

L2 English Learners' Acquisition of the Partitive Constraints

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1. Introduction

There are some issues intensively discussed for partitive constructions like (1). Among them the role of the particle *of* still remains unsettled in the literature: it may be the source of partitivity, or otherwise it is meaningless. This issue needs to be addressed with reference to their syntactic structures and (or) semantic functions. The structural analysis for partitives varies depending on how the status of the preposition *of* is treated.

- (1) John talked with {each of the visitors/ three of those students/
some of them}.

One approach (i), originally proposed by Lobeck (1991), can also be viewed as a “single noun” approach, where the numeral (determiner) directly takes a PP as its restrictor, as shown in (2a). The other approach (ii), on the other hand, shows heavier layers where an invisible noun intervenes between a numeral and PP, as shown in (2b):ⁱ

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(2) a. $[_{DP} D [_{PP} \text{of} [_{DP} NP]] :$

(Lobeck 1991, Matthewson 2001, Shin 2016, Gagnon 2013)

b. $[_{DP} D [_{NP} N [_{PP} \text{of} [_{DP} NP]]]] :$

(Cardinaletti and Giusti 2006, Barker 1998, Ionin et al. 2006)

Obviously, the former approach stands on the assumption that *of* is meaningless, while the latter takes it as a pivotal element of combining the two nominals.ⁱⁱ This paper, which is classified into the latter, proceeds with the assumption that the numeral syntactically appears with a null head nominal, i.e. [$\#$ [\varnothing]]. I will not be committed to the formal linguistic analysis here, but Mohri (2021) has developed the semantic and syntactic analysis of partitives, based on the “matching analysis” proposed by Falco and Zamparelli (2019).ⁱⁱⁱ Rather, I make a commitment to the L2 analysis of partitives, particularly shedding light on their syntactic restrictions. It has been pointed out that partitive constructions like (2b) show several constraints, which are even hard for intermediate or advanced learners to properly understand. This paper is concerned with three constraints: (i) Partitive Constraint (PC), (ii) Proper Partitivity (PP), and (iii) Non-Uniqueness of the outer nominal, and measures how well or poorly L2 learners have performed on the questions related to those constraints. They are deeply related to definiteness and its minimal contextual domain in which definiteness is defined.

Hopefully, this analysis will make a contribution to the study of how mature their understanding has been with respect to definiteness in their interlanguage (IL) grammar. The tasks we have implemented this time are grammaticality judgement tasks that target the learners’ intuitions about the

use of the definite article. The subjects are required to read each sentence carefully, decide whether it was a “correct” or “incorrect” sentence, and put a check mark in the appropriate column.

2. Constraints on Partitives

Let us begin by briefly examining the three constraints here in the first place. Since these constraints below in (3) are viewed as core properties to characterize partitives, addressing them helps us develop a better view of the construction.

- (3) a. Proper Partitivity (PP)
 b. Partitive Constraint (PC)
 c. Non-Definiteness of the Outer Nominal (Non-Definiteness of ON)
- (4) a. Twenty kids enjoyed the sweets.
 b. [Two/ each/ some/ of {the kids/ those kids/ them}] were very much happy.
- (5) [DP three [NP ϕ] [PP of [DP the [NP kids]
 Outer Nominal Inner Nominal

Following Zamparelli (1998), I will call the expressions in the curly bracket in (4b) “inner nominals and the left indefinite ones “outer nominals”. They are simply represented as in (5). First of all, Proper Partitivity (henceforth, PP), widely addressed in the analysis of partitives, requires the outer nominal to be a proper subpart of the referent of the inner nominal. In (5) the “whole” part, *the kids* stands in a proper part-of relation with the outer

nominal [_{DP} [*three* [_{NP} \emptyset]]].

Next, PC, called so in Jackendoff (1977), is a structural requirement in which the inner nominal has to show “definiteness” as it appears with the definite article or a demonstrative or as a referential pronoun, as in (4).

Finally, a third constraint, which is also relevant to definiteness, bans the outer nominal from being definiteness-marked. The degraded status in (6b) and (7a) has to do with deviation from this constraint. I refer to this constraint as Non-Definiteness of ON.

