

## Acquaintance content and obviation<sup>1</sup>

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**Abstract.** This paper is about what Ninan (2014) (following Wollheim 1980) calls the *Acquaintance Inference* (AI): a firsthand experience requirement imposed by several subjective expressions such as Predicates of Personal Taste (PPTs) (*delicious*). In general, one is entitled to calling something delicious only upon having tried it. This requirement can be lifted, disappearing in scope of elements that we will call *obviators*. The paper investigates the patterns of AI obviation for PPTs and similar constructions (e.g., psych predicates and subjective attitudes). We show that the cross-constructional variation in when acquaintance requirements can be obviated presents challenges for previous accounts of the AI (Pearson 2013, Ninan 2014). In place of these, we argue for the existence of two kinds of acquaintance content: (i) that of bare PPTs; and (ii) that of psych predicates, subjective attitudes and overt experiencer PPTs. For (i), we propose that the AI arises from an evidential restriction that is dependent on a parameter of interpretation which obviators update. For (ii), we argue that the AI is a classic presupposition. We model both (i) and (ii) using von Stechow and Gillies's (2010) framework for directness and thus connect two strands of research: that on PPTs and that on epistemic modals. Both phenomena are sensitive to a broad direct-indirect distinction, and analyzing them along similar lines can help shed light on how natural language conceptualizes evidence in general.

**Keywords:** evidentiality, firsthand experience, knowledge, predicates of personal taste, subjectivity

- Cleveland. It's a beautiful city.
- Yes?
- Yeah.
- It's got a big, beautiful lake. You'll love it there.
- Have you been there?
- No, no.

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*Stranger than paradise*

JIM JARMUSH

### 1. Introduction

This paper is devoted to what Ninan (2014) (following Wollheim 1980) calls the *Acquaintance Inference* (AI): a firsthand experience requirement imposed by several subjective expressions such as Predicates of Personal Taste (PPTs) (*tasty, fun*),<sup>2</sup> psych predicates (*look, sound*) and subjective attitudes (*find, consider*); see also (Stephenson 2007, Anand 2009, Pearson 2013, Klecha 2014, Ninan 2014, Kennedy and Willer 2016, Bylinina 2017). Asserting sentences in (1), the speaker is committed to having a relevant firsthand experience with the object in

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<sup>2</sup>For the purposes of this paper, we do not distinguish between predicates of taste proper and e.g. aesthetic predicates such as *beautiful*, as both types of predicates have the AI.

question: gustatory (1a), auditory (1b), or visual (1c).

- (1) a. PPT  
The cake was **delicious**, #but I never tasted it.
- b. PSYCH PREDICATE  
The piano **sounded** out of tune, #but I never heard it.
- c. SUBJECTIVE ATTITUDE  
I **consider** the dress blue and black, #but I never seen it.

The AI also survives under negation:

- (2) a. PPT  
The cake wasn't **delicious**, #but I never tasted it.
- b. PSYCH PREDICATE  
The piano **didn't sound** out of tune, #but I never heard it.
- c. SUBJECTIVE ATTITUDE  
I don't **consider** the dress blue and black, #but I never seen it.

At the same time, even though the AI cannot be explicitly denied or negated, it may disappear in the scope what we will call *obviators*, exemplified with epistemic *might* in (3) below:

- (3) a. PPT  
✓The cake was **might have been delicious**, though I never tasted it.
- b. PSYCH PREDICATE  
✓The piano **might have sounded** out of tune, though I've never heard it.
- c. SUBJECTIVE ATTITUDE  
✓I **might have considered** the dress blue and black, though I've never seen it.

The central puzzle of this paper is the contrast in (3) and (1): Why is obviation possible while explicit denial is not? A larger issue that is related to the epistemology of personal taste but that we are not going to discuss is why subjective expressions have the AI in the first place (see (Bylina 2017, Muñoz 2017) for ontological explanations). We concentrate instead on the status of the AI and the cross-constructural variation in AI obviation that poses challenges for previous accounts of the AI. Our verdict is that there are in fact two types of acquaintance content. With 'bare' PPTs (i.e., ones unmodified by *to/for* phrases), we propose that the AI arises from an evidential restriction that is dependent on a parameter of evaluation that obviators update. With psych predicates, subjective attitudes and overt taster PPTs (*tasty for me*), we argue that the AI is a classic presupposition. Section 2 introduces the empirical landscape. Section 3 discusses previous approaches to the AI (Ninan 2014, Pearson 2013) and their shortcomings. Section 4 presents our direct proposal couched in terms of von Fintel and Gillies's (2010) kernels. Section 5 concludes.

## 2. Empirical landscape

This section discusses what types of situations can constitute direct experience with different PPTs, categorizes contexts in which the AI disappears and talks about the patterns of AI obviation with different subjective expressions.

