The origin of acquaintance inferences: 
experiential semantics and direct evidentiality

Patrick Muñoz

Abstract: Predicative assertions involving a special class of experiential predicates give rise to commitments on the part of the speaker to having had certain direct experiences with the subject of predication. These commitments result in acquaintance inferences, by which interlocutors infer that a speaker has had contact with the individual in question via a specific sensory modality, or had experience of the individual of a certain quality, or both. This work offers a derivation of acquaintance inferences by showing how they arise from the interaction of two independently-motivated mechanisms. First, experiential predicates have a special experiential semantics, denoting properties true of an individual just in case that individual is disposed to produce experience of a certain kind. Second, committing to a direct evidential source for predicative assertions making use of experiential predicates causes a speaker to commit to having had this sort of experience produced in herself. A compositional account is given, showing how different sorts of acquaintance inferences arise with deverbal psych adjectives and sensory verbs, in a way utterly predictable from the lexical and phrasal composition of the predicates. The upshot is that acquaintance inferences are combined lexical-semantic and evidential effects, a claim supported by data from English and Standard Tibetan.

1 Introduction: acquaintance inferences

When a speaker makes a predicative assertion, the appearance of certain material in predicate position enforces certain experiential commitments on the part of that speaker. Take for example a simple predication using the adjective delicious.

(1) Tripe is delicious.
→ The speaker has tasted tripe.

*In what follows, glosses are taken directly from the source material where a citation is given: otherwise, they’re mine. Key for the Tibetan glosses: DIR = direct; IND = indirect; EGO = egophoric; AST = assertive; COP = copula; NEG = negation; LOC = locative; ERG = ergative; PRES = present. Tibetan transliteration uses the Wylie system.

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The speaker’s gustatory experience of tripe is highly pleasant.

In asserting (1), the speaker typically commits to having had certain sorts of experiences involving the subject of predication, the kind tripe. There are two inferences that the audience is licensed to draw in virtue of the assertion: first, that the speaker has had direct contact with the subject through a certain sensory modality (taste), and second, that the speaker’s experience with the subject through that modality has a certain quality (it is highly pleasant, or whatever gloss on delicious one prefers).

Call predicates of this sort, that typically give rise to such experiential commitments, experiential predicates. Following Wollheim (1980), call the sorts of inferences to which these predicates give rise acquaintance inferences. Call the first sort of inference, having to do with contact via a specific sensory modality, a sensory acquaintance inference, and the second sort, having to do with the quality of the experience in question, an affective acquaintance inference.

Not all predicates are experiential in this sense. Predicating using adjectives like smart or tiny does not by default give rise to any acquaintance inferences. Thus if a speaker asserts (2-a) or (2-b), the audience is not generally licensed to draw any conclusions about the experiences that the speaker has had of the subject.

(2) a. Alfonse is smart.
   b. Egyptian fruit bats are tiny.

These sorts of predications can be perfectly acceptable even where the speaker has no direct experience of Alfonse, or of Egyptian fruit bats, at all: she may be committed just to having heard or inferred that the subjects have the predicated properties.

The sorts of acquaintance inferences that arise are dependent on the lexical semantics of the experiential predicate. For instance, take a simple predication using funny.

(3) Bethany’s joke is funny.
   → The speaker’s experience of Bethany’s joke is comedic.

Due to how the lexical semantics of funny differs from that of delicious, (3) licenses a unique affective acquaintance inference that has nothing to do with gustatory pleasure. It further licenses no sensory acquaintance inference at all – the speaker need not have come into

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1I forego referring to these predicates as taste predicates, as Ninan (2014) does, following Lasersohn’s (2005) coinage of the term predicates of personal taste, for two reasons. First, the latter term was never meant to cover a natural linguistic class, but only to describe certain high-level semantic and pragmatic behaviors linked to predicates somehow involved in ‘matters of opinion’ (cf. ibid. §7.2); and as will become clear, I do think that experiential predicates form a definable semantic class. Second, the term taste may conflate two distinct notions that are important to keep apart for present purposes – taste as a sensory modality, and taste as a proclivity to appreciate something via experience.

2Given additional background information, hearers may be inclined, or even entitled, to infer all sorts of things about what experiences the speaker has had: one way to find out that Egyptian fruit bats are tiny is to see them, and given the right context, that the speaker has seen these bats may be an unobjectionable thing to infer from an assertion of (2-b). But the semantics of the predicate, unlike with (1), does not enforce these sorts of inferences with relative context-independence. Interestingly, color predicates like blue are not experiential in this sense, either: it is possible to appropriately report the color of something using a simple predicative assertion via hearsay.
contact with the joke by any particular sensory channel.\(^3\)

In what follows, I offer an account of the origin of acquaintance inferences, both sensory and affective, and explain how what kind of acquaintance inferences a particular predicate engenders is traceable to its lexical semantics. The upshot is that these inferences are derived systematically from the unique semantics of experiential predicates, in concert with evidential mechanisms at the semantics-pragmatics interface. I take as my starting point two observations.

First, whether a predicate is experiential, and what sort of acquaintance inferences it triggers, is often totally predictable from its lexical or phrasal composition. Thus in English, every deverbal psych adjective formed from an object-experiencer psych verb using the productive suffix \(-ing\) gives rise to affective acquaintance inferences in bare predications.

\begin{align*}
(4)\quad &\text{a. Tripe is disgusting.} \\
&\quad \rightarrow \text{The speaker’s experience of tripe is that of disgust.} \\
&\text{b. The news is exciting.} \\
&\quad \rightarrow \text{The speaker’s experience of the news is that of excitement.}
\end{align*}

The affective acquaintance inferences that these adjectives trigger are dependent on their lexical composition, and traceable to their semantics’ sensitivity to \textit{experiential kinds}, like disgust and excitement. Further, they never license sensory acquaintance inferences (if they don’t incorporate a sensory verb: see fn. 40). Plausibly, this is because the composition of these predicates makes no reference to sensory modality; something can disgust, or excite, through any number of experiential channels, and so for instance (4-a) can just as well be justified by sight, smell, taste, etc.

On the other hand, predicates formed from the composition of a sensory verb (including \textit{look}, \textit{sound}, \textit{feel}, \textit{smell}, and \textit{taste}) and an adjective, in the construction ‘\(x\ \textit{look adj}\),’ etc., always license sensory acquaintance inferences, tied to the sensory modality encoded by the verb, but don’t license affective acquaintance inferences (so long as the adjective that they embed triggers no such inference independently: see section 4.4).\(^4\)

\begin{align*}
(5)\quad &\text{a. Alfonse looks tired.} \\
&\quad \rightarrow \text{The speaker has seen Alfonse.} \\
&\text{b. The music sounds Bulgarian.} \\
&\quad \rightarrow \text{The speaker has heard the music.}
\end{align*}

In these cases, the speakers are not committed to their experience of the subject having any particular quality: the verbs only encode that they have had such experience, via a particular

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\(^3\)World knowledge may make the speaker committing to some sensory channels more or less plausible than others. So if this is a joke that Bethany is known to tell in person, the audience may infer that the speaker has heard the joke. But nothing about the sentence itself mandates this – the speaker might just have easily have read it, or if it’s a visual gag, seen it. There is a minimal sense in which the speaker must have had ‘contact’ with the joke to make the assertion appropriate, but this is only because the affective commitment needs to be fulfilled: contact of some kind is typically required for a comedic experience, though the predicate itself is indifferent as to what kind.

\(^4\)Pearson (2013: 118) makes a similar observation about the raising verb \textit{seem} licensing acquaintance inferences. I won’t deal with \textit{seem} here, since exactly what sort of acquaintance inference it licenses is difficult to articulate, and the verb may have a solely epistemic, as opposed to truly experiential, semantics.
sensory channel. Again, this is plausibly because the composition of these predicates makes no reference to the quality of experience, and so their semantics is insensitive to this.

This shows two important things. First, acquaintance inferences are a highly systematic phenomenon, whose presence is sometimes utterly predictable from compositional processes. Second, the lexical semantics of the predicates encode, to a fine grain of difference, exactly what sorts of acquaintance inferences they give rise to. A semantics of experiential predicates should explain these facts.

Second, as MacFarlane (2014: 3) and Anand & Korotkova (2018) note, acquaintance inferences have an evidential flavor. They tend to arise when direct evidence of the asserted proposition, in the loose sense of the standard taxonomies of evidential distinctions provided e.g. in Willett (1988) and Aikhenvald (2004), is at issue. This can be seen from the fact that the inferences are obviated by markers that typically cause the speaker to eschew commitments to direct evidence (cf. Pearson 2013, Ninan 2014, and Anand & Korotkova 2018 for more examples of, and comments on, obviating acquaintance inferences).

(6) a. Apparently, tripe is delicious.
   b. Tripe must be delicious.
   c. Tripe is delicious, I hear.

Each of the sentences in (6) systematically fails to yield acquaintance inferences like those in (1), and in fact their assertion typically implies the opposite: that the speaker has not tasted tripe, and so has no gustatory experience of tripe of a certain quality. But these sentences all include markers that tend to be incompatible with the speaker committing to having direct evidence of the relevant proposition. Apparently is an operator (6-a), typically qualifying the proposition on which it operates as being justified only by some indirect source of evidence. The epistemic modal must (6-b) typically implies justification of its prejacent by inferential evidence (cf. von Fintel & Gilles 2010) or by partial knowledge, which itself can be due to indirectness of evidential source (cf. Giannakidou & Mari 2016). A shift using I hear (6-c) marks the associated at-issue proposition as being justified by reportative evidence.

So acquaintance inferences look to be obviated when the evidential justification for an assertion is indirect. This hypothesis is explicitly entertained by Anand & Korotkova (2018), and is granted further support by their observation that the Turkish indirective marker miş also obviates acquaintance inferences. This can be seen from the fact that denying having the relevant experience with the subject of predication is felicitous when miş is present (7-b), but not following a bare predication (7-a).

5An older view, going back to Karttunen (1972: 11), states outright that use of epistemic must indicates that the speaker has ‘no firsthand evidence’ of its prejacent. The exact semantics of must is irrelevant here: it’s enough to note that it’s universally taken to trigger avoidance of commitment to direct evidence of the prejacent.

6I don’t say ‘only when,’ because there may very well be obviators of acquaintance inferences that work for other reasons. Thus a tag question, as in Tripe is tasty, isn’t it? may also obviate acquaintance inferences in the right context (i.e. when used to convey uncertainty), for the more fundamental reason that the speaker is not even committing to the truth of the asserted proposition.

7Bylinina (2017: 301, ex. 32) makes a related point about Japanese, following observations made by Kuno (1973) and many others. Japanese has a quasi-evidential restriction on a number of predicates, including oisii ‘tasty,’ to the effect that they can’t be used to report the experiential states of someone other than the speaker without some indirective marking. She doesn’t claim that the use of the indirective voids
A plausible hypothesis is that acquaintance inferences arise when, and only when, the evidential justification for the asserted predication is direct.\(^8\) We will see in Sections 2.2 and 2.3 that the behavior of Standard Tibetan, which has grammaticized evidential markers and overtly marks both direct and indirect evidentiality in predication using adjectives, supports this view.

The idea, then, is to take an independently plausible compositional semantics for experiential predicates, and an independently plausible account of direct evidentiality, and put them together to yield acquaintance inferences systematically and straightforwardly. Roughly, what I'll say is this: (i) an experiential predicate is true of an individual just in case that individual is disposed to produce a certain kind of experience; (ii) to have direct evidence that an individual is disposed to produce a certain kind of experience simply is to have that experience produced in oneself by that individual; and so (iii) to claim that an individual has this sort of experiential property on the basis of direct evidence is to commit oneself to having had the relevant sort of experience of that individual.

