

# JAPANESE DEMONSTRATIVE *SO-NO* AS A MODIFIER LACKING DEFINITENESS

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## 1 Introduction

This paper<sup>1</sup> aims to clarify the semantics of one of Japanese demonstratives, *so-no*, by comparing it with German ‘strong article’ which displays apparently similar distribution. Although demonstratives have been one of the most often discussed subjects in the Japanese linguistics, very little is known about their differences with respect to demonstratives and other definite determiners in other languages. The main proposal is that Japanese demonstrative *so-no* should be analyzed not as a definite determiner, but as a NP-adjunct modifier semantically functioning as a domain restrictor in Etxebarria & Ginnakidou’s (2010) terms. The paper is organized as follows. Section 2 will present, by referring to Löbner (2011), similarities and differences between Japanese *so-no* and German strong article: it will especially be shown that Japanese *so-no* does not necessarily induce uniqueness or maximality presupposition, contrary to German strong article. Section 3 will account for these similarities and difference by establishing the semantics of the two expressions, and point out some morphological and syntactic peculiarities of *so-no* which militate in favor of the proposed semantics. Section 4 will recapitulate the results of the paper.

## 2 Japanese demonstrative *so-no* and German strong article

This section begins by reviewing Löbner’s (2011) proposals concerning the interaction between basic noun types and determination types (2.1), against the background of which I will next show similarities between German strong article and Japanese *so-no* (2.2), and their differences concerning uniqueness or maximality presupposition (2.3).

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## 2.1 Congruent and incongruent definite determination

Löbner (2011) first distinguishes four basic noun types, that is, sortal, individual, relational and functional nouns: i) sortal nouns are unary predicate terms (of type  $\langle e, t \rangle$ ), like *man*; ii) individual nouns are individual terms (of type  $e$ ) uniquely identified in a context of utterance, like *US president*; iii) relational nouns are binary predicate terms (of type  $\langle e, \langle e, t \rangle \rangle$ ), characterize their referents by a particular relation (not necessarily one-to-one) to its external argument and are illustrated by nouns, like *brother* (*x's brother* is not necessarily uniquely determined with respect to  $x$ ); iv) functional nouns are unary function terms (of type  $\langle e, e \rangle$ ) lexically involving an external argument whose value constitutes the uniquely determined referent, like *father* (*x's father* is uniquely determined with respect to  $x$ ). By representing inherent uniqueness and inherent relationality respectively by features  $[\pm U]$  and  $[\pm R]$ , this author characterizes i) sortal nouns as  $[-U][-R]$ , ii) individual nouns as  $[+U][-R]$ , iii) relational nouns as  $[-U][+R]$ , iv) functional nouns as  $[+U][+R]$ .

He next shows which mode of determination is natural with which noun type: singular definite determiner is natural with  $[+U]$  nouns (i.e. individual nouns, like *US president*, and functional nouns whose external argument is filled, like *father of Obama*), while  $[-U]$  nouns (i.e. sortal nouns, like *man*, and relational nouns, like *brother of Obama*) should be coerced (type-shifted) with the help of contextual information to be compatible with singular definite article. To clarify these natural and coerced relations, Löbner (2011) introduces a distinction between “congruent” and “incongruent” determination: determination is congruent if it does not change noun type; otherwise (if it needs some contextual support), it is incongruent. A bridging use of definite article associated with a functional noun is between congruent and incongruent definite determination in that such a noun is disposed with  $[+U]$  feature but its external argument should be contextually fulfilled by way of anaphoric relation with the antecedent. Furthermore, according to Löbner (2011), “incongruent determination receives more salient expression, such as strong v. weak marking, marking v. non-marking, additional morphemes” (p.307). He then proposes the following scale indicating degrees of congruence of various uses of definite determiners.

- (1) ← *incongruent definite determination (requiring contextual support)*  
 deictic with sortal or relational nouns  
 > anaphoric with sortal or relational nouns  
 > bridging with functional nouns > with individual nouns  
*congruent definite determination* →

(adapted from Löbner 2011: 320)

English demonstratives, which may receive strong marking by stress, are incongruent markers, while definite article *the*, which cannot be stressed, is essentially a congruent marker, although it covers wide range of uses from left to right edges on the scale in (1). Thus, English *the* surely allows a deictic use, but requires, in singular cases, the uniqueness of the referent in a relevant situation, and is not acceptable in contexts where the same DP denotes different objects in the same situation, as in (2a) where the same DP, *the man*, should denote two different men. English demonstratives are acceptable in such cases, as in (2b).

- (2)a. \***The** *man* is dumb and **the** *man* isn't<sup>2</sup>.  
 b. **This** *man* is dumb and **this** *man* isn't. (Löbner 2011: 18)  
 (3) Every singer complained that {**the** /**#that**} *accompanist* played too loudly. (adapted from Lyons 1999: 273)  
 (4) {**The** / **#That**} *moon* was very bright last night. (idem.3)

The bridging use is expressed in English by definite article *the*, as in (3), but not by demonstratives: *that* in (3) should need, as an incongruent marker, a heavy contextual support, that is, high saliency of the referent of *accompanist*, which however is not obtained in (3). [+U] individual nouns, like *moon* in (4), are compatible with definite article *the*, but normally not with demonstrative *that*.

