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# Expressing Ignorance in the Nominal Domain: Japanese *Wh-ka*

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## 1. Epistemic Indefinites: Two Views.

The expression of modal notions cuts across morphosyntactic categories. Moving beyond the verbal domain, we find, across languages, types of indefinite noun phrases that convey modal meanings (Haspelmath 1997). For instance, the so-called epistemic indefinites (EIs), like Spanish *algún* or German *irgendein*, convey speaker's ignorance. To illustrate, the Spanish sentence in (1) implicates that the speaker does not know which student María is dating (Alonso-Ovalle and Menéndez-Benito 2003, 2010).

- (1) María está saliendo con algún estudiante del departamento.  
María is dating with *algún* student from the department  
'María is dating a student from the department — the speaker does not know who.'  
(Alonso-Ovalle and Menéndez-Benito 2010)

Epistemic indefinites have received considerable attention in the recent literature (see Alonso-Ovalle and Menéndez-Benito 2013 for an overview and relevant references.) However, although there seems to be some agreement that the ignorance component of these indefinites is a pragmatic meaning, no consensus has been reached yet as to its precise nature. Two prominent families of analyses differ with respect to their view on (i) what type of ignorance epistemic indefinites express, and (ii) what type of pragmatic meaning the ignorance component is. What we call 'the Ignorance Implicature Approach'<sup>1</sup> contends (i) that epistemic indefinites convey 'epistemic modal variation', i.e. that there is no individual that satisfies the existential claim in all worlds compatible with what the speaker believes, and (ii) that their ignorance component is due to a quantity implicature. In contrast, what we call the 'Lack of Relevant Identification Approach'<sup>2</sup> claims (i) that epistemic indefinites convey that the speaker cannot *identify* the individual that satisfies the existential claim in the way required by the context (although perhaps she can in other ways), and (ii) that this component is not an implicature, but is rather derived via a shift in a contextual parameter. This lack of agreement at the theoretical level correlates with our limited understanding of the empirical scope of the phenomenon, since, to this date, most work on epistemic indefinites has focused on Indo-European languages (see references in Alonso-Ovalle and Menéndez-Benito, 2010.)<sup>3</sup>

Sudo (2010) brings Japanese epistemic indefinites (*wh-ka* indeterminates, or *wh-kas*) to the arena and concludes that they motivate a departure from the Ignorance Implicature Approach. The goal of this paper is to revisit this conclusion. We will show that *wh-kas* also pose problems for the Lack of

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<sup>1</sup> This family of analyses builds upon Kratzer and Shimoyama (2002). See, for instance, Fălăuş (2009), Alonso-Ovalle and Menéndez (2010), and Alonso-Ovalle and Menéndez-Benito (2013) for other references.

<sup>2</sup> See Aloni and Port (forthcoming a, forthcoming b) and Aloni (2012).

<sup>3</sup> Notable exceptions are Sudo (2010) and Kaneko (2011) on Japanese *wh-kas*.

Relevant Identification approach and that, therefore, the departure from the Ignorance Implicature Approach is premature. Our conclusion is based on two new observations on the interpretation of *wh-kas* that challenge the Lack of Relevant Identification approach: (i) that their ignorance component disappears in some upward entailing contexts, and (ii) that the ignorance component is not uniform across *wh-ka* types.

The paper is organized as follows. Two new observations concerning the ignorance component of Japanese *wh-kas* will be presented in Section 2. We will then summarize the central claims of the Ignorance Implicature Approach and the Lack of Relevant Identification Approach (Section 3) and evaluate the extent to which the two theories capture the novel observations (Section 4). Section 5 concludes the paper.

## 2. Two Novel Observations about *Wh-Kas*.

*Wh-kas* consist of *wh*-words (or indeterminate pronouns) and particles they associate with that determine their function. As illustrated in (2) to (4) below, when *wh*-words associate with the interrogative particle *ka* they behave like interrogative *wh*-words (2); when they associate with *-mo*, they behave like universal quantifiers (3), and when they associate with *-ka*, like existential quantifiers (4).

