Anaphoric demonstratives and mutual knowledge
The cases of Japanese and English

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Abstract Since Kuno (1973), it has been widely acknowledged that the choice of Japanese demonstratives (the distal a-series, the medial so-series, and the proximal ko-series) in their anaphoric use is regulated by rules concerned with the speaker’s and the hearer’s knowledge of, or acquaintance with, the referent. In cross-linguistic discussions of anaphoric demonstratives, on the other hand, the effect of the interlocutors’ knowledge of the referent has hardly been acknowledged. This paper has the following goals. First, it critically reviews Kuno’s seminal analysis of Japanese anaphoric demonstratives, and presents a modified version of it. Second, it argues that the interlocutors’ knowledge of the referent is relevant to the choice of the English demonstratives this and that too. Third, it provides a formal semantic analysis of anaphoric demonstratives in the two languages.

Keywords anaphoric demonstratives · mutual knowledge · presupposition · dynamic semantics · Japanese · English

1 Introduction

Since Kuno (1973), it has been widely acknowledged in Japanese linguistics that the choice of demonstratives (the distal a-series, the medial so-series, and the proximal ko-series) in their anaphoric use is regulated by the rules concerned with the speaker’s and the hearer’s knowledge of (or acquaintance

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with) the referent. In cross-linguistic discussions of anaphoric demonstratives (Himmelmann 1996; Diessel 1999, among others), on the other hand, the effect of the interlocutors’ knowledge of the referent has hardly been acknowledged.

The purpose of the current work is three-fold. First, it critically reviews Kuno’s seminal analysis, points out some problems with it, and presents a modified analysis of Japanese demonstratives used anaphorically. The α-series can be used only when it is assumed (presupposed) that both interlocutors are acquainted with the referent, where the relation of “acquaintance” can be established by any kind of previous contact involving direct perception, however casual or slight it may be. The so-series can be used only when it is not assumed that both interlocutors are acquainted with the referent. The ko-series can be used only when it is assumed that only the speaker is acquainted with the referent. Among the three series, only the so-series can have a nonspecific referent, e.g., a referent hypothetically introduced to the discourse.

Second, it argues that the interlocutors’ knowledge of the referent is relevant to the choice of the English demonstratives this and that too. Proximal this signals informational asymmetry between the interlocutors, and indicates that there is a significant difference in degrees to which the two interlocutors are acquainted with the referent. Distal that, on the other hand, is free from such constraints. Only that, but not this, can have a nonspecific referent, like the Japanese so-series.

Third, it provides a formal semantic analysis of the aforementioned properties of the Japanese and English demonstratives couched in the dynamic framework utilized by Roberts (2002) for the analysis of exophoric demonstratives. The presented analysis, we believe, has the potential to serve as a basic model for formulating the distribution of anaphoric demonstratives and typological generalizations about them in a wider range of languages.

2 Distinct uses of demonstratives

Demonstratives in many — and possibly, all (Himmelmann 1996: 242) — languages have several distinct uses. Following Diessel (1999) and many others, we assume that the most basic division is the one between the exophoric and endophoric uses. It is widely thought that the exophoric use is conceptually basic, and the endophoric uses are derived from it (Diessel 1999: 110).

The exophoric use (also called the “deictic” use elsewhere) refers to the use whereby demonstratives, or expressions containing them, refer to entities present in the discourse situation, as in (1).^1

(1) (The speaker points to a picture one meter away from him and says:) I bought {this/that} (picture) in Boston.

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^1 For the sake of simplicity, we will say “adnominal demonstrative X refers to Y” to mean “an NP with X refers to Y”.

^2 Throughout the article, the examples without specification of the source are ones constructed by the authors.
Anaphoric demonstratives and mutual knowledge

Table 1  Japanese demonstratives

<table>
<thead>
<tr>
<th>Series</th>
<th>proximal</th>
<th>medial</th>
<th>distal</th>
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<tr>
<td>pronominal (insentient)</td>
<td>kore</td>
<td>sore</td>
<td>are</td>
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<tr>
<td>pronominal (sentient)</td>
<td>koitsu</td>
<td>soitsu</td>
<td>aitsu</td>
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<td>aitsu</td>
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<tr>
<td>pronominal (specificational)</td>
<td>kono</td>
<td>sono</td>
<td>ano</td>
</tr>
<tr>
<td>adnominal (descriptive)</td>
<td>konna</td>
<td>sonna</td>
<td>anna</td>
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<tr>
<td>adverbial (manner)</td>
<td>koo</td>
<td>soo</td>
<td>aa</td>
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<tr>
<td>adverbial (place)</td>
<td>koko</td>
<td>soko</td>
<td>asoko</td>
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<tr>
<td>adverbial (direction)</td>
<td>kochira</td>
<td>sochira</td>
<td>achira</td>
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<td>(kotchi)</td>
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<td>(atchi)</td>
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Diessel (1999: 6 et passim) states that there are three major ways in which demonstratives are used nonexophorically (endophorically): the anaphoric, discourse deictic, and recognitional uses. Anaphoric demonstratives are coreferential with a noun phrase in the preceding discourse and keep track of the referents already introduced to the discourse (e.g., *My neighbor has a dog, and that dog always barks at me*). Discourse-deictic demonstratives refer to a proposition expressed by, or a speech act carried out by, a chunk of the surrounding discourse (e.g., *They say organic food is safer and more nutritious, but I don’t think that’s true*). Recognitional demonstratives, finally, refer to an entity that is neither present in the discourse situation nor is mentioned in the surrounding discourse (i.e., that is *discourse-new*), but can be identified by both interlocutors by virtue of their shared knowledge about it (e.g., *Do you remember that exchange student from China who was extremely good at table tennis?*).

The focus of this article is the anaphoric use, and the discourse-deictic and recognitional uses will be put aside.

3 Demonstratives in Japanese

3.1 An overview of the system of demonstratives in Japanese

Japanese has a three-term system of demonstratives, which consists of (i) the proximal *ko*-series, (ii) the medial *so*-series, and (iii) the distal *a*-series. Table 1 presents a list of Japanese demonstratives, classified by the series on the horizontal axis and by the syntactic/semantic categories on the vertical axis.

Japanese demonstratives in their exophoric use form a version of what Anderson and Keenan (1985: 280–288) call the “person-oriented system” (see also Diessel 1999: 35–47). Roughly, the three series contrast in the following way:

(2)  i. The *ko*-series is used to refer to an entity or situation perceived as proximal to the speaker.
ii. The so-series is used to refer to an entity or situation that is not perceived as proximal to the speaker but as proximal to the hearer.

iii. The a-series is used to refer to an entity or situation that is perceived as proximal to neither the speaker nor the hearer.

All of the three series can be used anaphorically, as will be discussed below.

3.2 The anaphoric use of Japanese demonstratives

There is a vast amount of literature on anaphoric demonstratives in Japanese. Among the numerous existing studies, the chapter titled “the anaphoric use of kore, sore, and are” in Kuno (1973) has been one of the most influential.

Regarding the contrast between the a-series and so-series in their anaphoric use, Kuno essentially claims that the a-series is used to refer to something that both S and H know personally (know well, are acquainted with), and the so-series is used to refer to something that either S or H does not know personally (does not know well, is not acquainted with). To quote his summary:

(3) i. The a-series is used for referring to something (at a distance either in time or space) that the speaker knows both he and the hearer know personally or have shared experience in.

ii. The so-series is used for something that is not known personally to either the speaker or the hearer or has not been a shared experience between them.

(Kuno 1973: 290)

In accordance with these generalizations, in (4) the a-series is chosen to refer to a person that both S and H are acquainted with, and in (5) the so-series is used to refer to an individual that only one of the interlocutors (i.e., A) “knows personally”.4

(4) (A assumes that B is acquainted with Yamada.)

A: Kinoo Yamada-san-ni hajimete aimashita.

{Ano/*sono} hito, zuibun kawatta hito desu-ne.

{that_{a}/that_{so}} person quite strange person Cop.Prs.Plt-DP

3 The question of what exactly counts as “know personally” will be taken up below.

4 The abbreviations in glosses are: Acc = accusative, Acc = accusative, Adv = adverb, Attr = attributive, Ben = benefactive auxiliary, Caus = causative, Cl = classifier, Cond = conditional, Cop = copula, Dat = dative, DAux = discourse auxiliary, DP = discourse particle, Evid = evidential particle, EvidAux = evidential auxiliary, Ger = gerund, Imp = imperative, Inf = infinitive, Loc = locative, Neg(Aux) = negation (auxiliary), Nmz = nominalizer, Nom = nominative, Npfv = nonperfective auxiliary, NSHon = non-subject honorific, Opt = optative, Pass = passive, Pfv = perfective auxiliary, Plt(Aux) = polite(ness auxiliary), Pot = potential, Pro = pronoun, PP = past participle, Prs = present, Pst = past, SHon = subject honorific, Top = topic, Vol = volitional. Subscript ko, so, and a in the glosses/translations indicate that the corresponding Japanese expression is a ko-, so-, and a-demonstrative, respectively.
'I met Yamada for the first time yesterday. That a man is a very strange person, isn’t he?'

B:  Yes/*sono* hito-wa henjin desu-yo.
    yes {that_a/that_so} person-Top eccentric Cop.Prs.Plt-DP
    ‘Yes, that a man is an eccentric.’

(adapted from Kuno 1973: 283–284)

(5) A:  Watashi-no kinjo-ni Yamada-san-toiu hito-ga
     I-Gen neighborhood-Dat Y.-Suffix-called person-Nom
     sunde imasu.  {*Ano/sono*} hito-wa Porushe-o
     live.Ger Npfv.Prs.Plt {that_a/that_so} person-Top Porsche-Acc
     motte imasu.
     own.Ger Npfv.Prs.Plt
     ‘I have a neighbor called Yamada. He so owns a Porsche.’

B:  {*Ano/sono*} hito kanemochi na ndesu-ne.
    {that_a/that_so} person wealthy Cop.Attr DAux.Prs.Plt-DP
    ‘So he so is wealthy, I suppose?’

As for the ko-series, Kuno observes that they too can be used to refer to something that is not present in the discourse situation, and in this case the referent must be something that S knows well but H does not.

(6) Boku-no tomadachi-ni Yamada-toiu hito-ga iru
     I-Gen friend-Dat Y.-called person-Nom exist.Prs
     nda-ga,  {kono/sono/*ano*} otoko-wa nakanaka-no
     DAux.Prs-and {this_ko/that_so/that_a} man-Top considerable
     rironka de de
     theoretician Cop.Inf
     ‘I have a friend by the name of Yamada, and {this_ko/that_so} man is a theoretician of some caliber, and . . .’

(adapted from Kuno 1973: 288)

Kuno characterizes the use of the ko-series in question as “semianaphoric”, and states that it “imparts vividness to the conversation” by referring to something “as if it were visible to both the speaker and hearer”. We take the view that it is an instance of the anaphoric use, which has an additional affective connotation. Due to this connotation, an anaphoric ko-demonstrative cannot be felicitously used in an emotionally unloaded factual statement; observe the contrast between (7) and (8).

