L2 acquisition of count syntax in English by Japanese and Spanish speakers

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1. Count-mass in English, Japanese and Spanish

Count noun

a. For his job, John packed boxes for many hours.
b. Kare-no shigoto-no tame-ni, John-wa nan-jikan-mo hako-o tsumeta. **(Jap)**
c. Por su trabajo, John empacó las cajas durante muchas horas. **(Span)**

Object mass noun

a. At the store, Mary bought furniture for her apartment.
b. Mise-de Mary-wa apāto-no kagu-o katta. **(Jap)**
c. En la tienda, Mary compró los muebles para su deapartamento. **(Span)**

Substance mass noun

a. While in Japan, George ate rice with each meal.
b. Nihon-ni iru aida, George-wa maishoku gohan-o tabeta. **(Jap)**
c. Mientras estaba en Japón, George comía arroz con cada comida. **(Span)**

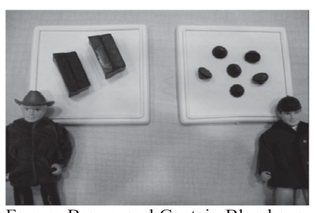
Flexible count – mass noun

a. For his birthday, John served cake(s) to his invited guests.
b. John-wa tanjōbi-ni, shōtaikyaku-ni kēki-o dashita. **(Jap)**
c. Para su cumpleaños, John sirvió pasteles a sus invitados. **(Span)**

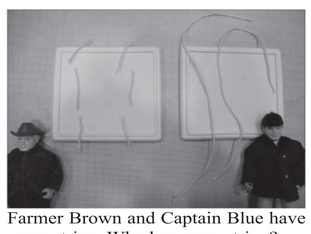
- In **Spanish**, count nouns are the same as English, but object, substance and flexible mass nouns appear to be countable.
- In **Japanese**, the distinction is not expressed via morphosyntax on the noun itself, as bare nominals are used; rather the distinction is expressed via classifier + count noun whereas mass nouns combine with measure words. Japanese also has a count-mass semantic distinction like English and Spanish, but crucially it lacks the morphology on the noun (Nomoto, 2013).

2. Inagaki (2014)

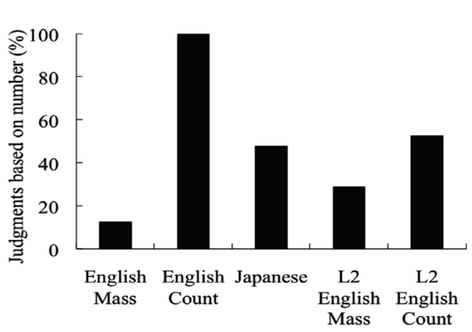
- Quantity judgment task.
- 39 Japanese speakers.
- Presented with pictures and asked 'Who has more chocolates / string?')



Farmer Brown and Captain Blue have some chocolates. Who has more chocolates?



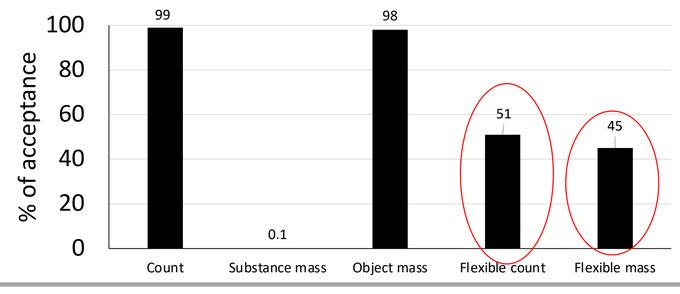
Farmer Brown and Captain Blue have some string. Who has more string?



Unlike English native speakers, Japanese learners of English did not change their interpretations depending on whether the words were used with mass or count syntax (e.g., string or strings).

3. MacDonald & Carroll (2018)

- 40 Korean L2 learners of English.
- Four conditions – **Count, Object, Substance, Flexible.**
- The tasks were computer-controlled with timed judgements.
- Participants saw one picture with two big objects and one picture with six small objects.
- They were asked to decide Who has more …?
- Participants were presented with flexible nouns in count syntax and judged these nouns **51%** of the time over number.
- Participants who were presented with the nouns in mass syntax used number **45%** of the time.



4. Morphological Congruency Hypothesis

- According to the Morphological Congruency Hypothesis, the presence or absence of the target morpheme in the learners' L1 would influence L2 processing patterns (Jiang, 2004).
- Some languages, such as English, mark plurals, whereas plural marking is highly restricted and optional in other languages, such as **Japanese**. (morphologically **incongruent** with English count nouns).
- **Spanish** is similar to English in that it uses articles and plural marking (morphologically **congruent** with English count nouns).

