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# Disjunction and the Type of Subject in the Kumamoto Dialect: A Pilot Study\*

Yoichi Miyamoto

## 1. Introduction

Disjunction in natural language has been investigated extensively (e.g., Szabolcsi 2004, Goro 2007), hoping that clarifying how disjunction behaves in natural language leads to the deeper understanding of Universal Grammar. This study focuses on Japanese disjunction *ka* ‘or’, exemplified in (1):<sup>1</sup>

- (1) Hanako-ga sushi-ka piza-o tabeta(-koto)  
Hanako-nom sushi-or pizza-acc eat.PAST(-fact)  
‘Hanako ate sushi or pizza.’

Significantly, disjunction behaves differently cross-linguistically. Section 2 outlines that the Japanese disjunction has positive polarity item (PPI) properties, whereas its English counterpart does not. This discrepancy in PPI properties across languages has led to attempts to explain the behavior of disjunction in natural language, with numerous suggestions being made in the literature. Yet, no consensus has been reached. Looking at the current conception of disjunction in natural language, we will examine the behavior of Japanese disjunction *ka* ‘or’ in the Kumamoto dialect in order to provide support for a semantic approach to the element in question.

This paper is structured as follows: Section 2 offers a concise account of Japanese disjunction, and Section 3 outlines the data containing disjunction *ka* from the Kumamoto dialect. This paper is particularly concerned with the fact that the Kumamoto dialect has two types of NPs that are marked as nominative (NOM-marked NPs hereafter). Depending on whether they are accompanied by the [Topic/Focus] feature, these two types of NPs appear in different structural positions (Nishioka 2018), which enables us to observe that Japanese disjunction exhibits rescuing effects (Szabolcsi 2004). Section 4 is devoted to our experiments, followed by results and discussion in Section 5. Finally, Section 6 contains concluding remarks.

## 2. PPI Disjunction in Japanese

Goro (2007) argues that Japanese disjunction *ka* is a PPI, which means it takes scope above negation.

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<sup>1</sup> Abbreviations used in this paper are as follows:

acc = accusative, CL = classifier, FP = final particle, gen = genitive, NEG = negation, nom = nominative.

The following example illustrates the case in point:

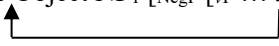
- (2) Hanako-ga sushi-ka piza-o tabenakatta(-koto)  
 Hanako-nom sushi-or pizza-acc eat.NEG.PAST(-fact)  
 ‘Hanako did not eat sushi or pizza.’

This sentence means either Hanako did not eat sushi or she did not eat pizza. Crucially, she ate one of them. Tamura, Miyamoto and Sauerland (2022) posit that the disjunction in question can also take scope below negation in the downward entailing (DE) context, commonly known as ‘rescuing effects’. This is a typical property of PPIs (Szabolcsi 2004). Observe the parallelism between English *someone*, considered being an instance of PPIs in English, and *ka* in (3a, b):

- (3) a. Every boy who did not call someone ...  
 b. sushi-ka piza-o tabenakatta dono shoonen-mo ...  
 sushi-or pizza-acc eat.NEG.PAST which boy -also  
 ‘Every boy who did not eat sushi or pizza ...’

The existential quantifier *someone* and the disjunctive object *sushi-ka piza* ‘sushi or pizza’ are under the scope of negation in the examples.

Despite this observation, Goro (2007), who maintains that Japanese disjunction does not exhibit rescuing effects, argues that disjunctive object NPs are covertly raised to SPEC of a functional phrase, located above Negation Phrase (NegP), which is roughly illustrated in (4):

- (4) [TP Subject [XP Disjunctive Object NP<sub>1</sub> [<sub>NegP</sub> [<sub>vP</sub> ... *t*<sub>1</sub> ... V ] Neg ]] T ]
- 

Goro insists that the movement in point is triggered by a weak uninterpretable feature of Japanese disjunction. This syntactic analysis predicts that the scope of disjunction should not be affected, no matter whether it appears in an upward or downward entailing context.

Nicolae (2017), however, argues that French disjunction *ou* is a PPI, taking scope above negation in non-DE context and below negation in DE context. Tamura, Miyamoto and Sauerland’s (2022) finding that Japanese disjunction exhibits rescuing effects is, therefore, more in line with Nicolae’s proposal.