Acquaintance inferences like those in (1) therefore arise because, in making predicative assertions using experiential predicates, speakers typically must commit themselves to a direct evidential source in the absence of overt markers of evidentiality. Why that should be is an interesting question in its own right, that ought to be explicable in terms of the experiential lexical semantics of the predicates.

Section 2 briefly reviews previous approaches to acquaintance inferences, and mounts an argument, with help from some Standard Tibetan data, for the evidentiality-oriented approach outlined above. Section 3 motivates and provides a simple and plausible working semantics for the two types of experiential predicates just mentioned: deverbal psych adjectives, and sensory verbs composed with adjectives. Section 4 gives a simple and relatively standard treatment of direct evidentiality, and demonstrates how it combined with the semantics in Section 3 can be used to derive acquaintance inferences systematically. Section 5 then takes up the question of where and why direct sources of evidence are by assumed with experiential predications, and Section 6 concludes.

\(^8\)This position is also what Anand & Korotkova (2018) entertain in some form. They stipulate the sensitivity of an experiential predicate (what they call a PPT) to direct evidentiality in the lexical semantics of the predicate itself (cf. \textit{ibid.} 67, ex. 32), while the present approach will decompose acquaintance inferences, and show them to arise from the interaction of the lexical semantics with independently-motivated norms on evidentiality. The treatment of direct evidentiality to be used in Section 4.1 will also be quite different from their appropriation of von Fintel & Gilles’ (2010) ‘kernel’-based machinery.
2 The phenomenon so far

This section considers some recent treatments of acquaintance inferences, ultimately to reject them in favor of a view that treats them as a governed by commitment to direct evidentiality. Section 2.1 reviews the arguments in Ninan (2014) against a speaker-oriented presupposition account, entertained by Pearson (2013). Section 2.2 then turns to Ninan’s (2014) knowledge-based account and rejects it, partly on the basis of the behavior of evidentials and knowledge claims in Standard Tibetan. Section 2.3 then mounts the positive case that acquaintance inferences are direct evidential effects.

2.1 Against speaker-oriented presuppositions

Certain markers accompanying experiential predicates create effects similar to acquaintance inferences, requiring that some individual must have had certain experiences, either through the relevant sensory modality, or of the relevant quality, or both. These markers include to-headed PPs adjacent to the predicate (as in the (a)-sentences below), and embedding the predicate in predicate position of a small clause beneath the attitude verb find (as in the (b)-sentences).\footnote{There is no (b)-sentence for looks tired (10), due to the embedding constraints of find, which preferably embeds a small clause. To the extent that a finite embedded clause, as in Alfonse finds that Bethany looks tired, or a small clause with a predicate that incorporates look, as in Alfonse finds Bethany tired-looking, are acceptable (on which score I’m uncertain), the expected acquaintance inference seems to arise.}

(8) a. Tripe is delicious to Alfonse.
   b. Alfonse finds tripe delicious.
      \[\rightarrow\text{Alfonse has tasted tripe.}\]
      \[\rightarrow\text{Alfonse’s gustatory experience of tripe is highly pleasant.}\]

(9) a. The news is exciting to Alfonse.
   b. Alfonse finds the news exciting.
      \[\rightarrow\text{Alfonse’s experience of the news is that of excitement.}\]

(10) a. Bethany looks tired to Alfonse.
    \[\rightarrow\text{Alfonse has seen Bethany.}\]

The inferences that (8) triggers are the same as those in (1), except that they’re anchored to the denotation of the preposition’s complement, or the subject of the attitude – namely Alfonse – instead of to the speaker. On this basis, one might think that the mechanisms creating the inferences in both (1) and (8)-(10) are the same, the only relevant difference between them being that (1) lacks an overt marker for the experiencer, in which case the experiencer for some reason defaults to the speaker.

This is the view that Pearson (2013) takes. She proposes that experiential predicates take a semantic experiencer argument, and that a presupposition is hard-coded into the semantics of the predicate, ensuring that the stimulus of experience (the subject of the predicate) has made appropriate experiential contact with that experiencer. And so a denotation for delicious would look like (11) (modified from ibid. 122, ex. 45).
And so on composing with an experiencer, delicious denotes a partial function defined only on stimuli that the experiencer has tasted, and is true of stimuli whose tastes greatly please the experiencer. Presupposition failure results when composing with a stimulus that the experiencer hasn’t tasted.

The experiencer can then overtly manifest, say as a to-headed PP, in which case the experiential implications as in (8)-(10) arise as expected. But when there is no overt experiencer, the predicate takes a covert internal argument, which by default anchors to the speaker: in these cases, the denotation of delicious as a predicate assimilates to delicious to me, resulting in the speaker-oriented implications. But as Ninan (2014) has shown, acquaintance inferences pattern apart from the inferences that overt experiencers give rise to in the conditions under which they can be voided. In particular, while the inferences in (8)-(10) display classic presuppositional behavior as far as the conditions in which they can be cancelled or locally accommodated, acquaintance inferences do not. Acquaintance inferences look superficially presuppositional, in that like speaker-oriented experiential presuppositions, they can’t be felicitously denied, and project out of negation.

Though Pearson doesn’t discuss subjective attitudes like find, one might think that the subject of the attitude in (8-b) and (9-b) is also an overt realization of the experiencer argument to the experiential predicate. Sæbø (2009) explores a treatment like this, for a wide variety of predicates.

Pearson’s own view is actually more complicated than this: she takes the internal argument to the predicate to trigger generic quantification over contextually-relevant experiencers with which the anchored experiencer (by default, the speaker) ‘identifies’ (Pearson 2013: 127, ex. 65). The speaker-oriented presupposition is meant to be obviated e.g. by epistemic modals (cf. (15-c) below), because including such a marker signals that the speaker is pragmatically irrelevant, and so the speaker falls outside of the contextual restriction of the quantifier when such constructions are used (ibid. 142-143). This approach has a number of problems: it doesn’t explain why acquaintance inferences escape external negation (cf. (14) below), it wrongly predicts that acquaintance inferences apply to everyone with whom the speaker identifies by default, rather than being solely speaker-oriented, and it predicts that even where a speaker-associated presupposition is voided, quantification must be over some experiencers or other, and so there is always a presupposition that someone has had the relevant direct experience, which isn’t right generally, and not for epistemic modals in particular (again, cf. (15-c) below).

See Pearson (2013) and Anand & Korotkova (2018) for comments on the presuppositional nature of to-headed PPs, and Hirvonen (2014: ch. 4) for comments on the presuppositional nature of find.

In (13-c) one can see that the behavior of the sensory and affective acquaintance inferences don’t pattern alike in this respect: only the former really ‘projects’ in the classical sense. This will all be accounted for come the results in Section 4.
But there are at least three environments in which their behaviors diverge. First (cf. Ninan 2014: 297-298), speaker-anchored presuppositions are voided by external negation (which is triggered by the right intonation, surrounding context, etc.), while acquaintance inferences aren’t.

(14) a. Tripe *isn’t* delicious to me, because I haven’t tasted it.
b. I *don’t* find tripe delicious, because I haven’t tasted it.
c. *?Tripe isn’t* delicious, because I haven’t tasted it.

Second (cf. *ibid.* 298-300), in many embedded environments that act as holes or filters to presuppositions, speaker-oriented presuppositions can project or be locally accommodated, while acquaintance inferences typically disappear. Just one example is given here, with the epistemic modal *must*.

(15) a. Tripe must be delicious to me.\(^{14}\)
b. I must find tripe delicious.
    \(\leftrightarrow \text{pro} \) The speaker has tasted tripe, and it must be that the speaker’s gustatory experience of tripe is highly pleasant.
    \(\leftrightarrow \text{acc} \) It must be that: the speaker has tasted tripe, and the speaker’s gustatory experience of tripe is highly pleasant.
c. Tripe must be delicious.

The presupposition that the speaker has tasted tripe can either project out of (15-a), in which case the reading is as noted by ‘\(\leftrightarrow \text{pro} \)’, or it can be locally accommodated, in which case the reading is as noted by ‘\(\leftrightarrow \text{acc} \)’. For (15-c), in principle no such inferences arise at all: it’s fine even if nobody whatsoever has tasted tripe, or had gustatory experience of it of any quality.

And third (cf. Klecha 2014: §1.3), in some environments that act as plugs for these speaker-oriented presuppositions, acquaintance inferences instead disappear. Beneath predictive *will*, while the former are projected into the future (16-a)-(16-b), the latter can just be voided. Suppose some beef tripe is being deep-fried, and the speaker says the following.

(16) a. The tripe will be delicious to me.
b. I’ll find the tripe delicious.
    \(\leftrightarrow \) The speaker will taste the tripe.
    \(\leftrightarrow \) The speaker’s gustatory experience of the tripe will be highly pleasant.
c. The tripe will be delicious.

To get a better sense of how (16-c) doesn’t give rise to these inferences, note the felicity of *too bad I’ll never get to taste it* following (16-c), and its infelicity following (16-a).

Due to these differences, assimilating acquaintance inferences to explicit speaker experiencers looks not to be a promising route, and their deviation from the behavior of presuppositions more generally makes a presuppositional speaker-anchored account unappetizing.

\(^{14}\)Anand & Korotkova (2018: 70, ex. 43) predict that sentences like these have contradictory readings. So far as I can see, this is a bad result, and there is nothing contradictory about them. They do imply that the speaker has forgotten whether he has tasted tripe, or forgotten what it tasted like to him, etc., which the corresponding sentences without *to me* don’t.
I therefore follow Ninan (2014) in looking for another explanation.

## 2.2 Against epistemic effects

Ninan (2014)’s own suggestion is that acquaintance inferences arise not due to the semantic content of propositions composed using experiential predicates, but rather due to Moorean pragmatic constraints on the speech act of assertion using such propositions.

Hintikka (1962) notes that bare assertion of a proposition typically commits a speaker to knowing that proposition. This can be seen from the fact that denying knowledge of a proposition just asserted is infelicitous, creating an epistemic counterpart to the classical ‘Moore’s Paradox.’

\[ \text{(17) } \text{‘It’s raining, but I don’t know whether it’s raining.’}\]

The idea is that in asserting that it’s raining, the speaker commits to knowing that it’s raining, and so to deny this commitment via the second clause is bizarre. The commitment to knowledge is a general condition on assertion, and has nothing to do with the semantics of the first clause itself, which expresses the proposition that it is raining *simpliciter*, not that the speaker or anyone else knows this: it is the act of asserting this proposition bare that gives rise to the speaker-oriented knowledge effect.