(7) Konoo konbini-de retoruto no karee-o
     yesterday convenience.store-Loc retort.pouch Cop.Attr curry-Acc
     katta nda-kedo,  {sore/ko} ga sugoku oishikute
     buy DAux.Prs-and {that_so/this_ko}-Nom very tasty.Ger
     bikkuri-shita-yo.
     be.surprised-do.Pst-DP
'I bought a bag of ready-to-eat curry at a convenience store, and it surprised me that it tasted very good.'

(8) (in reply to: “What did you eat last night?”)

Kaeri-ni konbini-de retoruto no karee-o return-Dat convenience.store-Loc retort pouch Cop Attr curry-Acc katte, uchi-de {sore/??kore}-o gohan-ni kakete tabeta. buy.Ger home-Loc {that_sore/this_kore}-Acc rice-Dat pour.Ger eat.Pst

‘I bought a bag of ready-to-eat curry at a convenience store on my way home, and I poured it on rice and ate it at home.’

The affective meaning induced by ko-demonstratives appears to be quite similar to that induced by so-called “emotional-deictic” or “affective” demonstratives in English, exemplified below (Lakoff 1974; Potts and Schwarz 2009).

(9) a. I see there’s going to be peace in the Middle East. This Henry Kissinger really is something!
   b. That Henry Kissinger sure knows his way around Hollywood!
   c. #{That/this} Henry Kissinger is 5’8” tall!

(adapted from Lakoff 1974: 347)

Unlike English affective demonstratives, which often lack an explicit antecedent, affective ko-demonstratives require a discourse-internal antecedent. Thus, they can sensibly regarded as “anaphoric” (in addition to being “affective”).

3.3 Reconsideration of Kuno’s generalizations

While Kuno’s analysis reviewed above captures well the way anaphoric ko/sa/a-demonstratives contrast with each other, it leaves some room for refinement and elaboration. In this section, we will address in turn issues (10i-v) concerning Kuno’s generalizations. Issue (10vi) will be discussed in Section 6 along with the analogous issue concerning English this/that.

(10) i. Kuno claims that one may use a so-demonstrative to refer to something that he had only a casual (but direct) encounter with and does not know well. It can be shown that this is factually incorrect, and thus the issue of what makes a referent “known (well/personally) to an interlocutor” needs to be reconsidered.
   ii. Kuno does not explicitly discuss cases where neither S nor H knows (well) the referent. Which series, if any, can be used in such situations?
   iii. There are cases where a so-demonstrative is chosen despite its referent being known (well) to both S and H.
   iv. There are cases where an a-demonstrative is chosen despite its referent being not known (well) to H.
v. Kuno’s discussion is concerned only with dialogic conversations, and it is not clear whether and how it can be extended to other forms of discourse.

vi. Kuno does not provide an account of how the constraints on the anaphoric demonstratives (in particular, the so- and a-series) are related to the deictic properties of the exophoric demonstratives.

These issues, especially (10iv,vi), have motivated some to dismiss Kuno’s “mutual knowledge”-based account and adopt an entirely distinct approach (e.g., Kuroda 1979; Kinsui and Takubo 1990; Takubo and Kinsui 1997). We maintain, however, that Kuno’s account is on the right track and these issues can be handled under it once appropriate modifications are made.

3.3.1 The borderline between “known” and “not known”

The choice of Japanese anaphoric demonstratives largely hinges on the interlocutors’ knowledge of (acquaintance with) the referent. Exactly what kind of knowledge (acquaintance) matters, however, is a question that requires careful consideration.

To begin with clear-cut cases, entities such as one’s family members and close friends, personal items that one uses day-to-day, and places that one visits frequently, will be the central cases of referents “known (well)”. Also, as pointed out by Kuno (1973: 285), public figures (e.g., film actors, politicians), famous places and organizations (e.g., the city of London, the car company Toyota), widely known incidents (e.g., the assassination of John F. Kennedy, the atomic bombing of Hiroshima), etc., that one knows of through public media (e.g., magazines, TV) have a good potential to be treated as, or as if they were, “known (well)”, as far as reference with an anaphoric demonstrative is concerned.

(11) A: Watashi-wa Watanabe Ken-no dai-fan desu.
I-Top W. K.-Gen big-fan Cop.Prs.Plt
‘I am a big fan of (the actor) Ken Watanabe.’

5 Kuroda (1979) puts forth the following characterizations of Japanese demonstratives (the translation and summary by Takubo and Kinsui 1997: 753).

(i) a. A- (and ko-) captures an object as being in the sphere of one’s direct experience.

b. So- captures an object as being outside of one’s direct experience, conceptual knowledge in the case of anaphoric uses and other people’s direct knowledge in the case of deictic [(exophoric)] uses.

Kinsui and Takubo (1990) claim that a so-demonstrative, whether used exophorically or anaphorically, refers to an entity belonging to the hearer’s domain. Takubo and Kinsui (1997) propose that a speaker uses an anaphoric so-demonstrative to identify an object in the “indirect experience domain (I-domain)” in his mental database, which is linked to the temporary memory set up for the purpose of each discourse, and an anaphoric a-demonstrative to identify an object in the “direct experience domain (D-domain)”, which is linked to the long-term memory. As we understand them, these accounts all fail to explain why the use of a so-demonstrative is felicitous in cases like (5A) and (6).
B: **Ano** hito-wa tashika Niigata-no shusshin
   that person-Top if.I.remember.right N.-Gen origin
desu-yone.
   Cop.Prs.Plt-DP
   ‘If I remember right, that person is from Niigata, isn’t he?’

A referent that an interlocutor came to know through hearsay (including the other interlocutor’s previous utterances), on the other hand, is not regarded as “known (well)”, so that reference to it is made with a so-demonstrative, as in (4B) above. An interesting case is shown in (12).

   yesterday Y.-called person-Dat meet.Pst.Plt
   {**Sono/**ano} hito, michi-ni mayotte komatte
   thatso/thata person way-Dat be.lost.Ger
   ita node, tasukete agemashita.
   have.trouble.Ger help.Ger Ben.Pst.Plt
   ‘Yesterday, I met a man by the name of Yamada. Since he so lost
   his way and was having difficulties, I helped him.’

B1: {**Sono/**ano} hito, hige-o hayashita chuunen-no
   thatso/thata person beard-Acc grow.Pst middle.aged
   hito deshoo?
   person Cop.Presumptive.Plt
   ‘Isn’t that so person a middle-aged man with a beard?’

A2: Hai, soo desu.
   yes so Cop.Prs
   ‘Yes, that’s right.’

B2: {(a) **Sono**/(b) **ano**} hito-nara watashi-mo shitte
   person-Top I-also know.Ger
   imasu-yo. Watashi-mo {(c) **sono**/(d) **ano**} hito-o
   exist.Prs.Plt-I-also thatso/thata person.Acc
   tasukete ageta koto-ga arimasu.
   ‘I know him{so/a}, too. I too have helped{so/a} man.’
   (adapted from Kuno 1973: 285)

In (12B2), interlocutor B can use either a so-demonstrative or an a-demonstrative to refer to the same individual (to be precise, however, the combination ⟨(b), (c)⟩ is impossible; see below). To account for such data, Kuno proposes that a so-demonstrative can be used to refer to an entity that one of the interlocutors had only a casual encounter with and does not know well. This claim is hard to maintain, however, in view of data like the following:

(13) (A and B are friends. They come to a concert held at the city auditorium. A comes to the venue earlier and takes his seat. B comes later, finds A, and sits next to him.)
A: Uketsuke-no onna no hito, bijin ja reception-Gen woman Cop.Attr person beauty Cop.Inf nakatta?
NegAux.Pst
‘The lady at the reception desk was beautiful, wasn’t she?’

B: Un, omae ato-de {ano/*sono} hito-ni hanashikakete
yes you later-Adv {thata/thata} person-Dat address.Ger
mitara?
try.Cond
‘Yeah, why don’t you try talking to hera later?’

(14) (A and B go to the cinema together. During the movie, they hear the
person sitting behind them sob loudly. After leaving the theater, they
talk about this person.)

A: Ushiro-no hito naite ta-yone.
back-Gen person cry.Ger Npfv.Pst-DP
‘The person sitting behind us was sobbing, wasn’t he?’

B: {Ano/*sono} hito-no sei-de eiga-ni
{thata/thata} person-Gen cause-by movie-Dat
shuchuu-dekinakatta-yo.
‘I couldn’t concentrate on the movie because of thata person.’

The unacceptability of sono in (13B) and (14B) suggests that, contra Kuno,
any kind of contact involving direct, or firsthand, perception, even if it is as
casual/slight as just hearing a sobbing noise, implies that the referent is in
the realm of “known (well)”.6 It is worth noting that the notion of firsthand
perception (visual and other kinds of sensory perception) is central in many
evidential systems (Aikhenvald 2004); the semantic opposition between the
series of demonstratives under discussion can plausibly be taken to be an
analog of evidentiality, which codes the informational source of a proposition,
in the realm of nominal reference.

Henceforth, in place of “know well/personally”, we will use the terms “ac-
quainted with” and “recognize” to refer to the cognitive relation that may hold
between an interlocutor and a referent and that affects the choice between the
three series of Japanese anaphoric demonstratives. We take “acquainted with”
to be a minimum-standard, gradable notion in Kennedy’s (2007) sense, so that
an individual can be acquainted with a referent to a greater or lesser extent.
We use the term “recognize”, in the sense of “be acquainted with (some entity)
to one extent or another”. The gradability of the acquaintance relation will be
relevant in the discussion of English anaphoric demonstratives in Section 5.

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6 It is interesting to ask how various means of distant communication, such as let-
ters/written notes, emails, phone calls, and video chats, factor into the establishment of
the acquaintance relation. We leave this issue for future research.
Along with close friends and some public figures, entities that one has had some kind of firsthand perceptual contact with are to be regarded as belonging to the domain of “recognized”.\footnote{In a case where one has the knowledge that he has had contact with some referent \( x \) but did not directly perceive it, or does not remember directly perceiving it (e.g., the nurse in (i)), \( x \) is treated as “not recognized.”}

The following example shows that for the use of anaphoric ko-demonstratives too, it is the relation of “acquaintance”/“recognition” (between \( S \) and the referent), rather than Kuno’s “knowing well/personally”, that matters.

\((15)\) Kinoo egikan-ni itta toki, ushiro-ni otoko no yesterday movie.theater-Dat go.Pst when back-Dat man Cop.Attr hito-ga suwatte ta nda-kedo, kandooteki-na person-Nom sit.Ger Npfv.Pst DAux.Prs-and touching, Attr shiin-ni nuru-to \{kono/sono/*ano\} hito-ga scene-Dat become.Prs-if \{this\textsubscript{ko}/that\textsubscript{so}/that\textsubscript{a}\} person-Nom yatara-ni oogoe-de naku monoda-kara, eiga-ni excessively loud.voice-by cry.Prs DAux.Prs-because movie-Dat shuuchuu-dekinakatta-yo.


