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Unpacking the Puzzle

Analyses of Passive Subject Relative Clauses in L2 Object Relative Clause Elicitation

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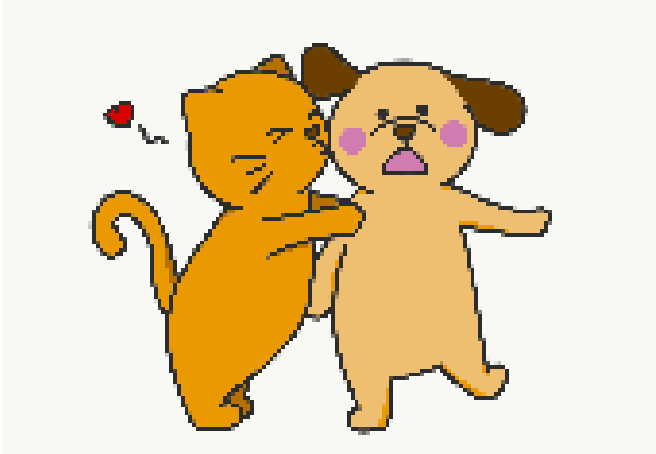
Introduction

Puzzle

Japanese speaking L2 learners of English tend to produce subject relative clauses (SRCs) in passive form (1a) rather than object RCs (ORCs)(1b).

(1) a. The cat that is kissed by the dog. (passive SRC)
b. The dog that the cat is kissing. (ORC)



Introduction

Two Solutions Proposed for the Puzzle

(2) a. L2 learners' efforts to avoid structural intervention during production. (Suzuki & Hirakawa 2018)

b. L2 learners' tendency for selecting one type over the other during performance. (Fujimori et al. 2025)

Topic

Intervention in ORCs

(3) a. The cat that △ is kissing the dog (SRC)
|___local___|

b. The dog that the cat is kissing △ (ORC)
|_____<intervenor>_____|
*local

Introduction

Debate on the Role of Intervention

Intervention affects the production of ORCs as a structural constraint or

it influences the selection of passive SRCs as a ‘production filter.’

Aim

In exploring this debate, we present two analyses based on the findings from our experiment conducted with Japanese speaking EFL learners, focusing on their uses of relative pronouns, *who*, *whom*, and *that,* in eliciting relative clauses.

Previous Studies

Observation 1

ORCs are harder to comprehend and produce than SRCs in L1 acquisition due to the presence of the subject DP in the RC. (Adani 2012, Belletti et al. 2012, Friedmann et al. 2009)

◎ This difficulty is assumed to emerge as a violation of Relativized Minimality (RM), as in (4).

(4) Featural Relativized Minimality (fRM)

In … X … Z … Y …

A local relation is disrupted between X and Y when:

a. Z structurally intervenes between X and Y and
b. Z matches the specification in morphosyntactic features of X.

(Villata, Rizzi, & Franck 2016: 78)

Previous Studies

Hu, Gavarró, Vernice, & Guasti (2016)

Task—picture-sentence matching
Participants—120 Chinese children (3 ~ 8 years of age)
Results—preference for SRCs over ORCs
This preference persists as they grow older.
Claim—ORCs are difficult due to an intervening subject.

Friedmann, Belletti, & Rizzi (2009)

Tasks—picture-matching and sentence-scenario
Participants—22 Hebrew children (3;7 ~ 5 years of age)
Results—55% for ORCs with a lexical DP
79% for ORCs without a lexical DP (free ORC)
('Show me the one that the boy is wetting.')
Claim—The difficulty with the ORC is selective, depending on the (dis)similarity in feature between the relative head and the intervening subject.

Previous Studies

Observation 2

Japanese EFL learners do not exhibit a significant intervention effect when comprehending the ORCs in English.

◎L1 grammatical knowledge can help nullify this effect in L2 acquisition if the relevant structure is sufficiently similar between the two languages.

(Fujimori et al. 2022, Nakayama et al. 2021)

(5) a. $[_{DP}$The dog $[_{CP}$that $[_{TP}$the cat $[_{VP}$is kissing △]]]].

b. $[_{DP}[_{CP}[_{TP}$Neko-ga $[_{VP}$△ kisusiteiru]]] inu].

Previous Studies

Yoshimura, Nakayama, & Fujimori (2021)

Participants—128 Japanese college EFL learners in Japan (Low, *n*=64, mean TOEIC=442.8; Upper-low, *n*=64, mean TOEIC=530.1)

Task—Reading comprehension with picture selection

Target—ORCs under four [+/-animate] conditions ([+AN][-AN]; [-AN][-AN]; [-AN][+AN]; [+AN][+AN])

Finding—The L2 learners performed well on the reading task, with the range of average correct response rates between 63.3% and 81.3%.

