# Chapter 1 Empirical and theoretical issues of polarity-sensitive expressions

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# Introduction

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## 1 Introduction

Polarity-sensitive expressions (words, phrases, constructions) are items whose distributions are sensitive to polarity. Generally, there are two types of polarity-sensitive items: negative polarity items (NPIs) and positive polarity items (PPIs). NPIs can be used with negation but cannot be used in a positive (episodic) sentence. For example, the English *any* and the Japanese wh-*mo* in (1) can be construed as NPIs:

(1) (Negative polarity items)
   a. *John* {*didn't buy*/**bought*} *any books*. (English)
   b. *John-wa nani-mo* {*tabe-na-i* /**tabe-ru*}. (Japanese)
      John-TOP what-MO eat-NEG-PRES/eat-PRES
      'John doesn't eat anything.' (*John eats anything.)

Beginning with Klima (1964), a diverse range of studies has been conducted regarding the syntax, semantics, and pragmatics of NPIs, and there have been many influential works regarding the distribution patterns of NPIs (e.g., Ladusaw 1979; Linebarger 1980; Laka 1990; Kadmon and Landman 1993; Progovac 1994; Giannakidou 1998, 2011; Chierchia 2013).

By contrast, PPIs usually appear in positive sentences and cannot be used with negation (and when they do occur with negation, they must have wider scope than negation). For example, English *some* and Japanese *sukosi* 'a bit' are construed as PPIs. (Note that in the case of English *some*, the sentence with negation is acceptable only if *some* scopes over negation, or *not* is interpreted as an emphatic denial (Szabolcsi 2004: 409)):

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(2) (Positive polarity items)
a. *I (*don't) see something.* (English)
b. *Kono hon-wa sukosi {taka-i* (Japanese)
this book-TOP a.bit expensive-PRES
/**takaku-na-i*}.
/expensive-NEG-PRES
'This book {is/is not} a bit expensive.'

Traditionally, PPIs have not received as much attention as NPIs (at least in theoretical approaches). However, since Szabolcsi's (2004) seminal work on the English indefinite *some*, various studies have advanced important insights into the status of PPIs, which include English *some* (Szabolcsi 2004), speaker-oriented adverbs (Nilsen 2004; Ernst 2009), and modality (Homer 2011; Iatridou and Zeijlstra 2013; Giannakidou and Mari 2018).

Polarity-sensitive expressions have received a great deal of attention in the field of pragmatics as well. There have been studies of the relationship between NPIs and scalar implicature (Horn 1989; Chierchia 2013); the relationship between polarity and conventional implicature (CI) (Liu 2012; Sawada 2018); the speaker's bias in polar questions (Romero and Han 2004); and the rhetorical functions of polarity-sensitive expressions (Israel 1996, 2004).

Given the recent advances noted above in the study of polarity-sensitive expressions, this book attempts to reassess some of the currently influential theories via comparisons of Japanese with other languages and examines recent issues of polarity-sensitive expressions from a wide range of perspectives, including syntax, semantics, pragmatics, language acquisition, corpus study, and historical linguistics. The fundamental research questions pursued in this volume include:

(3) a. In what environments can polarity-sensitive expressions (NPIs, PPIs) occur, and how can they be explained theoretically?
b. What kinds of (cross-linguistic) variations are there regarding the structure and meaning of polarity items? What are their sources?
c. What is the relationship between scalarity and polarity?
d. Is there a systematic relationship between negative and positive polarity items?
e. In what context can polarity-sensitive expressions be used and what role do they play in discourse?

The subsequent sections outline the empirical and theoretical issues surrounding polarity-sensitive expressions in Japanese and other languages and present

an overview of how the main issues regarding polarity-sensitive phenomena are addressed in the contributions included in this volume.

# 2 Empirical and theoretical issues

## 2.1 Distribution patterns of negative polarity items

Klima (1964) has first introduced the theoretical investigation of the distributional patterns of NPIs. Some subsequent studies have offered proposals on how NPIs are licensed (Ladusaw 1979; Linebarger 1980; Progovac 1994; Giannakidou 1998, 2011; Chierchia 2013, etc.). These studies share the assumption that NPIs are divided into two types: strong (strict) and broad. Strong NPIs can appear with negation, but not in positive declaratives. Furthermore, they cannot be used in environments such as questions, conditionals, and sentences with a modal auxiliary, as exemplified by the NPI *either* in (4):

(4) a. *John didn't attend the meeting, either.* (negative)
b. **John attended the meeting, either.* (positive)
c. **Did John attend the meeting, either?* (question)
d. **If John attended the meeting, either, Mary would have noticed it.* (conditional)
e. ** John may attend the meeting, either.* (modality)

Likewise, broad NPIs can occur with negation, but not in positive declaratives. Broad NPIs differ from strong NPIs, however, in that they can appear in contexts such as questions, sentences with a modal auxiliary, and conditionals:

(5) a. *John didn't have any question.* (negative)
b. **John has any question.* (positive)
c. *Did John have any problems?* (question)
d. *If you have any problems, please let us know.* (conditional)
e. *John may talk to anybody.* (modality)

There are two major theoretical approaches to broad NPIs, namely a downward entailing-based (DE-based) approach (e.g., Ladusaw 1979) and a non-veridicality-based approach (e.g., Giannakidou 1998). In general, according to the DE approach, broad NPIs are licensed in the environment where an entailment relationship holds from a set to a subset of the set, while according to the non-veridical-based

approach, broad NPIs are licensed in the environment where there is uncertainty/lack of commitment regarding the truth of a proposition.

NPIs in Japanese are often assumed to be strong NPIs, as exemplified by NPIs in the "wh-*mo*" form in (6):

(6) a. *Dare-mo ko-nakat-ta.* (negative)
who-MO come-NEG-PST
'No one came.'

b. **Dare-mo ki-ta.* (positive)
who-MO come-PST
'Anyone came'

c. **Dare-mo ki-masi-ta-ka?* (question)
who-MO come-POLITE-PST-Q
'Did anyone come?'

d. **Mosi nani-mo tabe-tara osie-te kudasai.* (conditional)
by.any.chance what-MO eat-COND tell-TE please
'If you eat anything, tell me.'

e. **Nani-mo tabe-te yo-i.* (modality)
what-MO eat-TE good-PRES
'You may eat anything.'

However, it has been pointed out that Japanese also has broad NPIs. For example, Kishimoto (2008) observes that Japanese *koreizyoo* 'anymore' parallels English *any* in its distribution, in the sense that it can appear in contexts similar to those in which English *any* is allowed. As is shown in the following examples, not only can the NPI *koreizyoo* appear in negative sentences, but it can also appear in conditional clauses and questions:[1,2]

(7) a. *Taro-wa sono-koto-ni-tuite koreizyoo hanasa-nakat-ta.* (negative)
Taro-TOP that-matter-about anymore talk-NEG-PST
'Taro didn't talk about that matter anymore.'

**1** As Kishimoto (2008) observes, if *koreizyoo* is interpreted as a deictic nominal (e.g., *kore-izyoo-no kooken* 'this-more.than-GEN contribution) 'a contribution more than this'), it does not behave as an NPI.