- (6) Bill has five dogs.
 - a. This evening he walked two of the dogs.
 - b.* This evening he walked the two of the dogs.
- (7) Five actors have arrived to the hotel, but two left immediately.
 - a. ??The two of the actors didn't like the hotel.
 - b. The two didn't like the hotel.

The example in (7a) is a particularly intriguing one, which shows that this constraint has to be strictly enforced. Unlike in (6b), the outer nominal in (7a) is linked to its explicit antecedent in the previous context. This type of definiteness is categorized as strong anaphora in the classification of Schwarts (2009, 2013) and Jenks (2015, 2018). The use of the definite article as strong anaphora, which requires an explicit antecedent, is banned from appearing with the outer nominal. Interestingly, as shown in (7b), the determiner followed by only a numeral but without PP is utterly fine. The grammatical contrast between (7a) and (7b) suggests that they differ with respect to their minimal domains within which the maximal elements are

satisfied, or more specifically, that they differ in their minimal domains to which Sharvy's (1980) MAX semantics for *the* applies.

Furthermore, what makes this constraint even more complicated is that it shows the ameliorating effects of subtrigging:

- (8) a. *I saw the two of the dogs
b. I saw the two of the dogs^{??} (that you fed yesterday).
(Falco and Zamparelli 2019: 11)

Note that (8b) is ameliorated when the partive phrase is post-modified by a relative clause. I do not delve into a detailed discussion, but only suggest that this subtrigging effect will be successfully accounted for with the matching analysis (See Falco and Zamparelli 2019).^{iv}

3. L2 Learners' Understanding of Definiteness in Partitive Environments

Definiteness is one of the most intensively discussed issues in the second language study. However, to the best of my knowledge, there is no full-fledged analysis to investigate L2 learners' definiteness marking in partitive constructions. In the generative literature, definiteness is defined as uniqueness/ maximality, which is assumed to be derived by the type-shifting operator, *iota* (cf. Partee 1987, Chierchia 1998):

- (9) *iota*: $\lambda P. \iota P_s$, if there exists a unique maximal entity in P, undefined otherwise.
(Chierchia 1998: 346)

In my previous work, I referred to the MAX operator in the analysis of Sharvy (1980), which is principally identical to *iota* for its function. In fact, in the formal approach developed there, I involved the MAX operator in the compositional mechanism, simply because I wanted to highlight its function to pick out the unique, “maximal” element in the domain. However, this paper does not pursue the compositionality of partitives nor the syntactic mechanism, so I do not touch on how each operator plays a role formally.

Also, definiteness can also be characterized with “familiarity” on top of maximality (cf. Kamp 1981 and Heim (1982)). It is not so obvious in English how these two primitives should be encoded on the definite article, but in German, for instance, the contrast between uniqueness (maximality) and familiarity can be morphologically detected (Schwartz (2009)): the German definite article “contracts” with prepositions in familiar definite contexts, but not in unique definite contexts. This morphologically detectable contrast is attested in some other languages including Creole and Akalan.

The L2 research that is grounded on the generative approach has been concerned with UG access and L1 transfer for the development of the interlanguage (IL) grammar (Selinker 1972). The amount of transfer and how crucial a role it plays are still an on-going debate, and on top of them, which linguistic elements, i.e. functional projections, operators, or the language system unique to L1, could be transfer to the learners’ target languages is also under debate. Also, the transfers themselves have both positive and negative ones, and of course, the former is conducive to the development of the IL grammar, but the latter can bring about an adverse effect.

Classifier languages generally lack in definite articles, and of course, Japanese is not exceptional, either. Thus, definiteness is one of the

grammatical categories that L2 English learners cannot easily acquire. Since there is no such article with the two primitive meanings in their L1 language, it can readily be predicted that it takes some time to obtain the proper usage of the English definite article. Put differently, L2 English learners whose L1 language is a classifier language cannot resort to the L1 transfer to have the robust knowledge of definiteness.