In Gricean pragmatics, this fact is often taken to justify a normative general requirement on assertion, to the following effect (cf. Gazdar 1979: 46, ex. 24, Garrett 2001: 61, ex. 4, Ninan 2014: 302).

\[ \text{(18) } \text{If } x \text{ felicitously asserts } p, \text{ then } x \text{ knows } p. \]

Ninan (2014: 303 ff.) notes that inferences arising from this epistemic constraint on assertion behave similarly to acquaintance inferences, and so proposes assimilating the two. For instance, just as seen for acquaintance inferences in Section 2.1, epistemic inferences can’t be felicitously denied (17), they project out of negation (19-a) (as shown by the infelicitous cancellation), and refuse cancellation even beneath external negation (19-b).

\[ \text{(19) } \begin{align*}
\text{a. } & \text{‘It isn’t raining, but I don’t know whether it’s raining.’} \\
\text{b. } & \text{‘It isn’t raining, because I don’t know whether it is.’}
\end{align*} \]

Possibly, they also are cancelled beneath those presuppositional holes and filters that allow speaker-oriented presuppositions of experience to project or be locally accommodated (shown by the possible felicity of the denial in (20)).

\[ ^{15} \text{Authors often use a propositional clause, rather than an embedded question, in demonstrating this effect, e.g. ‘It’s raining, but I don’t know that it’s raining.’ I use a polar question instead, since asserting I don’t know that it’s raining is already bizarre due to Moorean effects combined with the factivity of know (and for this reason, such an assertion tends to coerce a non-factive reading of the verb). Using a question allows the effect to be shown more clearly across two clauses without this complication.} \]

\[ ^{16} \text{To my own ear, it’s not obvious that (20) is felicitous – it improves with stress on know, which suggests a strengthening of the standards for knowledge. And so the voiding of the epistemic inference here may be more contentious than the voiding of the acquaintance inference in (15-c). Goodhue (2017) has explicitly argued that must is only felicitous in an assertion when its prejacent isn’t known by the speaker, but my own judgment is at best uncertain. Other classical presuppositional holes and filters fare better: compare} \]
It must be raining, but I don’t know whether it’s raining.

For acquaintance inferences, the idea is then that a speaker must have the relevant direct experiences to know the truth or falsity of propositions composed using experiential predicates. If assertion commits a speaker to knowledge, and knowledge commits a speaker to experience of a certain sort, it follows that assertion commits a speaker to experience of a certain sort, and the acquaintance inferences are derived. So we additionally posit a principle like the following (cf. Ninan 2014: 302), where \( x \) and \( y \) are variables over individuals, and \( \epsilon \) is a variable over properties denoted by experiential predicates.

\[
\text{If } x \text{ knows whether } y \text{ has } \epsilon, \text{ then } x \text{ has the experience of } y \text{ encoded by } \epsilon.
\]

The derivation of the acquaintance inference is then as follows.

1. \( x \) felicitously asserts that \( y \) has \( \epsilon \).
2. By (18) and [1], \( x \) knows that \( y \) has \( \epsilon \).
3. By (21) and [2], \( x \) has the experience of \( y \) encoded by \( \epsilon \).

There is no recipe provided for what the ‘experience of \( y \) encoded by \( \epsilon \)’ is, but we can substitute on a case-by-case basis, and so this schema instantiated for the assertion of \textit{Tripe is delicious} runs as follows.\(^{17}\)

1. The speaker felicitously asserts that tripe has the property of being delicious.
2. By (18) and [1], the speaker knows that tripe has the property of being delicious.
3. By (21) and [2], the speaker has tasted tripe, and the speaker’s gustatory experience of tripe is highly pleasant.

Ninan’s proposal makes a crucial prediction. Indirective markers, like Turkish \textit{miş} seen in Section 1, that can be independently shown to void acquaintance inferences for experiential predications, ought to be infelicitous alongside claims to knowledge of the propositions expressed by those predications. This is because, if to know whether an individual has an experiential property requires the relevant direct experience of that individual, then a grammatical marker that commits a speaker to \textit{not} having such experience must also commit the speaker to \textit{not} knowing whether the individual has that property.

To the extent that speakers are sensitive to these restrictions (as I will assume they are), they ought to read claims to knowing whether an individual has an experiential property

\[^{17}\text{Note that the derivation of the acquaintance inferences hinges on the speaker making the assertion felicitously. If we don’t assume the assertion is felicitous, and add as an independent premise that the speaker hasn’t tasted tripe, etc., then we conclude correctly that the speaker’s assertion is not felicitous by the same principles.}\]
via indirect evidence as infelicitous *tout court*, since according to the epistemic proposal, one cannot know such things by indirect evidence. I now argue that this prediction is not borne out.

To begin, note that the epistemic proposal is perfectly compatible with the felicity of indirective markers accompanying experiential predications generally. The proposal predicts, however, that the felicity of such markers must accompany an obviation of the knowledge requirement: otherwise, there is commitment to knowledge in the absence of direct experience of the sort encoded by acquaintance inferences, which, if the assertion used to encode all this is felicitous, directly contradicts (21).

The sorts of markers implying indirect evidence that the literature has primarily so far been concerned with, as in (6) from Section 1, make this prediction plausible, as each of these markers at least arguably does void the knowledge requirement. This was already seen for *must* generally in (20), but an argument could be made that it holds for experiential predications as well, along with *apparently* and slifted *I hear*, as shown by the following plausibly felicitous denials of knowledge.\footnote{As with (21), I'm actually not sure these denials are felicitous (without stress on *know*), at least not always. But I grant the point and proceed from the stronger argument.}

\begin{enumerate}
\item (22) a. Tripe must be delicious, but I don’t know whether it is.
\item b. Apparently, tripe is delicious, but I don’t know whether it is.
\item c. Tripe is delicious, I hear, but I don’t know whether it is.
\end{enumerate}

But there are periphrastic constructions that are troubling for the epistemic account: explicit claims to knowledge, alongside explicit claims to having (only) indirect evidence as the source of that knowledge don’t look to be infelicitous in general.

\begin{enumerate}
\item (23) I know that the tripe is delicious...
\item a. because Alfonse made it.
\item b. because it’s made from honeycomb beef.
\end{enumerate}

Both continuations in (23) provide an indirect justification for the speaker’s knowledge (based not on having tasted the tripe, but on who made it, or its ingredients), and the sentence as a whole is felicitous even where it’s clear to everyone that the speaker hasn’t tasted the tripe. The epistemic account fails to predict this felicity: hearers should take the sentences to be bizarre, since the speaker is predicted not to be able to know that the tripe is delicious on these grounds.

But such constructions are slippery, and it would be better to have a more firmly grammaticized juxtaposition of knowledge with indirect evidence. For this we turn to languages that have grammaticized indirect evidential markers. Since such markers often must accompany otherwise bare assertions, which typically require knowledge, this is a promising domain for testing the epistemic proposal. But a caveat needs to be made regarding the cross-linguistic relation between indirect evidential markers and knowledge, and commitment to truth more broadly.

In many languages, certain indirect evidentials loosen speaker commitment, causing the speaker not to commit to knowledge of an asserted proposition generally, and not just with
experiential predicates. This is especially prevalent with reportative evidentials: a survey of the ‘epistemic extensions’ of these evidentials can be found in Aikhenvald (2004: §5.4.3). This lack of speaker commitment can be extreme: assertions using reportative evidentials in Cheyenne do not even commit the speaker to the truth of the asserted proposition (Murray 2017: §3.2.2), which can be seen from the fact that assertions made using a reportative evidential can be followed by an overt denial of the very same proposition using a direct evidential.19

(24) ̓E-hó’tâheva-sêste Annie nna oha ̓é-sâa-hó’tâhévâ-he-∅.
3-win-RPT.3SG Annie and CNTR 3-not-win-NEGAN-WTN
‘Annie won, they say, but I witnessed that she didn’t.’
[Cheyenne. Murray 2017: 76, ex. 3.8]

But this is not universally true of indirect evidentials cross-linguistically, and in many languages the use of inferential and even reportative evidentials does not lessen speaker commitment to the asserted proposition (cf. Faller 2002: §3.2.2 for brief discussion and cited examples). As Aikhenvald (2004: 3-8) has been at pains to explicate, evidentials encode the source of evidence for information, which in principle differs from epistemic matters having to do with the reliability of information, knowledge, and certainty. Not only are these notions logically distinct, but in many languages the encoding of evidential source, and the encoding of knowledge, come apart, and the use of an indirect evidential implies knowledge of the asserted claim just like the use of a direct evidential does.20 It is these languages that are of interest for evaluating Ninan (2014)’s epistemic position on acquaintance inferences.

Standard Tibetan is one such language.21 It has an indirective copular form, yod red, which is used in predication with adjectives, when the speaker lacks direct evidence that the subject has the predicated property.22 Where the adjective in question is an experiential

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19 Cf. Faller (2002: 194, ex. 158) for an illustration that the reportative -si in Cuzco Quechua vitiates commitment to the speaker’s belief in the asserted proposition, so that Moore’s Paradox doesn’t arise when using it.

20 I don’t mean to take a stand here on the difficult question of whether, and to what extent, evidentiality and epistemic modality can be assimilated, nor do I mean to reject Matthewson et al. (2007)’s claim against Aikhenvald that the two are not fully distinct grammatical categories. It is an observable fact that in many languages, markers indicating indirectness of evidence still require commitment to knowledge, and this is the only sense in which I claim that epistemic matters and matters of evidential source vary independently.

21 The use of the term ‘Standard Tibetan’ is a bit of a cheat, and implies a host of problems. The term ‘Lhasa Tibetan’ is sometimes used to mean the standard variety of Tibetan spoken across the diaspora, but as Hill (2012: 391) notes, this term doesn’t clearly distinguish between dialects of ‘Central Tibetan’ and the Tibetan spoken in the city of Lhasa itself, neither of which are really the same as Standard Tibetan (cf. Hill & Gawne 2017: 31). I want to flag this inadequacy, but won’t address it here.

22 yod red has a number of other functions: it also acts as an existential marker, and indicates alienable possession. But its evidential meaning is consistently indirective. For an introduction to Tibetan copular forms, including their evidential functions and how they behave with respect to predication using adjectives, see Denwood (1999: §9.2.3). The orthographic form of the indirective copula is not entirely consistent: one sometimes finds yog red or yod pa red attested in the literature. Some authors use the term ‘assertive’ (e.g. Tournadre & Dorje 2003) or ‘factual’ (e.g. DeLancey 2017) instead of ‘indirect’ to describe yod red, and DeLancey (ibid. §27.4.1) claims that ‘factual’ forms in general imply not indirect evidence, but unmarked evidential source. But yod red is unquestionably indirective in the sense relevant here: it typically requires lack of direct evidence for predications using adjectives.
predicate, like *zhim po* ‘delicious,’ use of *yod red* marks that the speaker has not had the experience of the subject relevant to an acquaintance inference.

(25)  
\[
\text{kha lag ‘di zhim po yod red.}
\]
  food this tasty COP.IND  
‘This food is delicious.’

[Standard Tibetan]
  \[\mapsto\] The speaker has not tasted the food.

(25) has a ‘counter-acquaintance inference’: its assertion is felicitous where the speaker has not tasted the food, and so her gustatory experience of it has no particular quality.\(^{23}\) But *yod red* in general does not void the speaker’s commitment to the truth of the asserted proposition, and a speaker making an assertion using *yod red* is still committed to knowing what is asserted. The speaker simply must know the asserted proposition by indirect, rather than direct, means.\(^{24}\)

This can be seen from the fact that explicit denials of knowledge following the use of *yod red* are in general infelicitous, as expected from the Hintikka-paradox illustrated in (17).

(26)  
\[
\text{?bod la g.yag yod red, yin n‘i bod la g.yag yod med shes gi}
\]
  Tibet.LOC yak COP.IND but Tibet.LOC yak be-not-be know PRES med.  
  COP.NEG.EGO  
‘There are yaks in Tibet, but I don’t know whether there are yaks in Tibet.’