### 2.1. Directness

Before we proceed, a discussion of issues related to the nature of firsthand experience is in order. First of all, while some PPTs, such as *tasty* (1a) or *delicious*, dictate the type of experience, some others, such as *gorgeous* (4) or *beautiful*, exhibit more freedom, with sensory modality depending on the specific stimulus:

- (4) My blindfolded dance last night was **gorgeous**. I couldn't see what I was doing, but I could feel my body in each position.

What exactly counts as firsthand depends on a situation. First, the experience does not have to be complete: in fact, even smaller samples entitle the experiencer to a judgment about the stimulus (5a), which is in contrast with no experience at all (5b):

- (5) a. INCOMPLETE EXPERIENCE:  
 ✓I only watched { the trailer / the first five minutes }. This movie is **boring**.  
 b. NO EXPERIENCE:  
 #The new Allen movie is **boring**. I haven't watched it, but they are all the same.

Examples like (5b) above should not be confused with cases of type-token ambiguity (6):

- (6) a. TYPE  
 Massaman curry is delicious, ✓I've tried it before at another restaurant.  
 b. TOKEN  
 This Massaman curry is delicious, #but I haven't tried it yet.

Second, the presence of an AI does not always indicate immediate perception. For example, I am entitled to call the San Juans beautiful even if I have only seen a picture of the range. However, the boundary between firsthand and non-firsthand is not clear-cut. While I am not entitled to calling the curry tasty upon looking at a picture or reading a recipe, I may well be upon seeing other patrons ordering it or reading reviews, and judgments about those latter cases vary.

Finally, world knowledge needs to be factored in. Different tasters will have different thresholds for what can be classified as firsthand. A professional photographer looking at a histogram or a professional musician looking at a string of notes would be entitled to make an aesthetic judgment, while a layperson would not.

The above issues related to the nature of firsthand experience are not unique to PPTs alone and arise with other natural language expressions dealing with evidence, including evidentials (REFS: faller, mcreedy) and epistemic modals (von Fintel and Gillies 2010). For example, different languages with grammatical evidentiality may conceptualize the same situation, such as inference from observable results, in different ways (Korotkova 2016). While a thorough discussion is beyond the scope of this paper, the central observation still stands: PPTs encode a type of firsthand experience, however construed, and our direct knowledge proposal in Section 4 captures this intuition.

## 2.2. Obviators

As shown in Section 1, the AI is not always present and disappears in the scope of epistemic *might* (3). The list of what we call *obviators* is in fact broader and includes epistemic *must* (7a), epistemic adverbs (7b), futurate operators (7c) and predicates of clarity (7d) (cf. also Pearson 2013, Klecha 2014, Ninan 2014).

(7) The cake ..... delicious, but I never tasted it.

- a. EPISTEMIC MODAL AUXILIARIES:  
✓**must/might** have been
- b. EPISTEMIC ADVERBS:  
✓**probably/possibly/maybe** was
- c. FUTURATE OPERATORS:  
✓**will/is going to** be
- d. PREDICATES OF EVIDENCE/CLARITY:  
✓**obviously/certainly/apparently** was

Klecha (2014) argues that obviation diagnoses the presence of a modal operator. We propose instead that obviators convey *indirectness* of some sort (see also Winans 2016 on *will*) and thus do not commit ourselves to a theory where all obviators belong to the same semantic category (pace Klecha 2014). Fittingly, grammatical markers of indirect evidentiality also follow the pattern, as illustrated with Turkish *miş* in (8) (see Şener 2011 on evidentiality in Turkish):

(8) Turkish (Turkic: Turkey)

- a. BARE FORM:  
#Durian güzel, ama hiç dene-me-di-m.  
durian good, but ever try-NEG-PST-1SG  
Intended: ‘Durian is good, but I’ve never tried it’.
- b. EVIDENTIAL *miş*:  
✓Durian güzel-**miş**, ama hiç dene-me-di-m.  
durian good-IND, but ever try-NEG-PST-1SG  
‘Durian is good, *I hear/infer*, but I’ve never tried it’.

Additionally, hedges (9) and markers of emphatic certainty such as *I know* (10) lift the AI:

(9) HEDGES:

**I assume/suppose/think** that the cake was delicious, but I haven't tasted it.

(10) a. BARE FORM:

#Climbing the Half Dome is amazing. We should do it.

b. I KNOW:

**✓I know** that climbing the Half Dome is amazing. We should do it.

#### ONE SENTENCE ABOUT I KNOW & REF

In the rest of the paper, we restrict our attention to clause-mate obviators to avoid potential confounds related to the syntax of parenthesis.