‘Yesterday, when I went to the movie theater, there was a man sitting behind me. This\textsubscript{ko}/that\textsubscript{so} guy kept crying really loudly at all the touching scenes and it distracted me from the movie.’

The remaining question is why \( \text{sono} \) in (12B\textsubscript{2}) is acceptable, despite the relation of “acquaintance” holding between interlocutor B and the referent (Yamada). We will address this matter in Section 3.3.3.

3.3.2 Reference to an entity that neither the speaker nor the hearer is acquainted with

Taken literally, Kuno’s generalizations (with an amendment on the relevant cognitive relation) predict that the \( \text{so}-\)series and not the other two series can be used to refer to an entity that neither \( S \) nor \( H \) is acquainted with. This is because that “neither \( S \) nor \( H \) is acquainted with the referent” logically entails that “either \( S \) or \( H \) is not acquainted with the referent” (where “or” is understood to be inclusive). This prediction needs to be empirically tested,

\((i)\) (A patient recovers consciousness at a hospital. The doctor explains to him that he passed out on the street, and that a nurse of the hospital, who was on her way home, found him by coincidence and saved his life by resuscitation. The patient says to the doctor:)

{\text{Sono}/*ano} langoshi-sun-ni orei-ga ittai desu.
{that\textsubscript{so}/that\textsubscript{a}} nurse-Suffix-Dat gratitude-Nom say.Opt.Prs PltAux.Prs

Awasete itadakemasen-ka?

‘I want to say thanks to that\textsubscript{so} nurse. Could I see her?’
because the data discussed by Kuno do not preclude the possibility that the 
so-series can be used only when one of the interlocutors is acquainted with 
the referent and the other is not (cf. the discussion of English *this* in Section 
5.2).

Data like the following show that Kuno’s original generalizations deal well 
with the situation where “neither S nor H is acquainted with the referent”. 
Such a referent can be referred to with a so-demonstrative, but not with a ko- 
or a-demonstrative.

(16) (A and B are helping with the organization of an academic conference 
as research assistants. Today they are especially busy with various 
tasks. They were told that another research assistant would join them 
in the afternoon, but they have not seen him.)

A: Ato-de moo hitori kuru-yone. Kono shigoto-wa
later-Adv more one.Cl come.Prs-DP this task-Top 
{sono/*ano/*kono} hito-ni tanomoo.
{thatso/thatko/thisko} person-Dat ask.Vol
‘Another person will come in the afternoon, right? Let’s ask 
thatso person to do this task.’

B: Demo, {sono/*ano/*kono} hito-ga kuru-no-wa
but {thatso/thatko/thisko} person-Nom come.Prs-Pro-Top
San-ji-sugi da-yo. Sorekara da-to,
3-o’clock-past Cop.Prs-DP after.that Cop.Prs-if
kyoo-juu-ni oerarenai kamoshirenai-yo.
today-within-Dat finish.Pot.Neg.Prs possible.Prs-DP
‘But thatso person will not come until after 3 o’clock. Starting 
then, he may not able to finish the task by the end of the day.’

3.3.3 “Both the hearer and I are acquainted with it, but the hearer does not 
know I am acquainted with it.”

The use of the so-demonstrative in (17B) does not conform to Kuno’s analysis 
(the use of ano in this place is possible, but seems to be slightly less natural 
than that of sono).

(17) (A comes to visit B’s home.)

A: Ekimae-de keeki-o katta nda-kedo, sono 
station.front-Loc cake-Acc buy.Pst DAux.Prs-and that 
mise-no tenchou-san, sugoku omoshiroi hito 
shop-Gen manager-Suffix very interesting.Prs person 
datta-yo. Sono hito, wakai koro, Pari-de 
Cop.Pst-DP that person young.Prs time Paris-Loc 
okashi zukuri-no shugyoo-o shita nda-tte. 
confectionary making-Gen training-Acc do.Pst DAux.Prs-Evid
'I bought some cake near the station. The manager of the cake shop was an interesting person. He told me that he received his training as a confectioner in Paris in his youth.'

B: {Sono/(?)ano} hito, watashi-no osananajimi de, {thatso/that�} person I-Gen childhood.friend Cop.Inf ima-demo, yoku issho-ni tsuri-ni ittari now-even often together-Adv fishing-Dat go.Representative suru ndesu-yo.
do.Prs DAux.Prs.Plt-DP 'He so is a childhood friend of mine. We still hang out often, and do such things as going fishing together.'

At the time (17B) is uttered, (interlocutor B knows that) the cake shop manager is recognized by both A and B, and thus, if Kuno’s analysis is taken at face value, the use of the so-series must be blocked. Such data suggest that the choice between the three series of anaphoric demonstratives hinges not on whether (S knows that) the referent is recognized by S and H, but rather on whether it is presupposed in the discourse situation that the referent is recognized by both S and H. We thus put forth the following generalizations (the presupposition associated with a demonstrative is generally anchored to the global, rather than the local, context; this matter will be addressed in Section 4):

(18) i. The a-series can be used only if it is presupposed that both S and H are acquainted with the referent.
ii. The so-series can be used only if it is not presupposed that both S and H are acquainted with the referent.
iii. The ko-series can be used only if it is presupposed that S is acquainted with the referent and H is not.

The negation in (18ii) must be placed in the high position (i.e., “not>presupposed” rather than “presupposed>not”) to account for the use of so-demonstratives in (17B), where S clearly does not assume that one of interlocutors is not acquainted with the referent. A case can be made, and we are inclined to believe, that the condition on the so-series need not be stipulated, but can be derived by the principle of Maximise Presupposition (see below).

The (somewhat degraded) acceptability of the a-demonstrative in (17B) can be accounted for in terms of pragmatic accommodation (Heim 1992, among many others). Upon hearing the use of ano hito in (17B), interlocutor A will quickly update the common ground, (eliminating his initial assumption that B is not acquainted with the referent and) adding the information that interlocutor B is acquainted with the referent. This process is parallel to what interlocutor A would do upon hearing (19B) if he had not previously had the knowledge that (B has a dog and) B’s dog has run away before.8

---

8 Pragmatic accommodation is relatively easy when the information to be accommodated is relatively typical or mundane, and more difficult when the information is surprising:
Anaphoric demonstratives and mutual knowledge

(19) A: What’s the matter?
    B: My dog ran away again.

After it is established in the discourse situation that both S and H are acquainted with the referent, it becomes as a rule impossible to make reference to it with an anaphoric so-demonstrative. This is illustrated in (20) (note that the use ano in (20B) involves accommodation).

(20) A: Senshū Harvard Square-no soba-de kaji-ga arimashita. last.week H. S.-Gen near-Loc fire-Nom exist.Pst.Plt Sono kaji-de gakusei-ga futari shinda soodesu. thatsa fire-by student-Nom two die.Pst EvidAux.Prs.Plt ‘Last week there was a fire near Harvard Square. I hear that two students were killed by thatsa fire.’
    B: Watashi-mo choodo Harvard Square-no soba-ni ite I-also just H. S.-Gen near-Dat exist.Ger {so/ano} kaji-o mimashita. {Are/*sore}-wa {thatsa/thata} fire-Acc see.Pst.Plt {thata/thatsa}-Top hidoi kajishita-ne. terrible.Prs fire Cop.Pst.Plt-DP ‘I also happened to be in the Harvard Square area and saw that{sa/oa} fire. Thata was a devastating fire, wasn’t it?’ (adapted from Kuno 1973: 287–288)

The qualification “as a rule” was necessary to deal with cases like (12) above, which is repeated below with the middle part omitted.


(i) (A does not know that B’s dog previously dug out an unexploded grenade or spoken English.)
    A: What’s the matter?
    B’: ??My dog dug out another unexploded grenade.
    B”: ??My dog spoke English again.

A similar effect can be observed with a Japanese anaphoric demonstrative.

(ii) (A is from Brazil, and now studying at a Japanese college. B is his Japanese friend. A tells B that he belonged to a youth baseball team when he went to high school, and the manager of the team was from Japan and had played for a Japanese professional team. B says:)
    {Sono/*ano} hito, ore-no ojisan da-yo. thata/otha person I-Gen uncle Cop.Prs-DP ‘Thata person is my uncle.’
‘Yesterday, I met a man by the name of Yamada. Since he lost his way and was having difficulties, I helped him.’

B: \{(a) **Sono**/(b) **ano**\} hito-nara watashi-mo shitte
\{that\textsubscript{so}/that\textsubscript{a}\} person-Top I-also know.Ger
imasu-yo.
Watashi-mo \{(c) **sono**/(d) **ano**\} hito-o
Npfv.Prs.Plt-DP I-also \{that\textsubscript{so}/that\textsubscript{a}\} person-Acc
tasukete ageta koto-\textsubscript{ga} arimasu.
‘I know him \{so/\textsubscript{a}\}, too. I too have helped that \{so/\textsubscript{a}\} man.’

As mentioned above, here the possible combinations are: \{(a), (c)\}, \{(a), (d)\}, and \{(b), (d)\}. In the first sentence of (21B), the use of **sono** is straightforward, whereas that of **ano** involves accommodation. If B uses **ano** first, he cannot “switch back” to reference with the **so**-series, so that the combination \{(b), (c)\} is impossible. What is intriguing here is the acceptability of \{(a), (c)\}. Given that the first sentence of (21B) entails that not only A but also B is acquainted with the referent — just like the first sentence of (20B) does — the use of **sono** in the second sentence is expected to be impossible. It seems thus necessary to acknowledge that, under some discourse conditions, there may be a “grace period” in which an entity that has become disqualified as the referent of a **so**-demonstrative is treated as if it were still qualified. It appears that this grace period is granted under rather limited discourse configurations, and is generally ephemeral. Rather than attempting to fully identify the relevant discourse conditions, here we will merely point out that in an utterance that (i) immediately follows another utterance that establishes that the referent is recognized by both interlocutors and (ii) elaborates on in what way the speaker came to recognize the referent, reference with a **so**-demonstrative tends to be natural. The second sentence of (22A\textsubscript{2}) exemplifies such a case; notice that the grace period “expires” after this sentence.