## 2.2 Similarities between Japanese *so-no* and German strong article

German definite article may be either contracted or not with a preposition preceding it. Schwarz (2009) observes that the contracted form, called 'weak article', conveys, like English *the*, uniqueness of the referent in a relevant situation, while the non-contracted form, called 'strong article', is used primarily in anaphoric cases. Löbner (2011) claims that the contracted weak and non-contracted strong articles respectively express congruent and incongruent definite determination, while a cut off point between the two types of determination is different between English and German. German strong article conveys i) deictic reading where the same DP may denote different objects in a relevant situation, as in (5), ii) anaphoric reading including bound variable reading, as in (6), and moreover, differently from English demonstratives, iii) bridging reading based on producer - product relation, as '*a novel-the author*' in (7)<sup>3</sup>. According to Schwarz (2009: 267), this use is in principle limited in cases involving [+R] nouns: in (7), a [+R] functional noun, *Autor* 'author' cannot be replaced by a [-R] sortal noun, *Schriftsteller* 'novelist'. All of these three readings are incompatible with the weak article, which marks the definiteness of [+U] individual nouns, as in (8). Strong article is not appropriate in this case.

- (5) Hans ist {**#im** /in **DEM**} *Auto* gekommen, nicht {**#im** /in **DEM**} *Auto*.  
 Hans is in-**the**<sub>weak</sub> / in **the**<sub>strong</sub> *car* come not in-**the**<sub>weak</sub> / in **the**<sub>strong</sub> *car*<sup>4</sup>  
 'Hans came in **that** *car*, not in **that** *car*.' (Schwarz 2009: 34) [deictic]  
 (6) In jeder Bibliothek, die ein *Buch* über Topinambur hat, sehe ich  
 In every library that a *book* about topinambur has, look I  
 {**#im** /in **dem**} *Buch* nach, ob man Topinambur grillen kann.  
 in-**the**<sub>weak</sub> /in **the**<sub>strong</sub> *book* PART whether one topinambur grill can  
 'In every library that has a *book* about topinambur, I check in **the** *book* if one can grill  
 topinambur.' (idem.242) [anaphoric]

<sup>2</sup> In the examples cited, definite determiners in English and German, Japanese demonstrative *so-no* and similar expressions are put in bold types, and the NP following these expressions are italicized. The antecedent, if there exists, is underlined.

<sup>3</sup> It however is the weak article that expresses a bridging reading based on a part / whole relation, as '*a church-the tower*'.

<sup>4</sup> The abbreviations used in this paper are the following: ACC: accusative; CL: classifier; COMP: complementizer; COP: copular; DAT: dative; GEN: genitive; LOC: locative; NEG: negation; NOM: nominative; PART: particle; PL: plural; PROG: progressive; PST: past; Q: question marker; SG: singular; TOP: topic.

- (7) Jeder, der einen Roman gekauft hat, hatte schon einmal eine Kurzgeschichte  
 everyone that a novel bought had had already once a short story  
 {#vom / von dem} Autor gelesen. (idem.247) [bridging]  
 by-**the**<sub>weak</sub> /by **the**<sub>strong</sub> author read  
 ‘Everyone that bought a novel had already once read a short story written by **the author**.’
- (8) Armstrong flog als erster {zum /#zu dem} Mond. (adapted from idem.40)  
 Armstrong flew as first one to-**the**<sub>weak</sub> / to **the**<sub>strong</sub> moon  
 ‘Armstrong was the first one to fly to **the moon**.’ [congruent with [+U] individual]

Japanese has three pre-nominal demonstratives whose singular forms are *a-no*, *ko-no* and *so-no*<sup>5</sup>. According to Hoji, Kinsui, Takubo & Ueyama (2003: 115), “a *ko*-NP is marked as [Proximal]; a *a*-NP is marked as [Distal]”, while “a *so*-NP is neither [Proximal] nor [Distal]”. Moreover, for *so-no*, “a linguistic antecedent is necessary” (p.103), which is not the case for *a-no* and *ko-no*. *so-no* is thus essentially anaphoric, like German strong article. *so-no* may further manifest apparently similar distribution with German strong article: i) it may be deictically used to refer to something closer to the hearer<sup>6</sup>. In this use, *so-no* is acceptable, like German strong article, when the same DP denotes different objects in a relevant situation, as in (9); ii) it allows a bound anaphoric use, as in (10); iii) it also allows a bridging use based on producer - product relation, as in (11), where the producer and the product are respectively expressed by *sennsee* ‘Professor’ and *tyosyo* ‘work’. According to Iori (2007: 146), this use is in principle only possible with [+R] nouns, but not with [-R] sortal nouns: in (11), if the [+R] functional noun, *tyosyo* ‘work’, is replaced by a [-R] sortal noun, *hon* ‘book’, we cannot get the bridging interpretation; iv) *so-no* is not natural with [+U] individual nouns, as in (12), which are normally zero-marked in Japanese.