Claim—Japanese EFL learners can adopt a strategy to mitigate the intervention effect in English once they identify structural similarities between L1 and L2 ORCs. (Observation 2)

Previous Studies

Xia, White, & Guzzo (2022)

Participants—39 Chines EFL learners in Canada
(13 intermediate + 26 advanced)
16 NSE

Task—Reading comprehension(with pics and self-paced)

Target—SRCs and ORCs

Finding—The Chinese learners did not exhibit significant difficulty in comprehending ORCs.
Accuracy for SRCs was significantly higher than for ORCs in all groups, a processing effect.

Previous Studies

Observation 3

L2 learners of English frequently tend to produce SRCs in passive form when attempting to construct ORCs in writing.

(6) a. The dog that the cat kissed. (ORC)
b. The dog that was kissed by the cat. (passive SRC)

L1 Acquisition

Suzuki & Hirakawa (2019)

Participants－6 heritage Chinese speakers in Japan (n= 6)
Task－Picture elicitation of SRCs and ORCs in Chinese under 2 conditions:
[+ +] and [+ -].

Finding－The heritage speakers preferred passivized RCs to ORCs for 80.0% of the time, particularly in the case of [+ -].

Previous Studies

L2 Acquisition

Fujimori, Yoshimura, & Nakayama (2023)

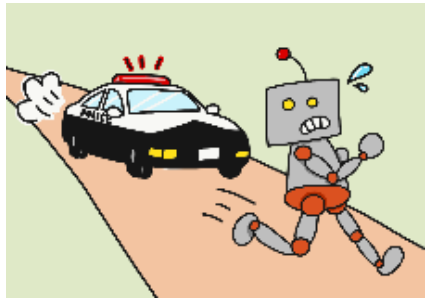
Participants－16 Japanese college EFL learners in Japan (mean TOEIC=Reading 234.4, Listening 273.4, Total 507.8, CEFR B1)

Task－Picture-cued RC completion in writing

(7) 「マリさんにBのパトカーを選ぶように伝えましょう」

A B

Mari



Mari, select the picture of the police car _____.

Findings－A preference for passive SRCs over ORCs, with percentages ranging from 20.8% to 31.3%, but a relatively high error rate (47.9%)

Previous Studies

Fujimori, Yoshimura, & Nakayama (2025)

Participants－28 Japanese college students in Japan
(2 groups based on TOEIC L&R scores: (*n*=14, Group 1: mean TOEIC score 602.57, SD 32.96; G2: 528.93, SD 51.86;) *t*(26)=4.545, *p*<.001).

Target－ORC types under 4 [+/- animate] conditions: ORC 1 [-] [-], ORC 2 [-] [+], ORC 3 [+] [-], ORC 4 [+] [+]
SRC types under 3 [+/- animate] conditions: SRC 1 [-] [-], ORC 2 [-] [+], ORC 3 [+] [-]