(22)  
\textit{A\textsubscript{1}: Shujutsu-wa daigaku byooin-de ukerareta operation-Top university hospital-Loc receive.SHon.Pst ndesu-ka? DAux.Prs.Plt-DP
‘Did you have your operation at the university hospital?’
B: Ee, Yamazaki-sensei-toiu kata-ni yes Y.-Suffix-called person-Dat
shujutsu-shite itadakimashita. perform.operation-do.Ger Ben.NSHon.Pst
‘Yes, I had my operation done by someone called Dr. Yamazaki.’
\textit{A\textsubscript{2}: Sono sensei-nara, watashi-mo osewa-ni natta that\textsubscript{so} doctor-Top I-also care-Dat become.Pst
koto-\textsubscript{ga} arimasu. Kyonen i-no shujutsu-o matter-Nom exist.Prs.Plt last.year stomach-Gen operation-Acc
shita toki, \{**sono**/**ano**\} sensei-ni tantoo-shite do.Pst when \{that\textsubscript{so}/that\textsubscript{a}\} doctor-Dat take.charge-do.Ger
Anaphoric demonstratives and mutual knowledge

3.3.4 Exceptional usage of anaphoric a-demonstratives

It has been discussed in the literature that under certain circumstances an anaphoric a-demonstrative is used despite it being clear that H is not acquainted with the referent. As we illustrate below, there are two kinds of such usage, and both are heavily constrained. We maintain that they should not be taken to be a reason to abandon the “mutual knowledge”-based analysis à la Kuno (1973), and should be dealt with by addenda to the generalizations summarized in (18).

The first exceptional usage is observed in a context where (i) it is assumed in the discourse situation that H is looking for an entity that has a certain property, and (ii) S introduces such an entity to H, S may refer to that entity with the a-series. That is, an exceptional usage of an a-demonstrative is observed when S intends to be a “go-between” who helps H find what he is looking for. (23) is an example, where the relevant property is “to be able to help B with the Spanish language”.

(23) (A and B work in the same office. B needs to translate a document in Spanish into Japanese, and is struggling with the task.)


‘There is a new employee called Takagi in the accounting section, and I heard that he(a/so) knows Spanish.’

9 Kinsui and Takubo (1990: 94–96) remark that exceptional usage of a-demonstratives is observed “in a certain kind of context where the speaker gives instructions to the hearer”.

\(\text{itadakimashita.} \ \{^*\text{Sono/ano}\} \ \text{sensei-wa ude-ga}
\ Ben.Pst.SHon.Plt \{thata/thata\} \ \text{doctor-Top skill-Nom}
\ yokute tooku-kara mite morai-ni kuru
\ \text{good.Ger far-from examine.Ger Ben.Inf-Dat come.Prs}
\ kanja-san-ga takusan iru soodesu-yo.
\ \text{patient-Suffix-Nom many exist.Prs EvidAux.Prs.Plt-DP}
\ ‘I have been taken care of by thata doctor, too. Last year, when I had my stomach operation, thata doctor was in charge. I heard that thata doctor is highly skilled and a lot of patients come to see him from afar.’
B: Honto? Jaa, {*ano/sono} hito-ni tetsudatte really then {that\textsubscript{a}/that\textsubscript{so}} person-Dat help.Ger morao-kana. Ben.Vol-DP
‘Really? Then perhaps I should get help from him\textsubscript{so}.’

Note that the described “go-between” condition does not preclude the use of the so-series.

The following example, originally presented by Kuroda (1979), can be treated on a par with (23); here, the relevant property is “to be a good academic supervisor for the hearer”.

(24) Boku-wa Osaka-de Yamada Taro-toiu sensei-ni osowatta I-Top O.-Loc Y. T.-called teacher-Dat learn.Pst nda-kedo, kimi-mo {ano/sono} sensei-ni DAux.Prs-and you-also {that\textsubscript{a}/that\textsubscript{so}} teacher-Dat tsuku-to ii-yo. study.under.Prs-if good.Prs-DP
‘I was taught by a professor called Taro Yamada in Osaka. You too should study under him\textsubscript{a}.’ (adapted from Kuroda 1979: 55)

It can be shown, with data like (25), which is superficially similar to (23) and (24) but does not meet the “go-between” condition, that reference with an a-demonstrative to an entity that (S assumes that) H is not acquainted with is impossible except in limited configurations.

‘I was taught by a professor called Taro Yamada in Osaka. A while ago I came across him\textsubscript{so} by chance at the Tokyo Station and got surprised.’

It is also worth noting that, as pointed out by Kinsui and Takubo (1990), the “go-between” use of the a-series is possible only in declaratives, and not in imperatives, interrogatives, etc.

(26) Boku-wa Osaka-de Yamada Taro-toiu sensei-ni osowatta nda-kedo, kimi-mo {*ano/sono} sensei-ni tsukinasai. I-Top O.-Loc Y. T.-called teacher-Dat learn.Pst DAux.Prs-and you-also {that\textsubscript{a}/that\textsubscript{so}} teacher-Dat study.under.Imp
‘I was taught by a professor called Taro Yamada in Osaka. Study un-
Let us now turn to the second problematic case. Kuroda (1979) remarks that an α-demonstrative is acceptable (though somewhat awkward, according to his judgment) in an utterance like the following, and that this is not compatible with Kuno’s analysis.

(27) Kyoo Kanda-de kaji-ga atta-yo. \{(?)\text{ANO/\text{s\kata}}\} kaji-no today K.-Loc fire-Nom exist.Pst-DP \{\text{that}_a/\text{that}_s\} fire-Gen koto da-kara hito-ga nanninmo shinda-to matter Cop.Prs-because person-Nom many die.Pst-Quot omou-yo. think.Prs-DP

‘There was a fire in Kanda today. Considering the nature of that\text{\kata} fire, I think a lot of people must have died.’

(adapted from Kuroda 1979: 55)

For the acceptability of the α-demonstrative here, the presence of the phrasal expression X-no koto da-kara ‘considering the nature of X’ is crucial. In (28a), which is similar to (27) but does not contain this expression, sono is the more natural choice; without to omou ‘(I) believe that’ in the end, sono would be the only option.


‘There was a fire in Kanda today. But I think that\text{\kata} fire was already put out.’

b. Kyoo Kanda-de kaji-ga atta-yo. Demo \{\text{ANO/\text{s\kata}}\} today K.-Loc fire-Nom exist.Pst-DP but \{\text{that}_a/\text{that}_s\} kaji-wa moo keshitomerareta-yo. fire-Top already put.out.Pass.Pst-DP

‘There was a fire in Kanda today. But I think that\text{\kata} fire was already put out.’

We are not clear why the phrasal expression X-no koto da-kara induces this effect; one possibility is that this phrase is necessarily a “quasi-monologic” environment in the sense to be explained in Section 7 (while the complement clause of (28a) is only optionally quasi-monologic).

3.3.5 Anaphoric demonstratives in discourses other than dialogic conversations

Kuno’s discussion of anaphoric demonstratives is concerned with dialogic conversations, and one should not assume that it straightforwardly carries over...
to other forms of discourse. It is particularly noteworthy that in nonfictional prose (and perhaps in some varieties of public speech as well), where it is generally hard for the author (speaker) to make specific assumptions about the reader’s (audience’s) knowledge state, the ko-series appears to be the unmarked choice. In this kind of discourse, a ko-demonstrative can be used to refer to an entity with which the author (speaker) can safely assume that the reader (audience) would recognize.

(29) 1930-nendai-kara genzai-ni itaru-made, [Pari]-o butai-ni 1930-period-from now-Dat reach.Prs-until Paris-Acc scene-Dat torareta sukuhin-kara, [kono toshi]-to eiga-ga shoot.Pass.Pst work-from this_ko city-and cinema-Nom orinasu rekishi-ga miete kuru deshoo, weave.Prs history-Nom be.seen.Ger come.Prs probable.Plt ‘From the films which were produced in the 1930’s through today and set in Paris, the history woven by [this_ko city], and the cinema will emerge.’


Paris and comparable major cities, and Elizabeth Taylor and comparable film actors, are likely to be treated as “recognized” (and thus be referred to with the a-series, rather than the so- or ko-series) in dialogic conversations between typical contemporary speakers (cf. Section 3.3.1). An anaphoric a-demonstrative may be used in writing as well, but this gives the text a “conversation-like” flavor. As such, the a-series is used very infrequently in formal genres such as news articles and academic papers.

In this work, like Kuno (1973), we will mainly focus on demonstratives used in dialogic conversations; we will briefly discuss, however, anaphoric demonstratives in soliloquy in Section 7.

4 Formalization of the meanings of Japanese anaphoric demonstratives

So far we have discussed the semantic contrast of the three series of Japanese demonstratives in descriptive terms, and proposed and defended the generalizations in (18). In this section we present a fuller semantic description of some representative Japanese demonstratives, taking Roberts’ (2002)
dynamic-semantic analysis of English demonstratives as our point of departure.

After Roberts, and contra Kaplan (1989), we consider demonstratives (both exophoric and anaphoric), as well as pronouns, to be terms associated with descriptive presupposition. More specifically, we consider the presupposition of demonstratives with respect to recognition by the interlocutors to be [Context-Checking]/[Global-Context Oriented] projective content (conventional implicature) in Oshima’s (2016) terminology. (“Classical” presuppositions, such as those induced by the additive particle *too* and the change-of-state verb *stop*, are [Context-Checking]/[Local-Context Oriented].)

Extending what Roberts (2002: 117) proposes for English exophoric demonstratives, we propose that the meaning of exophoric *kono*/(*sono*/*ano*) N is along the lines of (31):

(31) **The meaning of an NP with exophoric *kono*, *sono*, or *ano* (informal)**

Exophoric *kono*/(*sono*/*ano*) N

a. presupposes that there is a discourse referent (in the dynamic-semantic sense) *i* such that:
   i. *i* is accessible from the local context (again, in the dynamic-semantic sense);
   ii. *i* meets the description posed by N;
   iii. *i* is proximal to S/(proximal to H but not to S/distant from both S and H);
   iv. *i* is associated with a demonstration that accompanies the utterance of the NP;
   v. *i* is more salient than any other discourse referent that meets the conditions above;

b. and is mapped to the discourse referent that meets conditions (i)–(v).

With Roberts, we assume that the intended referent of a demonstrative is made accessible (familiar), if it has not yet been, by virtue of being demonstrated. Condition (v) on salience is our addition to Roberts’ original formulation. It is motivated by the fact that oftentimes a demonstration is “ambiguous” and has multiple potential demonstrata. Suppose there is a fish tank with twenty fish, and one big fish starts attacking the others. In this situation, one may felicitously say “We should take this fish (= the aggressive fish) away”, pointing toward the fish tank but not necessarily his finger directed exactly to the aggressive fish. In this case, all of the twenty fish meet conditions (i)–(iv), but only the aggressive one meets (v).