- (9) Hans-wa **so-no** kuruma-de-wa naku, **so-no** kuruma-de kita. [deictic]  
 Hana-TOP **SO-NO** car-with-TOP NEG **SO-NO** car-with came  
 ‘Hans came in **that car**, not in **that car**.’
- (10) Do-no zidoosya-gaisya-mo **so-no** zidoosya-gaisya-no ko-gaisya-o  
 which automobile-company-∇**SO-NO** automobile-company-GEN subsidiary-ACC  
 suisensita [anaphoric]  
 recommended  
 ‘Every automobile-company recommended one, some or all subsidiary(ies) of **that automobile-company**’s.’ (Hoji, Kinsui, Takubo & Ueyama 2003: 104)
- (11) A: Ko-no aida, gakkai-no kaizyoo-de sensee-ga **so-no** tyosyo-ni me-o  
 Last day meeting-GEN place-LOC Professor-NOM **SO-NO** work-DAT eye-ACC

<sup>5</sup> In this paper, the nature of *-no* is not fully discussed, and is approximately analyzed as a genitive marker. It may be compared with *-no* taking part in pre-nominal numeral classifiers, as *san-nin-no gakusee* ‘three-CL-GEN student’, whose nature is controversial: different analyses are advanced by previous studies in terms of i) contextual case marker; ii) linking element inserted only morphologically and semantically inert; or iii) pre-nominal form of copular *-da*, etc. For more discussion, see Saito, Lin & Murasugi (2008), Miyamoto (2009), among others.

<sup>6</sup> Hoji, Kinsui, Takubo & Ueyama (2003: 113) argue that the deictic use of *so-no* (referring to something closer to the hearer) is relevant only when a conflict exists between the speaker’s and hearer’s viewpoints in a way that “the speaker construes the relevant object as *distal*, and the speaker thinks that the hearer would construe the relevant object as *proximal*”. In this sense, the deictic use of *so-no* is not basic. They in effect suggest that “a marked operation creates, on the basis of ‘visual contact’ with an object, what corresponds to a linguistic expression that can serve as an antecedent [...] and this is what underlies the deictic use of *so*-NPs.” (ibid.)

- toosi-teorare-ta yo.  
 pass-PROG-PST you know  
 B: E, do-no tyosyo ? (Iori 2007: 146)  
 Oh, which-GEN work  
 ‘A: Last day, at the meeting (of Linguistic Society), Professor was reading one, some or all work(s) of **his**. – B: Oh, which work?’ [bridging]
- (12) Saku-ban (#**so-no**) *tuki-wa* totemo akarukat-ta.  
 Last night **SO-NO** moon-TOP very bright-PST  
 ‘(#**That/The**) moon was very bright last night.’ [congruent with [+U] individual]

(13a) and (13b) respectively summarize the semantic domains expressed by English *that* and *the*, and German strong and weak definite articles. The semantic domains expressed by Japanese *so-no* and non-marked form recapitulated in (13c) seem to well correspond to those of German strong and weak articles in (13b). These similarities suggest a possibility of analyzing Japanese *so-no* and Japanese zero form respectively as incongruent and congruent definite determiners. I will however show in the next section that there is a crucial semantic difference between Japanese *so-no* and German strong article.

- (13) ← *incongruent* *congruent*→  
 deictic > anaphoric > bridging (producer-product) > with [+U] nouns
- a. -----English *that*--/-----English *the*-----  
 b. -----German strong -----/-----German weak-----  
 c. -----Japanese *so-no*-----/-----Japanese zero-----

### 2.3 Differences between Japanese *so-no* and German strong article

A bridging use of German strong article is possible only with [+R][+U] functional nouns, while Japanese *so-no* is compatible not only with functional nouns, but also with [+R][-U] relational ones: in (14a), a bridging *so-no* is attached to a [+R][+U] functional noun, *hyoosi* ‘cover’, and refers back to the antecedent, *zassi* ‘magazine’ (a magazine has only one cover), while in (11), it is attached to a [+R][-U] relational noun, *tyosyo* ‘work’, and refers back to the antecedent, *sensee* ‘Professor’ (Professor may publish more than one work). In the latter case, *so-no* allows a non-maximal, partitive reading, as shown in the English translation of (11). Recall that Japanese does not have obligatory plural marker and Japanese nouns, like *tyosyo* ‘work’, may a priori convey either singular or plural readings. In (11), B’s replay meaning ‘which work?’ confirms that a unique work among them is not presupposed between A and B. Plurality of animate nouns in Japanese may be clarified by a suffix *-tati*. Now, <*so-no* + NP-*tati*> does not necessarily induce maximality: in (14b), *so-no* is attached to a noun, *gakusee* ‘student’, which is lexically type-shifted from a [-R] sortal noun to a [+R] relational one, and refers back to ‘Professor Hata’. Now, *so-no student-tati* can denote some or all of Professor Hata’s students.

- (14)a. Boku-ga aidokusi-teiru zassi-ga atte [...] ko-ndo **so-no** *hyoosi-ni* [...]  
 me-NOM adore-PROG magazine-NOM exist, this time **SO-NO** cover-LOC  
 ‘I adore a magazine, and this time, on **its** cover...’ [with functional noun]  
 (Iori 2007: 159)
- b. Hata ... kyoozyu to **so-no** *gakusee-tati-wa* [...] KG broadband station-nituite  
 Hata professor and **SO-NO** student-PL-TOP KG broadband station-about

happyoosimasu. (<http://www.jearn.jp/2003conference/news/kwansei.html>)  
 give.a.talk. [with coerced relational noun]  
 ‘Professor Hata and some or all students of **his** will give a talk about KG broadband station’

The same is true for anaphoric and deictic uses of *so-no*: in (15a) including an anaphoric *so-no*, the referents of *so-no koinu* ‘puppy’ may be not maximally identified with the seven puppies introduced in the preceding discourse, which is confirmed by B’s question meaning ‘how many puppies?’; in (15b) including a deictic *so-no*, the propositional contribution of *so-no koinu* is not maximally identified with the seven puppies indicated by A’s gesture, which is confirmed by B’s question meaning ‘how many ones?’. Taking into account of these observations, we can conclude that Japanese *so-no*, lacking uniqueness or maximality presupposition in all its uses, cannot be analyzed as a definite determiner<sup>7</sup>.