Task－Picture-cued writing completion of RCs

(8) A B

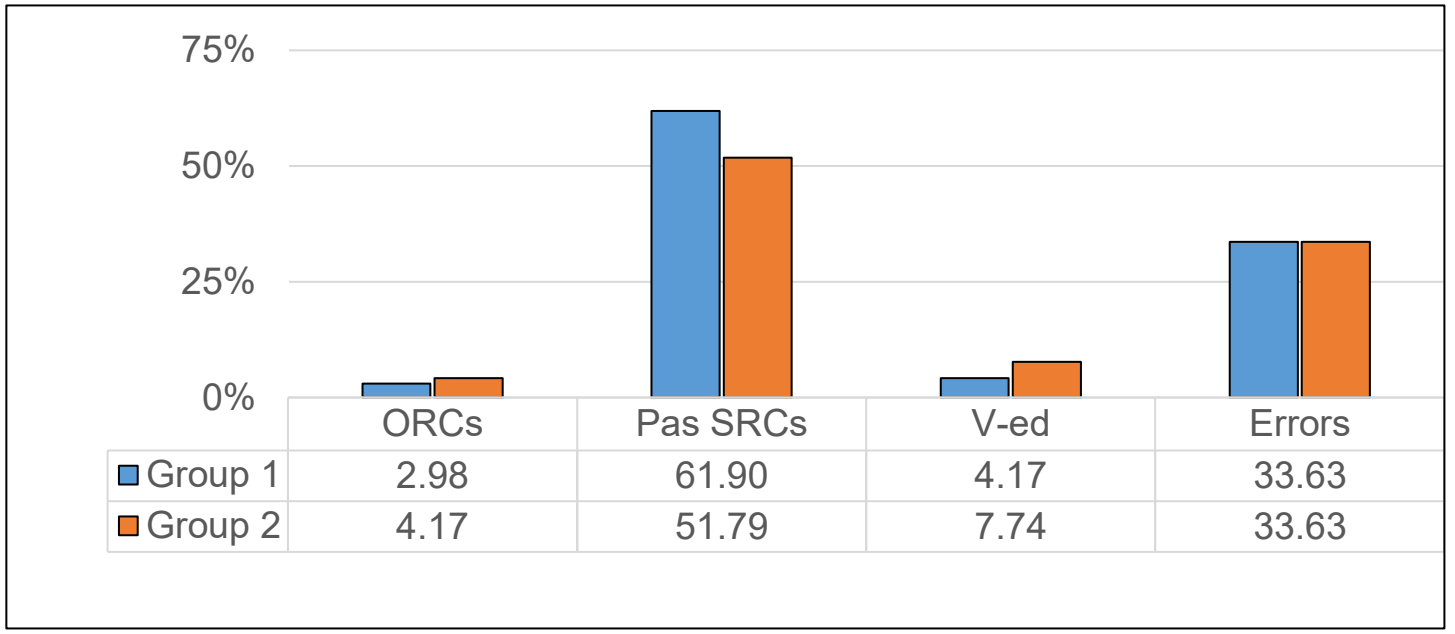
Kota

A helicopter struck a roller coaster. *A roller coaster struck a helicopter.*

「コウタ君にBのヘリコプターを選ぶように指示しましょう。」

Answer sheet: Kota, select the picture of the helicopter _____.

Previous Studies



	ORCs	Pas SRCs	V-ed	Errors
Group 1	2.98	61.90	4.17	33.63
Group 2	4.17	51.79	7.74	33.63

Figure 1. Mean correct response rates by response type and group

Finding 1—Passive SRCs were produced far more frequently than target ORCs in both groups (p=.001).

Finding 2—Errors were made more frequently than ORCs in both groups (p=.001).

This asymmetry shows that SRCs are easier to produce than ORCs among Japanese EFL learners.

Previous Studies

Individuals

[Passive SRCs]

Table 1. Number of participants who produced passive SRCs over 60% of the time, exceeding 6 out of 12 tokens.

	60%~	70%~	80%~	90%~	100
Group 1 (*n*=14)	1	2	1	2	1
Group 2 (*n*=14)	2	2	0	0	1

Finding 3—Half of the participants in Group 1 produced passive SRCs over ORCs 60% of the time, compared to about 35% of those in Group 2.

⇒ This asymmetry suggests that passive SRCs become increasingly accessible to Japanese EFL learners as their English proficiency improves.

⇒ This increased accessibility encourages advanced learners to opt for the passive SRC over the ORC more frequently.

Summary

(9) In language acquisition:

a. ORCs are more challenging compared to SRCs.

b. Structural similarity between L1 and L2 reduces difficulty with ORCs for L2 learners.

c. Passive SRCs are produced more frequently than ORCs.

d. With increased proficiency, L2 learners find passive SRCs more accessible.

Experiment

Participants

51 Japanese college students divided into 2 groups :

Group 1—24 EFL learners, pre-intermediate
(mean TOEIC L&R scores: 485.8, SD=16.0, CEFR A2)

Group 2—27 EFL learners, intermediate
(mean TOEIC L&R scores: 702.6, SD=59.5, CEFR B1)

A significant difference between 2 groups: ($t(49)=17.3$, $p<0.1$)

Procedure

- In a large classroom, the participants were asked to:
  First, read the instruction in Japanese, which is similar to “Let’s tell Hana to select the dog in Picture B.”
  Second, identify the dog in Picture B.
  Finally, complete the underlined part of the sentence on the answer sheet, like “Hana, please select the picture of the boy *who*/*that*_____.”

- 24 slides used, 8 slides each for *who*, *whom*, and *that*.
- The slides transitioned from one to another at 25-second intervals.

Experiment

Example pictures used in the RC survey slide

(10) a.

Hana

A

boy, push, truck

B

truck, push, boy

a. Hana, please select the picture of the boy **who** is pushing the truck
b. Hana, please select the picture of the boy **whom/that** the truck is pushing.

Note: Hana's face was drawn on the slide to align with the context (Crain & Thornton 1998).

