

Comma in Japanese is Conjunction

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1. Introduction

In English, logical conjunction and disjunction of entities are expressed in the form of “A, B and/or C” in natural language. The word sense disambiguation of the comma “,” is simple—just copy the following connective *and* or *or*. In other words, “A, B and/or C” is translated into “A and/or B and/or C” where the meaning of the comma is identical to the following connective. Nevertheless, such method does not work for Japanese language in which, mere sequences of commas often denote conjunction or disjunction as in “A, B, C.” This paper claims that conjunctive commas between noun phrases always represent conjunction in Japanese; therefore, “,” can be translated to be “to (and),” and that disjunctive reading is obtained through the presence of distributive keys and world knowledge.

2. Word Sense Disambiguation of Commas in English

In English, sequences of noun phrases (NP) are connected by commas and the connective *and* or *or*, as expressed in the following regular expression “(NP)⁺ and NP.” Even though commas between NPs are semantically ambiguous in two ways between *and* and *or* in English, the word sense disambiguation of “,” is an easy task because the meaning of the comma inherits the one of the following connective. In the “NP₁, NP₂ and/or NP₃” construction, the meaning of “,” after NP₁ is a copy of the connective *and* or *or* before NP₃.

Take for an example in (1) which contains a sequence of NPs with commas and *and* in the form *Boroughs, Health Authorities, and voluntary agencies*. While “,” is polysemous between *and* and *or* by itself, the meaning of “,” following *Boroughs* is disambiguated by copying *and* which follows *Health Authorities*.

- (1) ACET News aims to–inform Boroughs, Health Authorities, **and** voluntary agencies of the work of ACET in the community. (BNC A00 290)

Therefore, translation of commas follows the following context free grammar:

- (2) a. NP, NP and NP → NP and NP and NP
b. NP, NP or NP → NP or NP or NP

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3. Commas in Japanese

While disambiguation of internominal commas in English is fairly easy, the one in Japanese appears to be more complicated because mere sequences of commas represent conjunction or disjunction in Japanese.

Commas representing conjunction

- (3) a. Indo, Pakisutan, Kitachosen-ga mishomei-deari
India Pakistan North Korea-NOM unsigned-be
“India, Pakista and North Korea remain unsigned.”

(BCCWJ2011 OW6X_00016)

- b. Keikikaifukuki-ni-wa endaka,
economic recovery period-DAT-TOP strong yen
kabudaka, kinridaka-to nari
strong stock prices high interest rate-COMP become

“Strong yen, strong stock prices and high interest rate occur with economic recovery”

(BCCWJ2011 PB53_00349)

Commas representing disjunction

- (4) Kimuchi, tsukemono, sato, shio,
Korean pickles Japanese pickles sugar salt
miso-nanka-o ireru-noni pittaride
soybean paste-etc-ACC put-for fit
omiyage-ni-mo daikohyo
souvenir-DAT-also popular
“(The pot) fits for keeping Korean and Japanese pickles, sugar, soybean paste and others and popular for souvenirs.”

(BCCWJ2011 LBq2_00068)

- (5) Ato 2, 3-nichi-wa koko-ni todomat-teor-anebanarumai.
rest 2 3-days-TOP here-LOC stay-PROG-should
“Should stay here at least a few days longer.”

BCCWJ-Chunagon

I have abstracted 200 examples out of 58689 instances in the form “NP, NP,” in BCCWJ2011 by using Chunagon. The commas between NPs were annotated with either *and*, *or*, reduplication or punctuation.

translation of commas	instances
and	174
or	18
reduplication	6
punctuation	2
total	200

Reduplication is the repetition of the same words. (6) is an example of the reduplication of onomatopoeic words.

- (6) Aburazemi-de-wa jij, jij, ji,
nigrofuscata cicada-LOC-TOP ONOM ONOM ONOM
ezozemi-de-wa geeg, gee, to izuremo
Lyristes japonicu-LOC-TOP ONOM ONOM COMP both
hakkiri kugiri-masu.
clearly punctuate-HON
“Both *Nigrofuscata* and *Lyristes japonicus* cicadas clearly
punctuate while singing—“jij, jij, ji,” and “geeg, geeg.”

(BCCWJ2011 LBf4.00023)

Except for the cases used reduplication and punctuation, this paper claims that Japanese comma should be translated as conjunction from logical perspective and in consideration of the presence of quantifiers and world knowledge.

4. Comma is Conjunction

This section argues that internominal commas monosemously represent conjunction in view of (i) its logical contribution, and (ii) the presence of distributive keys.

4.1 Logical Necessity: Double Negation

The examples with double negation supports the claim that Japanese commas represent conjunction. (7) is an example with conjunct of two nominals to which do-verb is attached, namely, the noun representing writing and marking are conjoined and embedded under two negations.