For the purpose of more precise representation, we adopt the variety of the Context Change Semantics (Heim 1982) utilized by Roberts (2002), where two types of contexts, i.e., the (local) context of evaluation, C, and the global common ground, CG, serve as the targets of update. The definition of a context, and its components domain and satisfaction set, is as follows:
Given:

- a model \( M = \langle W, A, \text{Int} \rangle \), \( W \) a set of worlds, \( A \) a set of individuals, \( \text{Int} \) a function from basic expressions to functions from worlds to extensions,
- the set of natural numbers \( N \), and
- \( G \), a set of assignment functions from \( N \) into \( A \),

\( C \) is a context (relative to \( M \)) iff \( C = \langle \text{Sat}, \text{Dom} \rangle \) where:

- \( \text{Dom} \subseteq N \) is the domain of \( C \), the set of familiar discourse referents, and
- \( \text{Sat} \subseteq W \times G \), the satisfaction set for \( C \), is \( \{ \langle w, g \rangle : \text{For all } i \in \text{Dom}, g(i) \text{ is an individual which verifies in } w \text{ all the information the interlocutors share about } i \} \).

(Roberts 2002: 105–106)

Largely following Roberts’ (2002) treatment of English exophoric demonstratives, and taking \( \text{ano} \) as a representative case, we propose (33) as a more formal version of (31).

(33) **The meaning of an NP with exophoric \text{ano} (formal)**

Given a context of evaluation \( C \), with common ground \( CG \) such that \( \text{Dom}_{CG} \subseteq \text{Dom}_C \), and discourse referents \( s \) and \( h \) such that

\[
\forall i \in \text{Dom}_{CG} \left[ \forall \langle w, g \rangle \in \text{Sat}_{CG} \left[ \text{speaker}(w)(g(i)) \leftrightarrow i = s \right] \right] \text{ and }
\forall i \in \text{Dom}_{CG} \left[ \forall \langle w, g \rangle \in \text{Sat}_{CG} \left[ \text{hearer}(w)(g(i)) \leftrightarrow i = h \right] \right],
\]

an NP, consisting of exophoric \text{ano} and a nominal \( N \) is felicitous in \( C \) only if \( i \) is such that \( i \in \text{Dom}_{CG} \) and:

i. \( \exists \delta \in \text{Dom}_{CG} \left[ \text{demonstration}(w)(g(\delta)) \& \text{accompanies}(w)(g(\delta), \text{utterance}(\text{NP}_i)) \right] \)

ii. \( \forall \langle w, g \rangle \in \text{Sat}_{CG} \left[ \text{N}(w)(g(i)) \& \text{distant}(w)(g(s), g(i)) \& \text{distant}(w)(g(h), g(i)) \& \text{associated-with}(w)(g(i), g(\delta)) \right] \)

iii. \( \forall j \in \text{Dom}_{CG} \left[ \text{N}(w)(g(i)) \& \text{distant}(w)(g(s), g(j)) \& \text{distant}(w)(g(s), g(j)) \& \text{associated-with}(w)(g(j), g(\delta)) \& g(i) \neq g(j) \rightarrow \text{more-salient}(w)(g(i), g(j)) \right] \)

If felicitous, the NP, is mapped to \( i \).

Reference to the global common ground, as opposed to the local context, is necessary in order to account for the “direct reference effect” of demonstratives (Roberts 2002: 92–96 et passim), illustrated below:

(34) (pointing to a fruit high up on a distant tree)

If I climb to the top of that tree, I can reach \{that/*this\} fruit.

Using the same format, we can formulate the meanings of anaphoric \text{ano} \( N \), \text{sono} \( N \), and \text{kono} \( N \) as in (35)–(37); these are more precise renditions of the generalizations summarized in (18a–c) above. Contrasting with the case of exophoric demonstratives, and like the case of anaphoric pronouns, the
intended referent of an anaphoric demonstrative needs to be made accessible (familiar) by a linguistically expressed antecedent.\textsuperscript{11}

(35) **The meaning of an NP with anaphoric \textit{ano} (informal)**

Anaphoric \textit{ano} N

a. presupposes that there is a discourse referent \(i\) such that:
   i. \(i\) is accessible from the local context;
   ii. \(i\) meets the description posed by N;
   iii. **both S and H are acquainted with \(i\);**
   iv. \(i\) is more salient than any other discourse referent that meets the conditions above;

b. and is mapped to the discourse referent that meets conditions (i)–(iv).

(36) **The meaning of an NP with anaphoric \textit{sono} (informal)**

Anaphoric \textit{sono} N

a. presupposes that there is a discourse referent \(i\) such that:
   i. \(i\) is accessible from the local context;
   ii. \(i\) meets the description posed by N;
   iii. **(S or H is possibly not acquainted with \(i);**
   iv. \(i\) is more salient than any other discourse referent that meets the conditions above;

b. and is mapped to the discourse referent that meets conditions (i)–(iv).

(37) **The meaning of an NP with anaphoric \textit{kono} (informal)**

Anaphoric \textit{kono} N

a. presupposes that there is a discourse referent \(i\) such that:
   i. \(i\) is accessible from the local context;
   ii. \(i\) meets the description posed by N;
   iii. **S is acquainted with \(i\) but H is not;**
   iv. \(i\) is more salient than any other discourse referent that meets the conditions above;

b. and is mapped to the discourse referent that meets conditions (i)–(iv).

Condition (iii) in (36) is put in parentheses because it seems sensible to suppose that its effect is derived from Maximise Presupposition (see, e.g., Schlenker 2012), and thus needs not be explicitly stated. That is, the choice of a \textit{so}-demonstrative indicates the potential lack of mutual recognition of the referent not due to its conventional meaning but by signaling the unavailability of an \textit{a}-demonstrative. This supposition resonates with the fact that in the case of “neutralization”, which is to be taken up in Section 8, the \textit{so}-series is the only possible choice. The \textit{ko}-series, on the other hand, can be assumed not to be

\textsuperscript{11} Roberts (2002: 122–124) suggests that anaphoric demonstratives are a kind of discourse-deictic demonstratives, and reference with them involves “demonstration in discourse”; we depart from her in not adopting this view.
in direct competition with the other two series, as it is the only one that is associated with affective connotation (Section 3.2).

It must be noted that the affective connotation induced by a ko-demonstrative, the use of a so-demonstrative in a “grace period” (Section 3.3.3), and the use of an a-demonstrative in the “go-between” configuration (Section 3.3.4), are not accounted for in these formulations; we leave to future research the question of how these subtle aspects of their meanings can be formally represented.

Taking ano as a representative case, we propose (38) as a formal version of (35):12

(38) **The meaning of an NP with anaphoric ano (formal)**

Given a context of evaluation C, with common ground CG such that Dom_{CG} \subseteq Dom_{C}, and discourse referents s and h such that

\[ \forall i \in \text{Dom}_{CG}[\forall (w, g) \in \text{Sat}_{CG}[(\text{speaker}(w)(g(i)) \leftrightarrow i = s)] \text{ and} \]
\[ \forall i \in \text{Dom}_{CG}[\forall (w, g) \in \text{Sat}_{CG}[(\text{hearer}(w)(g(i)) \leftrightarrow i = h)]], \]

an NP, consisting of anaphoric ano and a nominal N is felicitous in C only if i is such that i \in \text{Dom}_{CG} and:

i. \[ \forall (w, g) \in \text{Sat}_{CG}[(N(w)(g(i)) \& \text{acquainted-with}(w)(g(s),g(i)) \& \text{acquainted-with}(w)(g(h),g(i)) \&] \]

ii. \[ \forall j \in \text{Dom}_{CG}[[N(w)(g(j)) \& \text{acquainted-with}(w)(g(s),g(j)) \& \text{acquainted-with}(w)(g(h),g(j)) \& g(i) \neq g(j)] \rightarrow \]
\[ \text{more-salient}(w)(g(i),g(j))]] \]

If felicitous, the NP, is mapped to i.

The semantics of kono will be minimally different from (38), with “acquainted-with\(w)(g(h),\ldots\)” being replaced with “\(\neg\text{acquainted-with}(w)(g(h),\ldots)\)” (in two places). The treatment of sono involves some complication, which will be addressed in Section 8.

Reference to the global common ground is necessary in the case of (some varieties of) anaphoric demonstratives, too. As will be discussed in Section 8, the referent of an a- or ko-demonstrative must be a specific entity in the world of evaluation and cannot be, for example, an entity hypothetically introduced within the antecedent of a conditional. Also, whether the referent counts as “recognized” or not by S and H is determined with respect to the global, rather than local, context. Example (39) illustrates this point; observe that in the local context for the consequent, both S and H are acquainted with H’s niece, and yet the use of an a-demonstrative is infelicitous.

(39) (B is a junior colleague of A, and knowledgable about fashion and accessories.)

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12 It is interesting to ask whether the relation of “recognize” (“acquainted with”) is to be taken as a primitive, as it is here, or should be formulated with more general apparatus for belief ascriptions. An attempt at such decomposition, which utilizes a DRT-style formulation of attitudes with anchoring functions, was made in Oshima and McCready (2014).
    shitai nda. do.want.Prs DAux.Prs
    ‘My niece was accepted to a university, so I want to give her a gift.’

B: Moshi (sono kata-ni) oaiishita koto-ga areba,
    if that_{so} person-Dat meet.NSHon.Pst matter-Nom exist,
    {sono/*ano} kata-ni niau akusesarii-o that_{so}/that_{a} person-Dat suit.Prs accessory-Acc
    ‘If I had ever met (that{so} person), I would be able to choose an accessory that suits that{so} person.’

There is a reason to consider, however, that the meaning of the so-series involves reference to the local, rather than global, context; this matter will be taken up in Section 8.

Under the proposed analysis, the status of a discourse referent with respect to recognition by the interlocutors, as well as the deictic information concerning the proximity to the interlocutors, is treated in a way highly reminiscent of how the gender, number, and sentience features of pronouns are standardly treated in the recent semantic literature.

5 Demonstratives in English

5.1 An overview of the system of demonstratives in English

English has a two-term system of demonstratives, consisting of proximal *this* (and *these*) and distal *that* (and *those*). *This* and *that* can be used either pronominally (as a nominal head) or adnominally (as a determiner); in the former case, their reference is generally limited to a nonsentient entity. They further have a third use as a degree adverb, as in *The food wasn’t [that bad] and I hadn’t expected to finish [this quickly]*. A case can be made that, besides *this*/*that*, adverbs *here/there and hither/thither* (and less plausibly *now/then*) should be regarded as demonstratives, although they are not standardly treated so. The discussion to follow concentrates on the pronominal and adnominal uses of *this* and *that*.

When used exophorically, proximal *this* is used to refer to an entity perceived to be proximal to S, and distal *that* is used to refer to an entity perceived as not being so. Both forms can be used anaphorically.
5.2 Anaphoric *this* and *that*

5.2.1 Informational asymmetry and *this*

In many cases, anaphoric *this* and *that* are interchangeable. Stirling and Huddleston (2002: 1506) state: "both this and that can be used anaphorically — and in general one could be replaced by the other with very little effect on the meaning."

Lakoff (1974) remarks that *this* has a more formal (less colloquial) tone than *that*, and suggests that the former is not permissible in (40a) for this reason.

(40) a. John likes to kick puppies. *(That/*this) man’s gonna get his one of these days!*
    b. John likes to kick puppies. *(That/this) man has been under surveillance by the SPCA for 5 years now.*

(Lakoff 1974: 350)

Anaphoric *this*, however, can occur in colloquial discourse.