### 2.3. Overt tasters: PPTs and otherwise

So far, we have been talking only about “bare” uses of PPTs, ones where the linguistic form does not make the relevant taster explicit. However, PPTs also admit overt tasters introduced by prepositions *to* and *for* in English, such as in *tasty to me* or *to Hobbes* (see Bylinina 2017 on cross-linguistic parallels). As (11) indicates, obviation patterns with covert<sup>3</sup> and overt tasters are distinct:

(11) OVERT TASTER PPs:

The cake ..... delicious to me, but I never tasted it.

a. EPISTEMIC MODAL AUXILIARIES:

**#must/✓might** have been

b. EPISTEMIC ADVERBS:

**#probably/#possibly/#maybe** was

c. FUTURATE OPERATORS:

**✓will/✓is going to** be

d. PREDICATES OF EVIDENCE/CLARITY:

**#obviously/#certainly/#apparently** was

The AI of bare PPTs is lifted in the scope of *all* operators from (11). However, overt tasters impose much stricter conditions on obviation. Under many accounts of PPTs (see Coppock 2018 for a recent discussion), the possibility of having an explicit taster expressed via a PP is often treated as an argument for making PPTs dyadic predicates, with either an overt taster (via a PP with a semantically inert P) or a covert pronominal-like taster supplied for bare uses (a.o. Stephenson 2007, Stojanovic 2007, Pearson 2013, Bylinina 2017). Such theories would thus predict that overt and covert tasters should behave the same with respect to obviation. As (11)

<sup>3</sup>We are not committed to a view such that tasters are always represented in the linguistic structure and will use the term *covert taster* descriptively to refer to a situation when the taster is not present in the surface structure.

shows, this prediction is not borne out, which can be used as an argument against theories that treat overt and bare uses on a par.

In introduction, we have shown that other subjective expressions, namely psych predicates and subjective attitudes, also have an AI (1b, 1c) that disappears in the scope of *might* (3b, 3c). The overall obviation pattern with those expressions resembles that of PPTs vis-à-vis the presence of an overt experiencer. For psych predicates that do not have an overt perceiver, the AI can be lifted by obviators from section 2.2, as shown in (12) below:

- (12) PSYCH PREDICATE WITHOUT AN EXPERIENCER:  
The cake ..... delicious, but I never tasted it.
- a. EPISTEMIC MODAL AUXILIARIES:  
✓**must/might** have looked
  - b. EPISTEMIC ADVERBS:  
✓**probably/possibly/maybe** looked
  - c. FUTURATE OPERATORS:  
✓**will/is going to** look
  - d. PREDICATES OF EVIDENCE/CLARITY:  
✓**obviously/certainly/apparently** looked

For cases where the experiencer is overtly present in the linguistic form, the obviation pattern is constrained in the same way it is with overt taster PPTs (11), as illustrated in (13) for psych predicates and in (14) for subjective attitudes:

- (13) PSYCH PREDICATE WITH AN EXPERIENCER:  
The cake ..... delicious to me, but I never tasted it.
- a. EPISTEMIC MODAL AUXILIARIES:  
#**must**/✓**might** have looked
  - b. EPISTEMIC ADVERBS:  
#**probably**/#**possibly**/#**maybe** looked
  - c. FUTURATE OPERATORS:  
✓**will**/✓**is going to** look
  - d. PREDICATES OF EVIDENCE/CLARITY:  
#**obviously**/#**certainly**/#**apparently** looked

- (14) SUBJECTIVE ATTITUDE:  
I ..... the cake delicious, but I never tasted it.
- a. EPISTEMIC MODAL AUXILIARIES:  
#**must**/✓**might** have found
  - b. EPISTEMIC ADVERBS:  
#**probably**/#**possibly**/#**maybe** found
  - c. FUTURATE OPERATORS:

✓will/✓is going to find

- d. PREDICATES OF EVIDENCE/CLARITY:  
#obviously/#certainly/#apparently found

Examples (11), (13) and (14) demonstrate that expressions where the experiencer whose first-hand experience is tracked by the AI is overt all pattern together and allow obviation only in a limited set of contexts: under futurate markers *will* and *going to*, and under epistemic *might*. We suggest that such cases of obviation are simply instantiations of local accommodation in the scope of a future (or counterfactual) operator, which does not obviate the AI *per se* as much as temporally displaces it. Indeed, if one attempts to counter that displaced AI, contradiction results:

- (15) a. #Even if I hadn't tried the cake, I might have found it delicious.  
b. #Even though I am never going to ever try it, the cake is going to be delicious to me.

Bare PPTs and psych predicates, on the other hand, are more liberal. These facts are summarized in table 1 below.