The first clause of (26) asserts that there are yaks in Tibet, and commits the speaker to knowing this only by indirect evidence – she cannot have been to Tibet and seen yaks there, but must have read about them, heard about them from someone, etc. The second clause then denies that she knows what she just asserted with an indirect justification, and infelicity results.\(^{25}\)

\(^{23}\)Cf. Garrett (2001: 39, ex. 16), cited from Chang & Chang (1984), using the experiential predicate *spro bo* ‘delicious.’ Karma Ngodup (p.c.) informs me that (25) can also be used if the speaker has tasted the food some time in the past, but has forgotten this, or forgotten what it tastes like, or it has been so long that he is not sure whether his tastes or the flavor of the food have changed, etc. Presumably this is because tasting the food counts as direct evidence only insofar as the speaker can recall that experience for evidential purposes.

\(^{24}\)Garrett (2001: 37) makes this point forcefully about indirectivity in Tibetan: “Although indirect is associated with indirect forms of evidence, the knowledge it represents is still presented as certain knowledge. In other words, the speaker must be committed to what she is saying. Therefore, violations of Moore’s paradox – which accounts for the pragmatic infelicity of %John left, but I don’t believe he did – are disallowed here as with other evidentials; one cannot assert *p* and profess disbelief at the same time.” And he continues (ibid. 38): “Similarly, one can’t assert a proposition on one evidential grounds and deny it on another [contrast with the Cheyenne in (24) above] ... although indirect invokes a less direct form of evidential grounding than other evidentials, it does not imply that there is any lower degree of commitment to the proposition expressed.” The requirement of knowledge by *yod red* is strong enough that it is mentioned spontaneously in pedagogical contexts: thus, the textbook Tournadre & Dorje (2003: 110) explains: “The assertive auxiliary verbs *re’* and *yore’* [i.e., *yod red*] specify that the information ... is considered by the speaker to be *certain* [emphasis in the original]. In general, the assertive implies that the speaker is letting it be known that while the assertion is certain, he or she has not personally witnessed it.”

\(^{25}\)There may be some complications with this data. Karma Ngodup (p. c.) informs me that the denial
If using \textit{yod red} for adjectival predication both commits speakers to knowledge of what they assert (26), and voids acquaintance inferences (25), then the fact that this copula is felicitous at all when used in experiential predications is surprising on the epistemic account: it ought to be odd, since the commitment to knowledge and the commitment to lack of direct experience (e.g. having tasted the food) ought to conflict. But they do not, and the assertion of (25) is felicitous.

This can be seen more directly by placing knowledge attributions, or disavowals of knowledge, directly alongside the experiential predication itself. A knowledge attribution alongside such a predication with \textit{yod red} is felicitous, while a denial of knowledge is infelicitous (but on this latter point, see the caveat in fn. 25). Hence speakers are taken to know that an individual has an experiential property, even where the acquaintance inference is voided.\textsuperscript{26}

(27) \textit{kha lag ‘di zhim po yod red. ngas shes gi yod.}
food \hspace{1em} this delicious COP.IND I.ERG know PRES COP.EGO
‘This food is delicious. I know it.’

(28) ?\textit{kha lag ‘di zhim po yod red, yin n’i kha lag ‘di zhim po yod med shes gi food this delicious COP.IND but food this delicious be-not-be know PRES med.}
\textit{COP.NEG.EGO}
‘This food is delicious, but I don’t know whether this food is delicious.’

The epistemic account predicts the reverse: (27), and not (28), ought to be infelicitous. I therefore conclude that in Standard Tibetan, the encoding of acquaintance inferences and the encoding of knowledge of asserted propositions do not coincide. It is possible, as far as the language is concerned, to know that an individual has an experiential property by indirect evidence, i.e. by evidence other than having direct experiential contact with the individual. Insofar as this pattern replicates cross-linguistically – insofar as indirect markers that do not void commitment to knowledge generally are usable felicitously with experiential predications – this is evidence against the epistemic account. Given the preliminary evidence here, I therefore tentatively reject Ninan (2014)’s proposal.

of knowledge, while strange, may be passable to emphasize that the speaker has no direct evidence for the claim made in the first clause. He claims that the felicity drastically improves if one says instead that one does not know the fact in question \textit{very well}, while asserting that one does not know it \textit{simpliciter} intuitively conflicts with a claim to knowledge in the first clause. This suggests a gradability in the security of knowledge, which \textit{yod red} might indeed weaken, but not to the extent that it voids commitment to knowledge altogether. This contrasts with the behavior of the direct evidential copula ‘\textit{dug}, use of which accompanied by denial of knowledge is unequivocally bad. If this intuition is replicated across speakers, then we must allow that indirectivity can weaken claims to knowledge without voiding them. Nonetheless, even this weaker commitment to knowledge serves my purposes here.

\textsuperscript{26}One might like to show these effects yet more directly, by embedding a clause beneath ‘\textit{know}’ that makes an experiential predication using an indirect evidential copula, and seeing whether the result is felicitous. Unfortunately, this is not possible, since \textit{shes ‘know’} in such constructions takes an object nominalized with the particle \textit{pa}, and hence cannot embed something that makes use of the indirect copula \textit{yod red}. The matrix copula’s evidential status then relates to the evidence that the subject knows something, not to the evidence for the experiential predication that is known.
2.3 Acquaintance inferences as direct evidential effects

In Section 1, I proposed that acquaintance inferences are direct evidential effects: the idea is that these inferences arise just when the speaker is committed to a direct evidential source justifying an assertion involving an experiential predication. If this is true, then we expect to see the presence of acquaintance inferences patterning exactly with the encoding of direct evidentiality in languages that overtly mark it. We’ve already seen one half of this claim given support by the above Turkish and Standard Tibetan data: indirect evidentials void acquaintance inferences, and by default commit the speaker to not having had the relevant direct experience of the subject.

But we should also find evidence for the flip side of the claim: that is, grammaticized markers of direct evidentiality ought always to be accompanied by acquaintance inferences in the relevant constructions. I’ll show now that this prediction is also borne out in Standard Tibetan.

Standard Tibetan overtly encodes direct as well as indirect evidentiality in predications with adjectives. The direct copula is ‘dug’, and when used commits the speaker to having had direct evidence (to having ‘witnessed,’ or having ‘firsthand’ perceptual evidence) that the subject has the predicated property.27 This is a general property of ‘dug’, limited neither to experiential predicates nor to adjectives.

(29) bod la g.yag ‘dug.
Tibet.LOC yak COP.DIR
‘There are yaks in Tibet.’

A speaker who felicitously utters (29) cannot merely have heard that there are yaks in Tibet, or read about it, etc. Typically, he must have been to Tibet and witnessed yaks there.28 When ‘dug’ is used for an experiential predication, acquaintance inferences result in the expected way (cf. Hill & Gawne 2017: 16, ex. 10c).

(30) kha lag ‘di zhim po ‘dug.
food this delicious COP.DIR
‘This food is delicious.’
→ The speaker has tasted the food.
→ The speaker’s gustatory experience of the food is highly pleasant.

27 ‘dug’ is sometimes referred to as ‘testimonial’ (e.g. Tournadre & Dorje 2003) or ‘attestative’ (e.g. Agha 1993: 112) in the Tibetan literature, but these terms seem to refer to the same category as direct or perceptual evidentials in the literature more broadly. Hill (2012: §§2.1-2.2) briefly outlines the copular system, and the evidential function of the direct evidential. ‘dug’ isn’t restricted to visual evidence (cf. Tournadre 2017: §4.4.1).

28 There are some complications here regarding the use of ‘dug’. DeLancey (1986: 205) claims that it would be odd for a native Tibetan, who has grown up in Tibet and regularly sees yaks there, to use ‘dug’, but this is not because ‘dug’ doesn’t require firsthand evidence, but rather because in such a case the ‘egophoric’ copula yod would be preferred, since the speaker then somehow presents the presence of yaks as being in ‘her country.’ The use of ‘dug’, DeLancey claims, is therefore more appropriate for firsthand evidence recently acquired, e.g. by a foreigner who comes to Tibet and witnesses yaks there. See Hill (2013) for a critical reaction to these claims and several subtle complications with the data. Understanding the nature of this difference hinges on the difficult task of understanding egophoricity, but it doesn’t impinge on the present argument, since unquestionably ‘dug’ does require direct perceptual evidence when used.
These inferences display the sorts of superficial behaviors expected from acquaintance inferences, in that they can’t be overtly canceled (31), and they project out of negation in the expected way (32) (cf. Section 2.1).

(31) ?kha lag ‘di zhim po ‘dug, yin n‘i ngas bro ba bltas med.
   food  this delicious cop.dir but i.erg taste see cop.neg.ego
   ‘This food is delicious, but I haven’t tasted it.’

(32) kha lag ‘di zhim po mi ‘dug
   food  this delicious neg cop.dir
   ‘This food isn’t delicious.’
   \(\mapsto\) The speaker has tasted the food.
   \(\mapsto\) The speaker’s gustatory experience of the food is not highly pleasant.

Ideally one would like to confirm that the behaviors of these inferences match up with what the literature has so far reported on acquaintance inferences in other areas, as to the environments in which they are cancelable – this would require a more careful independent study of presupposition holes and filters in Standard Tibetan, and where ‘dug is allowed in relation to these.\(^{29}\)

But the pattern predicted by the evidential hypothesis is borne out: overt markers of direct evidentiality accompanying experiential predications give rise to acquaintance inferences, and overt markers of indirect evidentiality accompanying the same do not. I take this to be a promising lead, and proceed with the hypothesis that acquaintance inferences are direct evidential effects, and arise due to a commitment to direct evidential source regarding experiential predications.\(^{30}\)

3 Experiential semantics

This section offers a treatment of the semantics of experiential predicates, focusing on the two constructions mentioned in Section 1: Section 3.1 deals with deverbal psych adjectives composed using -ing, and Section 3.2 deals with sensory verbs composed with adjectives, which occur in constructions like ‘x look adj.’ It will be demonstrated that the former are sensitive to the quality of experience, and the latter to sensory modality, in virtue of their compositional semantics. This fact will in turn explain how they give rise to affective and sensory acquaintance inferences respectively in Section 4.

\(^{29}\)Some of the tests used for English may not function in Standard Tibetan, due to constraints on where certain evidentials can appear. Thus mdog kha po ‘apparently’ can be used to void an acquaintance inference, as in kha lag ‘di zhim po yod mdog kha po red ‘This food is apparently (seems to be) delicious.’ However, here the neutral copula red must be used, not ‘dug, and so it’s not clear what we learn about the interaction of evidentiality with these operators from this example.

\(^{30}\)Standard Tibetan has other copular forms that can predicate using adjectives, including red, yod, and yin, but their relevance to the present hypothesis is difficult to discern. red is marginal with adjectives, and with experiential adjectives even more so (a fact I return to in the Conclusion). The same can also be said of yin. yin and yod are further ‘egophoric’ copulas, which have a variety of subtle interpretive effects having to do with the speaker’s involvement in the predication. These are ill-understood, and egophoricity, while sometimes implying direct evidence, does not necessarily, and so these copulas’ use as a diagnostic for the present hypothesis is unclear.
3.1 Deverbal psych predicates and experiential kinds

We now provide a semantics for experiential predicates formed from object-experiencer psych verbs in English, using the suffix -ing. We take as our starting point the observation that each of these predicates is related to an experiential kind tracked by the corresponding psych verb: thus frightening deals with fear, exciting with excitement, amusing with amusement, and so on.