On one hand, when it comes to the two primitives of definiteness, obviously, familiarity, categorized as strong anaphora, should be more accessible for Japanese English learners. As pointed out by Jenks (2018: 501), classifier languages including Japanese show the two primitives in different forms: unique (maximal) definites are realized with a “bare” noun, and anaphoric definites are realized with a “demonstrative”, except in subject position.^v Thus, it can be surmised that the learners carry over the presence of the demonstrative in their L1 language to the use of the definite article. Also, strong anaphora basically requires the definite noun to be identified with its explicit antecedent in the language context. In a nutshell, there is an “explicit clue” to anaphoric definites, and this clue may prompt the learners to choose the definite article more readily for strong anaphora.

Before moving on to the discussion on our test and its results, let us briefly review how the three partitive constraints are satisfied in each of the sentences in (10) and close this section.

(10) Bill has five dogs.

- a. This evening he walked **two of the dogs**.
- b.* This evening he walked **two of dogs**.
- c.* This evening he walked **the two of the dogs**.

Obviously (10a) satisfies the three constraints, PC, PP, and Non-Definiteness of ON: first, the inner nominal is definiteness-marked (PC); next, the outer nominal stands in a proper part-of relation with the inner nominal (PP), and the outer nominal appears as indefinite (Non-Definiteness of ON). On the contrary, (10b) is ill-formed due to the violation of PC, and (10c), due to the violation of Non-Definiteness of ON, respectively.

This time, I have carried out a test to investigate how much L2 English learners have properly addressed the constraints. If they cannot, those violations may stem from their lack of proper understanding of definiteness (maximality/ familiarity), or possibly from the unique complexity of partitive constructions. In the subsequent section I will lay out some details with respect to how we implemented the teste and where we focused on.

4. Tests

The participants in our experiment are 30 L1 Japanese undergraduates. It seems that they are widely categorized as intermediate or low intermediate English learners, whose English skills could be evaluated as equivalents of the Eiken Grade 2 and Grade Pre-2. There are only 30 participants, and the number is not large enough to divide them into multiple groups to find if there are any gradable learning stages and distinguished responses attested in each group, so this experiment is merely a preliminary one, but hopefully, it will lead to a larger-scale implementation in the next paper.

More specifically, the test participants are asked to choose “correct” or “incorrect” to each question regarding partitives. The test paper presented to the participants consists of four parts with each one given different contextual settings: each setting is provided with Japanese description in

addition to the English equivalent, and is followed by a sentence containing a partitive phrase. The following is one of them:

- (11) 【ジョンには犬が5匹いて (John has five dogs)、そのうち2匹を散歩に連れて行った】
- a. He walked **the two of those dogs.** Correct Incorrect
- b. He walked **these two of those dogs.** Correct Incorrect
- c. He walked **two of those dogs.** Correct Incorrect
- d. He walked **two of dogs.** Correct Incorrect
- e. He walked **the two.** Correct Incorrect

Note that the partitive phrases are highlighted in bold face and underlined, so that the participants can make their grammatical judgement only for the highlighted parts. Also, to make each situation even more comprehensible, I supplemented Japanese description as well. (11a) and (11b), for example, runs counter to Non-Definiteness of ON, and on the other hand, (11d) violates PC, so the participants are expected to regard them as incorrect answers. In contrast, (11c) is well formed and thus, they are expected to mark it as a correct answer. Particularly, through examples like (11a), (11b) and (11d) where I could see how they respond to PC and Non-Definiteness of ON, I would like to gauge their understanding level of definiteness in partitives.

First of all, let us focus on the examples below in (12), which all violate PC:

- (12) a. I walked **two of dogs**.
b. I polished **three of mirrors**.
c. **Two of actors** did not like the hotel.

Due to space limit, here I have omitted the presupposed contextual descriptions attached to each sentence in (12), but it seems that they helped the participants identify the inner nominals with their antecedents in the context.

Of course, they are expected to show a negative response, marking them as incorrect answers, and in fact, the following table shows the number of participants who rejected each of the questions and its percentage.

Table 1 (N=30)

	(12a)	(12b)	(12c)
Unacceptance	50% (15)	33% (10)	60% (18)

For the sake of discussion, let us take a look at the test results of the following well-formed sentences:

- (13) a. I walked **two of those dogs**.
b. He polished **three of them**.
c. **Five of them** have been real lemons from the beginning.