- (2) Yuki-wa dare-o hihanshimashita ka?  
 Yuki-TOP who-ACC criticized Q  
 ‘Who did Yuki criticize?’
- (3) Yuki-wa dare-mo-o hihanshimashita.  
 Yuki-TOP who-MO-ACC criticized  
 ‘Yuki criticized everyone.’
- (4) Yuki-wa dare-ka-o hihanshimashita.  
 Yuki-TOP who-KA-ACC criticized  
 ‘Yuki criticized someone.’

Sudo (2010) and Kaneko (2011) point out that, in unembedded contexts, *wh-kas* convey an epistemic effect akin to that of Spanish *algún* (Alonso-Ovalle and Menéndez-Benito 2010). The dialogue in (5) illustrates this point. The use of a *wh-ka* indeterminate in A’s utterance conveys that she does not know which individual satisfies the existential claim, hence the deviance of B’s remark.

- (5) A: John-wa kinoo dare-ka-ni atteta yo  
 John-TOP yesterday who-KA-DAT was.meeting PRT  
 ‘John was meeting with somebody yesterday.’  
 B: #honto? aitsu dare-ni atteta?  
 really he who-DAT was.meeting  
 ‘Really? Who was he meeting with?’ (Sudo 2010:4)

We report next two novel observations about the ignorance component of *wh-kas*.

### 2.1. Obviation of the Ignorance Component.

Consider the following scenario. Every Friday afternoon, students and professors at the Philosophy Department practice tango. Right now, every professor is dancing with a student. J is seeing quite clearly the scene. She knows perfectly well who is a student and who is a professor in that department. L calls J over the phone. In this context, as expected, it would be inappropriate for J to utter the sentence in (6), because *who-ka* would convey that she does not know which student Prof. Tanaka is dancing with. Accordingly, were J to utter (6), it would be inappropriate for L to ask J which student Prof. Tanaka is dancing with.

- (6) #Tanaka-sensee-ga dare-ka gakusee-to odotteru.  
 Tanaka-professor-NOM who-KA student-with is.dancing  
 ‘Prof. Tanaka is dancing with some student.’

In contrast, in this same context, it would be appropriate for J to utter (7), even when she knows well who is dancing with whom. The *wh-ka* in (7) does not seem to convey an ignorance effect. Accordingly, it would be appropriate for L to ask J who is dancing with whom.<sup>4</sup>

- (7) J: Dono kyooju-mo dare-ka gakusee-to odotteru.  
 which professor-MO who-KA student-with is.dancing  
 ‘Every professor is dancing with some student.’  
 L: Dare-ga dare-to odotteru no?  
 who-NOM who-with is.dancing Q  
 ‘Who is dancing with who?’

## 2.2. Types of Ignorance: What-ka vs. Which-ka.

Let us consider another context. This time J and L are hiking in the woods. As they go down a steep hill, they see a troop of mushrooms. J’s hand inadvertently touches one. She clearly sees the mushroom that she touched. In this situation, J cannot utter the sentence in (8), which contains *dore-ka* (*which.one-ka*). Given what we have seen so far, this is expected, since the use of a *wh-ka* in (8) is expected to implicate that J does not know which mushroom she touched.

- (8) J: # Dore-ka kinoko-ni sawat-ta!  
 which.one-KA mushroom-DAT touch-past  
 ‘(I) touched *which one-ka* mushroom!’

The deviance of (8) in this scenario contrasts with the appropriateness of its counterpart in (9), which contains *nani-ka* (*what-ka*), instead of *dore-ka* (*which.one-ka*). If the ignorance component of *wh-kas* were uniform across types of *wh-words*, this would be unexpected.

- (9) J: Nani-ka kinoko-ni sawat-ta!  
 what-KA mushroom-DAT touch-PAST  
 ‘(I) touched *what-ka* mushroom!’