As the direction given by the sentence (7) is that everyone should both write and mark the form, the translation into formula should be (8a), not (8b) where the comma is translated into conjunction.

- (7) Kinju, makushitei-nai-hito-wa ima-sen-ne.
write mark-NEG-person-TOP be-NEG-PAR
“There is not anyone who has not written or marked, is there?”

- (8) a. $\neg\exists x[\neg[\text{write}(x) \wedge \text{mark}(x)]]$
 $\Leftrightarrow \neg\exists x[\neg\text{write}(x) \vee \neg\text{mark}(x)]$
 $\Leftrightarrow \forall x\neg[\neg\text{write}(x) \vee \neg\text{mark}(x)]$
 $\Leftrightarrow \forall x[\text{write}(x) \wedge \text{mark}(x)]$

- b. $\neg\exists x[\neg[\text{write}(x) \vee \text{mark}(x)]]$
 $\Leftrightarrow \neg\exists x[\neg\text{write}(x) \wedge \neg\text{mark}(x)]$
 $\Leftrightarrow \forall x\neg[\neg\text{write}(x) \wedge \neg\text{mark}(x)]$
 $\Leftrightarrow \forall x[\text{write}(x) \vee \text{mark}(x)]$

4.2 Distributive Key

The presence of distributive keys forces disjunctive reading of commas. Otherwise, commas represent conjunction. Distributive keys can be either overt quantifiers, world knowledge or conventional implicature.

4.2.1 Quantifiers

Some examples contain a quantifier *dono mo* “each/any” which is called a distributive key (Gil 1995 A quantifier forces distributive reading. In (9), the events denoted by *taikan* “retirement,” *shutsuba* “running for election,” and *kiso* “indictment” are distributed into separate events by the distributive key *dono mo* “each/any” so that the commas connecting these event nouns substitute for the disjunction.

- (9) Tatematsu-wa Kishimoto-no taikan,
Tatematatsu-TOP Kishimoto-GEN retire
shutsuba, kiso-no dono
running for election indictment-GEN any
fushime-de-mo, watashi-ni hitokoto-no
turning point-at-even me-DAT one word-GEN
kanso-mo morasa-nakat-ta.
opinion-even share-GEN-PAST

“Tatematsu never shared me his opinions at any turning point of Kishimoto—his retirement, running for election and indictment.”

Eliminating the quantifier *dono mo* “each/any” allows cooccurrence of the three events—retirement, running for election and indictment, which is hard in this example due to our world knowledge that these three events usually do not occur at one time.

- (10) Tatematsu-wa Kishimoto-no taikan,
Tatematatsu-TOP Kishimoto-GEN retire
shutsuba, kiso-no fushime-de,
running for election indictment-GEN turning point-at
watashi-ni hitokoto-no kanso-mo morasa-nakat-ta.
me-DAT one word-GEN opinion-even share-GEN-PAST

“Tatematsu never shared me his opinions at any turning point of Kishimoto—his retirement, running for election and indictment.”

4.2.2 World Knowledge

- (11) (Kame-wa) Kimuchi, tsukemono, sato,
jar-TOP Korean pickles Japanese pickles sugar
shio, miso-nanka-o ireru-noni pittaride
salt soybean paste-etc-ACC put-for fit

omiyage-ni-mo daikohyo
souvenir-DAT-also popular

“(The jar) fits for keeping Korean and Japanese pickles, sugar, soybean paste and others and popular for souvenirs.”

(BCCWJ2011 LBq2.00068)

World knowledge that a pot can accommodate only one kind of material—a pot for sugar, another for salt, and so on— provides “;” with disjunctive meaning. Otherwise, “;” has conjunctive meaning, that is, a pot can accommodate all the following— sugar, salt, soybean paste, and others.

(12) Shakaiteki-mibun, monchi, jinshu, minzoku, shinjo,
social status family origin race tribe religion
seibetsu, shogai-to-niyoru hutona sabetsu nado,
gender disabilities-etc.-by unjust discrimination etc.
samazamana katachide-no jinkenshingaikoi-ga aru.
various form-GEN violation of human rights exist

“There exist various forms of violation of human rights such as discrimination based on social and family status, race, tribe, religion, gender, and disabilities.”

(BCCWJ LBs6_00031)

In (12), there is no overt quantifier. However, the world knowledge that a single person would not undergo discrimination based on all the following—social status, family origin, race, tribe, religion, gender and disabilities—forces disjunctive reading.

5. Conclusion

This paper surveyed occurrences of inter-nominal commas and represented their meaning as conjunction. The disjunctive reading is forced by the presence of distributive keys or world knowledge. The conjunctive interpretation is also required from logical standpoint.

References

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