**2** Kishimoto (2008) observes that *koreizyoo* can also appear in *before*-clauses, comparative clauses, and complement clauses selected by predicates like *deny/refuse*.

b. ??*Taro-wa sono-koto-ni-tuite koreizyoo hanasi-ta.* (positive)
Taro-TOP that-matter-about anymore talk-PST
'lit. Taro talked about that matter anymore.'

c. *Mosi sono-koto-ni-tuite koreizyoo hanasi-tara* (conditional)
by.any.chance that-matter-about anymore *talk-COND*
*mondai-ni nar-u.*
problem-to become-PRES
'If we talk anymore about it, it will be a problem.'

d. *Taro-wa sono-koto-ni-tuite koreizyoo hanas-u* (question)
Taro-TOP that-matter-about anymore talk-PRES
*daroo-ka?*
will-Q
'Would Taro talk anymore about it?' (Rhetorical interpretation: No, he wouldn't.)

Moreover, Ido (2019) and Ido, Kubota, and Kubota (this volume) argue, on the basis of corpus data, that the NPI *sonnani* 'such, that much' can appear not only in negative contexts, but also in non-veridical/non-affirmative contexts such as conditionals and questions. Kinuhata (2019, this volume) observes that Old Japanese *dani* 'even' often appears with negation but can also occur in the modal context of intention, command, optative, desiderative, and hypothetical. As broad NPIs often have item-specific distributional properties, it is important to consider how item-specific characteristics can be theoretically explained.

## 2.2 Syntax of negation and NPI licensing

Another issue regarding the licensing of NPIs is the cross-linguistic variation regarding their syntactic positions. It is often observed in the literature (e.g., Laka 1990; Roberts 2010) that in English, the NPI *any* can appear in an object position, but it cannot appear in a subject position, as in (8):

(8) a. *John did not read anything.*
b. **Anyone did not read the book.*

Interestingly, this asymmetry in NPI licensing is not observed in Japanese. As the following example shows, the NPI wh-*mo* can appear in both subject and object positions:

(9) a. *John-ga nani-mo yoma-nakat-ta.*
John-NOM what-MO read-NEG-PST
'John didn't read anything.'
b. *Dare-mo hon-o yoma-nakat-ta.*
who-MO book-ACC read-NEG-PST
'No one read a book.'

The NPIs are not licensed in English or Japanese if they do not fall under the scope of negation, as exemplified in (10):

(10) a. **Anyone said that John did not read the book.*
b. **Dare-mo* [*John-ga hon-o yoma-nakat-ta-to*] *it-ta.*
who-MO John-NOM book-ACC read-NEG-PST-that say-PST
'Anyone said that John did not read the book.'

In (10) the embedded negative does not extend its scope beyond the subordinate clause, so both sentences with NPIs in the matrix clauses are not acceptable.

In the literature, the difference in NPI licensing between English and Japanese observed in (8) and (9) is often assumed to be a result of the subject occupying different syntactic positions (Aoyagi and Ishii 1990; Takahashi 1990; Kato 1994). The English subject is positioned in Spec TP, whereas the Japanese subject is positioned in Spec VP, as in (11):

(11) English vs. Japanese (approach 1)
a. English: [$_{TP}$ Subj T [$_{NegP}$ Neg [$_{VP}$ ~~Subj~~ V Obj]]]
b. Japanese: [$_{TP}$ [$_{NegP}$ [$_{VP}$ Subj Obj V] Neg] T]

In contrast to the approach mentioned above, Kishimoto (2007, 2008) proposes an alternative view that attributes the difference between (8) and (9) to the difference in the position of a negative element. According to this view, there is no difference between English and Japanese in terms of the subject position, but in Japanese the negative element *na*(*i*) 'not', unlike English *not*, undergoes overt head movement to T, as in (12b):

(12) English vs. Japanese (approach 2)
a. English: [$_{TP}$ Subj T [$_{NegP}$ Neg [$_{VP}$ ~~Subj~~ V Obj]]]
b. Japanese: [$_{TP}$ Subj [$_{NegP}$ [$_{VP}$ ~~Subj~~ Obj V] ~~Neg~~] Neg-T]
(Kishimoto 2007, 2008)

These two approaches have clearly different theoretical implications and different predictions. Based on the above backgrounds, Kishimoto and Kataoka (both in this volume) investigate the structures of negation and polarity expressions from new perspectives and taking into consideration new empirical facts.

## 2.3 Locality and NPIs

The issue of "locality" is often discussed as a restriction on the syntactic licensing of negation polarity items. For example, the English NPI *any* is licensed even if a clausal negator appears in a syntactically superordinate clause (rather than in the same clause).

(13) *John does not think that Mary offended anyone.*

In contrast, the Japanese NPIs wh-*mo* and *sika* 'only' are not licensed by negation in the superordinate clause.

(14) **Taro-wa* [*Hanako-ga* {*nani-mo* /*ringo-sika*} *tabe-ta*]-*to-wa*
Taro-TOP Hanako-NOM what-MO /apple-SIKA eat-PST-that-CT
*omowa-na-i.*
think-NEG-PRES
'lit. Taro does not think that Hanako ate {anything/only apple}.'

In light of the above facts, it is often stated that Japanese NPIs must be in the same clause as the negation element of the sentence (that is, the so-called "clause-mate" condition is imposed). However, some Japanese NPIs can be licensed by "cross-clausal" negation. For example, NPIs such as *amari* 'that much' and *sore hodo* 'that degree' can be licensed by negation in the superordinate clause:

(15) *Watasi-wa* [*kare-ga* {*amari* /*sore-hodo*} *hayaku*
I-TOP he-NOM that.much /that-degree fast
*hasir-e-ru*]-*to-wa* *omowa-na-i.*
run-can-PRES-that-CT think-NEG-PRES
'I don't think he can run that fast.'

Kishimoto (this volume) discusses the issue of locality in detail on the basis of wider empirical facts.

## 2.4 Approaches to NPI and negative concord item

It has been widely recognized that, in addition to NPIs and PPIs, there is another type of polarity-sensitive expression, which is often referred to as a negative concord item (NCI). To a certain extent, NCIs possess similar properties to NPIs, but the relationship between NPIs and NCIs is controversial. Descriptively, negative concord is a phenomenon where so-called "n-words" show "concord" with negation, resulting in a single-negation reading (Laka 1990), as in (16):

(16) a. *Non ho visto nessuno.*
not has seen n-body
'I haven't seen anybody.'
(Italian: Based on Zanuttini 1991: 149)

b. *(*Dhen*) *ipa* *TIPOTA*
not said.1sg n-thing
'I didn't say anything.' (Greek: Giannakidou 2000: 458)

Giannakidou (2006: 328) defines n-word as follows:

(17) *N-word*: An expression α is an n-word iff:
i. α can be used in structures that contain sentential negation or another α-expression, yielding a reading equivalent to one logical negation; and
ii. α can provide a negative fragment answer (i.e., without the overt presence of negation).
(Giannakidou 2006: 328; see also Giannakidou and Zeijlstra 2017: 2105)

As Giannakidou and Zeijlstra (2017) state, the definition in (17) does not appeal to morphological negative marking, despite the prevalent presence of *n-* in n-words. This is motivated by the observation that although some n-words contain *n-* (e.g., *ningu*, *nessuno*), others do not (e.g., Catalan *res* or Greek n-words). Furthermore, there are *wh*-marked n-words (e.g., in Japanese and Korean):

(18) *Hanako-wa nani-mo tabe-nakat-ta.* (Japanese)
Hanako-TOP what-MO eat-NEG-PST
'Hanako didn't eat anything.'