5. Our Study

Research Questions

1. **Do Japanese and Spanish intermediate L2 learners of English pay attention to the morpho-syntax when processing L2 English flexible nouns?**
2. **Does L1 transfer play a role in the processing of count and mass nouns?**

Participants

	Native English Controls (n= 19)		L1 Japanese L2 English Speakers (n= 18)		L1 Spanish L2 English Speakers (n= 21)	
	Mean	Range	Mean	Range	Mean	Range
Age at testing	N/A	N/A	19.4 (yrs)	19-21 (yrs)	22.3 (yrs)	20-27 (yrs)
Age of L2 onset	N/A	N/A	10.3 (yrs)	3-14 (yrs)	14 (yrs)	6-23 (yrs)
Proficiency test (converted to TOEIC scores)	N/A	N/A	615	525-725	598	499-737
Length of exposure to L2	N/A	N/A	9.2 (yrs)	7-16 (yrs)	8 (yrs)	3-16 (yrs)

Materials

Table 1. List of conditions and noun stimuli used in the tasks

Flexible mass	Flexible count	Object	Substance	Count
cake	cakes	clothing	mustard	bottles
chocolate	chocolates	furniture	ketchup	biscuits
hair	hairs	jewerly	toothpaste	boxes
paper	papers	luggage	oil	chestnuts
potato	potatoes	cutlery	lotion	cups
spinach	spinaches	footwear	salt	dolls
stone	stones	mail	sugar	garlics
string	strings	stationary	chalk	shoes
pie	pies	timber	sand	spoons
ribbon	ribbons	cash	paint	hats
avocado	avocados	coal	pasta	keys
cabbage	cabbages	ice	rice	pots

Tasks

Quantity Judgement Task (QJT)

For the QJT, two pictures appeared on a computer screen and participants were instructed to select one of the pictures after hearing and reading a question with the quantifier *more* + noun.

Self-Paced Reading Task (SPR)

- Non-cumulative, word-by-word.
- Speed response (button push) determines underlying processes.
- Presentation using Cedrus SuperLab 6 with a response pad.
- A Latin square design - 24 grammatical and 24 ungrammatical sentences using the four conditions.
- 12 grammatical sentences and 12 ungrammatical sentences served as fillers.
- 48 Yes / No comprehension questions.

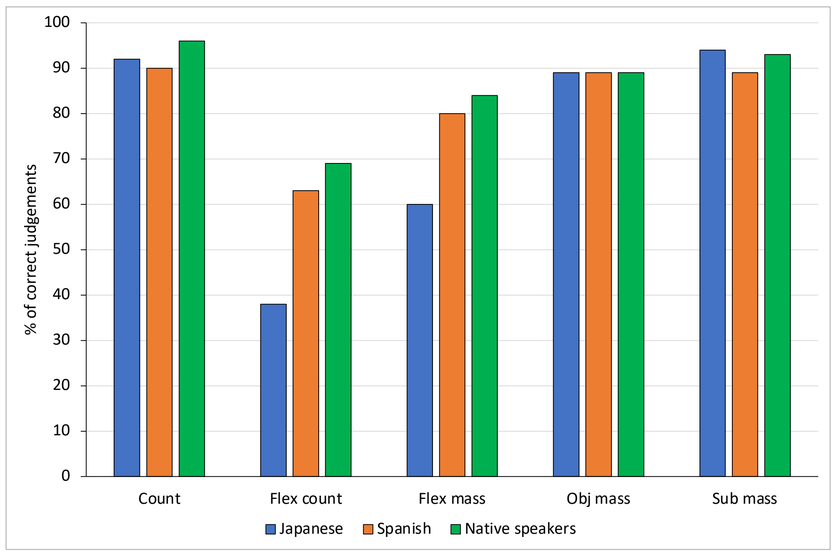
Table 2. Test conditions for SPR task

		R3	R4	R5	R6
1. Count	**grammatical (CG)**	For his job, John	packed	boxes	for	many hours.
	ungrammatical (CU)	For his job, John	packed	box	for	many hours.
2. Object	**grammatical (OG)**	At the store, Mary	bought	furniture	for	her apartment.
	ungrammatical (OU)	At the store, Mary	bought	furnitures	for	her apartment.
3. Substance	**grammatical (SG)**	While in Japan, George	ate	rice	with	each meal.
	ungrammatical (SU)	While in Japan, George	ate	rices	with	each meal.
4. Flexible	**count (FC)**	For his birthday, John	served	cakes	to	his invited guests.
	mass (FM)	For his birthday, John	served	cake	to	his invited guests.