Table 2 (N=30)

	(13a)	(13b)	(13c)
Acceptance	77.0% (23)	77.0% (23)	63.0% (19)

Table 2 shows the number of the participants that accepted each of the

target sentences and its percentage. Note that more participants have accepted the well-formed sentences in (13) across the board.

However, it is not yet clear at this moment whether the degraded percentages in Table 1 have come from lack of the participants' proper understanding of PC, or otherwise, they are merely not confident enough to reject the target sentences. With this respect in mind, let us turn to the other deviated case in (14), that is, the ill-formed ones including violation of Non-Definiteness of ON, as follows:

- (14) a. I walked the two of those dogs.
 b. He polished the three of them.
 c. The five of them have been real lemons from the beginning.

Table 3 (N=30)

	(14a)	(14b)	(14c)
Unacceptance	27% (8)	27% (8)	57% (17)

Interestingly, more participants failed to reject the target sentences with violation of Non-Definiteness of ON. This seems certainly clear from the fact that the percentages in Table 3 have lowered across the board.

Similar but not identical to the cases in (14) are the example (15c). Apparently, it looks well-formed because “the two” is the maximal element that left the hotel.

- (15) 【俳優5人がホテルに到着した(Five actors arrived to the hotel.)が、そのうち二人はすぐにホテルを去った。ホテルが気に入らなかったからだ。】

- a. **Two of the actors** didn't like the hotel. Correct Incorrect
- b. **Two of actors** didn't like the hotel. Correct Incorrect
- c. **The two of the actors** didn't like the hotel. Correct Incorrect
- d. **Those two of actors** didn't like the hotel. Correct Incorrect
- e. **Two** didn't like the hotel. Correct Incorrect
- f. **The two** didn't like the hotel. Correct Incorrect

(15c) is ill-formed like those in (14) above due to the violation of Non-Definiteness of ON, but unlike them, the outer nominal in (15c) satisfies the definiteness condition. The “two actors” is categorized as strong anaphora in the classification of Schwartz (2009, 2013) and Jenks (2015, 2018) and, needless to say, it is a maximal element, that is, the unique individual that left the hotel. This is corroborated also from the fact that it can be ameliorated when it is post-modified by a relative clause, i.e., subtriggering effect.

(16) The two of the actors^{??} (that left the hotel) didn't like the hotel.

Let us see how the participants responded to the examples in (15). For the sake of simplicity, I only shed light on the two relevant examples below in (17), and show the test results in Table 3.

- (17) a. **Two of the actors** didn't like the hotel.
- b. **The two of the actors** didn't like the hotel.

Table 3

	(17a)	(17b)
Unacceptance	70% (21)	70% (21)
Acceptance	30% (9)	30% (9)

Interestingly, exactly the same number of participants accepted both of them, failing to reject (17b) at the same time. Furthermore, (17b), unlike the same ill-formed examples in (14), satisfies the other primitive of definiteness, i.e. maximality, on top of familiarity ----- note that the definite numeral expression in (15f) is completely fine. The degradation in grammaticality stems from a strong constraint related to partitives. One thing we reach from the test results through (14) to (17) is that the participants cannot fully acquire the constraint to the outer nominal. This can be suggested from the fact that the participants in fact fluctuated between their answers: there is only one participant that rejected all three questions related to Non-Definiteness of ON in (14). Compare this with the number of participants that rejected all the three examples in (12):

Table 4 (N=30)

Unacceptance of all the three examples in (14)	Unacceptance of all the three examples in (12)
3.3% (1)	20% (6)

This fact suggests that the participants have not yet reached the stage in which Non-Definiteness of ON has been fully acquired. When it comes to the cases with the deviation from PC in (12), on the other hand, the ratio of unacceptance is obviously high in comparison with the cases with the deviation from Non-Definiteness of ON ----- note that six participants properly judge all the three examples in (12) as ill-formed. Though it is not

necessarily the case that they have sufficient knowledge of PC, we cannot deny the fact that more participants have proper knowledge of PC than that of Non-Definiteness of ON.