Based on the phenomenon of Greek n-words, Giannakidou (2000) claims that there is an NCI involving scoping of a universal quantifier over negation. The question is whether the Japanese negative-sensitive expressions should be analyzed as NPIs that take scope under negation or as NCIs, which scope over negation. For example,

in Japanese linguistics, two competing analyses have been compared regarding the semantics of wh-*mo*: narrow-scope existential and wide-scope universal analyses (see, e.g., Kataoka (2006) and Shimoyama (2011) for discussions and specific data/tests regarding the two approaches). In the narrow-scope existential analysis, the wh-*mo* is viewed as an existential quantifier over which negation takes scope, as in (19):

(19) $\neg\exists x\ P(x)$ (Narrow-scope existential)

This view is consistent with the assumption that NPIs are licensed by negation or DE operators (Ladusaw 1979) or non-veridical operators, such as question, modal, and conditional (Giannakidou 1998; see also Progovac 1994 for the syntactic/binding approach to NPI). In contrast, in the wide-scope universal analysis, wh-*mo* is considered a universal quantifier that takes scope over negation (Shimoyama 2011; Kataoka 2006, this volume), similar to the case of n-words in Hungarian (Szabolcsi 1981) and Greek (Giannakidou 2000):

(20) $\forall x\ \neg P(x)$ (Wide-scope universal)

Kataoka (this volume) further discusses the above issues by means of a comparison between Japanese and Spanish data.

Furthermore, there is the issue of whether NCI is a type of NPI. NCI is often considered a special type of NPI (Watanabe 2004; Zeijlstra 2004, 2008; Giannakidou and Zeijlstra 2017), but there is also the view that NPIs and NCIs should be analyzed differently (Miyagawa, Nishioka and Zeijlstra 2016).

There are many types of negative-sensitive items in Japanese as well as in other languages. The validity of the classification or typology of negative-sensitive expressions needs to be assessed on both empirical and theoretical grounds.

## 2.5 Semantics of EVEN

NPIs tend to have the function of emphasizing and strengthening (Heim 1984; Kadmon and Landman 1993; Lee and Horn 1994; Krifka 1995; Lahiri 1998; Israel 1996; Chierchia 2013). Chierchia (2013) assumes that (21a) with the minimizer NPI *give a damn* has a logical structure like (21b), where a hidden operator E (=EVEN) takes a negative proposition as its argument:

(21) a. *John doesn't give a damn.*
b. E[John doesn't give a damn]. (Based on Chierchia 2013)

In Japanese, the minimizer NPI *mo* 'even' (which can also mean 'also') plays an important role in deriving an emphatic meaning (Nakanishi 2006; Yoshimura 2007):

(22) (Context: The speaker has just entered a lecture room.)
*Gakusei-ga* *hito-ri-mo* *i-na-i.*
student-NOM one-CL-even be-NEG-PRES
'There isn't even one student.'

In (22), if *mo* is deleted, the sentence carries a non-emphatic meaning "one student is not here".[3] Similar phenomena are found in Hindi *koii bhii* and *ek bhii* (*koii* means 'some', *ek* means 'one', and *bhii* means 'even, also'; Lahiri 1998; Chierchia 2013).

Minimizer NPIs share the same semantic source in many languages, i.e., EVEN, and one theoretical issue is the extent to which the semantics of EVEN NPIs are universal. A cross-linguistic inspection of scalar phenomena shows that there is a variety of EVENs in natural language, and that each EVEN item can have different semantic/pragmatic characteristics. Giannakidou (2007) argues that EVENs have different polarity characteristics by examining the behavior of three lexically distinct Greek counterparts of *even*, namely the positive polarity *akomi ke*, the negative polarity *oute*, and the "flexible scale" *esto* (which does not introduce likelihood but is associated with scales made salient by the context).

Regarding Japanese, both polarity-sensitive EVEN and non-polarity-sensitive EVEN have been attested. Sawada (2007) observes that Japanese has an EVEN NPI *hito-tu*, which can only appear in a negative context:

(23) *Taro-wa* *aisatu* *hito-tu* {*deki-na-i* /**deki-ru*}.
Taro-TOP greeting one-CL can.do-NEG-PRES /can.do-PRES
'Taro cannot even offer a greeting.' (Based on Sawada 2007)

**3** In fact, the meaning of (22) can be expressed differently without using *mo*:

(i) (Context: The speaker has just entered a lecture room.)
*Gakusei* *hito-ri* *i-na-i.*
student one-CL exist-NEG-PRES
'There isn't even one student.'

Sawada (2007) considers that in this case, the "one + classifier" complex itself behaves like a minimizer-forming suffix (see also Nakanishi 2008; Kataoka (this volume)).

Sawada (2007) claims that *hito-tu* 'even' in (23) behaves as an NPI, and that this type of *hito-tu* has been grammaticalized from *hito-tu* 'one-classifier' to a single scalar particle 'even'.[4]

Kinuhata (this volume) also demonstrates that Old Japanese *dani* 'even' is a polarity-sensitive EVEN and that it typically appears in a negative context, in the antecedent of a conditional, imperative, or optative, or in the context of intention. The existence of this type of EVEN in Japanese suggests the issue of polarity sensitivity in the domain of scalar particles – the problem that Kataoka (this volume) also discusses.

## 2.6 Equatives, proportional quantifiers, and maximality

While languages have a variety of degree expressions, an interesting point is that there is cross-linguistic variation regarding whether certain degree expressions (or constructions) are polarity-sensitive or not. Equatives and proportional quantifiers are important phenomena to consider in this regard. For instance, in English, the equative is not polarity-sensitive in that it can appear in both positive and negative contexts:

(24) a. *Taro is as tall as Ziro.*
b. *Taro is not as tall as Ziro.*

By contrast, the Japanese equative *hodo* is polarity-sensitive in that it can only appear in negative contexts:

(25) a. **Taro-wa* *Ziro-hodo* *se-ga* *taka-i.*
Taro-TOP Ziro-degree height-NOM tall-PRES
'Taro is as tall as Ziro.'
b. *Taro-wa* *Ziro-hodo* *se-ga* *takaku-na-i.*
Taro-TOP Ziro-degree height-NOM tall-NEG-PRES
'Taro is not as tall as Ziro.'

It has been standardly assumed that English equatives involve maximality, namely expressing a relationship between two maximum degrees (Beck 2011; Crnič and Fox 2019). By contrast, the *hodo* equative does not encode maximality but only

**4** *Tu* is a classifier for counting separable inanimate entities. It cannot count animate or inseparable entities or acts.

existential quantification over degrees. Tanaka, Mizutani, and Solt (this volume) claim that the NPI-hood of Japanese equatives results from a triviality of meaning (i.e., meaninglessness) and that the polarity sensitivity of Japanese equatives can be attributed to their weak existential semantics.