OBVIATORS	COVERT EXPERIENCERS		OVERT EXPERIENCERS		
	PPT	Psych predicates	PPT	Psych	Subjective attitudes
<i>must</i>	✓	✓	#	#	#
<i>might</i>	✓	✓	✓	✓	✓
epistemic adverbs	✓	✓	#	#	#
predicates of clarity	✓	✓	#	#	#
futurate markers	✓	✓	✓	✓	✓

Table 1: Obviation facts

The next section is about previous approaches to the AI obviation. We will show that they are not fine-grained enough to account for the discrepancy in behavior between overt and covert tasters and that not all of them actually explain the main puzzle, namely the possibility of obviation in the first place. In section 4, we present our account and use obviation as a tool to adjudicate between different approaches to PPTs.

### 3. Previous approaches

#### 3.1. Pragmatics: Ninan (2014)

Ninan (2014) offers a pragmatic account according to which the AI arises due to an epistemologically grounded norm of assertion.<sup>4</sup>

<sup>4</sup>As Ninan himself notes, the exact inventory of the norms of assertions is actively debated in epistemology and philosophy of language (Williamson 2000, Lackey 2007, Weiner 2005), and it is not essential for his analysis whether assertions require knowledge rather than, say, justified belief.

(16) In order to know the truth of *x is tasty*, the speaker must have prior experience with *x*.

Asserting unmarked sentences typically assumes such knowledge, which results in the infelicity of explicit denials, as illustrated in (17, repeated from 1a):

(17) #The cake was delicious, but I never tasted it.

If one were to assert that the cake is tasty, one could do it only in case they have tried it, as per (16). However, the second conjunct states that the speaker has no experience with the cake, which yields a clash. Under this approach, (17) is odd not because of the semantics of PPTs but due to a conflict between what is said and what the speech act of assertion requires. Such an explanation is along the lines of classic?traditional?popular?widespread accounts of Moore's paradox (REFS). It predicts that, just like with Moore-paradoxical sentences (Yalcin 2007), the oddness would go away in attitude reports, an environment that demarcates the divide between semantics and pragmatics. As the non-contradictory (18) shows, the prediction is borne out (as we discuss in section 4, Ninan's is not the only way to account for the felicity of (18)):

(18) Jay thought that the cake was delicious and that he has never tasted it.

Ninan (2014) correctly predicts that negated sentences with PPTs still carry an AI because linguistic negation does not affect knowledge requirements. Obviation, on the other hand, is possible because marked (e.g. modalized) propositions are not subject to the convention in (16). The pragmatic account therefore successfully explains the Puzzle. However, there are at least two challenges faced by this type of proposal.

The first problem is the cross-constructural variation in AI obviation. As shown in section 2.3, obviation is limited with overt tasters, the relevant contrast repeated in (19) below:

- (19) a. COVERT TASTER:  
       ✓The San Juans must be beautiful, but I have never seen them.  
       b. OVERT TASTER:  
       #The San Juans must be beautiful to me, but I have never seen them.

Ninan does not discuss overt tasters, but it seems reasonable to assume that the convention in (16) would be insensitive to the linguistic form of the taster and apply to sentences with overt taster PPs just as well. It is then expected that obviation patterns with overt and covert tasters would be the same, contrary to fact.

The second problem for Ninan are the so-called non-autocentric uses (Lasersohn 2005). Generally, PPTs describe the speaker's tastes. However, PPTs can be also used to talk about third party's judgments (cf. Stephenson 2007):



(20) Rotting flesh is delicious (to a vulture). (adapted from Egan et al. 2005)

Non-autocentric readings also have an AI (21a) that is subject to obviation (21b). Ninan's (2014) pragmatic approach rooted in the *speaker's* knowledge does not predict it.

(21) EXOCENTRIC AI

- a. Hobbes's new food is tasty, #but no cat has ever tried it yet.
- b. ✓Hobbes's new food { **must be** / **obviously is** / **will be** } tasty, but no cat has ever tried it yet.

Based on the data from overt tasters and the non-autocentric AI, we conclude that Ninan's proposal undergenerates and does not fully account for AI obviation.

### 3.2. Semantics: Pearson (2013)

A different approach to the AI is due to Pearson (2013). The core components of her proposal relevant to our discussion here are an experience presupposition and first-person genericity (see ?Anand 2009; and especially Moltmann 2010, 2012). The formal details (in a simplified version) are laid out below.

(22)  $\llbracket \text{tasty-to} \rrbracket^{c,i} = \lambda x \lambda o : x \text{ has tried } o \text{ in } \text{WORLD}(i). 1 \text{ iff } o \text{ is } \textit{tasty} \text{ to } x \text{ in } \text{WORLD}(i)$

The presupposition in (22) ensures that statements with PPTs are only felicitous when the taster  $x$  has firsthand experience with the stimulus  $o$ . It cannot be cancelled, which accounts for the infelicity of explicit denials (3), and projects out of negation, which explains why even negated PPTs trigger an AI (2).