- (15)a. A: Pet shop-ni totemo kawaii koinu-ga nana-hiki imasita. watasi-wa **so-no**  
 pet-shop-LOC very pretty puppy-NOM seven-CL were me-TOP **SO-NO**  
koinu-o kaimasita.  
 puppy-ACC bought  
 B: Nan-biki katta-no desu-ka?  
 what- CL bought-COMP COP-Q  
 ‘A: The pet shop has seven very pretty puppies. I bought one, some or all of **those**  
puppies – B: How many ones did you buy?’
- b. [In a pet shop, a client A says to a shop assistant B, in pointing out seven puppies he finds there]  
 A: **so-no** koinu-o kaimasu.  
**SO-NO** puppy-ACC buy  
 B: Nan-biki desu-ka?  
 what- CL COP -Q  
 ‘A: I buy one, some or all of **those puppies!** – B: How many ones?’

<sup>7</sup> In (15a,b), the plural form of *so-no*, *sore-ra-no*, is not impossible. Nakanishi & Tomioka (2004) point out that Japanese plural markers, *-tati* and *-ra*, convey basically heterogeneous plurality whose individual members are not uniform. Kobayakawa (2004: 42) observes that, when denoting plural referents,  $\langle \textit{sono} + \textit{NP} \rangle$  represents a group of entities conceived as belonging to the same category, while  $\langle \textit{sore-ra-no} + \textit{NP} \rangle$  represents a group of entities conceived as belonging to different subcategories of the same category. Turning back to (15a,b),  $\langle \textit{so-no} + \textit{puppy} \rangle$  seems to be more natural than  $\langle \textit{sore-ra-no} + \textit{puppy} \rangle$ , since there is no contextual information indicating different subcategories of puppies. On the other hand, in (i),  $\langle \textit{sore-ra-no} + \textit{pen} \rangle$  is natural because two different types of pens (felt pens and ball-point pens) are mentioned. It is to be noticed that  $\langle \textit{sore-ra-no} + \textit{pen} \rangle$  should denote objects including both of the two types of pens, but not necessarily all of the two felt pens and all of the three ball-point pens previously introduced.

(i) Taro-wa feruto pen-o ni-hon to booru pen-o san-bon katta. Sikasi **sore-ra-no** pen-wa,  
 Taro-TOP felt pen-ACC two-CL and ball-point pen-ACC three-CL bought but **SORE-RA-NO** pen-TOP  
 amari yoku kake-nakat-ta.  
 very well write-NEG-PST  
 ‘Taro bought two felt pens and three ball-point pens. But **SORE-RA-NO** pen (one or all of the two felt pens and some or all of the three ball-point pens) didn’t write very well.’

### 3 Proposals

In this section, I will try to account for the similarities and differences examined in Section 2 between German strong article and Japanese *so-no* by referring to Elbourne's (2008) analysis of demonstratives and Etxeberria & Ginnakidou's (2010) idea of grammatically encoded domain restriction (3.1). I will next examine some morphological and syntactic correlations of the lack of uniqueness or maximality presupposition (3.2).

#### 3.1 Japanese *so-no* as a domain-restricting modifier

Schwarz (2009) proposes, to account for differences between German weak and strong articles, that the latter, but not the former, evokes an extra individual argument, noted by *I* in (16a). A similar idea is advanced by Elbourne (2008) for the semantics of demonstratives, according to which, demonstratives take three arguments, *index*, *relation* and a NP, as in (16b): i) *index* (noted by *i*) is a salient individual on the basis of which the actual interpretation of a demonstrative is computed<sup>8</sup>, and may be considered as corresponding to Schwarz's (2009) extra individual argument; ii) *Relation* (noted by *R*) constrains the relation between *index* and propositional contribution of the demonstrative phrase. Applying this analysis to German strong article, the semantics of *DEM Auto* 'the<sub>strong</sub> car' in (5), including its deictic use, is represented by (16c), where the value of *index* is given by an assignment function *g* and is determined by gesture. The propositional contribution of this definite phrase is related to the demonstratum (noted by *g(i)*) by identity *Relation* (noted by =). The referent of the whole demonstrative expression is uniquely determined by the *iota* operator. Almost the same is true for its anaphoric use except that the value of *index* is determined by the antecedent. In cases of bridging use based on producer-product relation, a [+R] functional noun denoting the producer (ex. *author*) lexically has an external argument, which is identified with the value of *index* provided by the antecedent (ex. *a novel*), as in (16d)<sup>9</sup>.