## 2.7 Polarity and indeterminate pronouns

Since Kuroda's (1965) seminal work, indeterminate pronouns have been a major topic of debate in the literature (e.g., Kishimoto 2001; Kratzer and Shimoyama 2002; Shimoyama 2011). In Japanese, the function of an indeterminate pronoun changes depending on the type of particles with which it is associated. When an indeterminate pronoun occurs with *ka*, it becomes a wh-question word (=26a) or an existential quantifier/PPI (=26b), and when an indeterminate pronoun occurs with *mo*, it behaves as either an NPI (=26c) or a universal quantifier (=26d). Furthermore, when an indeterminate pronoun occurs with *demo*, it functions as a free choice item as in (26e):

(26) a. *Dare-ga ki-ta-ka wakara-na-i.* (Wh-question)
who-NOM come-PST-Q know-NEG-PRES
'I don't know who came.'

b. *Dare-ka-ga ki-ta.* (Existential)
who-KA-NOM come-PST
'Someone came.'

c. *Dare-mo ko-nakat-ta.* (NPI)
who-MO come-NEG-PST
'No one came.'

d. *Dare-mo-ga ki-ta.* (Universal)
who-MO-NOM come-PST
'Everyone came.'

e. *Dare-demo ki-te yo-i.* (Free choice)
who-FC come-TE fine-PRES
'Anyone can come.'

Although this paradigm is well-known, it cannot be a full paradigm of indeterminate pronouns. Watanabe (this volume) investigates the under-discussed phenomenon of the indeterminate involving *donnani* 'how (much)'. As demonstrated in (27), *donnani* 'how (much)' often appears in a concessive context, and shows polarity sensitivity:

(27) a. (Positive sentence)
*Hanako-wa donnani kantanna mondai-mo toku-koto-ga*
Hanako-TOP how.much easy problem-MO solve-NML-NOM
*deki-na-i.*
can.do-NEG-PRES
'No matter how easy the problem is, Hanako cannot solve it.'

b. (Positive sentence)
**Hanako-wa donnani kantanna mondai-mo toku-koto-ga*
Hanako-TOP how.much easy problem-MO solve-NML-NOM
*deki-ru.*
can.do-PRES
'No matter how easy the problem is, Hanako can solve it.'

Building on the ideas of scalarity (Fauconnier 1975) and mirativity (Coppock and Engdahl 2016), Watanabe (this volume) proposes a new account of the syntax and semantics of the polarity sensitivity of *donnani* 'how (much)'. Related to the expression *donnani* 'how (much)' are indeterminate pronouns with the concessive expression *tatte* 'even if', *yooga* 'even if', and *niseyo* 'even if', discussed by Nakanishi and Hiraiwa (2019):

(28) *Dare-ga* {*ki-tatte* /*ko-yooga* /*kuru-niseyo*} *Taro-wa*
who-NOM come.even.if /come-even.if /come-even.if Taro-TOP
*yorokobu-daroo.*
pleased-will
'Whoever comes, Taro will be pleased.'

In (28), there are no particles such as *mo*. However, the sentences are semantically (almost) equivalent to the following sentence with the concessive conditional marker *te.mo* (which involves the particle *mo*):

(29) *Dare-ga ki-te.mo Taro-wa yorokobu-daroo.*
who-NOM come-even.if Taro-TOP pleased-will
'Whoever comes, Taro will be pleased.'

Nakanishi and Hiraiwa (2019) call the indeterminate pronoun that does not appear with *ka*, *demo*, or *mo* a "bare indeterminate." As seen in (28), the bare indeterminate *dare* appears in an adverbial clause with the meaning of unconditional or concession. How the meaning of bare indeterminate is compositionally interpreted and how it relates to other phenomena involving indeterminate pronouns constitute important research questions.

## 2.8 Varieties of PPIs

PPIs usually appear in a positive sentence, while they cannot appear in a negative sentence. Even if they can appear with negation, they must have wider scope than negation.

Previously, PPIs have not received as much attention as NPIs, but recently various PPI phenomena have attracted much research interest. For example, in the literature *some*, modality, and speaker-oriented adverbs have all been identified as PPIs and a number of theoretical proposals have been offered to account for their PPI status:[5]

(30) a. *# John didn't see someone.* (*not* >*some*)[6]
b. *John must not eat meat.* (deontic) (*must* > NEG)
c. *John probably left the city.*
(cf. # John didn't probably leave the city.)
d. *Unfortunately, John didn't come.* (*unfortunately* > NEG)

Regarding the PPI of *some* in English, Szabolcsi (2004) uses the concept of "rescue" to analyze the characteristics of PPI *some* appearing in complex negative environments, which seemingly constitute counterexamples. In Japanese, the meaning corresponding to the English *someone* (also *something*, *somewhere* etc.) is expressed by wh-*ka*, which behaves as a PPI (Sudo 2010; Alonso-Ovalle and Shimoyama 2014; Imani 2016), as we will discuss below. With respect to modality, the English deontic *must* in (30b) behaves as a PPI, and some PPI properties are observed for epis-

**5** Liu and Iordăchioaia (2018) classify and list expressions that behave as PPIs as follows, which shows that there are many different types of PPIs:

(i) Kinds of PPIs:

a. PPI adverbs (e.g., Baker 1970; van der Wouden 1997; Klein 1998; Liu 2012; Spector 2014; Ruppenhofer and Michaelis 2016; Sawada 2016; Kellert 2018)
b. PPI adjectives (e.g., Liu and Soehn 2009)
c. PPI predicates (e.g., Hoeksema 2010; Hoeksema 2018; Liu and Soehn 2009; Sailer 2018)
d. PPI indefinites (e.g., Szabolcsi 2004; Jayez and Tovena 2007; Chierchia 2013; Lee 2015; Fălăuş 2018)
e. PPI connectives (e.g., Goro and Akiba 2004; Spector 2014)
f. PPI determiners and quantifiers (e.g., Seuren 1985; Hasegawa 1991; Progovac 1994; Giannakidou 2011; Larrivée 2012; Zeijlstra 2013, 2017)
g. PPI measure constructions (e.g., Israel 2011)
h. PPI idioms (e.g., Liu and Soehn 2009; Hoeksema 2018; Sailer 2018)
i. PPI modal expressions (e.g., Homer 2011; Iatridou and Zeijlstra 2013; Giannakidou and Mari 2018)

(Based on Liu and Iordăchioaia 2018)

**6** This sentence becomes natural when *some* takes a wider scope than *not*, or when *not* is used to express emphatic denial (see, e.g., Szabolcsi 2004).

temic *must* as well (Homer 2011; Iatridou and Zeijlstra 2013; Giannakidou and Mari 2018). Some Japanese modalities also behave as PPIs. For example, the deontic *beki* 'should' is a PPI modal:

(31) *Taro-wa* *huhei-o* *i-u-beki-de.wa-nai.* (*should* > NEG)
Taro-TOP complaint-ACC say-PRES-should-*de.wa*-NEG
'Taro should not complain.'

Sawada (2006, 2014) claims that although *nai* 'not' in (31) is syntactically a sentential negation, semantically it is scoped over by *beki* 'should'. An interesting point is that not all kinds of modality expressions behave as PPIs. For example, English *have to* and *can* (both epistemic and deontic) are semantically interpreted in the scope of negation. Also, the English deontic *may* is ambiguous, falling either in or out of the semantic scope of negation (de Haan 1997; Sawada 2006). One of the major issues within PPI research is precisely how these properties of polarity sensitivity, which can vary from modality to modality, should be treated (see Francis and Iatridou (2020) for a summary of various approaches).