(41) I’ve got a new roommate. I’ll ask this guy if he’d be interested in buying your heap.

Gundel et al. (1993) present another case, namely (42), where *that* cannot be replaced with *this*.

(42) A: Have you seen the neighbor’s dog?
    B: Yes, and *(that/*this) dog kept me awake last night.*

(Gundel et al. 1993: 279)

They claim that anaphoric *this* is subject to the “speaker-activation” constraint, i.e., its referent must be something introduced to the discourse by S, as in (41) and (43), rather than by H.

(43) My neighbor has a dog. *(That/this) dog kept me awake last night.*

(Gundel et al. 1993: 279)

An alternative way to account for the contrast between (42) and (43) is to suppose that *this* is subject to some constraint related to the interlocutors’ mutual knowledge. The hearer of (42A), but not that of (43), is assumed to be acquainted with the dog in question, and this may well be the reason why *this* is acceptable only in (43). When (42) and (43) are translated into Japanese, only an *a*-demonstrative can be used in the former, and only a *so*- or *ko*-demonstrative can be used in the latter.

This line of account seems to be applicable to the contrast between (40a) and (40b) as well. When one interprets discourse segment (40a) in isolation, it is most natural to presume that John is a mutual acquaintance of S and H. (40b), on the other hand, may be taken more easily to be an utterance where S describes some malicious person previously unknown to H.
It is furthermore possible to find evidence against the “speaker-activation”-based account. The following discourse segments show that *this* sometimes can be used to refer to a “hearer-activated” entity.

(44)  
A: John has a pet tortoise.  
B: Oh really? How big is *that*/*this* tortoise?

(45)  
A: My neighbor downstairs sells drugs. He asked me if I’d be interested in buying opium.  
B: You should tell the police about *that*/*this* guy.

There are also cases where S has to choose *that*, rather than *this*, to refer to a speaker-activated entity. (40a) above is one such case, and (46) is an additional example.

(46)  
(Both S and H have driven Mary’s Corolla several times.)  
Mary decided to sell her Corolla. *That*/*this* car is now 20 years old, and she’s had it with all the maintenance problems it causes.

It seems thus that the “mutual knowledge”-based account is the more appropriate. What exactly, then, is the discourse-configurational constraint that *this* is subject to? As has been seen above with (44)/(45), unlike a ko-demonstrative, and like a so-demonstrative, *this* may be used to refer to an entity that (it is presupposed that) H recognizes but S does not. *This* differs from a so-demonstrative, however, in that it cannot be used to refer to an entity that (it is presupposed that) neither S nor H recognizes (cf. Section 3.3.2).

(47)  
(A and B are helping with the organization of an academic conference as research assistants. Today they are especially busy with various tasks. They were told that another research assistant would join them in the afternoon, but they have not seen him.)  
A: Another assistant will join us in the afternoon, right? Let’s ask *that*/*this* guy to do this task.  
B: But *that*/*this* guy won’t be here until after 3 p.m. He may not be able to finish it by the end of the day.

We suggest that anaphoric *this* signals informational asymmetry between S and H regarding the referent, so that it cannot be used when the interlocutors are acquainted with the referent to the same or a comparable extent. Anaphoric *that*, on the other hand, is free from any kind of constraint that has to do with the interlocutors’ mutual knowledge.

The informational asymmetry constraint on *this* is not solely about the categorical distinction between “recognized” vs. “not recognized”. When both interlocutors are acquainted with the referent but there is a clear difference in degrees of “closeness” or “familiarity” — i.e., when one interlocutor is considerably better acquainted with the referent than the other — the choice of *this*
is possible. Examples (48)/(49) illustrate this point; when they are translated into Japanese, an a-demonstrative will be the only possible choice.

(48) A1: Do you remember that you, I, and a student of yours had some discussion on null anaphora at the LSA meeting a couple of months ago?
B: Sure.
A2: Is {that/this} student still around? Our project team needs some help from a native speaker of Japanese.

(49) A1: Do you remember that you, I, and a student of mine had some discussion on null anaphora at the LSA meeting a couple of months ago?
B: Sure.
A2: Well, {that/this} student is going to finish his thesis, and he is hoping to have you as an external committee member.

This shows that what regulates the use of this is asymmetry in degrees of acquaintance — or “relative information asymmetry”. A situation where one interlocutor has had perceptual contact with the referent and the other has not, which may be referred to as a “categorical information asymmetry”, is a special case of relative informational asymmetry.

We leave for future research the question of under exactly what conditions S, H, and the referent may be perceived as standing in the relation of relative information asymmetry, and adopt (50i) as an approximate constraint on English this.

(50) i. This can be used only if it is presupposed that one of S or H is significantly better acquainted with the referent than the other is.
ii. That can be used regardless of what is presupposed regarding whether and how well S and H are acquainted with the referent.

From (50a,b), it follows that it is generally possible to replace anaphoric this with anaphoric that, but not vice versa. It is interesting to note that if the principle of Maximize Presupposition applies to the choice between this and that, it is expected that when the interlocutors agree that there is informational asymmetry and thus the use this is appropriate, the use of that is blocked. It is not clear to us why — as seen in (44) and (45) — this does not happen in actuality. One possible account is that this conveys some additional, subtle pragmatic meaning, which hinders it from being a true competitor of that with respect to Maximize Presupposition. Another possibility is that Maximize Presupposition is not a valid principle after all, or its effect is not as systematic as commonly thought, and the overlap in the distribution of this and that is proof of that.

With the informal format used in Section 4 (for some Japanese demonstratives), the semantics of this (N) can be represented as in (51):
The meaning of anaphoric this (informal)

Anaphoric \{this/this N\}

- presupposes that there is a discourse referent \(i\) such that:
  - \(i\) is accessible from the local context;
  - \(i\) is nonsentient/meets the description posed by \(N\);
  - \(i\) is singular;
  - one of \(S\) and \(H\) is significantly better acquainted with \(i\) than the other is;
  - \(i\) is more salient than any other discourse referent that meets the conditions above;

- and is mapped to the discourse referent that meets conditions (i)–(v).

The semantics of that \((N)\) will be the same as (51) except that condition (iv) does not apply to it.

Taking adnominal this as a representative case, a formal version of (51) can be given as in (52); “better-acquainted-with(\(a,b,c\))” is read as “\(a\) is significantly better acquainted with \(b\) than \(c\) is”.

The meaning of adnominal this in its anaphoric use (formal)

Given a context of evaluation \(C\), with common ground \(CG\) such that \(\text{Dom}_{CG} \subseteq \text{Dom}_C\), and discourse referents \(s\) and \(h\) such that

\[
\forall i \in \text{Dom}_{CG} \left[ \forall (w,g) \in \text{Sat}_{CG} [\text{speaker}(w)(g(i)) \leftrightarrow i = s] \right] \text{ and } \forall i \in \text{Dom}_{CG} \left[ \forall (w,g) \in \text{Sat}_{CG} [\text{hearer}(w)(g(i)) \leftrightarrow i = h] \right],
\]

an NP \(i\) consisting of anaphoric this and a nominal \(N\) is felicitous in \(C\) only if \(i\) is such that \(i \in \text{Dom}_{CG}\) and:

- \(\forall (w,g) \in \text{Sat}_{CG} [N(w)(g(i)) \& \text{ singular}(w)(g(i)) \& \text{ better-acquainted-with}(w)(g(s),g(i),g(h)) \lor \text{ better-acquainted-with}(w)(g(h),g(i),g(s))] \&\)

- \(\forall j \in \text{Dom}_{CG} [[N(w)(g(j)) \& \text{ singular}(w)(g(j)) \& \text{ better-acquainted-with}(w)(g(s),g(j),g(h)) \lor \text{ better-acquainted-with}(w)(g(h),g(j),g(s))] \& \text{ more-salient}(w)(g(i),g(j))] \rightarrow g(i) \neq g(j)\]

If felicitous, the NP \(i\) is mapped to \(i\).

5.2.2 Anaphoric this in nonfictional prose and public speech

As mentioned in Section 3.3.5 above, in Japanese the choice of anaphoric demonstratives is made in different ways in dialogic conversations on the one hand and in nonfictional prose (and perhaps some varieties of public speech), where it is generally hard to determine what counts as “mutual knowledge”, on the other.

The same point applies to the case of English too. In the latter kind of discourse, the author may choose anaphoric this to refer to an entity which she would refer to with that in typical conversations; that is, this may be used even if the author (speaker) cannot reasonably expect there to be a clear
difference as to the degrees to which she and the readership (audience) know, or are familiar with, the referent.

(53) In most great capitals, the statues tell stories of régime-change, revolution and upheaval. The marble and bronze denizens of London\textsubscript{1}, however, have never been beheaded, unseated or evicted to an out-of-town retirement zone. The story of \textit{this city} is one of relentless continuity.\textsuperscript{13}

(54) The global response to the news of the death of [Elizabeth Taylor], underlined [\textit{this actress's}] status as a remarkably enduring example of female celebrity whose prominence in the media spotlight lasted without interruption from childhood through to old age.\textsuperscript{14}

The observations about Japanese and English imply that consideration of discourse types — unmarked dialogic conversation with a specific hearer, prose addressed to the general readership, mind-internal soliloquy (see below), etc. — is required for a full understanding of anaphoric demonstratives.

6 Conceptual link between the exophoric and anaphoric uses

One question that naturally arises is: What connection is there between the deictic information conveyed by exophoric demonstratives and the cognitive information conveyed by anaphoric demonstratives?

In both Japanese and English, the semantic properties of the anaphoric demonstratives do not exhibit straightforward correspondence to those of the exophoric counterparts, an intriguing fact that calls for exploration. We will argue, nevertheless, that it is possible to find a good deal of resemblance between the exophoric and anaphoric demonstratives in the two languages, if we accept certain assumptions about the prototypical usage of exophoric demonstratives (especially of proximal ones), and thus, the apparent lack of correspondence/similarity should not necessarily be taken to be a weakness of the semantic analysis of anaphoric demonstratives proposed above.

Let us first address the case of Japanese. Kuno (1973: 288) states: “When they are used anaphorically, the \textit{so}-series and the \textit{a}-series lose their original meaning of ‘closer to the hearer than to the speaker’ and ‘at a distance both from the speaker and the hearer’” (emphasis added). Takubo and Kinsui (1996: 67–68, 1997: 741) remark that one conceptual problem with Kuno’s analysis is that the putative characteristics of anaphoric \textit{so/a}-demonstratives cannot be considered as natural extension of the characteristics of exophoric \textit{so/a}-demonstratives (see also Kuroda 1979). This verdict appears to us to be a little hasty.