A large number of the relevant psych verbs are related to abstract nouns denoting the experiential kind itself, such as fright. These nouns and verbs have an inconsistent surface morphological relationship with each other, with the verb sometimes appearing to be derived from the noun (33-a), or vice-versa (33-b), or the noun and verb having the same form (33-c), or with both apparently being derived from a common root (33-d). Further, some psych verbs apparently have no corresponding noun at all (33-e).

\[(33)\]
\[\begin{array}{l}
\quad \text{a.} \quad \text{fright} \ / \ 	ext{frighten} \ / \ 	ext{frightening} \\
\quad \text{b.} \quad \text{excitement} \ / \ 	ext{excite} \ / \ 	ext{exciting} \\
\quad \text{c.} \quad \text{interest} \ / \ 	ext{interest} \ / \ 	ext{interesting} \\
\quad \text{d.} \quad \text{horror} \ / \ 	ext{horrify} \ / \ 	ext{horrifying} \\
\quad \text{e.} \quad \emptyset \ / \ 	ext{stun} \ / \ 	ext{stunning}
\end{array}\]

For present purposes, I ignore morphological complications, and just proceed with composing frightening – other deverbal psych adjectives will have a denotation analogous to it, substituting for the relevant experiential kind.

We first say that abstract mass nouns like fright simply denote the experiential kind in question: for simplicity, we treat these as individuals.\(^{31}\)

\[(34)\quad [\text{fright}]_{c,w} = \text{FEAR}\]

These kinds then relate to the corresponding object-experiencer psych verbs, in that the verb encodes a relation between individuals, a stimulus and experiencer, to the effect that the former produces some amount of that kind in the latter. And so frighten should denote a relation that holds between one individual (a stimulus) and another (an experiencer), just in case the first produces some amount of fear in the second. To represent this, we introduce the following bit of notation, where \(k\) is a variable over experiential kinds, viz. things like fear, excitement, and so on, \(w\) is a variable over worlds, and \(x\) and \(y\) are variables over individuals.

\[(35)\quad \epsilon''_{k}(w)(x)(y) := \text{the experience of kind } k \text{ that } y \text{ produces in } x \text{ at } w\]

Thus for instance, where \(a\) is Alfonse, and \(b\) is the Hitchcock movie The Birds, \(\epsilon''_{\text{FEAR}}(w)(a)(b)\) denotes the experience of fear that The Birds produces in Alfonse. Importantly, where there

\(^{31}\)This is a massive oversimplification. These are mass nouns, and so ought to be subject to a mereological ordering in the vein of Link (1983); they also appear to denote qualities, in the sense of Francez & Koontz-Garboden (2017), and so should inherently encode a size-ordering – and I suspect they have other interesting formal properties as well. In reality they are probably better represented by having e.g. fright denote not an individual kind FEAR, but rather the property of being a portion of fear, or something along these lines. These complications are irrelevant for present purposes, so I leave them aside.
is no such experience, because Alfonse has not had perceptual contact with the movie of the sort appropriate to instilling fear, this term is undefined: this will be important in accounting for presupposition failure due to undefinedness in what’s to come.

The sense in which a stimulus y produces experience in an experiencer x is to be read in some suitably ‘direct’ manner: the idea is that y produces fear in x where some perceptual contact appropriate to the direct engendering of fear takes place. I will leave vague exactly what this entails, but the idea is that the movie can produce fear in Alfonse via his watching it, but not for example by its giving Bethany the idea to leap out at Alfonse in the dark to shock him. In the latter case, the movie causes fear to arise in Alfonse ‘indirectly,’ and this is not the sort of thing that the term tracks; the same goes for every other experiential kind.

We also want to say that experiences of a certain kind are ordered according to how much of that kind is produced in an individual: something can frighten an individual more or less, or produce more or less fear in an individual. So we say additionally that all experiences of a kind k exist on a pre-order \( \geq_k \), where \( x \geq_k y \) is defined only if \( x \) and \( y \) are experiences of kind \( k \), and is true just in case \( x \) is an experience of ‘at least as much’ of that kind as \( y \). Thus, if Alfonse watches both The Birds (b) and The Seventh Seal (s) at \( w \), and the latter frightens him more than the former, then we say that \( \epsilon''_{\text{FEAR}}(w)(a)(s) > \epsilon''_{\text{FEAR}}(w)(a)(b) \), i.e. that The Seventh Seal produces a greater amount of fear in Alfonse at \( w \) than The Birds.

We also allow there to be an experience of a ‘zero-degree’ of fear (and likewise with each other experiential kind). This is the direct experience an experiencer has of a stimulus failing to produce the feeling associated with the experiential kind in question. Thus if Alfonse watches The Birds at \( w \) and is not afraid of it at all, \( \epsilon''_{\text{FEAR}}(w)(a)(b) \) is the experience of a zero-degree of fear. This is a different situation from that in which the term is undefined, which happens when Alfonse has not experienced The Birds in such a way that is appropriate to instill fear at all.

An experience \( x \) of kind \( k \) is of a zero-degree of that kind just in case there is no experience \( y \), also of kind \( k \), such that \( x >_k y \). We adopt the convention of writing ‘\( x > 0_k \)’ where \( x \) is an experience of kind \( k \), to mean that \( x \) is an experience of a non-zero degree of kind \( k \). This in turn means an experience is actually productive of the feeling associated with that experiential kind. Thus, if Alfonse watches The Birds and is frightened by it at \( w \), \( \epsilon''_{\text{FEAR}}(w)(a)(b) > 0_{\text{FEAR}} \), and so on. With all this in place, we can produce a denotation for object-experiencer psych verbs. The suffix -en composes with fright to produce the desired result as follows.

\[
\begin{align*}
\text{[frighten]}^{c,w} &= \lambda x_{c.e}.\lambda y_{c.e}.\lambda z_{c.e}.\epsilon''_{c,w}(w)(y)(z) > 0_x \\
\text{[excite]}^{c,w} &= \lambda x_{c.e}.\lambda y_{c.e}.\epsilon''_{c,w}(w)(x)(y) > 0_{\text{EXCITEMENT}} \\
\text{[ment]}^{c,w} &= \lambda x_{c.e}.\lambda y_{c.e}.\epsilon''_{c,w}(w)(y)(z) > 0_{\text{MENT}}
\end{align*}
\]

And the analogous result will hold for any object-experiencer psych verb: they each relate a stimulus to an experiencer, and say that the stimulus produces an experience of a non-zero degree of the associated kind in the experiencer.\(^{32}\) The Birds frightens Alfonse is then

\(^{32}\)As noted above, there are many decisions one could make about how to treat the different psych verbs with respect to their differing morphological relationships to nouns denoting experiential kinds. Thus we might say that \( \text{[excite]}^{c,w} = \lambda x_{c.e}.\lambda y_{c.e}.\epsilon''_{\text{EXCITEMENT}}(w)(x)(y) > 0_{\text{EXCITEMENT}} \), and that \( \text{[ment]}^{c,w} = \)

18
composed as follows (ignoring the inflection on the verb, here and throughout).

\[
(38) \quad [\text{The Birds}[\text{frightens Alfonse}]]^{c,w} = [\text{frighten}]^{c,w}( [\text{Alfonse}]^{c,w}) ([\text{The Birds}]^{c,w})
\]

\[
= [\lambda y_e. \lambda z_e. \epsilon''_{\text{fear}}(w)(y)(z) > 0_{\text{fear}}](a)(b)
\]

\[
= \epsilon''_{\text{fear}}(w)(a)(b) > 0_{\text{fear}}
\]

Thus the sentence is true just in case the movie produces experience of a non-zero degree of fear in Alfonse. It also presupposes that Alfonse has had direct experience of the movie, of the sort appropriate to producing fear: this is because the extension is defined only if ‘\(\epsilon''_{\text{fear}}(w)(a)(b)\)’ is defined, which requires that there be an experience of fear (whether or a zero or non-zero degree) produced in Alfonse by the movie.

We can now offer a semantics for the suffix -ing, which productively attaches to object-experiencer psych verbs to form psych adjectives, and reach our goal of providing a semantics for these experiential predicates. For simplicity, we treat such adjectives, and all experiential adjectives to come, only in their positive forms, and consider them absolute adjectives with a lower-closed scale, in the sense of Kennedy & McNally (2005). And so the positive form of frightening, for instance, will denote a property true of individuals disposed to produce experience of a non-zero degree of fright.\(^{33}\) To do this, we introduce one last bit of notation, to denote experiences of a certain kind that an individual is merely disposed to produce.

\[
(39) \quad \epsilon'_k(w)(x) := \text{the experience of kind } k \text{ that } x \text{ is disposed to produce at } w
\]

Note that this monadic notion differs from the dyadic notion in (35) in being merely dispositional. It further makes no reference to an experiencer: the idea is that it tracks the experience of a certain kind that an individual is disposed to produce simpliciter. This is in turn the experience of that kind that the individual is disposed to produce in a particular experiencer, insofar as that experiencer ‘perceives rightly’ or ‘has good taste.’ In other words, (39) tracks the experiences that a stimulus is ‘actually’ disposed to produce, which experiencers may or may not track by their experiences of that stimulus.\(^{34}\)

\(^{33}\)Of course, a full treatment of these adjectives should incorporate some mechanism for gradability, e.g. by treating them as measure functions in the spirit of Kennedy (2007). As for the scale structure associated with these adjectives, the idea that they are lower-closed absolute adjectives seems to be independently plausible for deverbal psych predicates – it’s another question whether experiential predicates in general behave this way.

\(^{34}\)I do not relativize this dispositional notion to any experiencers, in order to avoid debates about how such experiencer-sensitivity is to be incorporated into the semantics, if at all. The predicates discussed in this paper include many that one might think fall into the category of ‘predicates of personal taste’ in the sense of Lasersohn (2005), and there is an outstanding debate about how to treat the way in which such predicates encode reference to an ‘experiencer,’ ‘judge,’ ‘assessor,’ or what have you. These concerns are in my view irrelevant to the present discussion, so I sidestep them. I also believe independently that there is no reason to encode sensitivity to an experiencer in these predicates, and so what follows is in part proof of concept for a semantics that doesn’t do this: the functions that the inherent experiencer is supposed to take care of, including the ability to handle overt experiencer PPs, tracking the truth judgments of speakers based on their differing experiences, and so on, are all taken care of by other means here, either in the compositional semantics or in the behavior of direct evidentiality. The interested reader committed to some framework in which these predicates do encode experiencer-sensitivity should see how to translate the denotations given here into their preferred setup.
The denotation for -ing, and the composition of frightening, is then as follows, where \(\kappa(R)\) denotes the experiential kind associated with \(R\), that is, that experiential kind \(k\) such that at any world \(w\), \(R\) maps individuals \(x\) and \(y\) to true just in case \(y\) produces an experience of a non-zero degree of \(k\) in \(x\). -ing therefore ‘fetches’ the experiential kind out of the psych verb, and returns a property, true of individuals disposed to produce an experience of a non-zero degree of that kind simpliciter.

\[
\text{[-ing]}_{c,w}^{w} = \lambda R_{s,(e,et)} \cdot \lambda x_e \cdot \epsilon'_{\kappa(R)}(w)(x)
\]

\[
\text{[frightening]}_{c,w}^{w} = \text{[-ing]}_{c,w}^{w} (\lambda w_s, \text{[frighten]}_{c,w}^{w}) \\
= [\lambda R_{s,(e,et)} \cdot \lambda x_e \cdot \epsilon'_{\kappa(R)}(w)(x)](\lambda w_s \cdot \lambda x_e \cdot \lambda y_e \cdot \epsilon''_{\text{FEAR}}(w)(x)(y) > 0_{\text{FEAR}}) \\
= \lambda x_e \cdot \epsilon''_{\text{FEAR}}(w)(x) > 0_{\text{FEAR}}
\]

The result is as desired, and generalizes to other psych adjectives.