With regard to the speaker-oriented adverbs in (30c) and (30d), various ideas have been proposed, including the domain shrinking approach (Nilsen 2004) and the veridicality approach (Ernst 2009). Furthermore, there are studies of PPI-food of speaker-oriented adverbs from the perspective of conventional implicature (CI) (Potts 2005), such as the one proposed by Liu (2012). (We will discuss this point in Section 2.9.1.)

There are many phenomena that can be called PPI, but in this volume we will discuss the phenomenon of PPI involving the disjunction operator *ka* and *there*-sentences with numerals, as shown in Sections 2.8.1 through 2.8.3 below.

### 2.8.1 Differences between English *some* and Japanese wh-*ka*

Szabolcsi (2004) discusses the rescuing phenomenon of the English indefinite *some* and proposes the constraint in (32):

(32) (Constraint on the rescuing of PPIs)
PPIs do not occur in the immediate scope of a clause-mate anti-additive operator AA-Op, **unless** [AA-Op > PPI] itself is in an NPI-licensing context.
(Szabolcsi 2004: 419)

According to (32), (33b), as opposed to (33a), is expected to be natural because "negation (= anti-additive operator) plus PPI" itself is an NPI.

(33) a. # *John didn't see someone.* (NOT>*some*)
b. *I don't believe that you didn't see something.*
(Can mean 'I don't believe that you saw nothing') (Szabolcsi 2004: 411)

The question is to what extent the rescuing constraint in (32) is general. Yoshimoto (2019, this volume) investigates Japanese wh-*ka* and claims that it actually may appear in the immediate scope of a clause-mate additive operator, even if the sentence does not obey the rescuing constraint.

### 2.8.2 Differences between English *or* and Japanese *ka*

There is an issue of cross-linguistic variation of PPI-hood. Szabolsci (2002) claims that in English, the disjunctive expression *or* occurring with negation takes a narrow scope with respect to negation and is interpreted as AND (by obeying the de Morgan laws):

(34) *We didn't close the door or the window.*
→ We didn't close the door AND didn't close the window.
cf. $\neg(p \vee q) = \neg p \wedge \neg q$

In contrast, the Japanese disjunctive expression *ka* takes scope over negation (Goro and Akiba 2004; Goro 2007):

(35) *John-wa susi-ka pasuta-o tabe-nakat-ta.*
John-TOP sushi-or pasta-ACC eat-NEG-PST
→ John didn't eat sushi OR didn't eat pasta (but I don't know which).

Goro (this volume) discusses how cross-linguistic variations of PPI-hood can be theoretically explained from the perspective of language acquisition.

### 2.8.3 *There*-sentences and numerals

Ever since Milsark's (1974, 1977) proposal that weak NPs, but not strong NPs, can occur in a postverbal position in *there*-sentences in English, the relationship between existential sentences and determiners has been studied extensively. Typical exam-

ples of strong NPs are "definite" descriptions, which include demonstratives, possessives, pronouns, NPs with universal quantifiers (*all, every, each*) and *most*, and typical examples of the weak NPs are *a/an*, *some*, *several*, *many*, *no* and numerals. However, Milsark did not treat negative *there*-sentences with weak NPs, which show positive polarity, as exemplified in (36) (see Szekely 2015; McNally 1998):

(36) *#There are not two students who are sleeping in the room.*

(36) is infelicitous unless there is a contrastive emphasis on *two* (cf. *There are not two, but three students who are sleeping in the room*). The same phenomenon is true of existential sentences with numerals in Japanese. Imani (this volume) proposes that three types of domain-restrictions are relevant to the polarity of Japanese existential sentences with numerals.

## 2.9 Polarity sensitivity in pragmatics

As seen in Sections 2.1 through 2.8 above, polarity sensitivity has often been studied from the viewpoint of syntax and semantics. However, this topic has recently attracted attention in the field of pragmatics as well. For example, there are several specific issues concerning polarity sensitivity, such as the relationship between polarity sensitivity and conventional implicature, the source of speaker's positive/negative bias in negative interrogatives, and the difference between emphatic NPIs and attenuating NPIs.

### 2.9.1 Speaker-oriented adverbs and conventional implicature

As we mentioned above, some studies, such as Nilsen (2004) and Ernst (2009), argue that speaker-oriented adverbs like *unfortunately* and *surprisingly* are PPIs.

(37) a. *They unfortunately withdrew their funds.*
b. **Did they unfortunately withdraw their funds?* (Ernst 2009: 506)

Nilsen (2004) analyzes the PPI-hood of speaker-oriented adverbs in terms of domain-shrinking and pragmatic strengthening (cf. Kadmon and Landman's (1993) analysis of *any*, where domain-widening and pragmatic strengthening play an important role in explaining the distribution of *any*). Ernst (2009) analyzes the PPI-hood of speaker-oriented adverbs based on veridicality.

In terms of the semantics–pragmatics interface, many speaker-oriented adverbs, including *unfortunately* and *luckily*, are classified as conventional implicature (CI)-triggering expressions (Potts 2005). CIs are considered a part of the meanings of words, but they are independent of "what is said" (e.g., Grice 1975; Potts 2005; Horn 2007; McCready 2010; Sawada 2010, 2018; Gutzmann 2012). Furthermore, CI expressions are speaker-oriented (Potts 2007). Liu (2012) claims that PPI-hood of speaker-oriented adverbs can be attributed to a mismatch between their at-issue meaning and CI dimension.

One seemingly inexplicable puzzle is that some speaker-oriented adverbs are used as NPIs, as seen in the Japanese reactive attitudinal *nani-mo* (Sawada 2019, 2021):

(38) (Context: The hearer asked if everything needs to be done now.)
*Nani-mo ima zenbu suru* {*hituyoo-wa nai-desu*
what-MO now all do necessity-TOP exist.NEG-POLITE.PRES
/**hituyoo-ga ari-masu*}.
/necessity-NOM exist-POLITE.PRES
At-issue: You don't need to do everything now.
CI: I am thinking that "to do everything now" is too much.

The reactive attitudinal *nani-mo* in (38) is different from the quantifier *nani-mo* 'what-mo' in (39), in that its meaning does not contribute to the at-issue propositional content, but expresses a speaker's negative reactive meaning:[7]

(39) *Taro-wa nani-mo tabe-nakat-ta.*
Taro-TOP what-MO eat-NEG-PST
'Taro didn't eat anything.'

Although it is usually assumed that NPIs must be scoped under negation, the reactive attitudinal *nani-mo* cannot (CIs by definition cannot be scoped by logical operators). Sawada (this volume) shows that, besides *nani-mo*, there are various other types of NPIs that invoke CIs, and suggests that there is a new type of NPI that requires a negative element to satisfy its pragmatic function.

7 Descriptively, the reactive attitudinal *nani-mo* conveys that a judge (the speaker in the case of main clauses) considers that the given proposition *p*, which is salient in the discourse (here "the hearer does everything now"), is extreme and unnecessary. It is used in a situation where the judge objects to *p* in a weak manner (see Sawada 2021). In contrast, the quantifier *nani-mo* has a meaning equivalent to the English *any* and its meaning is part of a propositional content. As for the exact meaning of the quantifier *nani-mo*, there are various theories (see Section 2.4).