An important characteristic unique to this survey is the relative pronoun's control over the use of an SRC, an ORC, or either in sentence completion. More specifically, *who* leads to the SRC, *whom* leads to the ORC, and *that* can lead to either one when forming a relative clause.

The relative heads were all animate, whereas the embedded subjects were evenly balanced between animate and inanimate DPs. This design ensured that animacy did not influence the choice between ORCs and passive SRCs in the production task.

(11) a. ケン君にBの水兵さんを選ぶように指示しましょう。

Ken

A

alligator, bite, sailor

B

police car, chase, sailor

解答用紙

Ken, select the picture of the sailor that _____

Analysis 1

- To investigate how the participants performed when using *whom* versus *who* as a triggering relative pronoun.
  - 765 responses (408 for *who* and 357 for *whom*) were collected from 51 participants (24 in Group 1 and 27 in Group 2).
  - One *whom* token was removed from the analysis.

Table 1-1. *Who* vs. *Whom*: Correct response and error rates by group (%)

Participants	(n=)	TOEIC	Who (10c, d)		Whom (10a, b)	
			correct	errors	correct	errors
G 1	24	485.8	96.9	3.1	66.7	33.3
G 2	27	702.6	95.4	4.6	64.6	35.4

Analysis 1

The group results in Graphs 1 and 2 indicate:

- A near-perfect production with the *who* SRC construction.
- A moderate production with the *whom* ORC construction, with an average accuracy of 65.5%: no significant group difference (*F*(1.785)=0.8, *p*=.37).
- A significant difference between *who* and *whom*: (*F*(1.785)=176.4. *p*<.01)
- A mean error rate for the *whom* ORC construction was significantly higher than that for the *who* SRC construction across both groups.

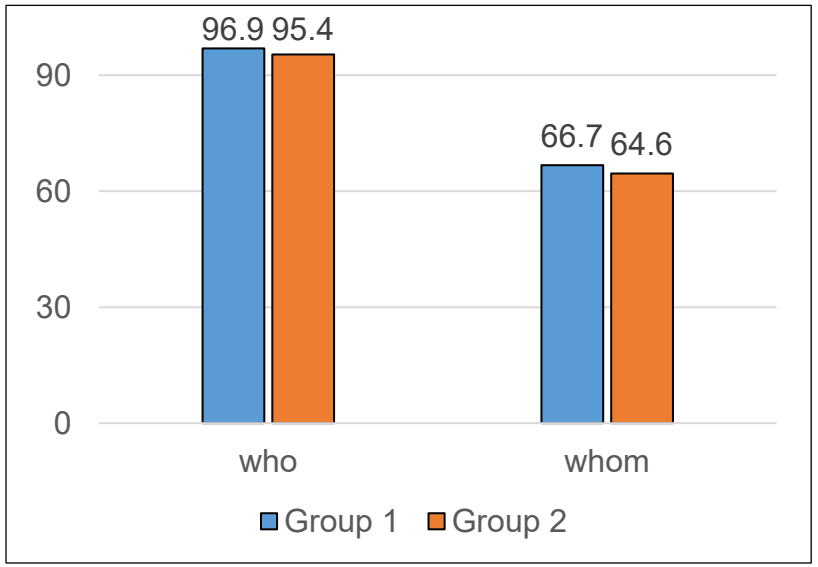


Figure 2. Correct response rates by group (%)

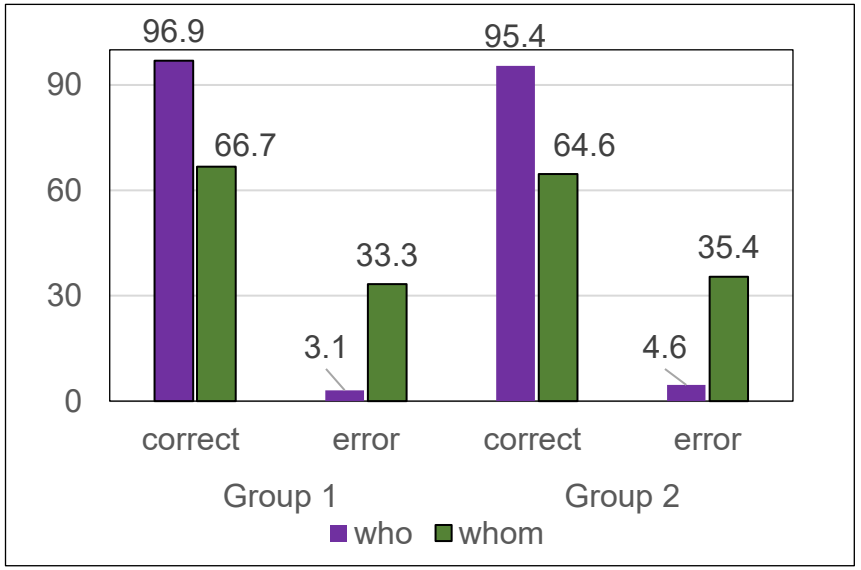


Figure 3. Correct and error response rates by *who* vs. *whom* (%)

