であるもの、(iv) 間接目的語であり着点であるものの4つに設定した。

学習者が作成した後続文を分析した結果、ターゲットの要素が起点であった場合より着点であった場合、および主語であった場合より間接目的語であった場合に、文脈文で表された出来事の直後に起きた出来事を描写する文（Occasion 関係）や、文脈文の出来事の結果として起きた出来事を描写する文（Result 関係）を作成する傾向が見られた。さらに代名詞の選択においては、ターゲットの要素が文脈文において主語であった場合や、所有の転移の開始点に重点を置くような一貫性関係（Elaboration 関係や Explanation 関係）を構築した場合に、学習者は代名詞をより多く使用した。これらのことから、学習者は意味役割および文法役割（もしくは談話要素の言及順序）をもとに一貫性関係の構築を行うこと、そして文法役割と一貫性関係をもとに代名詞を選択することがわかった。しかし、代名詞の選択に意味役割は影響を与えないと言えるかどうかを判断するには、今後の研究において、同性の談話要素間で所有の転移が起きる出来事を表す文脈文を用いた実験を行う必要がある。

キーワード：談話の一貫性、文法役割、意味役割、指示表現、日本人英語学習者

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