\textsuperscript{13} \url{https://guidedbycereal.com/europe/london/} (accessed on June 2nd, 2014)

\textsuperscript{14} “Get off your asses for these old broads!”: Elizabeth Taylor, ageing and the television comeback movie”, an article on \textit{Celebrity Studies} 3(1) (published in 2012; doi: 10.1080/19392397.2012.644717).
It is possible to make an analogy between (i) spatial relations between $S$, $H$, and the referent, and (ii) more abstract informational relations between the three. Regarding the former, we can think of four situations:

(55)  i. The referent is proximal to both $S$ and $H$.
     ii. The referent is proximal to $S$ but not to $H$.
     iii. The referent is proximal to $H$ but not to $S$.
     iv. The referent is proximal neither to $S$ nor to $H$.

Situations (i)–(iv) respectively correspond to domains A–D in Figure 1, where $S$ and $H$ respectively represent the speaker and the hearer, the dotted circles around them represent the (subjectively determined) boundaries between “proximal” and “distant” for the two interlocutors.

Fig. 1 Four exophoric domains

As far as the use of Japanese and English exophoric demonstratives is concerned, “distance” can be treated as a two-point scale consisting of “proximal” and “distant”. For convenience, we will say that entities belonging to domains A or D are “equally distant” from $S$ and $H$, and ones belonging to B or C are “not equally distant” from them. In this parlance, a tree standing two meters away from $S$ and five meters away from $H$ can be said to be equally distant from $S$ and $H$, if both interlocutors are willing to refer to it with the same demonstrative.

Turning now to the informational relations, we can likewise think of four situations:

(56)  i. The referent is recognized by both $S$ and $H$.
     ii. The referent is recognized by $S$ but not by $H$.
     iii. The referent is recognized by $H$ but not by $S$.
     iv. The referent is recognized neither by $S$ nor by $H$.

Configurations (ii) and (iii) can be characterized as categorical informational asymmetries — which is to be distinguished from relative informational asymmetries discussed above in relation with anaphoric *this* — and, likewise, (i) and (iv) can be characterized as categorical informational symmetries. Putting the
categorical/relative distinction aside for now, we may call (i) “positive symmetry”, (ii) “S-dominant asymmetry”, (iii) “H-dominant asymmetry”, and (iv) “negative symmetry”. It is easy to observe conceptual similarity between “distance equality” and “informational symmetry”, and between “distance inequality” and “informational asymmetry”.

Exophoric _a_-demonstratives and _so_-demonstratives respectively refer to entities in domain D and ones in domain C, and exophoric _ko_-demonstratives refer to entities in domains A and B. One can thus draw an analogy between exophoric _a_-demonstratives, which refer to an entity equally distant from S and H and anaphoric _a_-demonstratives, which are used in an informationally symmetric situation (a “positive symmetry” situation, to be more specific).

Regarding the _so_-series, while an anaphoric _so_-demonstrative can be used in a “negative symmetry” situation, as in (16), it appears that this happens rather rarely and may be regarded as atypical. We may thus say that whereas exophoric _so_-demonstratives refer to an entity not equally distant from S and H, anaphoric _so_-demonstratives are typically used in an informationally asymmetric situation (an “S-dominant asymmetry” or “H-dominant asymmetry” situation).

_Ko_-demonstratives, when used exophorically, may refer to either a “not equally distant” entity in domain B or a “equally distant” entity in domain A. Reference to an entity in domain A with a _ko_-demonstrative is illustrated in (57), where the speaker — the user of _kono_ — can be either Ken or Mari.

(57)  (Ken and Mari are standing side by side, looking at a painting.)

    _Kono_ e,      _takasooda-ne._

    this _ko_ picture look.expensive.Prs-DP

    ‘This _ko_ picture looks expensive.’

There is thus no straightforward link between information asymmetry and the _ko_-series. A possible explanation — which is yet to be empirically endorsed — is that a _ko_-demonstrative refers to an entity in domain A far less commonly than to an entity in domain B. To put it another way, we hypothesize that, in general, an object referred to with a _ko_-demonstrative by S would more likely be referred to with a _so_-demonstrative than with a _ko_-demonstrative by H. Note, in this connection, that the proximal domains for S and H, represented by the two dotted ovals in Fig 1, are not guaranteed to have an overlap. If the two interlocutors are (perceived by S as) distant enough from each other, or the two proximal domains are set to be small enough, domain A does not even exist, as illustrated in Fig 2.

If this supposition about the prototypical way in which the _ko_-demonstrative is used is correct, then the metaphorical correspondence between exophoric domain B and the “S-dominant asymmetry” situation provides ground for the actual meaning of the anaphoric _ko_-series.

Let us now turn to the case of English. As seen above, proximal _this_ indicates relative informational asymmetry. Why is it _this_, rather than _that_, that has this property? Under the two-term system of English demonstratives, en-
entities in exophoric domains A and B are referred to with *this*, and ones in domains C and D are referred to with *that*. Reference to an entity in domain A with *this* is exemplified below, where the speaker — the user of *this* — could either be Bob or Chris.

(58) (Bob and Chris are standing side by side, looking at a painting)

This painting looks expensive.

Both *this* and *that* can refer either to an entity of equal distance from S and H (*this* for domain A and *that* for domain D) or to an entity of different distances from them (*this* for domain B and *that* for domain C). There is thus no straightforward link between relative information asymmetry and *this* (or *that*). Like we just did above for the Japanese *ko*, however, we hypothesize that reference to an entity in domain A with *this* is relatively uncommon, or in other words, that “*this*” for S is typically “*that*” for H. It seems sensible to assume, on the other hand, that it is at least as typical for *that* to refer to an “equally distant” entity (in domain D) as to refer to a “not equally distant” entity (in domain C).

If these suppositions about the prototypical ways in which *this* and *that* are used are correct, the property of anaphoric *this* under discussion can be given a natural explanation; it arose from metaphorical extension from the spatial “distance inequality” configuration to the (relative) informational asymmetry.

7 Anaphoric demonstratives in soliloquy

It is interesting to ask how the choice between anaphoric demonstratives is made in soliloquy, where there is only one discourse participant. In the case of Japanese, the *a*-series is chosen when S is acquainted with the referent, and the *so*-series is chosen otherwise. The *ko*-series cannot be used anaphorically in soliloquy. This is illustrated in (59), which involves direct reports of past soliloquy.

(59) (B assumes that A has not driven or seen the company car, and B had driven the car many times prior to Kimura’s utterance.)

think.Pst.Plt-DP

“What did you think when you were told by the department director Kimura: “Please use our company car for your business trip to Osaka”?”

B: “{Ano/*sono/*kono} kuruma-o nanjikan-mo {that_a/that_so/this_so} car-Acc hours unten-suru-no-wa tsurai-na”-to {omoimashita / drive-do.Prs-Pro-Top painful.Prs-DP”-Quot think.Pst.Plt kokoro-no naka-de tsuyakimashita}, mind-Gen inside-Loc mutter.Pst.Plt

“I thought to myself: “It will be painful to drive that_a car for hours”.’

(60) (B assumes that A has driven the replacement car. Prior to Kimura’s utterance, B had not been aware that his company had rented a car.)


“What did you think when you were told by the department director Kimura: “Our company car is under repair, so please use the replacement car we rented from a rent-a-car agency for your business trip to Osaka”?’


“I thought to myself: “It will be nice if that_so car has a car navigation system”.’

These generalizations apply not only to soliloquy in the narrow sense, but also to what Miyazaki et al. (2002: 282) call “pseudo-soliloquy (giji dokuwa)” — a type of speech that constitutes part of dialogue and yet is presented as if it were part of monologue. It is said that Japanese has several expressions that are characteristic to soliloquy (Hirose 1995, Miyazaki et al. 2002: 184–187, 261–
and utterances that are part of a conversation and yet contain them are often perceived as “soliloquy-like” or “quasi-monologic”. The particle kana(a) in (61) is one such expression; it signals that the utterance is a self-addressed question, or what Littell at al. (2010) call a “conjectural question”, and its presence leads to the possibility for an a-demonstrative to refer to something that only S but not H is acquainted with.

    Ano teishokuya, ima-demo mada aru no-kanaa, that, diner now-even still exist.Prs DAux.Prs-DP
    ‘When I was a college student, I would have my dinner at a small diner near the campus almost every day. I wonder if that, diner is still there.’

In English, interestingly, it appears not to be common, if possible at all, to use anaphoric demonstratives in soliloquy. In the counterparts of (59B) and (60B), an English speaker would likely not choose a demonstrative NP. There seems to be some speaker variation as to whether both this and that are equally acceptable, or that is preferred to this, in this environment.

(62) (B assumes that A has not driven or seen the company car, and B had driven the car many times prior to Kimura’s utterance.)
    A: What did you think when the department director Kimura told you: “Please use our company car for your business trip to Osaka”?
    B: I thought to myself: “It will be painful to drive {it/the car/??that car/??this car} for hours”.

(63) (B assumes that A has driven the replacement car. Prior to Kimura’s utterance, B had not been aware that his company had rented a car.)
    A: What did you think when the department director Kimura told you: “Our company car is under repair, so please use the replacement car we rented from a rent-a-car agency for your business trip to Osaka”?
    B: I thought to myself: “It will be nice if {it/the car/??that car/??this car} has a car navigation system”.

With minor modifications, the generalizations that we proposed for Japanese and English anaphoric demonstratives, namely (18) and (50), can be made to cover the case of soliloquy too. (64) is a generalized version of (18).

(64) i. The a-series can be used only if it is presupposed that all discourse participants are acquainted with the referent.
    ii. The so-series can be used only if it is not presupposed that all discourse participants are acquainted with the referent.
iii. The *ko*-series can be used only if it is presupposed that S is acquainted with the referent and there is some discourse participant other than S that is not acquainted with the referent.

As remarked above, it is not clear to us whether and when anaphoric *this* can be used in soliloquy. Accordingly, we cannot settle on a single way to generalize (50a) to cover the case of soliloquy. Possible generalizations (65a,b) make the same predictions for the case of dialogic conversation. (65a) predicts that *this* is invariably acceptable in soliloquy, and (65b) invariably unacceptable.

(65)

a. *This* can be used only if it is presupposed that there is no pair of participants who are acquainted with the referent to equal or comparable extents.

b. *This* can be used only if it is presupposed that there is a pair of discourse participants one of whom is significantly better acquainted with the referent than the other is.

Which of the two versions is more adequate might vary depending on the speaker’s idiolect.

### 8 Bound-variable demonstratives

There are cases where anaphoric demonstratives do not refer to a specific entity in the world of evaluation. Such demonstratives include ones referring to a hypothetically introduced entity, as in (66)/(67), and ones coreferential with a quantificational NP, as in (68)/(69). A demonstrative may be used in so-called donkey anaphora too, as in (70)/(71).