Analysis 1

The individual results for *whom* constructions are as follows:

- Error rates at 50% or higher: Group 1 had 5 individuals making these errors, while Group 2 had 9 individuals.
- 100% error rates: Four individuals from Group 1 and 5 from Group 2 made errors in all tokens.
- Flawless Results: Group 2 showed stronger performance, with 11 individuals making no errors, compared to 5 in Group 1.

Table 1-2. Error rates in *whom* ORCs by group and individual

Number of errors		0	1~3	4~6	7
Group 1 (*n*=24)	(n=7)	5	14	1	4
		20.8%	58.3%	4.2%	16.7%
Group 2 (*n*=27)	(n=7)	11	7	4	5
		40.7%	25.9%	14.8%	18.5%

⇒Group 2 struggled with errors more than Group 1, presenting an interesting contrast; however, Group 2 produced perfect ORCs twice as frequently as Group 1.

⇒ Approximately 20% of individuals in each group demonstrated no distinct linguistic awareness of the *who* versus *whom* distinction. This tendency decreases as their English proficiency increases.

Analysis 2

- To investigate which RC type the participants prefer when using the relative pronoun *that*:
  - Seven participants excluded from Group 1, and ten participants from Group 2 due to their failure to produce 5 or more ORCs using *whom* out of 7 tokens.
  - Table 2Seventeen participants each formed Group 3 (mean TOEIC L&R 489.4, SD=15.9) and Group 4 (710.9, SD=67.4).

Table 2-1. *That*: Correct response and error rates by group and RC type

Participants	(*n*=)	TOEIC	*That* (11a, b)		correct response rate	error rate
			ORC	Passive SRC		
G 3	17	489.4	67 (49.3%)	22 (16.2%)	89 (65.4%)	47 (34.6%)
G 4	17	710.9	66 (48.5%)	39 (28.7%)	105 (77.2%)	31 (21.3%)
Overall	34	600	133 (49.6%)	61 (22.4%)	194 (72.1%)	78 (27.9%)

Analysis 2

The group results in Graphs 3 and 4 indicate:

- Both Group 3 and Group 4 correctly produced ORCs approximately 50% of the time, with minimal difference (49.3% versus 48.5%).
- A significant difference in response patterns between the groups (*p*=.02)
- Group 4 correctly produced passive SRCs significantly more frequently than Group 3 (28.7% versus 16.2%) (*p*=.01).
- Group 4 demonstrated a significantly lower error rate than Group 3 (34.6% versus 21.3%).

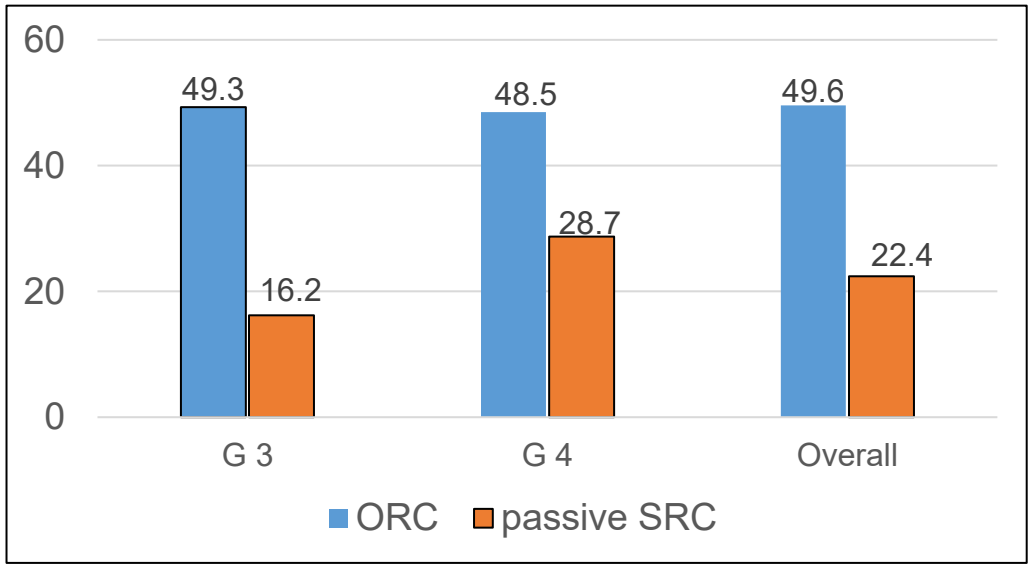


Figure 4. Correct *that* response rate by RC type (%)