Finally, we show how this treatment of deverbal psych adjectives allows them to compose with overt experiencers, such as to-headed PPs. To do this, one more piece of notation is required: we introduce the notion of experiential alternatives, or a set of worlds anchored on an experiencer at a world, compatible with the experiences of whatever kinds are produced in that individual by stimuli. An individual’s experiential kinds, in other words, track the way the world is ‘according to that individual’s experiences,’ in the sense that in all these alternatives, every individual is disposed to produce an experience of the relevant kind just in case that individual actually produces that experience in the experiencer at the anchor-world. Where \(k\) is a variable over experiential kinds, \(x\) and \(y\) are variables over individuals, and \(w\) and \(w'\) are variables over worlds:

\[
Exp_{x,w} := \{w' : \forall y, k[\epsilon'_k(w')(y)](y) = \epsilon''_k(w)(x)(y)\}
\]

Thus if at \(w\), \(y\) produces an experience of kind \(k\) in \(x\), then in all \(x\’s\) experiential alternatives \(w'\) at \(w\), \(y\) is disposed to produce that experience simpliciter, and vice-versa. The two values track each other, such that where one is defined or undefined, so is the other, and where defined, they are identical.

An overt experiencer, in the form of a to-headed PP, then modifies a predicate, returning a new predicate that is true just in case the original predicate is true in all of the experiencer’s experiential alternatives. The denotation of to is as follows, along with the composition of The Birds is frightening to Alfonse (assuming that the copula is vacuous).

\[
\text{[to]}_{c,w}^{w} = \lambda x_e \cdot \lambda P_{s,et} \cdot \lambda y_e \cdot \forall w' \in Exp_{x,w}[P(w')(y)]
\]

\[
\text{[to Alfonse]}_{c,w}^{w} = \text{[to]}_{c,w}^{w} ([\text{Alfonse}]_{c,w}^{w}) \\
= [\lambda x_e \cdot \lambda P_{s,et} \cdot \lambda y_e \cdot \forall w' \in Exp_{x,w}[P(w')(y)]](a) \\
= \lambda P_{s,et} \cdot \lambda y_e \cdot \forall w' \in Exp_{p,a,w}[P(w')(y)]
\]

\[
\text{[frightening [to Alfonse]]}_{c,w}^{w} = \text{[to Alfonse]}_{c,w}^{w} (\lambda w_s, \text{[frightening]}_{c,w}^{w}) \\
= [\lambda P_{s,et} \cdot \lambda y_e \cdot \forall w' \in Exp_{p,a,w}[P(w')(y)]](\lambda w_s \cdot \lambda x_e \cdot \epsilon''_{\text{FEAR}}(w)(x) > 0_{\text{FEAR}}) \\
= \lambda y_e \cdot \forall w' \in Exp_{p,a,w}[\epsilon''_{\text{FEAR}}(w')(y) > 0_{\text{FEAR}}]
\]

\[
\text{[The Birds [is [frightening [to Alfonse]]]]}_{c,w}^{w} = \text{[frightening [to Alfonse]]}_{c,w}^{w} ([\text{The Birds}]_{c,w}^{w}) \\
[\lambda y_e \cdot \forall w' \in Exp_{p,a,w}[\epsilon''_{\text{FEAR}}(w')(y) > 0_{\text{FEAR}}]](b)
\]
∀w′ ∈ Exp_a,w[ε′_F_E_A_R(w′)(b) > 0_F_E_A_R]

Since by definition, ‘ε′_F_E_A_R(w′)(b)’ has the same value as ‘ε″_F_E_A_R(w)(a)(b),’ for all Alfonse’s experiential alternatives w′, we can preserve the meaning of (46) by replacing the former with the latter, and the result is as follows.

(47) \[ \forall w′ ∈ Exp_a,w[ε″_F_E_A_R(w)(a)(b) > 0_F_E_A_R] \]
\[ = ε″_F_E_A_R(w)(a)(b) > 0_F_E_A_R \]

Where the universally quantified statement is defined only if what the quantifier attaches to is defined on every assignment, the result is that this denotation is defined only where ‘ε″_F_E_A_R(w)(a)(b)’ is, and therefore is defined only if The Birds has produced an experience of fear (whether of a zero or non-zero degree) in Alfonse at w. Thus, The Birds is frightening to Alfonse presupposes that Alfonse has had direct experiential contact with The Birds of the sort appropriate to produce fear. The denotation is true, where defined, just in case that experience of fear is of a non-zero degree, i.e. just in case The Birds frightens Alfonse. This means that The Birds is frightening to Alfonse is synonymous with The Birds frightens Alfonse (cf. (38)). 35

Thus we see that the composition of deverbal psych adjectives encodes inherent sensitivity to quality of experience, which is in turn derived from their reference to experiential kinds. Section 4.3 will show how this semantics, combined with direct evidentiality, results in affective acquaintance inferences.

### 3.2 Sensory verbs

We now provide a semantics for sensory verbs, like look, as they occur in the construction ‘x look adj,’ etc. 36 We take as our example (5-a), repeated here as (48). Our treatment of it will then generalize to other sensory modalities and adjectives.

(48) Alfonse looks tired.

(48) states that the visual experience that Alfonse is disposed to produce provides evidence that he is tired. Its treatment will therefore be analogous to that of deverbal psych adjectives, which as we saw in Section 3.1 likewise take part in expressing propositions about experiential dispositions. Again, production of experience is read in some suitably ‘direct’ way: it is a stimulus ‘visual facade’ that is at issue, not its tendency to cause experiencers to see things more generally (say, by showing them films).

To encode the notion of experience through the sensory modality of vision, we invoke a new kind of experience, vis, and in parallel to (35) and (39) in Section 3.1, we define both

---

35 This account of experiencer phrases does not explain why they are limited in their distribution, and don’t occur with non-experiential predicates, i.e. *tiny to Alfonse. I’m not quite sure what should be made of this restriction, so I leave this issue to the side.

36 These verbs occur in a variety of other constructions that I won’t deal with here, including: (i) with non-finite, non-small clauses (Alfonse looks to be tired) [apparently only available with look], (ii) with expletive subjects and like-complementizers (It looks like Alfonse is tired), and (iii) in ‘copy-raising’ constructions (Alfonse looks like he’s tired).
a monadic notion of disposition to produce experience of a visual kind at a world, and a dyadic notion of producing visual experience in an experiencer at a world.

\[(49)\]
\[a.\] \[\epsilon'_{\text{vis}}(w)(x) := \text{the visual experience that } x \text{ is disposed to produce at } w\]
\[b.\] \[\epsilon''_{\text{vis}}(w)(x)(y) := \text{the visual experience that } y \text{ produces in } x \text{ at } w\]

As before, the monadic notion is dispositional, while the dyadic notion is not, and we appeal in the former to the visual experience that a stimulus is disposed to produce \textit{simply} at a world.

We next introduce a notion of experience of a certain sort \textit{evidencing} a proposition, i.e. providing evidence that a proposition is true. To do this, we introduce the relation ‘\textit{evid}’,

\[(50)\]
\[\text{evid}''(w)(x)(p) \iff \text{def at } w, x \text{ provides evidence that } p\]

We read the lefthand expression, which denotes a truth value, as ‘\textit{x evidences } p \text{ at } w’.

We’re now in a position to provide a denotation for \textit{look}. It composes with the intension of a property, and then an individual, and returns true just in case the visual experience that said individual is disposed to produce evidences the proposition that said individual has that property.

\[(51)\]
\[\text{look}^{c,w} = \lambda P_{s,e,t} \lambda x_{e}.\text{evid}''(w)(\epsilon'_{\text{vis}}(w)(x))(\lambda w_{s}' P(w')(x))\]

To see how this works, we perform the composition of \textit{Alfonse looks tired} using this denotation. First, given a standard property denotation for \textit{tired} (52), we compose \textit{look} with this via intensional function application to form the type-\langle e, t \rangle expression \textit{look tired} (53).

\[(52)\]
\[\text{tired}^{c,w} = \lambda x_{e}.\text{tired}'(w)(x)\]

\[(53)\]
\[\text{look tired}^{c,w} = [\text{look}]^{c,w}(\lambda w_{s}.[\text{tired}]^{c,w})\]
\[= [\lambda P_{s,e,t} \lambda x_{e}.\text{evid}''(w)(\epsilon'_{\text{vis}}(w)(x))(\lambda w_{s}' P(w')(x))](\lambda w_{s}, \lambda x_{e}.\text{tired}'(w)(x))\]
\[= \lambda x_{e}.\text{evid}''(w)(\epsilon'_{\text{vis}}(w)(x))(\lambda w_{s}' \text{tired}'(w')(x))\]

We end up with an expression that denotes a property true of an individual \(x\) just in case the visual experience that \(x\) is disposed to produce evidences that \(x\) is tired. Then the subject composes with \textit{look tired} to yield the result in (54).

\[(54)\]
\[\text{Alfonse [looks tired]}^{c,w} = [\text{look tired}]^{c,w}([\text{Alfonse}]^{c,w})\]
\[= [\lambda x_{e}.\text{evid}''(w)(\epsilon'_{\text{vis}}(w)(x))(\lambda w_{s}' \text{tired}'(w')(x))](a)\]
\[= \text{evid}''(w)(\epsilon'_{\text{vis}}(w)(a))(\lambda w_{s}' \text{tired}'(w')(a))\]

We end up with the desired result: \textit{Alfonse looks tired} is true just in case the visual experience that Alfonse is disposed to produce evidences that Alfonse is tired.

A couple features of this analysis bear commenting on before moving on. First, this denotation for \textit{look} is not quite what one might expect given its traditional treatment as a raising verb: it composes not with a proposition, but with both a property and an individual. The reason for this is that if the subject is a semantic argument to \textit{look}, then its denotation can be ‘recovered,’ and used in the composition as the stimulus of the visual evidence. If one were to take \textit{look} to compose only with a proposition, say the proposition denoted by
the small clause *Alfonse tired*, this wouldn’t be possible: Alfonse cannot be recovered from the proposition that Alfonse is tired, which is just a function from worlds to truth values.

Alfonse in turn must be situated as the stimulus of visual experience, because *Alfonse looks tired*’s truth conditions require that the visual experience produced by Alfonse himself evidence that he is tired: it is not enough that there is visual evidence generally that Alfonse is tired. This can be seen from the sorts of experiential presuppositions and acquaintance inferences to which the sentence gives rise: *Alfonse looks tired to Bethany* presupposes that Bethany has seen Alfonse in particular, and an assertion of *Alfonse looks tired* commits the speaker to having seen Alfonse himself.

Thus one cannot, on seeing Alfonse’s work desk while Alfonse is absent, which has a pillow sitting on top of it, felicitously say ?*Alfonse looks tired*. There is visual evidence that Alfonse is tired – but this is not enough, since Alfonse is not its stimulus. Note that this is not so for all types of clauses with sensory verbs: *It looks like Alfonse is tired* is indeed felicitous in such a situation. This in turn makes it plausible that, mirroring its overt structure, *look* in this expletive construction really does compose just with a proposition, and its truth conditions are just that there is some visual evidence or other that Alfonse is tired. There are many decisions one could make about this at the syntax-semantics interface, but I won’t address them here.