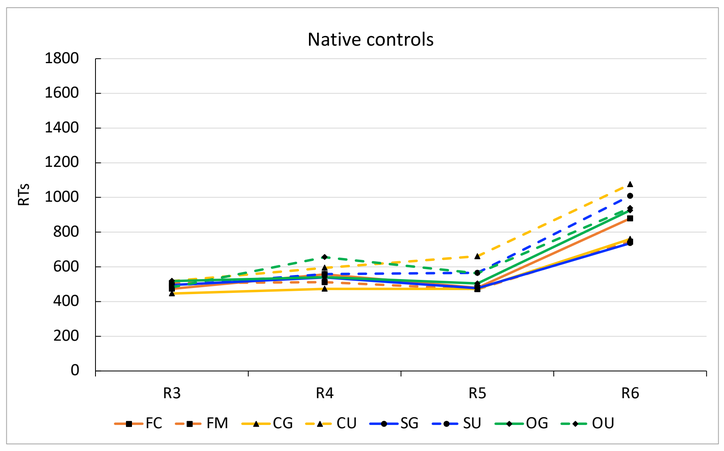
Predictions for Intermediate L2 English learners:

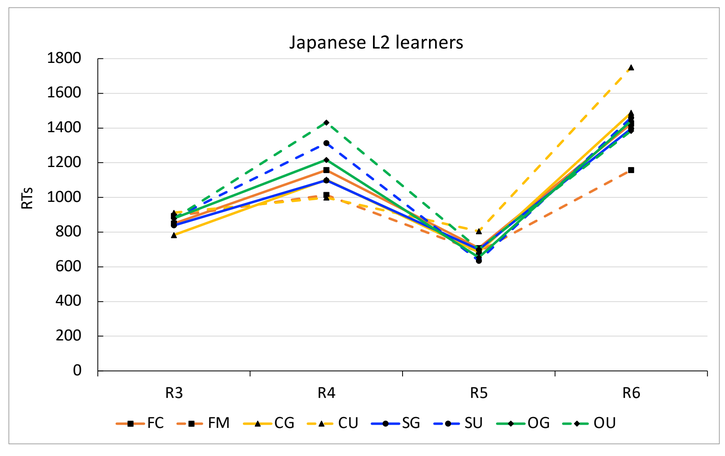
- **L1 Japanese**: for count, mass, flexible nouns, no distinction between grammatical and ungrammatical sentences is expected, if they are not sensitive to the morphological distinction of count and mass.
- **L1 Spanish**: morphological sensitivity expected; for count nouns, target like distinctions between grammatical and ungrammatical sentences, but for flexible nouns, count is preferred.

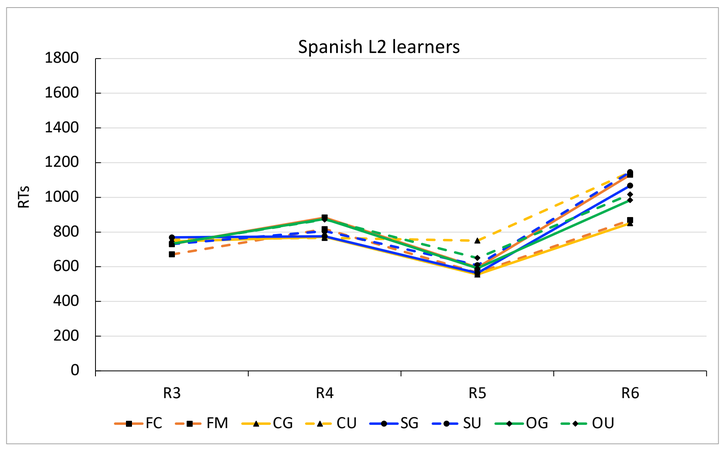
Results: QJT



Results: SPR Task







6. Discussion

- **QJT** results show differences in accuracy between the Japanese and Spanish on Flexible count nouns, but not Count nouns.
- Paired-samples t-tests between grammatical and ungrammatical conditions on the SPR task show that for the L2 groups, there are significant differences (Jap: t= 2.256, p= .02, Span: t= 2.540, p= .01) between the Flexible condition only in the R6 (wrap-up) region.
- Our findings are partially consistent with the **MCH** as there are some advantages for the Spanish group over the Japanese group (not for flexible nouns but for count nouns), but the RTs from the Spanish group do not show clear distinctions of (un)grammaticality.

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