Pearson argues that PPTs display the signature behavior of individual-level predicates (e.g. *tall*; Carlson 1980) such as universal interpretations with bare plurals and infelicity in existential constructions. She further adopts Chierchia's (1995) analysis of individual-level predicates, wherein all such predicates are inherently generic, and argues that PPTs always come with GEN:<sup>5</sup>

- (23) a. This is tasty.
- b. [ This<sub>*i*</sub> [ GEN *t<sub>i</sub>* is tasty ]

GEN binds the taster argument  $x$  and is restricted by quantificational domain restriction *Dom*:

<sup>5</sup>Czypionka and Lauer (2017) argue against Chierchia's (1995) proposal, but the genericity of PPTs can be, and has been, formalized in a number of other ways, see (?Anand 2009, Moltmann 2010, 2012), so this specific worry is not important for our criticism of Pearson's approach.

(24)  $[\forall \langle x, w' \rangle : x \in Dom]$  [the cake is tasty-to  $x$  in  $w'$ ]

The experience presupposition projects universally yielding the following:

(25)  $[\forall \langle x, w' \rangle : x \in Dom]$  [ $x$  has tried  $o$  in  $w'$ ]

Unlike Ninan (2014), Pearson can account for the non-autocentric AI. This is achieved in the following way. By default, the speaker is included in  $Dom$ , which reflects the intuition that most uses of PPTs are about the speaker's tastes. However, there are cases when the speaker's tastes are irrelevant. This is precisely the situation with classic non-autocentric uses of PPTs (20), where the speaker is not the "target audience" and thus not in  $Dom$  (Pearson does not specify when exactly the speaker can be irrelevant, which, as we will see below, is problematic). However, the presence of an AI does not depend on who the taster is because the presupposition is generic. This explains that even non-autocentric uses will have an AI (21a) that is no different from an autocentric one.

Pearson attempts to solve the Puzzle by using reasoning from indirectness (her discussion is based on *must*, but can easily be extrapolated to other obviators from section 2.2). According to von Stechow and Gillies (2010), Lassiter (2016), *must* signals the lack of direct evidence for its predjacent. In case of statements with PPTs, it would mean that the speaker (in default cases) has no firsthand evidence for  $o$ 's tastiness. And if the speaker hasn't tried  $o$ , the speaker will be irrelevant and thus not in  $Dom$ . When the speaker is not in  $Dom$ , the generic presupposition does not apply to them and obviation is felicitous.

This type of proposal explains obviation, but, as pointed out by Ninan (2014), it overgenerates. Reasoning from indirectness should carry over to explicit denials. If the speaker can be irrelevant with *must*, which indicates that they have no firsthand experience, then by the same token the speaker should be irrelevant with explicit denials. However, obviation is allowed, while continuations in (1). So Pearson does not actually solve the Puzzle.

Her proposal faces further problems. It predicts that the speaker, when not in  $Dom$ , is necessarily irrelevant and is not committing to a judgment on  $o$  if/when they do try it. The prediction is false, since an explicit continuation as in (26) leads to contradiction.

(26) Just look at it! The cake { is / must be } delicious, #but I am going to find it disgusting.

Finally, by connecting the AI to genericity, Pearson's (2013) analysis predicts that the verifying instance-hood of dispositional generics like the example in (27a) should pattern like PPTs. However, the obviation with these generics is even more constrained (27b). That is, the existence of a verifying smiling instance in (27a) does not seem to be obviatable by operators such as *obviously*:

- (27) a. Flavio smiles.  
 b. Even though your son hasn't smiled yet, based on his age, he **obviously** { #does / ✓can }.

We conclude that Pearson's proposal does not account for AI obviation. In the next section, we present an account that does.

#### 4. A direct proposal

We take the acquaintance content of PPTs to comment on direct evidential grounds for a proposition and model the AI following the account of directness proposed by von Fintel and Gillies (2010) (vF&G) for epistemic *must*.

##### 4.1. Framework for directness

von Fintel and Gillies (2010), and later Lassiter (2016), argue that epistemic *must* is sensitive to evidential grounds for a proposition. Their point of departure is as follows. Statements with epistemic *must* are infelicitous if the predjacent *p* was learned via immediate perception and felicitous if *p* was inferred, as the minimal pair in (28) and (29) illustrates:

- (28) *Looking out of the window and seeing a downpour:* PERCEPTION  
 a. ✓It is raining.  
 b. # It must be raining.
- (29) *Seeing people with wet umbrellas:* INFERENCE  
 a. # It is raining.  
 b. ✓It must be raining.