Finally, let us close this section by highlighting one noticeable result. Note that mere numeral nominals like *two* or *the three* as an argument are more likely to be rejected, as shown in Table 5.

- (18) a. I walked the two.
- b. He polished three.
- c. Two actors didn't like the hotel.
- d. The two actors did not like the hotel.
- e. Five have been real lemons from the beginning.
- f. The five have been real lemons from the beginning.

Table 5 (N=30)

	(18a)	(18b)	(18c)	(18d)	(18e)	(18f)
Acceptance	40.0% (12)	40.0% (12)	30.0% (9)	50.0% (15)	43.3% (13)	46.7% (14)
Unacceptance	60.0% (18)	60.0% (18)	70.0% (21)	50.0% (15)	56.7% (17)	53.3% (16)

The type of test I have implemented this time is a closed question, the possible answer of which is only limited to yes/no. Thus, it is predictable that the participants responded positively to each give sentence by default if they do not have a confirmed reason about their judgement. In fact, both the questions expected to be judged as acceptable, as in (13) and those as unacceptable, as in (12) and (14), are dominantly or relatively responded to with the positive answer. Nevertheless, the examples here are more likely to be taken as unacceptable ones. Let us take (18e) and (18f) for instance. The

case with an indefinite noun in (18e) should be responded to with the positive answer, whereas the case with a definite noun in (18f) should be with the negative answer. However, both cases are mostly responded to as unacceptable. This suggests that some other factors than definiteness may have come into play. The biggest reason seems to come from their misconception that numerals cannot appear as an argument without a nominal. This is merely a surmise, and as it is not critically relevant to the discussion here, I will not pursue this matter any further.

5. Concluding Remarks

In this paper I have focused on the constraints observed in partitives and investigated how L2 English learners addressed these constraints through the test I carried out. It is predictable that the partitive constraints are somewhat hard to learn due to the complexity of their syntactic structure, but I attempted to gauge how well and poorly they have done on our test. As I mentioned in the beginning of the paper, this test is still in a preliminary stage, which should be a step stone to a full-fledged implementation, because the test is only limited to a small number of participants and also, they are roughly classified into the same proficiency group. Thus, we cannot find out any correlation between their knowledge of partitives and their proficiency levels. However, I would like to sum up below some test results that may provide beneficial suggestions for the future direction of our research:

- (19) a. The test participants, whose English proficiency levels range from the Eiken Grade 2 to Grade Pre-2, have not yet fully

grasped out the constraints particular to partitives.

- b. Though their knowledge of those constraints is not stable through the questions presented in the test, more participants have successfully addressed the constraint to the inner nominal than the one to the outer nominal.

We have proceeded with the hypothesis that the partitive construction has multiple (two-story) layers. Both the outer and inner nominals in the layers have their common antecedents explicit in their contexts. The “part of the whole” relation is one of the major characterizations denoted by the partitive construction, but the denotation of the inner nominal is identical to its antecedent, namely, the unique (or maximal) entity, whereas that of the outer nominal is some part of the inner nominal, never the unique entity. Put differently, the outer nominal is indeed a familiar entity, but not a maximal entity. Also, remember that there was a case like (15c) in which acceptability was substantially degraded, despite the fact that maximality was fully satisfied. Thus, the proper part-of relation has to be strictly preserved in the partitive construction. Nevertheless, most participants wrongly accepted the definite form in the outer nominal. The participants’ overuse of the definite article may come as a consequence of having associated definiteness with only the other primitive, familiarity. If it is the case, the participants have more trouble with the complexity of partitive constraints and recognition of maximality.

This is by no means beyond our working hypothesis, but considering that there is no overt Japanese lexical item embodying this definiteness primitive, the L2 learners have to acquire it without resort to any positive

transfer from their native language. On the other hand, familiarity is partly but explicitly played by some Japanese demonstratives. This “explicit” clue can prompt the learners to choose the definite article for a nominal with this primitive.

This hypothesis seems to be on the right track, but of course, in order to justify it, we will have to extend the analysis and implement larger-scale tests by taking various possible factors influencing test results into consideration.