In contrast with *which-ka*, which seems to convey that the speaker does not know which individual satisfies the existential claim, *what-ka* seems to convey in (9) that the speaker cannot describe the mushroom that she touched in a more precise way. Let’s call the first type of ignorance ‘strong’, and the second ‘weak’. Strong ignorance entails weak ignorance — if you do not know which individual, you do not know which type, but not vice versa. Notice, in this connection, that *what-ka* NP examples are degraded in case it is unlikely that the speaker can identify different subtypes of NPs. The contrast between (10) and (11) below, for instance, is explained along these lines, as we can normally assume that speakers can identify types of bugs, but not types of flies.

- (10) # Suupu-no naka-ni nani-ka hae-ga iru.  
 soup-GEN inside-LOC what-KA fly-NOM exist  
 ‘There’s some fly in the soup.’ (Sudo 2010, on an example in Strawson 1974)

<sup>4</sup> The same is true for Spanish *algún*: (i) is appropriate in the scenario above.

- (i) Todos los profesores están bailando con algún estudiante.  
 all the professors are dancing with algún student  
 ‘All professors are dancing with some student.’

- (11) Suupu-no naka-ni nani-ka mushi-ga iru.  
 soup-GEN inside-LOC what-KA bug-NOM exist  
 ‘There’s some bug in the soup.’

Next, we summarize the central claims of two theories of epistemic indefinites and evaluate the extent to which they capture the two novel observations about the behavior of Japanese *wh-kas* that we have just made.

### 3. Two Views on Epistemic Indefinites.

#### 3.1. Theory 1: The Ignorance Implicature Approach.

Alonso-Ovalle and Menéndez-Benito (2010) (AO-MB) analyze the ignorance component of the Spanish epistemic indefinite *algún*. According to them, in unembedded contexts and under epistemic modals, *algún* conveys *partial* ignorance. For instance, the sentences in (12) can be felicitously uttered by someone who does not know where Juan is, but knows that he is not in the living room or in the kitchen.

- (12) Juan está / tiene que estar en alguna habitación de la casa.  
 Juan is / has to be in *alguna* room of the house  
 ‘Juan is / has to be in a room of the house.’

The ignorance component of *algún* behaves like an implicature. Building upon Kratzer and Shimoyama’s (2002) analysis of German *irgendein*, AO-MB derive this component via a pragmatic competition between the asserted proposition (13a), in the case of (12), and the alternative stronger claims that result from restricting the domain to a singleton (the non-negated counterparts of the propositions in (13b), assuming that {A,B,C} is the set of rooms in the house).<sup>5</sup> Strengthening (13a) with the propositions in (13b) entails that the speaker does not know in which room Juan is, but is consistent with her knowing that he is not in certain rooms.

- (13) a.  $\square$  [Juan is in room A] or [Juan is in room B] or [Juan is in room C] ]  
 b.  $\neg \square$  [Juan is in room A],  $\neg \square$  [Juan is in room B],  $\neg \square$  [Juan is in room C]

There are two important parallelisms between *algún* and *wh-kas*. First, as (14) to (16) shows, the epistemic component of *wh-kas* also behaves like a quantity implicature: it disappears in downward entailing environments, since (14), for instance, simply conveys that Ken is not dating *any* student in the Linguistics department; it is cancellable, as (15) shows; and it can be reinforced without redundancy, as illustrated in (16). Second, as Sudo (2010) observes, *wh-kas* also express partial ignorance: (17) is compatible with the speaker being able to exclude some rooms. In view of these commonalities, an analysis in terms of the Ignorance Implicature Approach suggests itself.