Second, note that the truth conditions of *Alfonse looks tired* say nothing about whether Alfonse is tired. It is perfectly consistent for Alfonse to look tired, but not be tired, or not to look tired, but be tired. Furthermore, this requires no visual defect in experiencers: even ‘accurate’ assessments of Alfonse’s visual profile might evidence that he is tired, while he is not, and so forth.38

The analysis now generalizes to the other sensory verbs: there is a corresponding kind of experience for *sound*, *feel*, *smell*, and *taste*: call them AUD, TAC, OLF, and GUS, respectively. The denotation e.g. for *sound* is then predictable.

\[
\text{[sound]}^{c,w} = \lambda P_{s,e.t} \cdot \lambda x_e \cdot \text{evid}'(w)(e'_{\text{aud}}(w)(x))(\lambda w', P(w')(x))
\]

Thus *The music sounds Bulgarian (5-b)* is true just in case the auditory experience that the music is disposed to produce evidences that it’s Bulgarian, and so on.

Experiencer PPs then automatically compose with the result of composing sensory verbs with adjectives, and yield the correct presuppositions of direct experience when they do: we simply import the denotation for *to* from (43) in Section 3.1, repeated here as (56). We demonstrate the result by composing *Alfonse looks tired to Bethany*.

\[
\text{[to]}^{c,w} = \lambda P_{s,e.t} \cdot \lambda y_e \cdot \forall w' \in \text{Exp}_{x,w}[P(w')(y)]
\]

\[
\text{[to Bethany]}^{c,w} = \lambda P_{s,e.t} \cdot \lambda y_e \cdot \forall w' \in \text{Exp}_{x,w}[P(w')(y)]
\]

\[
\text{[look tired]}^{c,w} = \lambda x_e \cdot \text{evid}(w)(e'_{\text{vis}}(w)(x))(\lambda w', \text{tired'}(w')(x))
\]

37 Neither the observation that certain clausal structures with sensory verbs require that the subject be the stimulus of experience, nor the proposal to treat these verbs as composing with both an individual and a property instead of a proposition in order to handle this fact, are novel. See Asudeh & Toivonen (2012) for a similar analysis for these verbs in Germanic copy-raising constructions.

38 There will in turn be normative questions in this area, over which speakers can disagree, about what sorts of experience evidence which propositions. But I take it that the semantics of *look* does not decide on these matters.
J are identical for all of Bethany’s experiential alternatives (60), we can replace ‘c’(w)(y)’ with ‘c’(w)(b)(y),’ since we know by definition that these are identical for all of Bethany’s experiential alternatives w. We thus get (61), and on composing with the subject Alfonse, the result is as in (62).

\[
\begin{align*}
\text{Exp}_{x,w} := \{ w' : \forall y, k[c'_w(y)](y) = c'_k(x)(y)(y) \} \\
\text{[[looks tired] [to Bethany]]}^{c,w} = \lambda y.\forall w' \in \text{Exp}_{b,w}[\text{evid}''(w')(c''_{vis}(w')(b))(\lambda w'.\text{tired}'(w')(y))]
\end{align*}
\]

What does this mean? First, note that it correctly presupposes that Alfonse produces visual experience in Bethany: this is required by the fact that ‘c’(w)(b)(a)’ must be defined if the expression in (62) is to be defined. If the former is defined, then there is some visual experience that Alfonse has (in the appropriate ‘direct’ manner) produced in Bethany at w the world of evaluation: that is, Bethany has seen Alfonse.

As for what (62) asserts, it is true (where the presupposition is met) just in case the visual experience that Alfonse actually produces in Bethany evidences, in all of her experiential alternatives, that Alfonse is tired. This means that Bethany’s visual experience of Alfonse has a certain evidential status: insofar as that experience tracks the visual experience that Alfonse has actually disposed to produce, it evidences that Alfonse is tired. Thus, as long as is seeing things aright, her visual experience of Alfonse does indeed evidence that he is tired. And if she is not seeing aright, perhaps because she is hallucinating, then it does not. So long as is seeing things aright, her visual experience of Alfonse does indeed evidence that he is tired. And if she is hallucinating, then it does not.

And so we see that the composition of sensory verbs with adjectives creates a sensitivity in the semantics to modality of experience, but not quality of experience, in the sense that deverbal psych adjectives do. We’ll see in Section 4.2 how this results in sensory acquaintance inferences.

### 3.3 Back to the original examples

With the above said, we’re in a position to circle back to our original examples of experiential predicates, like delicious and funny. These can be analyzed as involving the same sort of sensitivity to experiential kinds and sensory modalities as deverbal psych adjectives and sensory verbs: the difference is that their sensitivity is apparently not compositionally derived, and so is opaquely packaged in a simplex predicate. Nevertheless, we can retroject the results from Sections 3.1 and 3.2 back onto these examples, whose behavior is so similar.
to the transparent cases.

First, for funny, we simply say that in its positive form it predicates a disposition to produce a non-zero degree of a comedic experiential kind. There is no English noun colloquially denoting this kind, but nonetheless the predicate tracks it: call it HILARITY.

\[[\text{funny}]^{c,w} = \lambda x.\epsilon'_\text{HILARITY}(w)(x) > 0_{\text{HILARITY}}\]

Thus, funny things are those that are disposed to produce feelings of hilarity. Delicious is a more complex case, since it fuses a sensitivity to the sensory modality of taste with the experiential kind PLEASURE in a simplex predicate. This multiform sensitivity can be explicated by taking another detour through the semantics of sensory verbs.

While in Section 3.2 we dealt with sensory verbs in the construction ‘x look ADJ,’ and so on, that state that an object evidences some proposition by the experience it is disposed to produce, this is not the only function of this construction. In particular, where ADJ is itself an experiential predicate, this construction can sometimes be interpreted as predicating an experiential property of the disposition to sensory experience itself.

\[[\text{sound}]^{c,w} = \lambda P_{et}.\lambda x.e'_\text{AUD}(w)(x)\]

We then compose Alfonse sounds funny as follows.

\[[\text{Alfonse sounds funny}]^{c,w} = [\text{Alfonse}]^{c,w}([\text{sounds funny}]^{c,w})\]

\[[\text{Alfonse sounds funny}]^{c,w} = \epsilon'_\text{HILARITY}(w)(\epsilon'_\text{AUD}(w)(a)) > 0_{\text{HILARITY}}\]

Thus, Alfonse sounds funny is true just in case the auditory experience that Alfonse is disposed to produce is disposed to produce feelings of hilarity.

---

\(^{39}\text{Some related observations about the verb sound can be found in Lasersohn (1995). For some reason, only this construction with sensory verbs seems to license this reading: it is not available in any of the related constructions noted in fn. 36. Lasersohn also discusses a different interpretation of sound, according to which it tracks not auditory evidence, but reportative evidence. I ignore this interpretation here.}\)
This sort of treatment then retrojects easily to delicious, which is true of individuals when the gustatory experience that they are disposed to produce is disposed to produce pleasure. A denotation for the positive form of delicious could then be as follows (ignoring, for simplicity, that it is an extreme adjective). That is to say, we correctly assimilate the denotation of delicious to that of taste pleasing on the above analysis, as the reader can confirm.

\[
\text{[delicious]}^{c,w} = \lambda x_e. \epsilon'_{\text{PLEASURE}}(w)((\epsilon'_{\text{GUS}}(w)(x))) > 0_{\text{PLEASURE}}
\]

This sort of denotation, both for sound funny and delicious, correctly predicts that overt experiencers will give rise to implications both regarding sensory modality and quality of experience. Alfonse sounds funny to Bethany presupposes both that Bethany has heard Alfonse, and that this auditory experience has produced an experience of hilarity in her, and it states that this experience of hilarity is of a non-zero degree. Tripe is delicious to Alfonse presupposes both that Alfonse has tasted tripe, and that this gustatory experience has produced an experience of pleasure in him, and it states that this experience of pleasure is of a non-zero degree. I show the relevant composition just for delicious here.

\[
\text{[delicious [to Alfonse]]}^{c,w} = \text{[to Alfonse]}^{c,w}(\lambda w_s. \text{[delicious]}^{c,w})
\]

\[
= [\lambda P_{s,t} \cdot \lambda y_e. \forall w' \in Exp_{a,w}[P(w')(y)]((\lambda w_s. \lambda x_e. \epsilon'_{\text{PLEASURE}}(w)((\epsilon'_{\text{GUS}}(w)(x))) > 0_{\text{PLEASURE}})]
\]

\[
= \lambda y_e. \forall w' \in Exp_{a,w}[\epsilon''_{\text{PLEASURE}}(w)((\epsilon''_{\text{GUS}}(w)(y))) > 0_{\text{PLEASURE}}]
\]

\[
= [\lambda y_e. \epsilon''_{\text{PLEASURE}}(w)(a)((\epsilon''_{\text{GUS}}(w)(a)(t))) > 0_{\text{PLEASURE}}](t)
\]

(70), due to the definedness conditions of ‘\(\epsilon''_{\text{GUS}}(w)(b)(t)\),’ presupposes that tripe has produced gustatory experience in Alfonse, i.e. that Alfonse has tasted tripe. Further, due to the definedness conditions on ‘\(\epsilon''_{\text{GUS}}(w)(a)(\epsilon''_{\text{GUS}}(w)(a)(t))\),’ it presupposes that the gustatory experience that tripe produces in Alfonse has produced an experience of pleasure in Alfonse. It states that this experience of pleasure that the gustatory experience produces is of a non-zero degree.

There is a small class of adjectives in English that may show this sensitivity to sensory modality more transparently. Tasty, for instance, looks morphologically related to taste. If we take the latter to be a relational noun denoting a relation between individuals and their disposition to produce gustatory experience (as in the taste of the tripe or the tripe’s taste), then it is tempting to decompose the predicate as follows, where the sensitivity to sensory modality, and the quality of the experience, are contributed by separate morphemes.\(^{40}\)

\[
\text{[taste]}^{c,w} = \lambda x_e. \lambda y_e. y = \epsilon'_{\text{GUS}}(w)(x)
\]

\(^{40}\)There is also a somewhat more productive morphological mechanism in English that incorporates sensory verbs into adjectives, using what looks like the very same deverbalizing -ing seen in deverbal psych adjectives. Thus we have good-looking, funny-sounding, etc. The behavior of these adjectives is somewhat mysterious to me, but they look to form a promising avenue for future research in decomposing sensitivity to sensory versus qualitative aspects of experience.
(72) \[ [-y]^{c,w} = \lambda R_{e,et} \cdot \lambda x_e \cdot \epsilon'_{\text{pleasure}}(w)(\iota z[R(x)(z)]) > 0_{\text{pleasure}} \]

(73) \[ [\text{tasty}]^{c,w} = [-y]^{c,w}([\text{taste}]^{c,w}) \]
\[ = [\lambda R_{e,et} \cdot \lambda x_e \cdot \epsilon'_{\text{pleasure}}(w)(\iota z[R(x)(z)]) > 0_{\text{pleasure}}](\lambda x_e \cdot \lambda y_e \cdot y = \epsilon'_{\text{gus}}(w)(x)) \]
\[ = \lambda x_e \cdot \epsilon'_{\text{pleasure}}(w)(\iota z[z = \epsilon'_{\text{gus}}(w)(x)]) > 0_{\text{pleasure}} \]
\[ = \lambda x_e \cdot \epsilon'_{\text{pleasure}}(w)(\epsilon'_{\text{gus}}(w)(x)) > 0_{\text{pleasure}} \]

Hopefully, cross-linguistic investigation can yield more transparent morphological processes of this sort, to further elucidate the way predicates incorporate both sensitivity to sensory modality and quality of experience. Section 4.4 will show how these complex sensitivities transfer to acquaintance inferences.