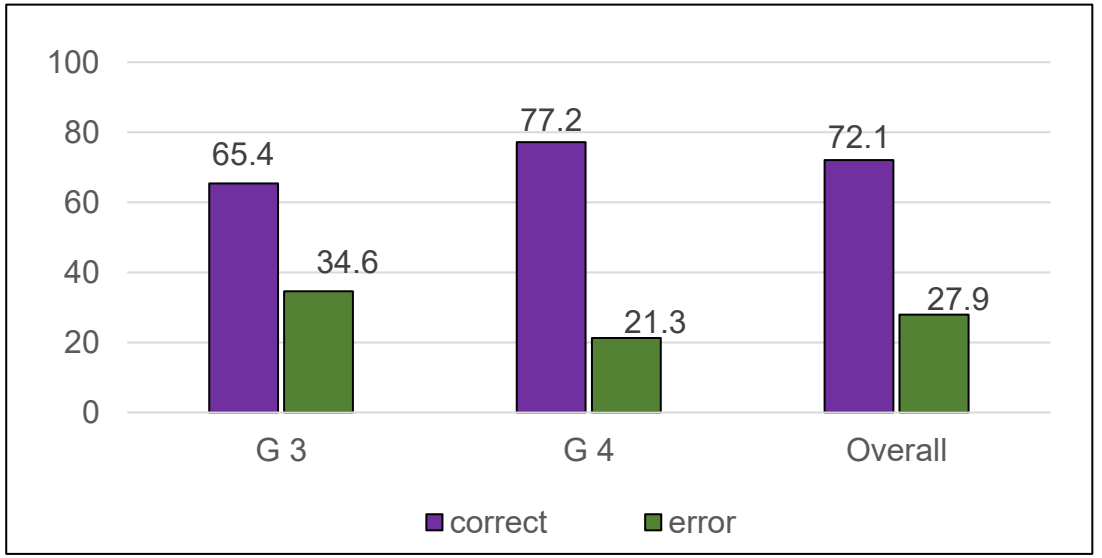


Figure 5. Correct response vs. error rates by group (%)

Analysis 2

The individual results for *that RC* constructions are as follows:

- Producing ORCs correctly at a rate of 50% or higher, 12 individuals in Group 3 (70.6%) and 9 individuals in Group 4 (52.9%) were identified.
- Notably, two participants in Group 4 produced all eight ORCs with 100% accuracy, whereas none in Group 3 achieved this level of performance.
- In contrast, for passive SRCs, only 1 individual in Group 3 (5.9%) and 3 individuals in Group 4 (17.6%) achieved this production level.
- For one participant in each group, all eight responses were passive SRCs produced with 100% accuracy.
- A small number of individuals made errors at a rate of 50% or higher: 3 participants in Group 3 (17.6) and 2 participants in Group 4 (11.8%) for the relative pronoun *that* RCs.

Table 2-2. Number of individuals in *that* RCs by group and RC type

	ORC			Passive SRC			Error	
(n=8)	4	5~7	8	4	5~7	8	4~7	8
Group 3 (n=17)	5	7	0	1	0	1	3	0
(%)	29.4	41.2	0	5.9	0.0	5.9	17.6	0
Group 4 (n=17)	3	6	2	1	2	1	2	0
(%)	17.6	35.3	11.8	5.9	11.8	5.9	11.8	0

Analysis 2

The individual results depicted in Graphs 5 and 6 highlight two contrasts:

- Group 4 produced passive SRCs more frequently than Group 3.
- Group 3 made errors more frequently than Group 4.