- (14) Ken-wa dare-ka gengogakka-no gakusee-to tsukiatteiru-no-de-wa nai.  
 Ken-TOP who-KA linguistics.dept-GEN student-with dating-NO-DE-WA NEG  
 ‘It’s not that Ken is dating a student in the linguistics department.’
- (15) Ken-wa dare-ka gengogaku-no gakusei-to kekkonshita. jitsuwa dare-da-ka shitteru.  
 Ken-TOP who-KA linguistics-GEN student-with married in.fact who-COP-Q know  
 ‘Ken married a linguistics student. In fact, (I) know who it is.’
- (16) Ken-wa dare-ka gengogakka-no gakusei-to tsukiatteiru kedo, dare-da-ka shira-nai.  
 Ken-TOP who-KA linguistics.dept-GEN student-with dating but who-COP-Q know-not  
 ‘Ken is dating a student in the linguistics department, but (I) don’t know who it is.’

<sup>5</sup> See also Fălăuș (2009) on Romanian *vreun*.

- (17) Ken-wa dore-ka/doko-ka ie-no naka-no heya-ni iru hazuda.  
 Ken-TOP which.one-KA/where-KA house-GEN inside-GEN room-LOC be must  
 ‘Ken must be in a room of the house.’

### 3.2. Theory 2: The Lack of Relevant Identification Approach.

Aloni and Port (forthcoming a) and Aloni (2012) present a different analysis of epistemic indefinites. The intuition behind this theory is that epistemic indefinites signal that the individual that satisfies the existential claim cannot be identified by the speaker in a way that would count in the context as knowing who this individual is.

To illustrate the components of this theory, consider (18):<sup>6</sup>

- (18) John-wa dare-ka gakusee-ni atteru.  
 John-TOP who-KA student-DAT is.meeting  
 ‘John is meeting with some student.’

The Lack of Relevant Identification Approach assumes that there is a contextually relevant way of identifying the individuals in the domain of quantification. This is modeled by means of what Aloni (2001) calls a *conceptual cover* (CC), a set of individual concepts (functions from worlds to individuals)  $i_1, i_2, \dots, i_n$  that jointly ‘cover’ the domain of quantification. In the case at hand, this means that (i) in any  $w$ , each concept is true of a student, and (ii) that in any  $w$  each student is picked up by one of these concepts. Assuming that there are two students (Taro and Hana), the contextually relevant CC with respect to which (18) is interpreted could be one of the two in (19):

- (19)  $CC_{\text{naming}} = \{ \lambda w. \text{Taro}, \lambda w. \text{Hana} \}$   
 $CC_{\text{position}} = \{ \lambda w. \lambda x. \text{STUDENT}_w(x) \ \& \ \text{TO-THE-RIGHT-OF-SPEAKER}_w(x),$   
 $\lambda w. \lambda x. \text{STUDENT}_w(x) \ \& \ \text{TO-THE-LEFT-OF-SPEAKER}_w(x) \}$

In this framework, the use of an epistemic indefinite, like *who-ka* in (18), conveys an ‘identification condition’, that there is at least one contextually relevant way of identifying an individual in the domain such that the speaker believes that John is meeting with the individual identified that way:

- (20) For at least one  $i$  in CC, in all  $w$  compatible with what the speaker believes, J is meeting with  $i(w)$ .

Let us call this individual concept  $i$  ‘the identifying property.’ The use of an epistemic indefinite is licensed in non-downward entailing environments if and only if identifying the individual that satisfies the existential claim by means of this property does not count in the context as knowing which student John is meeting with. For instance, it could well be that in a particular context where (18) is uttered, for the speaker to know who John is meeting it is required that she names him. The use of *wh-ka* would signal that the speaker can only identify the student that John is meeting by a different method, for instance, by one of the descriptions in  $CC_{\text{position}}$ .

Last but not least, under this theory, not all epistemic indefinites are licensed in downward entailing environments. Those that are licensed in a downward entailing environment signal that their domain of quantification is maximal (cf. Kadmon and Landman 1993), and, when licensed, do not express ignorance.

We turn next to the two novel observations presented in Section 2 in order to evaluate the extent to which the theories presented in this section predict them.

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<sup>6</sup> What follows is a very condensed presentation of the main components of this theory. In particular, the theory is cast in a dynamic semantics with conceptual covers (Aloni 2001). We abstract away here from the dynamic setup, without hopefully compromising the spirit of the proposal. The reader is referred to Aloni and Port (forthcoming a, forthcoming b) and Aloni (2012) for details.