### 3. The Kumamoto Dialect of Japanese (KJ)

Section 2 introduces two analyses that make predictions for sentences with a disjunctive object NP in the Kumamoto dialect. As hinted in Section 1, the Kumamoto dialect allows two types of nominative subject NPs: *ga*-marked and *no*-marked subjects. The former, but not the latter, receives [Topic/Focus] interpretation. Nishioka (2018) examines these two types of subjects under Miyagawa’s (2010) framework and proposes that *ga*-marked subjects are located in TP SPEC, while

*no*-marked subjects are situated in vP SPEC. Schematically, we have the following structure:

- (5) [TP ***ga*-marked Subject** ... [vP ***no*-marked Subject** ... Object ... V ]]

Nishioka's (2018) proposal enables us to make a clear prediction, given the structure in (6):

- (6) [TP ***ga*-marked Subject** [XP Disjunctive Object NP<sub>1</sub> [NegP [vP ***no*-marked Subject** ... *t*<sub>1</sub> ... V ]  
Neg ]] T ]
- 

If the structure in (6) is accurate, we predict that the disjunctive object necessarily takes scope over negation, regardless of whether the subject is *ga*-marked or *no*-marked.

When the disjunctive object phrase is scrambled to the sentence-initial position, the following structure may result:

- (7) [TP Disjunctive Object NP<sub>1</sub> [TP ***ga*-marked Subject** [XP *t*<sub>1</sub> [NegP [vP ***no*-marked Subject** ... *t*<sub>1</sub>  
... V ] Neg ]] T ]]
- 

In (7), since the disjunctive object phrase takes scope in SPEC XP, it is already above negation. Accordingly, the scrambling to the sentence-initial position appears not to have any bearing on the scope domain taken relative to negation.

However, notice that, unlike the movement illustrated in (6), the one in (7) is overt. Hence, the derivation given in (8) should also be available:

- (8) [TP Disjunctive Object NP<sub>1</sub> [TP ***ga*-marked Subject** [XP *t*<sub>1</sub> [NegP [vP *t*<sub>1</sub> [vP ***no*-marked Subject**  
... *t*<sub>1</sub> ... V ] Neg ]] T ]]
- 

Because the movement in point is overt, nothing prevents the disjunctive object NP from raising to vP first via scrambling. If so, it would not be surprising that the disjunctive object NP take scope below negation. As a result, sentences of the type given in (8) are expected to be ambiguous.

In contrast, under Nicolae's (2017) PPI-based analysis to French disjunction, regardless of whether it is scrambled, we predict that the disjunction object prefers to take scope over negation.

Interestingly, the syntactic and semantic proposals make different predictions in the downward entailing context. Under the syntactic proposal, the context should not have an effect on the interpretation concerning the scope relationship between the disjunctive object and negation. Tamura, Miyamoto and Sauerland (2022) provide evidence that under the downward entailing context, the rescuing effects are present, as predicted by the semantic proposal.

In the downward entailing context created by a particular type of subject QP, the syntactic

proposal predicts different interpretation, depending on whether this QP subject is *ga*-marked or *no*-marked. Given that the rigidity condition is operative in Japanese (Hoji 1985; Lasnik and Saito 1992), the *ga*-marked QP subject should take scope over the disjunctive object, whereas the *no*-marked QP subject should take scope below the object in point, given the structure in (6). The semantic proposal expects that under the upward entailing context, the disjunctive object NP should prefer to take scope over either subjects, while it should be able to take scope below them under the downward entailing context. Some caution should be added here: Nicolae’s (2017) PPI-based proposal does not exclude the possibility that the disjunctive object takes scope below negation even under the upward entailing context.<sup>2</sup>

#### 4. Experiments

To test the predictions described above, the current study conducted two experiments to be described in Sections 4.2 and 4.3. For the ease of exposition, we dub them as Experiment 1 and Experiment 2.

##### 4.1. Participants

In Experiment 1, 21 native speakers of the Kumamoto dialect participated, whereas 15 native speakers of the dialect in question joined Experiment 2.

##### 4.2. Procedure

Even though the experiments were conducted virtually, the participants were asked to answer the questions in a quiet room on their own. We adopted a truth value judgment task. Three of the target sentences, to be shown in (8)-(10) directly below, with the computer display can be found in the appendices.

##### 4.3. Test Sentences

###### 4.3.1. Experiment 1

The experiment contained 96 test sentences following including eight practice sentences. One of the test sentences we adopted is:<sup>3</sup>

- (9) Jyaketto-ka zubon-ba Taroo-ga/no kawandatta-bai.  
 jacket-or trousers-acc Taro-nom buy.NEG.PAST-FP  
 ‘Hanako did not eat sushi or pizza.’

Each subject was tested four sentences each for the disjunctive object taking scope over and below

<sup>2</sup> According to Nicolae (2017), the complex *soit ... soit*, not the simplex *soit*, does not permit this very possibility under the upward entailing context. This makes a clear prediction for its Japanese counterpart, but it is beyond the scope of the current study.

<sup>3</sup> See also Appendix 1.

negation. In addition, four irrelevant scenarios were included. Therefore, 12 test sentences for the type of sentence illustrated in (9) were tested with *ga*-marked and *no*-marked subjects.