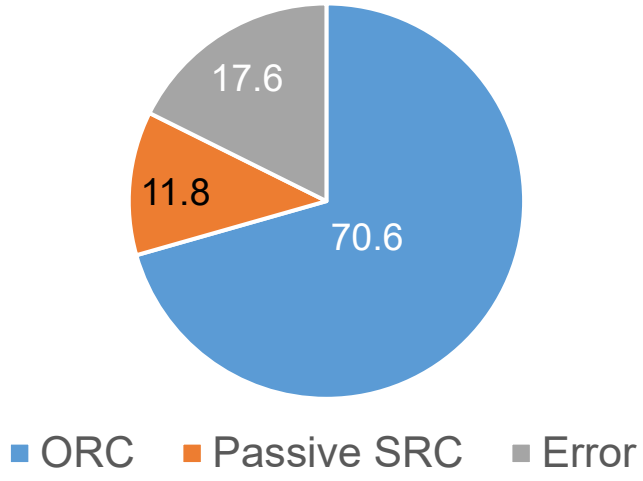


Figure 6. Group 3 for *that* RCs

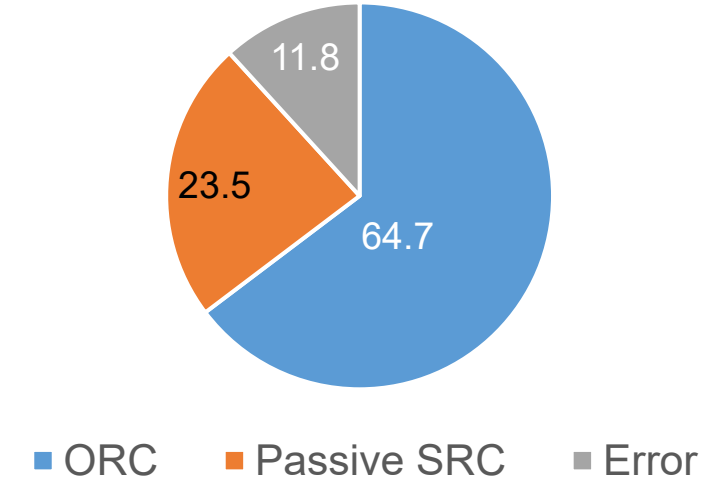


Figure 7. Group 4 for *that* RCs

Summary

Key Findings on *Who* vs. *Whom Usage*

(12) a. Japanese EFL learners faced no significant difficulty in producing *who* SRCs.

b. Japanese EFL learners showed a relatively fine performance with *whom* ORCs, averaging nearly 60% overall.

c. Japanese EFL learners generally made more errors in producing *whom* ORCs than *who* SRCs.

d. Japanese EFL learners have become increasing comfortable producing whom ORCs as their English proficiency improves to an intermediate level.

e. Approximately one-fifth of Japanese EFL learners failed to recognize the distinction between who and whom as a trigger for the RC production.

Summary

Key Findings on *That* Usage

(13) a. Japanese EFL learners successfully produced ORCs at approximately 50% overall accuracy when using the relative pronoun *that*.

b. Japanese EFL learners produced passive SRCs correctly at an overall low rate of 22.4%.

c. Japanese intermediate EFL learners tended to produce passive SRCs more frequently than Japanese pre-intermediate EFL learners, with rates of 23.5% and 11.8%, respectively.

d. Japanese pre-intermediate EFL learners tended to produce ORCs slightly more frequently than Japanese intermediate EFL learners when using the relative pronoun *that*.

e. Japanese pre-intermediate EFL learners made errors more frequently than Japanese intermediate EFL learners when using the relative pronoun *that*, with rates of 17.6% and 11.8%, respectively.

Discussion

This study confirms:

(i) Producing ORCs is generally more challenging than producing SRCs among Japanese EFL learners, presumably due to an intervention effect (12a, c).

(ii) However, they benefit from a positive L1 transfer effect that helps mitigate this intervention (12b, d). Specifically, upon recognizing structural similarities in RC construction between their L1 (Japanese) and L2 (English), Japanese EFL learners become capable of applying already-acquired strategies to navigate and avoid intervention.

(iii) Some learners need explicit instruction to understand the morphosyntactic restrictions on the use of *who* versus *whom* in forming RCs in English (12e). This understanding is crucial for their improvement from intermediate to advanced proficiency.

Discussion

This study demonstrates:

(iv) The correct production of ORCs was stable within the *that* RC construction at approximately 50%, but ungrammatical responses averaged 34.6% for pre-intermediate and 21.3% for intermediate groups (Table 2-1). This finding is unsurprising, as achieving stable production of grammatical knowledge requires both time and practice.

(v) Out of groups of 17 participants, the proportion of individuals producing correct passive SRCs at rates of 50% or higher increased with proficiency, from 16.2% in pre-intermediate groups to 28.7% in intermediate groups (refer to Table 2-1).