## 4. Assessing the Two Theories.

### 4.1. Obviation.

In Section 2 we pointed out that the sentence in (21) below, where *who-ka* is interpreted under a universal quantifier, can be uttered by a speaker who knows who is dancing with whom.

- (21) Dono kyooju-mo dare-ka gakusee-to odotteru.  
which professor-MO who-KA student-with is.dancing  
'Every professor is dancing with some student.'

The obviation of the ignorance component in this type of sentence is to be expected under the Implicature Approach. To see why, consider (22). Via the maxim of Quality, we can infer from an utterance of (22) that the speaker believes that Prof. Tanaka is dancing with a student — (23), assuming that the actual students are  $s_1$ ,  $s_2$ , and  $s_3$ . The proposition in (23) contrasts with the stronger propositions that result from restricting the domain to a singleton (the non-negative counterparts of the alternatives in (24).) This yields the implicatures in (24), what Sauerland (2004) calls 'primary implicatures.' Notice that the implicatures in (24) cannot be strengthened to those in (25) (what Sauerland (2003) calls 'secondary implicatures') without contradicting (23), and that (23) together with (24) entails that the speaker does not know which student Prof. Tanaka is dancing with. An ignorance effect is then predicted, in accordance with our intuitions.

- (22) Tanaka-sensee-ga dare-ka gakusee-to odotteru.  
Tanaka-professor-NOM who-KA student-with is.dancing  
'Prof. Tanaka is dancing with some student.'
- (23)  $\square$  [Prof. Tanaka is dancing with  $s_1$  or  $s_2$  or  $s_3$ ]  
(24)  $\neg \square$  [T. is dancing with  $s_1$ ],  $\neg \square$  [T. is dancing with  $s_2$ ],  $\neg \square$  [T. is dancing with  $s_3$ ]  
(25)  $\square \neg$  [T. is dancing with  $s_1$ ],  $\square \neg$  [T. is dancing with  $s_2$ ],  $\square \neg$  [T. is dancing with  $s_3$ ]

The situation is different in the case of (21). Via the Maxim of Quality, we can infer (26) from an utterance of (21). The predicted implicatures are now in (27). This time, however, these 'primary' implicatures can be strengthened to the ones in (28) without contradicting (26), and the proposition in (26) together with the conjunction of the implicatures in (28) does not convey that the speaker does not know which professor is dancing with which student. To see why, suppose, for instance, that the professors are  $p_1$ ,  $p_2$ ,  $p_3$ . The strengthening of (27) with the conjunction of the implicatures in (28) can be true in case the speaker knows that  $p_1$  is dancing with  $s_1$ , that  $p_2$  is dancing with  $s_2$ , and that  $p_3$  is dancing with  $s_3$ .<sup>7</sup> No ignorance effect is predicted, then. This is in accordance with our intuitions.

- (26)  $\square$  [Every professor is dancing with  $s_1$  or  $s_2$  or  $s_3$ ]  
(27)  $\neg \square$  [Every professor is dancing with  $s_1$ ],  $\neg \square$  [Every professor is dancing with  $s_2$ ],  $\neg \square$  [Every professor is dancing with  $s_3$ ]  
(28)  $\square \neg$  [Every professor is dancing with  $s_1$ ],  $\square \neg$  [Every professor is dancing with  $s_2$ ],  $\square \neg$  [Every professor is dancing with  $s_3$ ]

The obviation of the ignorance effect is unexpected under the Lack of Relevant Identification Approach, though. This is so because in (21), the epistemic indefinite is interpreted in the nuclear scope of the universal quantifier, an upward entailing context. Under the Lack of Relevant Identification Approach, however, epistemic indefinites are licensed in non-downward entailing contexts only if they indicate lack of relevant identification, and, therefore, convey an ignorance effect. Under this approach, the ignorance component of EIs is predicted to disappear only in downward entailing contexts.