To account for the contrast between (28) and (29), vF&G propose that *must* can only target information that is not known directly. They assume an epistemological framework in which knowledge comes in (at least) two flavors: propositions that are known directly, e.g. via immediate perception, and propositions that are known but indirectly, e.g. via reasoning. This is formalized using *kernels* (30):

- (30) KERNELS  
 a. A kernel *K* is a set of propositions that encode direct knowledge  
 b. *K* directly settles (whether) *p* iff  $\exists q \in K [ q \subseteq p \vee q \subseteq \neg p ]$   
 c. The proposition  $\bigcap K$  is a vanilla epistemic modal base: the set worlds compatible with what is known directly and indirectly

Importantly,  $\bigcap K$  may entail *p* without *K* directly settling whether *p*. *K* directly settles whether it is raining in (28) but not in (29). Under the proposed analysis, *must* presupposes a lack of

direct settlement (i.e., indirect evidence); this then accounts for the contrast in (28) and (29):

(31) MUST

- a.  $\llbracket \text{must } p \rrbracket^{c,i}$  is defined only if  $K$  does not directly settle  $\llbracket p \rrbracket^c$
- b. If defined,  $\llbracket \text{must } p \rrbracket^{c,i} = 1$  iff  $\bigcap K \subseteq \llbracket p \rrbracket^c$

Unlike what (28,29) would suggest, the licensing of *must* (and hence the notion of direct evidence) is hardly straightforward. For one thing, relative to context, it may even admit immediate perception. Professional epistemologists—trained to be skeptical of their own eyes—may use *must* even when they visually observe rain, and such cases have been used in the recent literature (Giannakidou and Mari 2016, Goodhue 2017) to argue that *must* tracks the lack of knowledge rather than the lack of directness. We believe that vF&G’s observation about the indirectness of *must* can be reconciled with recent criticisms once more research is done on the link between types of knowledge and evidence for claims. For the purposes of this paper, we maintain that *must* carries an evidential signal which can be formalized using kernels.

#### 4.2. PPTs, kernels and obviation

The analysis advocated by vF&G puts epistemic modals in a loose category of linguistic expressions that deal with the divide between direct and indirect evidence. Grammatical markers of evidentiality come to mind first (see e.g. Bybee 1985, Izvorski 1997, Matthewson et al. 2007 on the relation between epistemic modality and evidentiality), but the overall number of such expressions is larger. And if there are distinct phenomena such that their felicity conditions depend on the presence or absence of firsthand experience, then it is only natural to analyze them along similar lines. In this section we do precisely that.

We propose that the AI of PPTs and other subjective expressions is another instance of kernel-dependence. In doing so, we do not commit ourselves to a worldview such that all expressions that are “about” evidence must belong to the same semantic category. Instead, we use the concept of (in)directness to link those expressions and, as we will show, specific formal details vary even within PPTs. We use kernels as a convenient formal object that may be manipulated, with the above caveats that they may be incomplete or misguided.

We will treat kernels as interpretative coordinates, much like information states for Yalcin (2007) (cf. also Hacquard 2006). We also use the judge parameter, first proposed by Lasnik (2005), to determine who the taster is in each particular situation. Indices of evaluation are thus minimally 4-tuples:  $\langle \text{world, time, kernel, judge} \rangle$ . Note that our goal is to give a precise implementation for the AI and that we are largely agnostic about other aspects of the semantics of PPTs. The judges are here for purely representational reasons. It is easy to reformulate our insights within other theories (see MacFarlane 2014, Zakkou 2015, Lasnik 2017, Coppock 2018 for an overview). Finally, we assume that evaluation of a proposition for truth conventionally sets the kernel to that of the speaker’s or non-autocentric judge’s directly experienced knowledge.

Our semantics for PPTs is given in (32):

- (32) a.  $\llbracket \textit{tasty} \rrbracket^{c, \langle w, t, K, j \rangle} =$   
 $\lambda o : K$  directly settles whether  $o$  is tasty for  $j$  in  $w$  at  $t$ . 1 iff  $o$  is tasty for  $j$  in  $w$  at  $t$   
 b.  $K$  directly settles whether  $p$  iff  $\exists q \in K [q \subseteq p \vee q \subseteq \neg p]$

Applied to a sentence with a PPT (33a), such semantics yields (33b):

- (33) a. This cake is delicious.  
 b.  $\llbracket \textit{The cake is delicious} \rrbracket^{c, \langle w, t, K, j \rangle}$   
 $= \lambda o : K$  directly settles whether cake is delicious for  $j$  in  $w$  at  $t$ . 1 iff cake is delicious for  $j$  in  $w$  at  $t$

The semantics in (32) and (33) says nothing about the judge having firsthand experience with the stimulus. We propose that the AI arises because, ontologically, the only way to directly settle whether something is tasty is for the relevant taster to try it. An unmodified sentence with a PPT will be undefined otherwise. Because we model the direct settlement requirement as a presupposition, the AI is predicted to be present in both affirmative and negative sentences (34, repeated from 2a):

- (34) The cake wasn't delicious, #but I never tasted it.

Non-autocentric uses of PPTs are unproblematic under this view. The judge does not have to be the speaker even in root clauses, and given that  $K$  and  $j$  are not semantically connected, the presence of an AI will not depend on who the judge is.