- (16)a. [DP I [D' D NP]] (Schwarz 2009: 270)  
 b. [DP [that *i*] R] NP (Elbourne 2008: 430)  
 c. *deictic use*  
 [[*DEM Auto* (in (5))]]<sup>g</sup> =  $\iota x$  (*car*'(x) & x = g(i))  
 d. *bridging use*  
 [[*DEM Autor* (in (7))]]<sup>g</sup> =  $\iota x$  (*author*'(x)(y) & y = g(i))

Now, how to represent the semantics of Japanese *so-no*, which manifests similar deictic, anaphoric and bridging uses, but allow wider range of readings from indefinite partitive reading to definite maximal one? Curiously, a similar ambiguity between definite and indefinite interpretations is shown by a demonstrative determiner <*ti...a*> in St'át'imcets (Lilooet Salish). Thus, in (17a), the first occurrence of the sequence, *ti smém'lhats-a*, is translated in English by 'a girl', while the co-referring second one is translated by 'the girl'. Matthewson (2009) analyzes this determiner as a wide scope indefinite, on the basis of the observation that it should take wide scope with respect to negation, as in (17b).

<sup>8</sup> In deictic uses, *index* may further be spatially specified as [proximal] or [distal].

<sup>9</sup> Elbourne (2008) deals with demonstratives in the framework of situation semantics. I however do not mention the situation variable in the semantic representations of German strong article and Japanese *so-no* for simplicity of exposition.

- (17)a. Húy'-lhkan                    ptakwlh, ptákwkh-min                    lts7a [ti smém'lhats-a]  
 going.to-1SG.subject tell.story tell.story-applicative here DET girl-DET  
 wa7                    ku7                    ítal láti7 [ti smém'lhats-a]  
 IMPERFECTIVE REPORT cry deictic DET girl-DET  
 'I'm going to tell a legend, a legend about a girl. The girl was crying there.'  
 (Matthewson 2009: 28)
- b. Cw7aoz kw-s                    áz'-en-as                    [ti sts'úqwaz'-a] kw-s                    Sophie.  
 NEG                    DET-NOM buy-DIRECTION 3.SG DET                    fish -DET                    DET-NOM Sophie  
 'Sophie didn't buy a fish.' (= 'There is a fish which Sophie didn't buy.') (idem.29)

Etxebberia & Ginnakidou (2010) claim that this determiner does not introduce the *iota* operator, and should be analyzed a modifier (of type  $\langle\langle e,t\rangle, \langle e,t\rangle\rangle$ ) serving as a domain restrictor. The semantics of domain restriction is formalized in terms of a context set variable  $C$ . It is to be noticed that, although domain restriction is often considered as a purely pragmatic phenomenon, Etxebberia & Ginnakidou (2010) analyze it as grammatically encoded. A domain restricting determiner yields an intersection of the set of individuals denoted by the NP (represented by a property  $P$ ) and the set of individual provided by a property  $C$ , as in (18a).

- (18)a.  $[[[ti NP-a]]] = \lambda P_e t \lambda x. P(x) \cap C(x)$  (idem.18)
- b.  $[[[I7a)]]^g = \exists y [y \in \lambda x [girl'(x) \cap C(x)] \& I'm-going-to-tell-a-legend\ about'(y)]$
- c. "Ambiguous DPs [between definite and indefinite readings] in such languages [lacking definite and indefinite article] are simply indefinites. They are semantically equivalent to English indefinites, but have a wider range of felicitous uses because they do not compete with definites and therefore do not induce the same [quantity] implicature". (Heim 2011: 1006)

The semantics of the first sentence of (17a) is computed, as in (18b), thanks to a contextually introduced existential quantifier, and boils down to saying that there is a woman among contextually relevant women such that the speaker is going to tell a legend about her. A similar analysis is proposed by Heim (2011). As in (18c), she suggests that definites and indefinites form a scale of competing alternatives: "I buy the book" thus entails "I buy a book". The quantity principle requires in article-languages that a use of the latter implicates the falsity of the former stronger proposition. Since such a formal distinction between definites and indefinites is absent in St'át'imcets,  $\langle ti...a \rangle$  may be used either indefinitely or definitely. The latter case is observed when the set of the relevant alternative members is narrowed down until a singleton member, which is further mentioned in the previous discourse, as in the second sentence of (17a).

I propose to combine Etxebberia & Ginnakidou's (2010) idea of grammatically encoded domain restriction and Elbourne's (2008) framework, to represent the semantics of Japanese *so-no*. I first propose to clarify the effect of the context set variable  $C$  in terms of *Relation* between *index* and the propositional contribution of  $\langle so-no+NP \rangle$ . The semantics of *so-no* is then represented by (19). The semantics of deictic and anaphoric uses of *so-no koinu* 'puppy' is represented by (20a) where the value of *index* (noted by  $g(i)$ ) is interpreted as the seven puppies introduced by the preceding discourse in (15a), or as those demonstrated by A's gesture in (15b). The restricted domain thus boils down to the set of these contextually relevant seven puppies. These contextually relevant members are related to the propositional contribution of *so-no koinu*

in terms of identity *Relation*. The difference from German strong article, represented in (16c), is that the *iota* operator is not evoked. The semantics of the whole sentence of (15a,b) is computed thanks to a contextually introduced existential quantifier, as in (20b), which boils down to saying that in the restricted domain consisting of the relevant seven puppies, there is / are some member(s) such that A buys it (them). Now, the maximal definite reading “A buys the seven puppies” surely entails the partitive indefinite reading “A buys some of the seven puppies”. But, because of lack of formal definite / indefinite distinction in Japanese, the quantity implicature is not invoked. *so-no* then allows both of definite and indefinite interpretations, just like St’át’imcets demonstrative  $\langle ti\dots-a \rangle$ .