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<sup>7</sup> This is a well-known effect. For the obviation of ignorance implicatures under universals, see Büring (2008), Fox (2007), Sauerland (2004), and Schwarz & Shimoyama (2011).

#### 4.2. Types of Ignorance.

Recall that in a context where J clearly sees the mushroom that she touched, the sentence in (29) with *which-ka* is deviant, but the sentence in (30) with *what-ka* is not.

- (29) J: # Dore-ka kinoko-ni sawat-ta!  
 which.one-KA mushroom-DAT touch-PAST  
 ‘(I) touched *which one-ka* mushroom!’
- (30) J: Nani-ka kinoko-ni sawat-ta!  
 what-KA mushroom-DAT touch-PAST  
 ‘(I) touched *what-ka* mushroom!’

The deviance of *which-ka mushroom* is predicted under the Implicature Approach. To illustrate, suppose that there are only two mushrooms,  $m_a$  and  $m_b$ , and that J happened to touch  $m_a$ . Via the Maxim of Quality, we infer from the utterance in (29) the proposition in (31), which would trigger the ‘primary’ implicatures in (32). In this case, the content of the implicatures is false, because J knows that she touched  $m_a$ . This can be the reason behind the deviance of (29).

- (31)  $\square$  [J touched  $m_a$  or J touched  $m_b$ ]  
 (32)  $\neg \square$  [J touched  $m_a$ ] &  $\neg \square$  [J touched  $m_b$ ]

If *what-ka mushroom* invoked the same type of alternatives that *which-ka* does, the Implicature Approach would predict (30) to be as deviant as (29), contrary to fact. But this is not a necessary assumption. As described above, *what-ka* in (30) seems to convey ignorance about the *type* of mushroom that J touched (weak ignorance). This contrasts with *which-ka*, which seems to convey ignorance about the individual mushroom that J touched (strong ignorance).

Weir (2012) points out that English *some* can also convey both types of ignorance. When it combines with singular NPs, *some* can express strong ignorance, as in (33), or weak ignorance, as in (34), which, in parallel to (30), can be uttered by a speaker pointing to the plant that is growing through the wall (both examples are from Weir 2012).

- (33) Some file on this computer is infected, {but I don’t know which one / # namely, this one here}.
- (34) Some plant is growing through the wall of my room.

Weir shows that this contrast can be derived within the Implicature Approach by extending AO-MB’s analysis of *algún*. The idea, in a nutshell, is this. Following Krifka (1995) and Kratzer (2008), Weir assumes that while bare nouns uniformly denote kinds, which are modelled as maximal sums of individuals, noun phrases can denote either sets of individuals that are part of the kind expressed by the bare noun or sets of subkinds that are part of it. Different types of ignorance are associated with different domains of quantification: strong ignorance correlates with quantification over sets of individuals and weak ignorance with quantification over a set of subkinds.

To illustrate, an utterance of the sentence in (33) would convey, via the Maxim of Quality, the proposition in (35), under its strong ignorance reading. The propositional alternatives that (35) invokes are determined by considering singleton domains of quantification. Assuming that there are only two individual files,  $f_1$  and  $f_2$ , these alternatives will be the ones in (36): the proposition that the speaker believes that  $f_1$  is infected and the proposition that she believes that  $f_2$  is. The predicted implicatures, together with (35) convey that the speaker is ignorant about which file is infected.

- (35)  $\square$  there is a file  $d$  in a non-singleton set of individuals that are part of the maximal sum of files and  $d$  is infected.
- (36)  $\square$  there is a file  $d$  in  $\{f_1\}$  and  $d$  is infected,  $\square$  there is a file  $d$  in  $\{f_2\}$  and  $d$  is infected.

In contrast, the sentence in (34), when it implies weak ignorance, conveys quantification over subkinds of plants. Under this reading, an utterance of (34) would lead, via the Maxim of Quality, to (37), which would in turn lead to the alternatives in (38), assuming that there are only two subkinds of plants (Amaryllis and Arrowhead Vine.) Together with the assertion, the implicature triggered conveys that the speaker knows that there is a plant growing through the wall of her room but does not know whether the plant is an Amaryllis or an Arrowhead Vine.