(66) Moshi tokkyuu-densha-ga tomatte itara, **sore**-ni notte
if express-train-Nom stop.Ger Npv.Cond that<sub>s0</sub>-Dat ride.Ger
ikoo.
go.Vol
‘If an express train is there, let’s take it<sub>s0</sub>.’
(adapted from Kinsui and Takubo 1990: 105)

(67) If a man is in Athens, {he/that man} is not in Rhodes.
(adapted from Büring 2011: 979)

(68) Dono kaisha-mo **sono** kaisha-no seihin-o homeru.
which company-also that<sub>s0</sub> company-Gen product-Acc praise.Prs
‘Every company praises that<sub>s0</sub> company’s products.’
(Noguchi 1997: 786)

(69) Every logician was walking with a boy near **that** logician’s house.
(Evans 1977: 491)
(70) Hon-o hiraita hito-wa minna sore-o book-Acc open.Pst person-Top all that-so-Acc kawanakerebanaranai. buy.must.Prs

‘Any person who opens a book must buy it_so.’ (Hoji et al. 2003: 101)

(71) Everyone who bought a sage plant here bought eight others along with {it/that} sage plant). (adapted from Büring 2011: 979)

Demonstratives used in this way can be regarded as serving as a bound variable. As a rule, only a so-demonstrative and that can be used to refer to a nonspecific referent; *sono, sore, and that* in (66)–(71) cannot be replaced with *ano/kono, are/kore, or this*.15

One might think that the *so*-series and *that* are chosen simply because one cannot be assumed to be acquainted with a nonspecific entity (e.g., the hypothetical man in Athens in (67)). It is important to note, however, that sometimes an interlocutor is acquainted with all the members of the domain of a bound variable. To illustrate, in the following example, the demonstrative varies over all the Japanese professional baseball teams (there are 12 of them at the time this text is written), which both interlocutors may know well.

(72)  

a. Nihon-no dono puro-yakyuu-chimu-ni-mo, *sono* Japan-Gen which professional-baseball-team-Dat-also that-so chiimu-o daihyoo-suru senshu-ga iru. team-Acc represent-do.Prs player-Nom exist.Prs

‘In each professional baseball team in Japan, there is a player who represents that_so team.’

b. Each Japanese professional baseball team has a player who represents that team.

Suppose that the interlocutors indeed know all 12 teams well, so that they would choose the *a*-series to refer to any one of them, as in (73). Even in such a situation they still cannot use *ano* in place of *sono* in (72a).

(73)  


‘How about the Hiroshima Carp?’

B: *Ano* chiimu-wa yuushoo-no chansu-wa nai that_a team-Top championship-Gen chance-Top not.exist.Prs deshoo. probable.Plt

‘I don’t think that_a team has a chance of winning the championship.’

15 As noted by Roberts (2002: 93) and Kinsui and Takubo (1990: 105), there are cases where *this* or a ko-demonstrative is used in a modal subordination environment and refers to an entity whose existence is not entailed in the global context.
In a similar vein, if the speaker knows well all 12 teams and the hearer does not know much about baseball, the speaker might use *kono* or *this* to refer to one of the 12 teams, as in (74) and (75). Under such circumstances, however, the *ka*-series and *this* would not be a possible option in (72a,b).

(74) *Watashi-no jimoto-ni wa* Hiroshima Carp-to in
I-Gen hometown-Dat-Top H. C.-called
yakyuu-chimu-ga aru ndesu-ga, *kono* chiimu-ga
baseball-team-Nom exist.Prs DAux.Prs.Plt-and this ko team-Nom
kotoshi-wa nakanaka tsuyokute, . . .
this.year-Top quite strong.Ger
’There is a baseball team called the Hiroshima Carp in my hometown. This ko team is doing quite well this year, and . . .’

(75) *In Hiroshima there is a local professional baseball team called the Carp, and I am a big fan of this team.*

From these observations, it is possible to conclude that the interlocutors’ mutual knowledge is simply irrelevant to the choice of Japanese and English demonstratives interpreted as a bound variable. In both languages, one variety — the *so*-series in Japanese and *that* in English — is invariably chosen. This observation lends support to the hypothesis, suggested in Section 4 above, that the *so*-series is not conventionally associated with a presupposition concerning the “knowledge category” of the referent, but its use is blocked due to *Maximize Presupposition* when the choice of the *a*-series would be appropriate.

It is worth making a comparison between bound-variable demonstratives and bound-variable personal pronouns. For the latter too, there often is a specific variety that is chosen when the domain contains entities of different genders/classes (e.g., male and female); the French masculine gender in (76a) is one example (see Corbett 1991: 218–223 for relevant discussion). When the domain consists of entities of a single gender, however, a bound-variable pronoun ranging over it agrees with that gender (at least in some languages including French), as in (76b).

(76) a. Chaque écrivain est fier du premier roman *qu’il a* each writer is proud of.the first novel which.he Pfv écrit.
write.PP
’Each writer is proud of the first novel that he wrote.’
(There may be male writers only, or both male and female writers.)

b. Chaque femme écrivain est fière du premier roman each female writer is proud of.the first novel
*qu’elle a* écrit.
which.she Pfv write.PP
’Each female writer is proud of the first novel that she wrote.’
This contrasts with the case of anaphoric demonstratives, where it makes no difference whether the domain consists of entities of a single knowledge category or not. The unavailability of the *a/ko*-series and *this* in the case of bound-variable anaphora follows from the assumption — as is explicit in the formulations in (38) and (52) — that their referent must be in the domain of the global common ground, rather than that of the local context of evaluation. Note that this orientation toward the global context is a feature shared by — or inherited from — demonstratives in their (arguably) most basic, exophoric use.

The availability of the *so*-series and *that*, on the other hand, shows that their referent is not necessarily in the global common ground. The following formulation of pronominal *that* captures this point.

(77) **The meaning of adnominal *that* in its anaphoric use** (formal)

Given a context of evaluation C, an NP consisting of anaphoric *that* and a nominal N is felicitous in C only if i is such that $i \in \text{Dom}_C$ and:

i. $\forall (w, g) \in \text{Sat}_C[N(w)(g(i)) \& \text{singular}(w)(g(i)) \&$

ii. $\forall j \in \text{Dom}_C[[N(w)(g(j)) \& \text{singular}(w)(g(j)) \&$

$g(i) \neq g(j)] \rightarrow \text{more-salient}(w)(g(i), g(j))]$]

If felicitous, the NP is mapped to $i$.

As for the *so*-series, if we assume that its implication that the referent is possibly not recognized by S or H is to be attributed to *Maximize Presupposition*, then its meaning can be formalized as in (78).

(78) **The meaning of an NP with anaphoric *sono* (formal, with *Maximize Presupposition*)**

Given a context of evaluation C, an NP consisting of anaphoric *sono* and a nominal N is felicitous in C only if i is such that $i \in \text{Dom}_C$ and:

i. $\forall (w, g) \in \text{Sat}_C[N(w)(g(i))]$

ii. $\forall j \in \text{Dom}_C[[N(w)(g(j)) \& g(i) \neq g(j)] \rightarrow$

$\text{more-salient}(w)(g(i), g(j))]$]

If felicitous, the NP is mapped to $i$.

It is easy to see why *Maximize Presupposition* would not block the use of *sono* in (72a) even if it is part of a conversation between two experts of the Japanese professional baseball. *Ano* would be unavailable because of its global-context orientation, and thus the use of *sono* would not have any semantic or pragmatic implication on the knowledge category of the referent.

There is room, on the other hand, for questioning whether *Maximize Presupposition* is relevant to the choice of anaphoric demonstratives (Section 5.2.1). (79) is an alternative formulation that explicitly posits a presupposition concerning the knowledge category for the *so*-series, and that also captures the fact that in bound-variable anaphora this presupposition is absent.

(79) **The meaning of an NP with anaphoric *sono* (formal, without *Maximize Presupposition*)**
Given a context of evaluation $C$, with common ground $CG$ such that
\[ \text{Dom}_{CG} \subseteq \text{Dom}_C \],
and discourse referents $s$ and $h$ such that
\[ \forall i \in \text{Dom}_{CG} [\forall (w, g) \in \text{Sat}_{CG} [\text{speaker}(w)(g(i)) \leftrightarrow i = s] \] and
\[ \forall i \in \text{Dom}_{CG} [\forall (w, g) \in \text{Sat}_{CG} [\text{hearer}(w)(g(i)) \leftrightarrow i = h]], \]
an NP $i$ consisting of anaphoric $sono$ and a nominal $N$ is felicitous in $C$ only if:

1. $i$ is such that $i \in \text{Dom}_{CG}$ and:
   a. $\forall (w, g) \in \text{Sat}_{CG} [N(w)(g(i))]$
   b. $\forall (w, g) \in \text{Sat}_{CG} [\text{acquainted-with}(w)(g(s), g(i))]$
   c. $\forall j \in \text{Dom}_{CG} [\forall (w, g) \in \text{Sat}_{CG} [N(w)(g(j))]$
      $\land \forall (w, g) \in \text{Sat}_{CG} [\text{acquainted-with}(w)(g(s), g(j))]$
      $\land \text{more-salient}(w)(g(i), g(j)) \land g(i) \neq g(j)]$

or:

2. $i$ is such that $i \in (\text{Dom}_C - \text{Dom}_{CG})$ and:
   a. $\forall (w, g) \in \text{Sat}_C [N(w)(g(i))]$
   b. $\forall j \in \text{Dom}_C [N(w)(g(j))] \land g(i) \neq g(j) \rightarrow$
      $\text{more-salient}(w)(g(i), g(j))$]

If felicitous, the NP $i$ is mapped to $i$.

9 Conclusion

We have identified some difficulties with Kuno’s (1973) analysis of the Japanese
anaphoric demonstratives in the $a$-, $so$-, and $ko$-series, and presented a modified
version of that analysis which accounts for a wider range of facts. This analysis
was stated in terms of presupposition concerning the interlocutors’ knowledge
of the intended referent of the demonstrative. We have then argued that such
presupposition is also relevant to the choice between the English demonstratives
this and that. A formal semantic description of anaphoric demonstratives
in the two languages, which largely builds on Roberts’ (2002) treatment of
exophoric demonstratives and pronouns, was provided. It was also noted that
only one variety in each language — the $so$-series and that — can be used in
the case of bound-variable anaphora, and it was suggested that this is because
they are the only ones that do not require that the referent be in the global
common ground.

This work opens several avenues for future research. The first is the
application of the current analysis to anaphoric demonstratives in other languages.
We have argued that the interlocutors’ assumptions about each other’s knowl-
edge of the referent constrain the choice of demonstratives in Japanese and
English, but have not touched on other languages. The question of whether this
factor also plays into the use of demonstratives elsewhere is worthy of further
investigation. Second, we only briefly touched upon on the use of anaphoric
demonstratives in discourse genres other than dialogic conversation, such as
soliloquy and reportage. The way(s) in which demonstratives are used across the full range of genres, and how the constraints on their use interact with constraints on other types of nominal expressions, is a useful area for later research. Finally, it would be interesting to attempt the integration of the results of this paper with computational models of discourse generation and interpretation.

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