The explanation of the Puzzle is done in two steps. The first step is to exclude explicit denials (35, repeated from 1a):

- (35) The cake was delicious, #but I never tasted it.

Per (32), PPTs like *delicious* are only defined if  $K$  directly settles whether the stimulus is tasty to the judge. And this can be settled just in case the judge has tried the stimulus. The second conjunct explicitly states that the judge hasn't tried the cake. The first conjunct will not be defined whenever the second one is true, which correctly predicts that explicit denials would be infelicitous.

The second step is to account for obviation, illustrated in (36, repeated from 7a):

- (36) ✓The cake must have been delicious, but I never tasted it.

We propose that the contrast between obviation and explicit denials stems from grammatical facts about obviators, an approach that allows us to avoid problems faced by Ninan (2014) and Pearson (2013). Specifically, we propose that epistemic modals and other markers of indirect-

ness update the kernel (like attitudes for Yalcin (2007)). The mechanics is exemplified in (37) below with epistemic *must*.

We propose that *must* eliminates the direct-indirect distinction in its scope by overwriting  $K$  with  $\{\bigcap K\}$  (37a), which leads to a requirement that the relevant information state is decided on the prejacent (37b).

- (37) a.  $\llbracket \text{must } p \rrbracket^{c, \langle w, t, \mathbf{K}, j \rangle} = \llbracket \text{must} \rrbracket^{c, \langle w, t, K, j \rangle} (\llbracket p \rrbracket^{c, \langle w, t, \bigcap \mathbf{K}, j \rangle})$   
 b. Given the semantics for PPTs:  
 $\llbracket \text{must [the curry is tasty]} \rrbracket^{c, \langle w, t, K, j \rangle}$  is defined  
 iff  $\{\bigcap K\}$  directly settles whether the curry is tasty  
 c. vF&G's semantics for *must*:  
 $\llbracket \text{must} \rrbracket^{c, \langle w, t, K, j \rangle}$   
 $= \lambda p : K \text{ does not directly settle whether } p. \bigcap K \subseteq p$

Per (37b), the directness requirement of PPTs disappears under *must*: it is only required that the prejacent is known, but it does not matter whether it is known directly or indirectly. Therefore, continuations that explicitly state that the judge has no firsthand experience, as in (36), are felicitous. (*must*'s general exclusion of direct knowledge in (37c) accounts for the fact that is odd to utter (38)):

- (38) # I tried the cake. It must be tasty.

We propose that other obviators follow the scheme in (37), but leave precise details for future research.<sup>6</sup>

#### 4.3. Overt tasters

As we have shown in section 2.3, obviation is subject to cross-constructural variation. When the taster is covert, which is the case for 'bare' uses of PPTs and psych predicates, obviation is allowed with different markers of indirectness such as epistemic modal auxiliaries, epistemic adverbs, futurate operators and predicates of clarity (section 2.2). However, obviation is highly restricted with overt tasters: PPTs with *to* phrases, psych predicates, and subjective attitudes. The contrast is illustrated in (39) and (40, repeated from 19):

- (39) PRESENCE OF AN AI
- |    |   |        |
|----|---|--------|
| a. | The San Juans are beautiful, #but I have never seen them.       | COVERT |
| b. | The San Juans are beautiful to me, #but I have never seen them. | OVERT  |

<sup>6</sup>In addition, while we follow vF&G in treating *must* as a marker of epistemic necessity, this aspect of their analysis is not crucial for us. The strength of *must* is a matter of a debate (see discussion in Lassiter 2016) and one can easily recast our approach to obviation within theories that treat *must* as weak, e.g. along the lines of classic Kratzerian semantics (Kratzer 1981, 1991).

## (40) AI OBVIATION

- a. ✓The San Juans must be beautiful, but I have never seen them. COVERT  
 b. #The San Juans must be beautiful to me, but I have never seen them. OVERT

The facts in (39) and (40) present challenges for the accounts of the AI that do not differentiate between two types of acquaintance content. Such cases or overt tasters in general are not discussed explicitly by either Ninan (2014) or Pearson (2013), but based on the overall shape of their respective theories, we think that neither of them predicts our data.<sup>7</sup>

Furthermore, the new data from obviation allow us to formulate a constraint on theories of PPTs (without taking a stand as to which one is correct). The existence of overt tasters is often taken as evidence that PPTs always take a taster argument (a.o. Stephenson 2007, Stojanovic 2007, Pearson 2013) whose semantics is the same in both covert and overt realizations. Such theories do not predict the contrast in (39) and (40). On the other hand, theories with a disjoint treatment of bare vs. overt uses (cf. Lasersohn 2005, MacFarlane 2014) do not face this problem. Therefore, obviation facts support such treatment.