### 2.9.2 Speaker's negative/positive bias in negative interrogatives

English negative interrogatives like (40) have both a positively biased interpretation and a negatively biased interpretation (Ladd 1981; Romero and Han 2004):

(40) *Isn't Jane coming?*
   a. Positively biased reading: double-checking *p* (=Jane is coming)
   b. Negatively biased reading: double-checking ¬*p*

In the positively biased reading, the speaker is double-checking the information that Jane is coming, whereas in the negatively biased reading, the speaker is double-checking the information that Jane is not coming. If the PPI *too* is inserted, the sentence has a positively biased reading, and if the NPI *either* is inserted, the sentence has a negatively biased reading (e.g., Romero and Han 2004).[8]

(41) a. *Isn't Jane coming too?* (Positively biased reading: double-checking *p*)
   b. *Isn't Jane coming either?* (Negatively biased reading: double-checking ¬*p*)

A similar phenomenon exists in Japanese negative questions. As in (42a), when a negative question co-occurs with the positive polarity item *kanari* 'rather/quite', the negative question phrase acquires a positive bias reading (i.e., the speaker anticipates that "quite a number of people came"), but when it is accompanied by the negative polarity item *amari* 'that much' as in (42b), the speaker is double-checking that "not many people came," which is a negative bias reading:

(42) a. *Hito-ga* *kanari* *ko-nakat-ta?* (Positively biased reading:
   people-NOM quite come-NEG-PST double-checking *p*)
   'Didn't quite a number of people come?'

**8** Note, however, that there can also be a neutral (non-biased) reading in examples like "Does John not drink either?" (Romero & Han 2004:610):

(i) (Scenario: The speaker is organizing a party and she is in charge of supplying all the non-alcoholic beverages for teetotalers. The speaker is going through a list of people that are invited. She has no previous belief or expectation about their drinking habits.)
   A: *Jane and Mary do not drink.*
   S: *OK. What about John? Does he not drink (either)?*

(Romero & Han 2004: 610)

The utterance by S can be understood in this context as an epistemically unbiased question. Thanks to David Oshima for bringing this to our attention.

b. (Context: The speaker knows that Mary expected many people to come to the party. But now she looks depressed. The speaker asks her about the party.)[9]
*Hito-ga* *amari* *ko-nakat-ta?* (Negatively biased reading:
people-NOM that.much come-NEG-PST double-checking ¬*p*)
'Didn't many people come?'

If the polarity items do not co-occur, the negative question can be interpreted as either a positive bias reading or a negative bias reading, but the sentence can be disambiguated by prosody, background assumption, context, and the position of negative markers (Ito and Oshima 2016; Shimoyama and Goodhue 2019). Oshima (this volume) further investigates how English and Japanese negative polar questions differ in the way they are interpreted.

### 2.9.3 Polarity and discourse

Some polarity-sensitive items are highly related to discourse structure. Sawada (this volume) observes that the Japanese polarity expressions *totemo* and *zenzen* are used in a reactive context. Roughly speaking, the reactive *totemo* is construed as an NPI since it appears in a negative context and intensifies the impossibility of a given proposition *p* in a context in which *p* is discourse given and expected:

(43) A: *Kono* *mondai* *tok-e-masu-ka?*
this problem solve-can-POLITE-Q
'Can you solve this problem?'

9 In order to obtain a negative bias interpretation, we need to posit a context in which the negative bias was formed (by overriding the original positive bias) in the utterance situation. (42b) is natural in the following conversation (David Oshima, personal communication):

(i) A: *Kyoo-wa* *ippai* *hito-ga* *ki-ta-daroo-ne.*
today-TOP many people-NOM come-PST-seem-PRT
'I bet a lot of people came today.
B: Silent (smile)
A: *E?* *amari* *ko-nakat-ta?*
what that.much come-NEG-PST
'What? Didn't many people come?'

B: *Iya, boku-ni-wa totemo {tok-e-masen /*tok-e-masu}.*
no I-to-TOP TOTEMO solve-can-NEG.POLITE / solve-can-POLITE
'No, I can't solve this problem.'
(CI: I am emphasizing the inability.)

By contrast, the reactive *zenzen* 'totally' appears in a positive context and intensifies the degree of a given gradable predicate or the degree of a speaker's commitment toward a proposition in a situation in which the given proposition is not expected (e.g., Arimitsu 2002; Odani 2007; Sawada 2008):

(44) A: *Kono hon omosiroku-na-i-to kii-ta-kedo omosiro-i?*
this book interesting-NEG-PRES-that hear-PST-but interesting-PRES
'I heard that this book is not interesting, but is this interesting?'
B: *Zenzen omosiroi-yo.*
ZENZEN interesting-PRES-PRT
'It is *zenzen* interesting!'

Sawada (2019) argues that polarity sensitivity in the reactive intensifiers *totemo* and *zenzen* comes from the reversal of expectation, more specifically, from the item-specific characteristic of directionality of reversal (reversal of positive expectation or negative expectation). Sawada (this volume) further shows that similar reactive properties hold for English *totally* and *possibly* as well.

Bogal-Allbritten, Moulton, and Shimoyama (this volume) focus on nominalized clause complements involving *-ta-nun-kes* in Korean and (*-to-yuu*)*-no* in Japanese and show that such complements exhibit behavior anaphoric to familiar propositions in the discourse:

(45) *Watasi-wa [kare-ga syukudai-o zenbu*
I-TOP he-NOM homework-ACC all
*si-ta(-to-yuu)-no]-o sinzi-{tei-ru /tei-na-i}.*
do-PST-*to-yuu-no*-ACC believe-tei-PRES /tei-NEG-PRES
'I {believe/don't believe} that he finished his homework.'
("He finished his homework" is anaphoric to a proposition in discourse.)

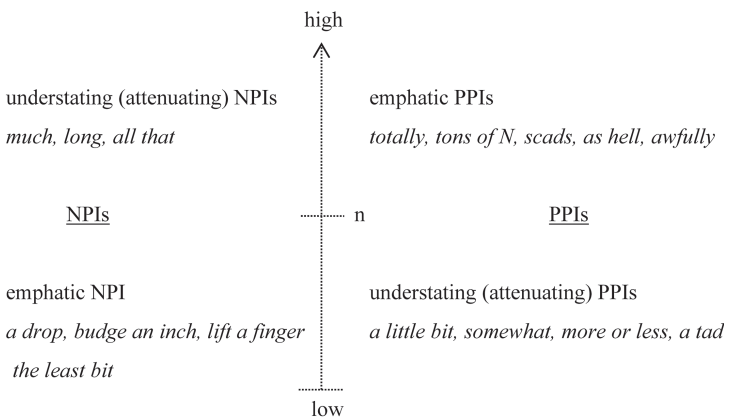
Since the embedded propositions of the nominalized clause complements involving (*-to-yuu*)*-no* in Japanese and *-ta-nun-kes* in Korean are always anaphoric to a proposition in discourse even if the entire sentence is negated as in (45), (*-to-yuu*)*-no* and *-ta-nun-kes* seem to behave as PPIs in a broader sense. It goes without saying that further research is needed on the relationship between polarity-sensitive items and discourse.