We also included eight test sentences (four test sentences each for the disjunctive object taking scope over and below negation) without the ending particle *bai* to avoid any potential influence of its presence for the grammaticality of the test sentences.

#### 4.3.2. Experiment 2

Experiment 2 included four practice sentences, followed by 196 test sentences, 16 of which are control sentences/fillers. We offered four sentences for each condition to be studied, including the effects of scrambling and the type of subject. The following is one of the crucial test sentences adopted to examine the effects of context: downward entailing context.<sup>4</sup>

- (10) Futari-ika-no                      gakusei-ga/no    jyaketto-ka    seeta-ba    kawandatta-bai.  
       two-CL-smaller than-gen   student-nom    jacket-or    sweater-acc   buy.NEG.PAST-FP  
       ‘No more than two students did not eat sushi or pizza.’

In this example, the QP subject *futa-ri-ika-no gakusei* ‘no more than two students’ creates a downward entailing context. Besides the downward entailing contextual condition, we also tested sentences with the scrambled disjunctive object, as illustrated in (11):

- (11) Jyaketto-ka    seeta-ba    futari-ika-no                      gakusei-ga/no    kawandatta-bai.  
       jacket-or    sweater-acc   two-CL-smaller than-gen   student-nom    buy.NEG.PAST-FP  
       ‘No more than two students did not eat sushi or pizza.’

As discussed in Section 3, creating downward entailing context by the types of subject QP is crucial for us to tell syntactic from semantic analysis of the Japanese disjunction. One prediction, which we reiterate here, is that under the downward entailing context, the semantic analysis predicts rescuing effects, no matter which syntactic position the disjunctive object occupies.

### 5. Results and Discussion

In this section, we only summarize the main findings due to space limitation. In Section 5.1, we focus on the results concerning the scope interaction between the scrambled disjunctive object and negation. In Section 5.2, we discuss the scope interaction between the disjunctive object and negation in the downward entailing context.

#### 5.1. Experiment 1

The following tables summarize the results for the negative sentences with the scrambled object, as

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<sup>4</sup> See also Appendix 2.

exemplified in (8). Picture 1 is the case where the disjunctive object takes scope over negation, while Picture 2 depicts the situation where negation takes scope over the disjunctive object, which is known as the rescuing effects context.

Table 1. Negative Sentences with the *No*-marked Subj and the Scrambled Obj

| Picture condition                  | True          | False         | Incorrect Japanese |
|------------------------------------|---------------|---------------|--------------------|
| Picture1: Jackets, shirts and ties | <u>73.81%</u> | 10.71%        | 15.48%             |
| Picture 2: Shirts and ties         | <b>34.52%</b> | <u>51.19%</u> | 14.29%             |

Table 2. Negative Sentences with the *Ga*-marked Subj and the Scrambled Obj

| Picture condition                  | True          | False         | Incorrect Japanese |
|------------------------------------|---------------|---------------|--------------------|
| Picture1: Jackets, shirts and ties | <u>66.67%</u> | 32.14%        | 1.19%              |
| Picture2: Shirts and ties          | <b>27.38%</b> | <u>72.62%</u> | 0.00%              |

No matter whether the subject is *ga*-marked or *no*-marked, the scrambled disjunctive object prefers to take scope over negation in (9) and three others of the same type, as shown with the underlined figures in the tables. Although the figure is approximately 30%, as boldfaced in the above tables, the scrambled disjunctive object can also take scope below negation. This may be expected, given the structure in (8), repeated here as (12):

$$(12) \quad [_{TP} \text{Disjunctive Object NP}_1 [_{TP} \textbf{ga-marked Subject} [_{XP} t_1 [_{NegP} [_{vP} t_1 [_{vP} \textbf{no-marked Subject} \dots t_1 \dots V ] ] \text{Neg} ] ] T ] ]$$

On its way to the sentence-initial position, the disjunctive object can stop over at *vP* to take scope below negation.

The result reported in this experiment appears consistent with both the syntactic analysis proposed by Goro (2007), and the semantic PPI-based analysis argued for in Nicolae (2017).

## 5.2. Experiment 2

Before presenting the results for the type of test sentences exemplified in (10) and (11), let us remind ourselves of the purpose of this experiment: No matter whether the subject QP is *ga*-marked or *no*-marked, rescuing effects should be observed.

Bearing this in mind, consider the results given in Tables 3 and 4.<sup>5</sup>

<sup>5</sup> Abbreviations used in the Tables are as follows:  
S = scarves, J = jackets, T = trousers, Sw = sweaters.