We extend our analysis of ‘bare’ uses to overt tasters DPs and propose that overt judges depend on the DP’s doxastic kernel (41):

- (41)  $\llbracket \text{tasty to } \alpha \rrbracket^{c,i} = \lambda o : \text{the kernel of } \llbracket \alpha \rrbracket^{c,i} \text{ in } w \text{ at } t \text{ directly settles whether } o \text{ is tasty to } \llbracket \alpha \rrbracket^{c,i} \text{ in } w \text{ at } t. \text{ 1 iff } o \text{ is tasty to } \llbracket \alpha \rrbracket^{c,i} \text{ in } w \text{ at } t$

For non-obviated cases, the semantics (42) is the same as with ‘bare’ uses in (33) (modulo the judge) and the AI arises because of the direct settlement requirement:

- (42) a. The curry is delicious to me.  
 b.  $\llbracket \text{The curry is delicious to me} \rrbracket^{c,\langle w,t,K,j \rangle} = \lambda o : K \text{ directly settles whether curry is delicious to } \textit{speaker}(c) \text{ in } w \text{ at } t. \text{ 1 iff cake is delicious to } \textit{speaker}(c) \text{ in } w \text{ at } t$

With obviators, things differ. Obviators update the  $K$  coordinate, but overt tasters ignore that coordinate. The presupposition triggered by the PPT is thus unaffected, and it projects. This means that when the overt taster is the speaker, contradiction (or a sense of forgetfulness, at least) will typically arise, as in (43):<sup>8</sup>

<sup>7</sup>As discussed in section 3.2, Pearson’s (2013) account of obviation relies crucially on the presence of a generic operator and on the possibility of the taster to be excluded from its quantificational domain. With overt taster PPTs in mind, she briefly mentions that not all uses of PPTs may be generic, but a further elaboration would be needed to see how this approach fares with respect to the cross-constructural variation in AI obviation.

<sup>8</sup>This is exactly the behavior that the presuppositional analysis in Pearson (2013) predicts for ‘bare’ PPTs. While Ninan (2014) rightly criticizes it for ‘bare’ PPTs, it makes the right predictions for overt forms.

- (43)  $\llbracket \text{must [the curry is delicious to me]} \rrbracket^{c, \langle w, t, K, j \rangle}$  is defined if
- a. **[imposed by *must*]** iff K **does not directly settle** whether the curry is delicious to me
  - b. **[imposed by PPT]** iff the speaker’s kernel directly **settles** whether the curry is delicious to me

Though we have only provided a semantics for PPTs here, we assume other subjective expressions behave similarly: the AI stems from a presupposition sensitive to a kernel-coordinate, which obviators overwrite; in turn, overt tasters pick out a distinct kernel, leading to a classic presupposition.

## 5. Conclusions

This paper explores the nature of the Acquaintance Inference, a firsthand experience requirement present with several subjective expressions across affirmative and negated sentences. The AI cannot be explicitly denied, which indicates that it is not an implicature, but can be sometimes lifted, a phenomenon we call obviation. We formulate the novel empirical generalization that covert and overt experiencers behave differently across obviation contexts.

Our analysis is rooted in research on (in)directness. We argue that PPTs and other AI-triggering subjective expressions comment on the evidential grounds for a proposition. We show that obviation is possible with linguistic expressions that convey indirectness, including epistemic modals and futurate markers in English as well grammatical markers of indirect evidentiality in languages like Turkish. A consequence of this approach is that obviation should be treated as a diagnostic of indirectness, not modality (pace Klecha 2014).

We further argue that obviators collapse the distinction between direct and indirect knowledge, which in turn makes it possible to use a PPT in their scope even in situations when the taster has no prior experience with the stimulus. To formalize our claims, we use von Stechow and Gillies’s (2010) kernels. Beyond the formal niceties, the broader goal of the paper is to highlight a connection between PPTs and epistemic modals, and hence to shed light on how natural language conceptualizes evidence in general. In future work, we hope to push this idea further by investigating the interaction of subjective expressions with *bona fide* markers of direct evidentiality and their relation to other expressions with similar restrictions, such as English copy-raising constructions (Asudeh and Toivonen 2012, Rett, Hyams, and Winans 2013) and expressions dealing with internal states across languages, e.g. egophoricity (Coppock and Wechsler 2018).

We also hope to examine the properties of obviators more closely. Though we consider clause-mate obviators, our semantics can extend to attitude verbs to predict that they, too, act as obviators (cf. Yalcin 2007), which accounts for (18). But, by treating obviation as elimination of the direct-indirect distinction, we predict that (44a) and (44b) should be synonymous.



- (44) a. I'm certain it is raining.  
 b. I'm certain it must be raining.

That they are not suggests that more must be said about how indirectness and obviation interact, a task we leave to future work.

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