(19)  $[[so-no\dots]]^g = \lambda P_e \lambda x (P(x) \ \& \ R(x)(g(i)))$

(20) *deictic and anaphoric use*

a.  $[[so-no \ koinu \ (\text{in } (15a,b))]]^g = \lambda x (puppy'(x) \ \& \ x = g(i))$

b.  $[[ (15a,b) ]]^g = \exists y [y \in \lambda x [puppy'(x) \ \& \ x = g(i)] \ \& \ buy' (A)(y)]$

As regards bridging use of *so-no*, we observed two cases: one case includes lexically [+R] relational or functional nouns, like *so-no typsyo* ‘work’ in (11) and *so-no hyoosi* ‘cover’ (14a), while another case includes nouns type-shifted from [-R] sortal noun to [+R] relational one, like *so-no gakusee-tati* ‘students’ in (14b). The semantics of the former case is represented by (21a), where [+R] relational noun, *tyosyo* ‘work’, is disposed with two arguments, the external one of which is related, by way of identity *Relation*, to the value of *index* provided by the antecedent. The semantics of the latter is represented by means of a contextually salient *Relation* variable (Barker 2011: 1114), as in (21b). In the context of (14b), *Relation* between the value of *index* (Professor Hata) and students may be most naturally considered as ‘supervise’ *Relation*. The semantics of the whole sentence of (11) including bridging *so-no* is computed, just like in cases including deictic or anaphoric *so-no*, in terms of a contextually introduced existential quantifier, as in (21c) (where  $g(i)$  is identified as the denotation of the antecedent, *Professor Hata*).

(21) *bridging use*

a.  $[[so-no \ tyosyo \ (\text{in } (11))]]^g = \lambda x (work'(x)(z) \ \& \ z = g(i))$

b.  $[[so-no \ gakusee-tati \ (\text{in } (14b))]]^g = \lambda x (students'(x) \ \& \ R(x)(g(i)))$

c.  $[[ (11) ]]^g = \exists y [y \in \lambda x [work'(x)(z) \ \& \ z = g(i)] \ \& \ was-reading' (g(i))(z)]$

One observation in the field of L2 acquisition indirectly supports the hypothesis that Japanese *so-no* does not necessarily induce maximality. Kaneko (1996) observes that L1 Japanese learners overuse English definite article *the* in partitive indefinite contexts. Thus in (22), *pencil* is interpreted as one of the pencils introduced by the antecedent, *some pencils*. In such partitive contexts, native speakers choose the indefinite article, *a*, while Japanese learners tend to mis-use *the*. It is to be noticed that anaphoric and bridging uses of English *the* are sometimes translated in Japanese by *so-no*, as in (23a,b) which are found in English-Japanese dictionaries: in (23a), *the dog* is co-referent with the antecedent, *a dog*; in (23b), *the mark* is understood, through bridging inference, as the mark left on the telegraph pole after the traffic accident described by the first sentence. If we assume that the acquisition of English *the* by L1 Japanese learners is somehow

influenced by L1 transfer due to lack of maximality of Japanese *so-no*<sup>10</sup>, we may naturally account for their overuses of English *the* in partitive indefinite contexts.

- (22) Once there was a boy. He wanted to write a letter. He went to his mother. She showed him some pencils. So he took (**a / the /-**) *pencil*. And he wrote his letter. (Kaneko 1996)
- (23)a. *anaphoric*  
We keep a dog, and are all fond of **the dog**. (*the* translated with *so-no* in *Kenkyusya's English-Japanese Dictionary for the General Reader*: 2246)
- b. *bridging*  
His car struck a telegraph pole; you can still see **the mark** on the pole. (*the* translated with *so-no* in *Genius English-Japanese Dictionary*: 1940)

### 3.2 Morphological and syntactic correlations

The hypothesis that Japanese *so-no* does not induce uniqueness or maximality has some correlations in syntactic and morphological fields. Lyons (1999) suggests that the syntactic head D is the locus of the semantic feature of uniqueness / maximality, and is absent in article-less languages. In a similar vein, Bošković (2009) claims that article-less languages, like Japanese, Korean, Serbo-Croatian, etc. lack DP projection, and that determiner-like expressions (ex. possessives, demonstratives, etc.) in these languages are syntactically adjunctive modifiers<sup>11</sup>. Leu (2008) observes that in some Germanic languages, demonstratives take the same form as the one that the definite article takes when followed by an adjective modifier, like *di* in Swiss German in (24a), and that in colloquial Swedish, demonstratives consist of <definite article + locative ‘here’ or ‘there’>, as in (24b). Based on these observations, this author claims that demonstratives have a complex structure consisting of <definite article + implicit or explicit modifier>. Leu (2008: 26) further analyzes Japanese demonstratives as corresponding to his modifier component by noting that “the Japanese way of saying ‘this book’ is something like ‘book of here’”.