Table 3. Negative Sentences with the *No*-marked DE Subj

| Picture condition                 | True          | False         | Incorrect Japanese |
|-----------------------------------|---------------|---------------|--------------------|
| Picture 1: SJ, SJ, SJ, T, T       | <u>71.67%</u> | 15.00%        | 13.33%             |
| Picture 2: SJSw, SJSw, SJSw, J, J | 11.67%        | <b>81.67%</b> | 6.67%              |

Table 4. Negative Sentences with the *Ga*-marked DE Subj

| Picture condition                 | True          | False         | Incorrect Japanese |
|-----------------------------------|---------------|---------------|--------------------|
| Picture 1: SJ, SJ, SJ, T, T       | <u>90.00%</u> | 8.33%         | 1.67%              |
| Picture 2: SJSw, SJSw, SJSw, J, J | 16.67%        | <b>78.33%</b> | 5.00%              |

In line with Experiment 1, Picture 1 describes the situation in which the disjunctive object may take scope above negation, while Picture 2 is the condition in which negation takes scope over the disjunctive object. The underlined figures show that the disjunctive object can take scope over negation, whereas the ones boldfaced show that the object in point can also take scope below negation. Although whether the results for Picture 1 truly shows the disjunctive object taking scope over negation remains to be seen, the results for Picture 2 show that the disjunctive object can be interpreted below negation, which shows the availability of rescuing effects. Because the movement of the disjunctive object NP to SPEC XP is covert, we assume that no scrambling to  $\nu$ P could be involved. Therefore, approximately 80% of the acceptance rate for Picture 2 results from genuine rescuing effects under the downward entailing context.

Let us turn to the results for the test sentences with the scrambled object. Again, it is significant to observe that no matter whether the QP is *ga*-marked or *no*-marked, rescuing effects were observed.

Table 5. Negative Sentences with the *No*-marked DE Subj and the Scrambled Obj

| Picture condition                 | True   | False         | Incorrect Japanese |
|-----------------------------------|--------|---------------|--------------------|
| Picture 1: SJ, SJ, SJ, T, T       | 81.67% | 10.00%        | 8.33%              |
| Picture 2: SJSw, SJSw, SJSw, J, J | 6.67%  | <b>81.67%</b> | 11.67%             |

Table 6. Negative Sentences with the *Ga*-marked DE Subj and the Scrambled Obj

| Picture condition                 | True   | False         | Incorrect Japanese |
|-----------------------------------|--------|---------------|--------------------|
| Picture 1: SJ, SJ, SJ, T, T       | 86.67% | 8.33%         | 5.00%              |
| Picture 2: SJSw, SJSw, SJSw, J, J | 11.67% | <b>83.33%</b> | 5.00%              |



Although scrambling of the disjunctive object is involved both in Experiment 1 and Experiment 2, there is a significant improvement in the acceptability of the interpretation under which negation takes scope above the disjunctive object in Experiment 2 (see the boldfaced figures). The only difference between the two experiments is the type of subject, which should not affect the results of the latter experiment under the syntactic analysis incorporating the assumption that Japanese is subject to the rigidity condition. In addition, if syntactic positions were crucial for the scope determination of disjunction, we would predict different patterns of responses in the current experiment, since *ga*-marked and *no*-marked DE subjects occupy TP SPEC and vP SPEC respectively. Interestingly, however, the response patterns are the same for these two types of DE subjects. The current finding therefore leads us to confirm that the syntactic analysis of the Japanese disjunction is not tenable, although the semantic analysis of the element in point needs elaborating.

## 6. Conclusion

The current paper provided empirical evidence against the syntactic approach to Japanese disjunction (Goro 2007): Japanese disjunction exhibits rescuing effects (Tamura, Miyamoto and Sauerland 2022). Although Japanese is widely believed to be a scope-rigid language (Hoji 1985), it is shown that the positions the disjunctive phrase occupies or stops over in core syntax are irrelevant.

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## Appendix 1: Experiment 1

### 【場面】

context

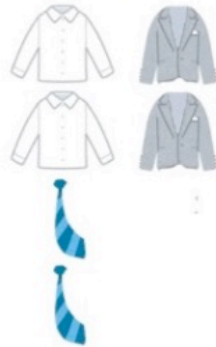
太郎はスーツを買いに駅前の小さい店に行きました。  
ジャケットとズボンとワイシャツとネクタイが売られていました。  
でも、ジャケットとズボンはとても高かったです。

target sentence:

ジャケットかズボンば 太郎が、買わなかったばい。



Picture 1



buttons

- ☐ 表している
- ☐ 表していない
- ☐ 正しくない日本語

## Appendix 2: Experiment 2

### 【場面】

context

5人の学生が洋服を買いに駅前の小さい店に行きました。  
マフラーとズボンとジャケットとセーターが売られていました。  
でも、ジャケットとセーターはとても高かったです。

target sentence:

二人以下の学生が、ジャケットかズボンば 買わなかったばい。

Picture 1



- ☐ 表している
- ☐ 表していない
- ☐ 正しくない日本語

buttons