(Vi) The percentages of 17 individuals choosing one RC type over the other at rates of 50% or higher were 11.8% for passive SRCs and 70.6% for ORCs in the pre-intermediate group, compared to 23.5% for passive SRCs and 64.7% for ORCs in the intermediate group (Figures 6 & 7).

Discussion

The findings in (v) and (vi) confirm that as Japanese learners' English proficiency improves, passive SRCs become increasingly accessible during production (9d).

This challenges the assumption that learners produce passive SRCs to avoid intervention when attempting to produce ORCs.

Two Questions

(I) If proficiency helps learners mitigate intervention, why do they increasingly favor passive SRCs over ORCs as their English proficiency reaches an intermediate level?

(II) Wy do passive SRCs present the greater challenges to L2 learners? Aren't they intervention-free constructions?

Proposal & Conclusion

Proposal

(14) a. [ORC] ← smuggling + relativization

$[[_{head}$ DP2$][_{CP}$ [V DP2 $[_{TP}$ DP1 $[_{vP}$ … [V DP2]]]]]

↑relativization ↓↑ smuggling ↓

b. [Passive SRC] ← smuggling + raising + relativization

$[[_{head}$ DP2$[_{CP}[_{TP}$DP2 [[V-ed DP2] by DP1 [[V-ed DP2]

↑relativization↑↑ raising↓↑ smuggling ↓

(grounded in Collins' (2005) proposal for passivization)

- The process illustrated in (4b) is more complex than the one in (4a).

Conclusion

(15) a. Japanese EFL learners often favor the passive SRC over the ORC, aligning with Snyder and Hyams' (2015) view of the passivized subject as the sentence's Topic.

b. The complexities of relativization and A-movement lead to more errors at lower proficiency levels, while higher proficiency facilitates passive SRC production.

c. The intervention in question is not representational; it likely operates like a surface-level production filter.

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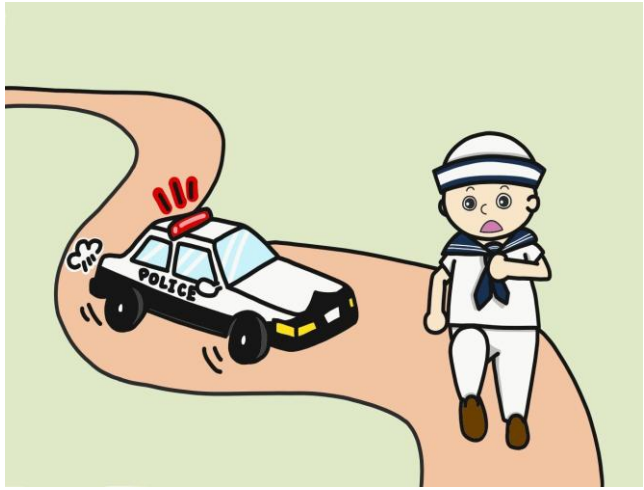
(10) b. ケン君にAの水兵さんを選ぶように指示しましょう。

Ken

A

alligator, follow, sailor

B



police car, follow, sailor

[解答用紙]

Ken, select the picture of the sailor whom _____

(10) c.　マリさんにAのネコを選ぶように指示しましょう。

Mari

A

cat, punch, dog

B

dog, punch, cat

[解答用紙]

Mari, select the picture of the cat who _____

(10) d. コウタ君にAの探偵を選ぶように指示しましょう。

Kota

A

detective, catch, thief

B

detective, run after, thief

解答用紙

Kota, select the picture of the detective who _____

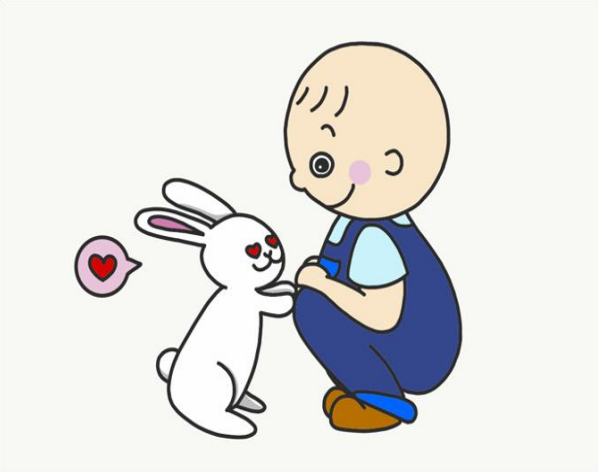
(11) b. マリさんにAのウサギを選ぶように指示しましょう。

Mari

A

child, wash, rabbit

B



rabbit, love, child

[解答用紙]

Mari, select the picture of the rabbit that _____