- (24)a. d rosä / **di** rot rosä / **di-** rosä (Leu 2008: 19) [Swiss German]  
the rose / the red rose / this rose
- b. **det** här / **der** där (idem.21) [colloquial Swedish]  
the here ‘this one’ / the there ‘that one’

<sup>10</sup> Ko, Ionin & Wexler (2010) show, based on systematic empirical investigation, that another article-less L1, Korean, learners equally misuse English *the* in indefinite partitive contexts both in anaphoric and bridging cases. To account for this observation, they first assume i) that not only definiteness, but also existential presuppositionality are semantic universals provided by Universal Grammar: definiteness is defined as a combination of existential presupposition + uniqueness / maximality presupposition, while presuppositionality is not necessarily accompanied with uniqueness / maximality. They further assume that “L2 learners have access to semantic universals provided by Universal Grammar, just like child L1 learners” (p.214), and ii) that, fluctuating among possible parameter settings, they mis-set English *the* as a marker of existential presuppositionality, rather than definiteness. Kaneko (2012) points out that the lack of maximality is systematically observed with Japanese determiner-like expressions including not only *so-no*, but also the other two demonstratives, *a-no* and *ko-no*, and pre-nominal possessives, like *watasi-no* ‘my’, and propose to reinterpret Ko, Ionin & Wexler’s (2010) fluctuation hypothesis in terms of L1 transfer of parameter-setting (for presuppositionality) itself.

<sup>11</sup> He however does not provide convincing evidence for the modifier analysis of demonstratives.

Inspired by these previous studies, I assume that Japanese *so-no* does not project DP responsible for uniqueness / maximality and should be analyzed as a NP adjunct corresponding to a modifier part of Leu's structure, as in (25). At least three syntactic and morphological arguments come in favor of this hypothesis. First, *so-no* is decomposed into the demonstrative prefix, *so-*, and the genitive marker *-no*. The same decomposition is possible for pre-nominal WH word, *do-no*, as in (26), which lacks, as well known, its own quantificational force and requires to be associated to some quantificational expression, like universal particle *-mo* in (26). Now, the demonstrative prefix *so-* takes the same forms with the WH prefix *do-* in pronominal, locative, directive and adverbial cases, as in (27a-d). These parallel morphologies suggest that demonstrative prefix *so-* lacks, like WH prefix *do-*, its own quantificational force.

- (25) [<sub>NP</sub> *so-no* (=Leu's modifier component) [<sub>NP</sub> *gakusee* (student)]]  
 (26) Do-no *zidoosya-gaisya*-mo **so-no** *ko-gaisya*-o suisensita  
 which automobile-company- $\forall$ SO-NO *subsidiary*-ACC recommended  
 'Every automobile-company recommended one, some or all *subsidiaries* of **its**.'  
 (27)a. {*so-re* / *do-re*} [pronominal]  
       that / which  
   b. {*so-ko* / *do-ko*} [locative]  
       there / where  
   c. {*so-tira* / *do-tira*} [directive]  
       that direction / which direction  
   d. {*so-o* / *do-o*} [adverbial]  
       in that way / in which way

Second, as observed by Miyamoto (2009) among others, Japanese *so-no* may be preceded, contrary to English demonstratives in (28a), by other modifiers. In (28b), the superlative, *itiban* 'the most', inside the relative further forces the restrictive reading. The possibility of being preceded by a restrictive modifier clearly indicates that *so-no* is not a determiner closing nominal projections.

- (28)a. \*expensive **this** *car* (Bošković 2009: 195)  
   b. *Toyota*-wa [*itiban* *gyoosekinoyoi*] **so-no** *ko-gaisya*-o suisensita  
       *Toyota*-TOP [most productive] **SO-NO** *subsidiary*-ACC recommended  
       'Toyota recommended **its** most productive *subsidiary*.'<sup>12</sup>

<sup>12</sup> Differently from the bridging *so-no* in (28b), the anaphoric *so-no* is not easily preceded by a restrictive modifier, as shown by the contrast between (ia) and (ib). I assume that this difficulty is due to the pragmatic constraint that the antecedent of *so-no* should be as near as possible (Iori 2007). It is to be noticed that *so-no* may refer to the content of a modifier just preceding it, as in (ii). When the intended antecedent is far from *so-no*, and a modifier intervenes between it and *so-no*, as in (ib), the antecedent of *so-no* cannot be so clearly identified. On the other hand, in bridging uses, as in (28b) where the antecedent is in the same clause as *so-no*, the identification of its antecedent is not so heavily disturbed by an intervening modifier.

- (i) Pet shop-ni *koinu*-ga nana-hiki imasita.  
       pet-shop-LOC puppy-NOM seven-CL were  
       'I found seven puppies in the pet-shop'  
   a. *Watasi*-wa **so-no** [*itiban* *kawaii*] *koinu*-o kaimasita.  
       me-TOP **SO-NO** [most pretty] *puppy*-ACC bought  
   b. ??*Watasi*-wa [*itiban* *kawaii*] **so-no** *koinu*-o kaimasita.  
       me-TOP [most pretty] **SO-NO** *puppy*-ACC bought

Third, Saito, Lin & Murasugi (2008) argue that a pre-nominal *no*-marked phrase in Japanese is analyzed as situated either i) in an argument position when allowing an ellipsis of the following NP, or ii) in an adjunct position when the ellipsis is not accepted. Thus, *Bill-no* ‘Bill’s’, which allows an ellipsis of the following NP, *hon* ‘book’, in (29a), is in an argument position, while *ame-no* ‘rainy’, which does not allow an ellipsis of the following NP, *hi* ‘day’, in (29b), is in an adjunct position. Now, as shown by (30a,b), *so-no* doesn’t allow ellipsis of the following NP in deictic uses as well as in bridging uses, which indicates that it behaves as a NP-adjunct.