### 2.9.4 Emphatic NPIs vs. attenuating NPIs

Generally, studies of scalar NPIs tend to focus on emphatic NPIs such as *any* and *drink a drop* (e.g., Heim 1984; Kadmon and Landman 1993; Lee and Horn 1994; Krifka 1995; Lahiri 1998; Chierchia 2013; see Section 2.5), but as Israel (1996, 2004, 2011) shows, there are also so-called attenuating NPIs. Israel argues that all polarity items have a quantitative value on a "high/low" scale and an informational value such as "emphatic" or "understating" (pragmatic function) as in (46), and argues that the combination of these two values results in four types of polarity representations in natural language, as represented in (47):

(46) a. Quantitative Value (Q): high or low relative to norm
b. Informative Value (I): understating or emphatic relative to norm
(Based on Israel (1996))

(47)




(Based on Israel (1996, 2004))

For example, the English *a tad* is an understating (attenuating) PPI with a low degree value, whereas *the least bit* is an emphatic NPI with a low degree value.[10]

**10** Krifka (1995) also analyzed the meaning of *a sound* and *any*, assuming the speech act function of emphatic assertion.

(i) *John didn't hear a SOUND*. (Krifka 1995: 232)

(48) *Henry is a tad overweight.* (Understating (attenuating) PPI)
(cf. * *Henry isn't a tad overweight.*) (Israel 1996: 635–636)

(49) *Henry isn't the least bit overweight.* (Emphatic NPI)
(cf. **Henry is the least bit overweight.*) (Israel 1996: 635–636)

On the other hand, *all that* is an understating (attenuating) NPI with a high degree, whereas *awfully* is an emphatic PPI with a high degree.

(50) *Lewis isn't all that clever.* (Understating (attenuating) NPI)
(cf. * *Lewis is all that clever.*) (Israel 1996: 636)

(51) *Lewis is awfully clever.* (Emphatic PPI)
(cf. **Lewis isn't awfully clever.*) (Israel 1996: 636)

Whether Israel's theory applies to all polarity expressions needs to be carefully investigated, but there are polarity expressions in Japanese that fit Israel's typology:[11]

(52) *Kono hon-wa sukosi taka-i.* (Understating
this book-TOP a.bit expensive-PRES (attenuating) PPI)
'This book is a bit expensive'
(cf. **sukosi takaku-na-i* (a.bit expensive-NEG-PRES) 'lit. not *sukosi* expensive')

(53) *Taro-wa soto-ni i-ppo-mo de-nakat-ta.* (Emphatic NPI)
Taro-TOP outside-LOC 1-CL.step-even go.out-NEG-PST
'Taro never stepped outside.'
(cf. **i-ppo-mo de-ta* (1-CL.step-even go.out-PST) 'even took one step')

(54) *Kono ie-wa totemo ooki-i.* (Emphatic PPI)
this house-TOP very big-PRES
(cf. **totemo ookiku-na-i* (very big-NEG-PRES) 'lit. not *totemo* big')

**11** For example, it is not obvious whether the reactive NPI *totemo* 'very' is directly applicable to the type of Israel (Sawada (2014, this volume)).

(55) *Kono hon-wa sonnani* (Understating (attenuating) NPI)
this book-TOP that
*omosiroku-na-i.*
interesting-NEG-PRES
'This book is not that interesting.'
(cf. **sonnani omosiro-i* (that interesting-PRES) 'that interesting')

Israel (2004: 717) links the pragmatic function of polarity expressions to the theory of politeness (Brown and Levinson 1987), arguing that emphatic expressions are used to mark a speaker's emotion and involvement in a communicative exchange, whereas the attenuation functions to both protect a speaker's credibility and show deference to a hearer by minimizing any demands on his credulity.

In the formal semantics/pragmatics literature, while there is an abundance of formal research on emphatic polarity items (as we have seen in Sections 2.4 and 2.5), the literature on attenuating polarity items has been limited. Gradually, however, research on the attenuating type has also increased (for example, see Onea and Sailer (2013) for a study of the English attenuating NPI *all that*, and Matsui (2011, 2013) for the Japanese attenuating NPIs *amari* 'all that/that much' and *sonnani* 'all that/that much'. As for the semantics/pragmatics of attenuating PPIs, see, e.g., Sawada (2010, 2018) on Japanese *tyotto* 'a bit' and *sukosi* 'a bit'). In this volume, Ido, Kubota, and Kubota discuss differences in the meanings and distributions between the Japanese attenuating NPIs *sonnani* 'all that/that much' and *amari* 'all that/that much', using corpus data from the Balanced Corpus of Contemporary Written Japanese (BCCWJ).

## 3 Overview of individual chapters

The main aim of this book is to explore the theoretical and empirical issues surrounding comparisons between Japanese and other languages. These issues are addressed from the syntactic, semantic, pragmatic, experimental, psycholinguistic, and historical perspectives.

Chapters 2 and 3 discuss the licensing conditions of negative polarity items in Japanese through comparison with English and Spanish data.

**Hideki Kishimoto**'s "Negative polarity and clause structure in Japanese" (Chapter 2) investigates the licensing condition of NPIs from a comparative perspective of Japanese and English. In Japanese, unlike in English, NPIs are allowed to occur in both the subject and object positions of simple clauses. The author argues that the extent of negative scope changes in accordance with Neg-head raising in both English and Japanese, and that even in Japanese a subject-object asymmetry is

observed in the licensing of NPIs in the subject-raising and the subject-control constructions. This chapter provides evidence that in Japanese, long distance licensing is possible for local NPIs, which are often seen as subject to the clause-mate condition, provided they appear in a nonfinite clause and there is no CP projection between the NPI and the negator.

**Kiyoko Kataoka**'s article "Negation-sensitive elements outside the Neg-domain" (Chapter 3) examines the syntax and semantics of negative-sensitive elements (NSEs) in Japanese and Spanish. It is argued that in order for an NSE to be considered an NPI, it must be commanded by Neg to induce scale-based universal negation in the sense of Fauconnier (1975) and Ladusaw (1979). The author claims that there are NSEs in Japanese and Spanish that cannot be treated by the usual c-command condition by Neg and that the problematic distributions of Japanese and Spanish NSEs can be accounted for by their syntactic and language-specific lexical semantic role, which is different from a scale-based universal negation.

Chapters 4 through 6 focus on the syntax and semantics of polarity-sensitive expressions from phenomena related to minimum quantity expressions, existential sentences with numerals, and equatives.

In Chapter 4, **Akira Watanabe**'s "Degree quantification, minimum quantity predicates, and polarity in Japanese" shows that Japanese minimal quantity predicates (such as *wazuka* 'slight'), which can be independently identified by the degree modifier *hon-no* 'really', become polarity-sensitive when placed within the universal degree quantification structure defined by the indefinite degree modifier *donna-ni* 'how' and the quantifier particle *mo*. Watanabe shows that the Japanese quantification structure, unlike the English superlative, blocks the "negation-of-existence" reading, and that it is not the inherent nature of the minimal quantity predicate itself that explains the negation-of-existence reading. In this analysis, degree quantifiers are related to a restrictor that refers to standard values, which are sensitive to the comparison class involved.

**Ikumi Imani**'s contribution "Polarity sensitivity of existential sentences with numerals in Japanese" (Chapter 5) proposes a modification of Milsark's (1977) generalization of strong and weak determiners. According to Milsark, only weak determiners can occur in a postverbal position in English *there*-sentences. This chapter first shows that even weak determiners cannot be used in English existential sentences (i.e., *there*-sentences) with negation and their Japanese counterparts (unless a contrastive reading is induced), and then argues that the distributions are regulated by three types of domain-restrictions, namely *observation*, *subtraction* and *trivial-setting*. A detailed inspection of the data shows that an analysis making crucial use of the notions of domain restrictions is favored over Milsark's analysis in accounting for the polarity sensitivity of existential sentences with numerals.