- (37) □ there is a plant *d* that is of a subkind in a non-singleton set of subkinds of the kind ‘plant’ and *d* is growing through the wall of my room.
- (38) □ there is a plant *d* that is of a subkind in {Amaryllis} and *d* is growing through the wall of my room,  
 □ there is a plant *d* that is of a subkind in {Arrowhead Vine} and *d* is growing through the wall of my room.

Given Weir’s approach to the two types of ignorance expressed by *some*, under the Ignorance Implicature Approach, it would be natural to assume that in contexts like the one provided, *which-ka* corresponds to *some* when *some* expresses ignorance over individuals and *what-ka* to *some* when it expresses ignorance over subkinds.

We turn next to the Lack of Relevant Identification Approach, which, as we will see, is in principle better suited to derive the contrast between strong and weak ignorance. The contrast between *which-ka* and *what-ka* is reminiscent of the contrast between *algún* and *some* presented in Alonso-Ovalle and Menéndez-Benito (2003): in a context like (39), where the speaker can clearly see the individual that satisfies the existential claim, (40), with *some*, is fine, but (41), with *algún*, is not.

- (39) Context. The speaker does not know anything about a guy dancing on a table, in full view, only that he is a professor.
- (40) Look! Some professor is dancing lambada on his table. (AO & MB 2003)
- (41) # ¡Mira! algún profesor está bailando la lambada encima de la mesa.  
 Look! *algún* professor is dancing lambada on the table (AO & MB 2003)

Aloni and Port (forthcoming a) and Aloni (2012) explain the contrast between (40) and (41) by appealing to the hierarchy of methods of identification in (42) and the corresponding condition of use in (43).

- (42) ostension > naming > description
- (43) In Romance, but not in Germanic, the identification method required for knowledge must be higher in order than the identification method required for epistemic indefinites.  
 (Aloni and Port forthcoming a)

The principle in (43) rules out the use of *algún* in the context in (39). This is so because, in this context, if we ask the speaker who is the dancing professor, she could only identify him by pointing, and this would presumably not count as knowing who the dancing professor is. The speaker can identify the professor by ostension, but no other identification method is higher than this in the scale in (43).

Within this framework, then, one could explain the contrast between *what-ka* and *which-ka* in the mushroom scenario by resorting to (42) and (43). Like *algún*, *which-ka* could require the contextually relevant identification method to be higher in the scale in (42) than the identification method that the speaker can provide. In the mushroom scenario, J could identify the mushroom that satisfies the existential claim by ostension but, again, no method of identification is higher in the scale in (42) than pointing. Since the condition of use in (43) is violated, *which-ka* is correctly predicted to be deviant. In contrast, *what-ka* could work like *some* and be free from the condition that the contextually relevant method of identification be higher in the scale in (42) than the one provided.

This type of explanation would go beyond the original reason why (43) was proposed. The principle in (43) is meant to predict variation across language families. The contrast between *wh-kas*



would show that (43) should be a condition of use linked to particular lexical items. Be as it may, though, there are reasons to remain sceptical about this approach. First, this line of reasoning claims that epistemic indefinites signal that speakers cannot identify the individual that satisfies the existential claim in the way required by the context. The existence of a contextually required method of identification seems to be presupposed. Yet, it seems to us that the expression of ignorance is not necessarily tied to the existence of a contextually required method of identification. To give an example, the sentence in (44) routinely conveys that the speaker does not know which bug is in the soup, even when, in most contexts, we do not expect bugs to be identified by name or description.

- (44) Suupu-no naka-ni nani-ka mushi-ga iru.  
soup-GEN inside-LOC what-KA bug-NOM exist  
'There's some bug in the soup.'