- (29)a. Taro-wa [**John-no** hon]-o katta ga, Hanako-wa [**Bill-no** ~~hon~~]-o katta.  
Taro-TOP **John’s** book- ACC bought but Hanako-TOP **Bill’s** ~~book~~- ACC bought  
‘Taro bought John’s book(s), but Hanako bought Bill’s (books).’
- b. \***[Hare-no** hi]-wa yoi ga, [**ame-no** ~~hi~~]-wa otikomu.  
clear-NO day-TOP good but rain-NO day-TOP feel depressed  
‘Clear days are ok, but I feel depressed on rainy (days).’  
(Saito, Lin & Murasugi 2008: 253)
- (30)a. \***[so-no** hon]-wa omosiroi ga [**so-no** ~~hon~~]-wa omosiroku-nai. [deictic].  
**SO-NO** book-TOP interesting but **SO-NO** ~~book~~-TOP interesting-NEG  
‘**That** book is interesting, but **that** (book) is not interesting.’
- b. \*Toyota-wa [**so-no** ko-gaisya]-o suisensita ga, Honda-wa  
Toyota-TOP **SO-NO** subsidiary-ACC recommended but Honda TOP  
**[so-no** ~~ko-gaisya~~]-o suisensi-nakatta. [bridging]<sup>13</sup>  
**SO-NO** ~~subsidiary~~-ACC recommend-didn’t  
‘Toyota recommended one, some or all of **its** *subsidiaries*, but Honda didn’t  
recommend one, some or all of **its** (subsidiaries).’

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‘I bought the most pretty puppy (among them).’

- (ii) “Anata nashi dewa iki-rare-nai” to itteita sono Junko ga ima hoka-no otoko-no  
‘you without if alive-can-NEG COMP was.saying **SONO** Junko-NOM now another-GEN guy-GEN  
kodomo-o huta-ri mo un-deiru. (adapted from Iori 2007: 98)  
child-ACC two-CL even give.birth.-Resultative  
‘**The same** Junko who used to say that she could not be alive without me gave birth to two children with  
another guy.’

<sup>13</sup> Iori (2007) analyzes the bridging *so-no* as abbreviated form of the pronominal possessive, *sore-no* (demonstrative pronoun *sore* ‘that’+ genitive *no*) and as basically different from the anaphoric *so-no*. If this analysis is on the right track, we predict that the bridging *so-no* syntactically behaves similarly to *sore-no* and differently from the deictic or anaphoric *so-no*. Now, Kinsui (1999: 81) points out that the pronominal possessive *sore-no* in (i) allows an ellipsis of the following NP, similarly to the *no*-marked possessives, as *Bill-no* ‘Bill’s’ in (29a) and contrary to the deictic and bridging *so-no*, as in (30a,b) and in (i). The facts concerning the ellipsis thus indicate that the bridging *so-no* should be analyzed as parallel to deictic or anaphoric *so-no*, rather than to the pronominal possessive *sore-no*.

- (i) Zoo-no sinzoo-wa totemo ookii. Ippoo nezumi-ni-mo sinzoo-wa aru ga,  
Elephant-GEN heart-TOP very big on the other hand mouse-LOC-also heart-TOP exist but  
{**sore-no** ~~sinzoo~~-wa / \***so-no** ~~sinzoo~~-wa} totemo tiisai. (Kinsui 1999: 81)  
**that**-GEN ~~heart~~-TOP / **SO-NO** ~~heart~~-TOP very small  
‘The heart of an elephant is very big. A mouse too has a heart. But, **its** (heart) is very small.’

## 4 Conclusion

In this paper, I first showed that although both of German strong article and Japanese *so-no* seem to equally manifest characteristics of incongruent definite determiner in Löbner's (2011) terms, this analysis is not appropriate for Japanese *so-no* which does not necessarily induce, contrary to German strong article, uniqueness or maximality presupposition in all its uses. I next proposed to capture this difference by analyzing *so-no* as an NP-adjunct modifier semantically functioning as domain restrictor in Etxeberria & Ginnakidou's (2010) terms. I further suggested, following Heim (2011), that if *so-no* allows either unique / maximal definite or partitive indefinite readings, this is because, although these two readings form a scale of competing alternatives (the former entails the latter), the quantity implicature is not evoked due to the lack of formal definite / indefinite distinction in Japanese, and that the more informative definite reading is not excluded by a use of the form conveying the less informative partitive reading.

In addition to naturally accounting for mis-uses of English *the* in indefinite partitive contexts by L1 Japanese L2 English learners, this hypothesis finds its correlations in three morphological and syntactic phenomena: i) the demonstrative prefix *so-*, taking part in pre-nominal demonstrative, *so-no*, systematically displays the same morphologies with the WH prefix *do-* in pre-nominal WH *do-no*, which is known as lacking its own quantificational force; ii) *so-no* may be preceded by a restrictive modifier, like other adjective modifiers and differently from definite determiners in other languages; iii) *so-no* manifests, concerning an ellipsis of the following NP, the same distribution with other *no*-marked pre-nominal adjuncts.

It will be the subject of another study to examine if a similar analysis is applied to the two other Japanese demonstratives, *ko-o* and *a-no*, as well as generally to other determiner-like expressions in Japanese<sup>14</sup>.

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<sup>14</sup> For this point, see footnote 9.

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