In Chapter 6, the article "Polarity sensitivity and equative markers in Japanese and German" by **Eri Tanaka, Kenta Mizutani, and Stephanie Solt** discusses cross-linguistic differences in the semantics of equative constructions, with special focus on the Japanese and German equative markers *hodo* and *dermaßen*, respectively. The authors argue that these markers show a wider distribution than the more well-studied markers such as English *as. . .as*. Remarkably, some of these usages are polarity-sensitive and others are not, which is a pattern that has not been previously reported. Building on their previous claim that the peculiar behavior of these items comes from the lack of maximality semantics that leads to trivial interpretations in some configurations, the authors suggest that the polarity sensitivity of these markers results from their inducing a norm-relatedness presupposition.

Chapters 7 and 8 consider the PPI status of the Japanese indefinite and disjunction from the perspectives of semantics and acquisition theory.

In Chapter 7, **Yasushi Yoshimoto**'s article "On the rescuing of positive polarity items in Japanese and English: A hybrid approach" examines Japanese and English sentences containing *someone*-type PPIs and proposes a hybrid account of PPI rescuing that combines Homer's (2021) polarity theory and Larrivée's (2012) rescuing theory. While Szabolcsi (2004) claims that PPIs are rescued in contexts that license weak NPIs, it has been shown in the literature that both English and Japanese PPIs can be rescued in contexts that do not allow weak NPIs. To explain the data that remain unaccounted for under Szabolcsi's analysis, Yoshimoto proposes a revision of Larrivée's theory in such a way that a PPI in a negative proposition is authorized (or rescued) if the corresponding positive proposition that contrasts with that negative proposition is activated.

**Takuya Goro**'s article (Chapter 8) "On the scope behavior of Japanese disjunction *ka*: Positive polarity, or anti-reconstruction?" considers the PPI-hood of Japanese disjunction from the perspective of language acquisition. In the literature, two competing accounts have been advanced for the peculiar scope restriction on the Japanese disjunction *ka*, which resists taking scope under local negation, unlike the English disjunction *or*. Goro (2007) argues that this restriction comes from the PPI-hood of *ka*, while Shibata (2015) claims that this is due to object raising, and that once *ka* moves outside the scope of negation, it does not take lower scope because it is not subject to reconstruction (the anti-reconstruction approach). This chapter argues for the PPI approach drawing on children's data.

Chapters 9 through 12 focus specifically on the relationship between polarity and discourse.

In "The forms and meanings of negative polar interrogatives in English and Japanese: Epistemic bias, information structure, prosody, and further issues" (Chapter 9), **David Y. Oshima** explores the pragmatic meaning conveyed by negative polar questions (e.g., "Isn't it raining?") both in English and Japanese. He shows

that the two languages are similar in that (i) negative interrogatives convey a positive epistemic bias, a negative one, or no epistemic bias, (ii) negation in positively biased interrogatives is inert with respect to allowing polarity items, (iii) negation in the positive bias type is inert in the licensing of polarity items, etc. On the other hand, he claims that the interpretation of polar negative questions is signaled in different ways in the two languages: In Japanese, the prosodic reduction of the negative predicate systematically selects for a positive bias interpretation, whereas in English, the position of the negation plays an important role.

In Chapter 10 ("The polarity sensitivity of reactive intensifiers in Japanese and English") **Osamu Sawada** investigates the discourse-pragmatic functions of scalar expressions by employing the Japanese intensifiers *totemo* 'very' and *zenzen* 'at all', which have not only semantic but also discourse-pragmatic uses. The discourse-pragmatic *totemo* appears in negative modal environments and strengthens the impossibility of a discourse salient proposition. In contrast, *zenzen* appears in positive environments and strengthens the degree of a gradable predicate in situations in which the predicate is not expected to be true with respect to the individual in question (Sawada 2017, 2019). The discussion also reveals that *possibly* and *totally* in English have similar discourse-pragmatic functions. This chapter clarifies the existence of a discourse-sensitive polarity item whose distribution patterns are constrained by pragmatic factors rather than syntactic/semantic mechanisms.

In Chapter 11, **Elizabeth Bogal-Allbritten, Keir Moulton, and Junko Shimoyama**'s article "On propositional anaphora: 'Referential' propositions and propositional proforms" presents a case study on nominalized clausal complements in non-factive belief reports, with *-ta-nun-kes* in Korean and (*-to-yuu*)*-no* in Japanese. Such nominalized clauses require the proposition to be "anaphoric" to the proposition in the discourse. However, this chapter shows that the behavior is much more limited than might be expected from the assumption that they only refer to familiar propositions in the discourse. The authors argue that while propositional anaphora (e.g., response particles (*yes*/*no*)) can refer to the proposition embedded by negation or the positive proposition (the "highlighted" proposition) of a polar question that occurred in the previous utterance, the anaphoric nominalized clauses with *kes* and *to-yuu-no* do not have such referential properties because they refer to individual entities which bear propositional content.

As we discussed in Section 2.9.4, there are two types of NPIs that have scalar properties, emphatic NPIs and attenuating NPIs. In Chapter 12, **Misato Ido, Ai Kubota, and Yusuke Kubota**'s article "Two types of attenuation strategies for polarity-sensitive items: The semantics of degree adverbs *amari* and *sonnani* in Japanese" focuses on attenuating NPIs and argues that the attenuating effects of Japanese *amari* and *sonnani* are attained through different pragmatic strategies. The authors propose that the attenuating effect of *sonnani* emerges by virtue of the speaker's

(or attitude holder's) suspension of agreeing to add a contextually provided degree to the common ground, while *amari* gives rise to this effect due to the speaker's (or attitude holder's) belief about the "natural/unsurprising consequence" of accepting a contextually determined degree.

Finally, in Chapter 13 ("Scope ambiguity and the loss of NPI feature: Evidence from the history of Japanese scalar particle *dani*") **Tomohide Kinuhata** discusses the semantics of *dani* in Old and Middle Japanese. In Old Japanese, *dani* must appear in the scope either of negation or a predicate expressing a wish. Kinuhata claims that *dani* adds the presupposition that its prejacent proposition is more likely to occur, and negations or wishes strengthen the statement. In Early Middle Japanese, however, *dani* appeared in sentences without either negation or a wish (Kinuhata 2005). Kinuhata argues that *dani* in Early Middle Japanese is ambiguous between NPIs and non-NPIs, and demonstrates the complete loss of the NPI feature by analyzing instances of *dani* in texts written in Late Middle Japanese. The ambiguous status of *dani* resulting from reanalysis has a theoretical implication for cross-linguistic studies on *even*-like expressions.

## 4 Conclusion

This chapter has discussed various empirical and theoretical issues behind polarity items through comparisons between Japanese and other languages. This volume will address these issues in further detail, focusing on the syntax and semantics of both NPI and PPI, the pragmatics of polarity items, and the experimental, corpus, and historical approaches to polarity-sensitive expressions. All chapters include new empirical findings and raise several theoretical issues, which can only be examined from the crosslinguistic contrastive perspective of Japanese and other languages (e.g., English, German, Spanish, Korean, Greek, Swedish, and Old Japanese). We hope that this book will shed new light on the study of polarity-sensitive expressions in natural language.

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