To give another example, we turn to the behavior of Spanish *algún* and consider the sentence in (45) in the contexts in (46) and (47) below, which comes from work in progress by Alonso-Ovalle and Menéndez Benito (see Alonso-Ovalle and Menéndez-Benito 2012.)

- (45) Mira! María está besando a algún chico.  
Look. María is kissing *algún* guy  
'Look! María is kissing some guy or other.'
- (46) *Pointing with Clear Vision.* I look out the window and I see María kissing a guy that I have never seen before. I can see the guy very clearly.
- (47) *Pointing with Blurred Vision.* I look out the window and I see María kissing a guy. They are far away, and I cannot make out the guy's features well. All I can see is that he is a tall guy.

The sentence in (45) is fine in the context in (47) but deviant in the context in (46). From this, Alonso-Ovalle and Menéndez-Benito (2012) conclude that identification by ostension does not generally rule out epistemic indefinites in Romance. This casts some doubts on the validity of the principle in (43). Furthermore, as Alonso-Ovalle and Menéndez-Benito (2012) point out, lack of relevant identification does not seem to play a role here. It is not clear what method of identification would be required in these contexts, but whatever it might be, it should probably be the same in both contexts: if (45) works in the context in (47) it should also work in (46), contrary to fact.

We conclude, then, that it is not clear that the Lack of Relevant Identification Approach has an advantage over the Ignorance Implicature Approach when it comes to deriving the contrast between the types of ignorance expressed by *what-ka* and *which-ka*.

## 5. To Conclude

What have we learned by looking at Japanese *wh-kas*? There are reasons to believe that the ignorance component of *wh-kas* is an implicature. First, this meaning component disappears in downward entailing contexts. Second, we have seen that it can also disappear in some upward entailing contexts, and that this is expected, given standard assumptions about the derivation of implicatures, under the Ignorance Implicature Approach. The Lack of Relevant Identification Approach does not predict this behaviour.

We have also seen that the ignorance component of *wh-kas* is not uniform: *what-ka* could express ignorance about the type of individual that satisfies the existential claim (what we called 'weak' ignorance), while *which-ka* could express ignorance about which individual satisfies the existential claim (what we called 'strong' ignorance). This behaviour suggests a correlation between the types of alternatives that epistemic indefinites convey and the type of ignorance that they express, which can be captured within the Ignorance Implicature Approach.

One of the remaining questions for the Implicature Approach is how to deal with Japanese counterparts of examples like the Spanish (48), taken from Alonso-Ovalle and Menéndez-Benito (2010).

- (48) #Juan compró algún libro que resultó ser el más caro de la librería.  
 Juan bought *algún* book that happened to be the most expensive of the bookstore  
 ‘Juan bought a book that happened to be the most expensive one in the store.’

The sentence shows that *algún* is incompatible with singleton domains. This is the property hypothesized to trigger a competition with the stronger propositions obtained by restricting the domain of quantification to a singleton. Sudo (2010) points out that the Japanese counterpart of (48) with *wh-ka* is fine. This poses a challenge to the Implicature Approach to *wh-kas*. In the Lack of Relevant Identification Approach there is no need to invoke subdomains, hence no problem arises. However, judgements reported on cases that seemingly invoke singleton domains are mixed — a quick survey of four speakers resulted in two finding the relevant sentence infelicitous, while the other two accepting it (see also Kaneko 2011:258).

Getting clearer about this issue requires understanding the way *wh-kas* and their apparent restrictions combine with each other syntactically and semantically, and how the alternatives are determined. As evident in examples such as (4) and (5) above, *wh-kas* can stand alone, unlike the epistemic determiners that we find in English, German or Spanish. Furthermore, what we have treated in this paper as restrictions to the existential quantifier can also stand alone as bare nouns. In other words, in all of the Japanese examples that we discussed in this paper, removing either *wh-ka* or its apparent restriction would not alter their syntactic well-formedness, as long as *wh-ka* is supported by an appropriate case-marker or postposition. Understanding how the two pieces combine in the syntax and semantics would put us in a better position to evaluate the claim in Sudo (2010).

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