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ⁱ Following Falco and Zamparelli 2019, Mohri (2021) assumed that the status of the outer nominal is a PRO nominal which is coindexed with (controlled cataphorically by) the lower nominal. Since the PRO inherits every feature from the lower nominal,

the situation variable signified is unexceptionally inherited. While F&Z's mechanism makes the upper nominal including PRO more elaborate (sophisticated), our proposal focuses on more segmented nominal constructions of the inner one, as shown in (iia) :

- (ii) a. $[_{DP} D [_{\#P} \# [_{PIP} PI [_{nP} n [_{NP} N]]]]]$
 b. some of the students
 c. $[_{DP} \text{some} [_{PRO\#P}] [_{PP} \text{of} [_{DP} \text{the} [_{\#P} \#_{[+Plu]} [_{PIP} PI [_{nP} n [_{NP} N]]]]]]]$

At least PRO should be controlled by either of #P, PIP, *nP*, or NP, inheriting all the grammatical features involved in that nominal projection. Given this DP-internal syntax, I attempted to demonstrate that our matching analysis could nicely account for a wider range of characterizations observed in partitives.

ⁱⁱ More precisely, *of* is meaningless in the single noun approach, but it can also be analyzed as a type-shifter from an entity-denoting nominal to a predicate (see Matthewson (2001) for more details.)

ⁱⁱⁱ The matching analysis is built on the null NP analysis, and assuming heavier layers will obtain favorable results, one of which comes from the (im) possibility of extraposition. Selkirk's (1977) contrasts the (im) possibility of PP extraposition of partitives with that of pseudopartitives, claiming that they show different syntactic facets.

- (i) a. Two reviews have been reprinted of Helen's first symphony.
 b.* Two of those reviews have been reprinted of Helen's first symphony.
 c. A number of reviews have been reprinted of Helen's first symphony.

They are the cases in which the PP is extraposed out of the relational noun *view*. The simple case (ia) and the pseudopartitive (ic) both allow the PP to be extraposed, but the partitive (ib) does not. Obviously this indicates the possibility that partitives have heavier layers, and thus the degraded status in (ib) has to do with a violation of the Complex NP constraint.

^{iv} Given the null nominal approach in (2b), the two nominals are established via a 'subpart/subset'-related semantics. The semantic import of the preposition *of* adopted in my previous paper is (ia), which should fit in with the constraints particular to par-

titives.

- (i) a. $\llbracket \text{of} \rrbracket = \lambda x \lambda P \lambda y [P(y) \wedge y < x]$
b. $\llbracket \text{of} \rrbracket = \lambda x \lambda P \lambda y [P(y) \wedge y \leq x]$ (Barer 1998)

Of course, *of* should not merely combine the two nominals, but warrant that all the elements in the domain of the denotation of the outer nominal should be a part of the denotation of the inner nominal. Note, first, that (ia) is compatible with PC in that it takes the definite argument of type *e* as its first argument. Also, all the elements in the denotation of the outer nominal have to stand in a “proper part-whole relation” with that of the inner nominal, i.e., $y < x$. Barker’s proposal (ib), on the other hand, does not filter out the element equivalent to the denotation of the inner nominal itself because the part-of relation is defined with $y \leq x$. However, the story is more complicated than we assume due to some tricky and naïve facts to be handled, as follows:

- (ii) I got eight students to call into my office,
a.* The five of those students are from Saga.
b.* The eight of those students are from Saga.
c. The eight of them are from Saga.
d. All of those students are from Saga.

(iia) and (iib) both run counter to Non-Definiteness of ON: the outer nominal cannot denote a maximal element. However, on the other hand, the examples (iic) and (iid) could not be captured unless defined with $y \leq x$, but (iid), first of all, has not been classified as a canonical partitive in Falcon and Zamparelli (2019) because canonical partitives are commonly available across languages and at least, the Italian counterpart to (iid) is not acceptable. Also, (iic), which obvious runs contrary to Non-Definiteness of ON, should be intensively discussed in Falcon and Zamparelli (2019), and it seems reasonable to treat it differently from canonical partitives.

^v Jenks (2018) claims that the definite noun in subject position is associated with “topic”, which can help you identity the description without a demonstrative with its explicit antecedent.