4 Deriving acquaintance inferences

With the semantics from Section 3 in hand, a derivation of acquaintance inferences can be given, by showing how direct evidentiality interacts with experiential predicates. Section 4.1 provides a working semantics for direct evidentiality, and relates it to the notion of experiential alternatives. The following sections then give sample derivations of acquaintance inferences in all their variety: Section 4.2 showcases sensory acquaintance inferences, Section 4.3 affective inferences, and Section 4.4 mixed inferences arising from predicates that are sensitive to sensory modality and quality of experience simultaneously.

4.1 The semantics of direct evidentiality

We now provide a semantics for direct evidentiality, in order to show how it interacts with the experiential semantics provided in Section 3 to produce acquaintance inferences. I don’t intend for this treatment to be novel or controversial: the goal is to use as minimal and independently plausible an account of direct evidentiality as possible, and to demonstrate structurally how it interacts with experiential semantics.

There are two key components to direct evidentiality, as it interacts with assertions, that any semantic analysis of direct evidentials must incorporate. First, direct evidentials encode a speaker-oriented commitment to having perceptual or ‘firsthand’ evidence of the asserted proposition.\(^{41}\) Second, evidentials generally, and direct evidentials included, make this commitment at a ‘not-at-issue’ level of content. That is, the commitment by the speaker to the evidence does not form part of what is asserted as the content of the primary speech act, it tends to outscope all compositional operators, and it is typically not directly challengeable in conversation (see Murray 2017: §§2.1-2.2 for diagnostics showing this).

We begin with the first component by following Izvorski (1997), who treats indirect evidentials as quantifiers over worlds compatible with some state of an individual. We will remain agnostic as to her stronger claim that evidentials are to be assimilated to Kratzerian modals. Instead, we simply introduce the notion of perceptual alternatives relative to an

\(^{41}\)This is likely a simplification, in view of the fact that when these propositions are questioned in many languages, ‘origo flip’ results, causing the evidential commitment to be targeted at the addressee (cf. Aikhenvald 2004: 245-248). Evidentials thus don’t seem to anchor to the speaker in the same way that first-person marking does. I ignore this issue here.
individual and world, and take these to govern direct evidentials by analogy. These are to be taken as counterparts to the traditional doxastic alternatives: where the doxastic alternatives of an individual are those worlds compatible with the individual’s beliefs, perceptual alternatives are those worlds compatible with an individual’s perceptions.

\[(74) \quad \text{Per}_{x,w} := \{w' : w' \text{ is compatible with the perceptions of } x \text{ at } w\}\]

With one crucial exception that will come at the end of this section, we leave this gloss at an intuitive level: if an individual \(x\) perceives that \(p\) at \(w\), (‘perceives’ read non-factively, to allow for faulty perceptions), it follows that \(\forall w' \in \text{Per}_{x,w}[p(w')]\). A direct evidential will commit the speaker at a context of utterance to having all her perceptual alternatives verify the asserted proposition.

For the second component, we introduce a makeshift technical device. We allow the denotation of some expressions to be an ordered pair. If a denotation is an ordered pair whose first member is type \(t\), and whose second member is a proposition, we say that the first member is the traditional denotation of the expression, representing the extension of the ordinary at-issue content of an assertion made using that expression. The second member is then the not-at-issue proposition to which the speaker of the expression commits in virtue of making such an assertion.

The at-issue extension behaves as usual, while the not-at-issue proposition behaves in whatever way one wants to model not-at-issue conversational update: it can be inserted directly into the common ground, not create discourse referents targetable by propositional anaphora, etc. This is not meant to offer a serious treatment of not-at-issue content generally, or a full pragmatics of evidentiality: for a more sophisticated update mechanism involving evidentials handling both at-issue and not-at-issue contents, see Murray (2017), implementing tools from Bittner (2011). For present purposes, it serves only to flag the distinction between the two types of content that assertions with evidentials make use of.

We then say that a marker of direct evidentiality \textsc{dir} is a function from propositions to ordered pairs: it returns that ordered pair consisting of the extension of the proposition in question, and a second proposition, viz. that the perceptual alternatives of the context’s speaker \(s_c\) verify the first proposition.

\[(75) \quad \text{[dir]}^{c,w} = \lambda p_{\text{at}}.\langle p(w), \lambda w', \forall w'' \in \text{Per}_{s_c,w}[p(w'')]\rangle\]

Thus \textsc{dir} represents a commitment by the speaker to having a direct evidential source for an asserted proposition. To see how this works, take an English example with a non-experiential predicate, (2-b), repeated here as (76).

\[(76) \quad \text{Egyptian fruit bats are tiny.}\]

Taking the subject for simplicity to denote \(b\), the kind of the Egyptian fruit bat, the extension of (76) is as follows.

\[(77) \quad \text{[Egyptian fruit bats] [are [tiny]]]}^{c,w} = \text{tiny}'(w)(b)\]

This can then compose with the denotation of \textsc{dir}, to represent the semantic result of a direct evidential composing with the sentence.
And so to make an assertion using the sentence in question with commitment to a direct evidential source is (i) to assert an at-issue proposition, the extension of which is true just in case the Egyptian fruit bat is tiny, and (ii) to commit in virtue of this assertion to a not-at-issue proposition, that the speaker’s perceptual alternatives verify this proposition. In other words, the speaker must have direct perceptual evidence for the bats’ being tiny, and so must have witnessed their size, rather than having heard about it, etc. Note that no acquaintance inference arises here, in the sense discussed above: this perceptual evidence neither needs to come by any sensory modality in particular, nor to have any particular quality. There simply must be some perceptual experience verifying the relevant proposition.

Since English is a language that lacks grammaticized evidentials, there is plausibly no English expression corresponding to \textsc{dir}, and the intention is not to propose that there is, or to claim that assertions in English covertly encode direct evidentiality semantically in the way that a genuine grammaticized evidential does. The point is instead to show the function of commitment to a direct evidential source for a proposition using a hypothetical dummy lexical item. In other words, the denotation in (78) represents the effect of assertion while committing to a direct evidential source, regardless of how that latter commitment comes about. Section 4.3 will show a ‘real’ example in Standard Tibetan using a genuine evidential expression, and Section 5.2 will take up the question of the non-grammaticized commitment to direct evidential source in languages without grammaticized evidentials.

In order to derive acquaintance inferences, we make one final crucial stipulation about the way that experiential alternatives and perceptual alternatives interrelate: an individual’s perceptual alternatives at a world are a subset of its experiential alternatives at that world. So where \( x \) is a variable over individuals, and \( w \) a variable over worlds:

\[
\text{(79)} \quad \text{For all } x, w: \quad \text{Per}_{x, w} \subseteq \text{Exp}_{x, w}.
\]

What this says is that part of what it means for a world to be compatible with an individual’s perceptual alternatives is for it to be compatible with its experiential alternatives. This is independently plausible: in all those worlds \( w' \) that actually are as \( x \) perceives \( w \) to be (members of \( \text{Per}_{x, w} \)), individuals in \( w' \) will be disposed to produce experiential kinds equivalent to what they produce in \( x \) in \( w \) as well. In other words, to perceive the world accurately consists in part of having the experiential kinds (and amounts of those kinds) produced in one by stimuli track the experiential kinds (and their amounts) that those stimuli are actually disposed to produce \textit{simpliciter}. If an individual is frightened by something that isn’t actually frightening, this amounts of a mistaken perception: its experiential alternatives, and therefore its perceptual alternatives, will therefore not contain the actual world.

\[42\text{This will change for languages with direct evidentials that encode sensory modality within direct evidentials as well, most paradigmatically visual evidence or non-visual evidence. But cross-linguistically, this limitation to a sensory modality is not a general feature of direct evidentiality.}\]
4.2 Sensory acquaintance inferences

In Section 1, it was shown that sensory acquaintance inferences, which have to do with the experience through a particular sensory modality that a speaker is committed to having, arise from the composition of sensory verbs like look with adjectives. We now derive a sensory acquaintance inference by showing how commitment to a direct evidential source results in a commitment to visual experience when a speaker utters the English sentence Alfonse looks tired. We do this using the dummy direct evidential DIR, keeping in mind the caveat from Section 4.1 that his is meant to represent a commitment to direct evidence and not a lexical item in English.

Recall the denotation of Alfonse looks tired: it is true just in case the visual experience that Alfonse is disposed to produce evidences that Alfonse is tired (cf. (54), repeated here as (80)).

\[
\text{[Alfonse [looks tired]]}^{\text{c,w}} = \text{evid}''(w)(\epsilon_{\text{vis}}'(w)(a))(\lambda w'_s.\text{tired}'(w')(a))
\]

Composing with DIR gets the following result.

\[
\text{[DIR [Alfonse [looks tired]]]}^{\text{c,w}} = \\
\text{[DIR]}^{\text{c,w}}(\lambda w_s.\text{[Alfonse [looks tired]]}^{\text{c,w}}) \\
= [\lambda p_{st}, p(w), \lambda w'_s, \forall w'' \in \text{Per}_{s_c, w'}[p(w'')]](\lambda w_s.\text{evid}''(w)(\epsilon_{\text{vis}}'(w)(a))(\lambda w'_s.\text{tired}'(w')(a))) \\
= (\text{evid}''(w)(\epsilon_{\text{vis}}'(w)(a))(\lambda w'_s.\text{tired}'(w')(a)), \lambda w'_s, \forall w'' \in \text{Per}_{s_c, w'}[\text{evid}''(w'')(\epsilon_{\text{vis}}'(w'')(a))(\lambda w''_s.\text{tired}'(w''')(a))])
\]

And so in making an assertion using Alfonse looks tired while committing to a direct evidential source for this claim, the speaker: (i) asserts the at-issue content whose extension is true just in case the visual experience that Alfonse is disposed to produce evidences that Alfonse is tired, and (ii) commits to the truth of the not-at-issue content, which is the proposition that his perceptual alternatives verify this same proposition.

But recall from Section 4.1 that an individual’s perceptual alternatives are a subset of its experiential alternatives (74). It follows by the definition of experiential alternatives that ‘\(\epsilon_{\text{vis}}'(w')(a)\)’ in the second member of the ordered pair that forms the denotation in (81) can be replaced with ‘\(\epsilon_{\text{vis}}''(w')(s_c)(a)\).’ The reason for this is that every perceptual alternative is also an experiential alternative: and by definition, the visual experience that Alfonse is disposed to produce simpliciter in all of \(s_c\)’s experiential alternatives at \(w'\) is equivalent to the visual experience actually produced by Alfonse in \(s_c\) at \(w'\). Simplifying the notation, the not-at-issue proposition to which the speaker commits is therefore as follows.

\[
\lambda w_s, \forall w' \in \text{Per}_{s_c, w'}[\text{evid}''(w')(\epsilon_{\text{vis}}''(w)(s_c)(a))(\lambda w''_s.\text{tired}'(w''')(a))]
\]

This is the proposition that at all the speaker’s perceptual alternatives \(w'\), the visual experience that Alfonse actually produces in the speaker at \(w\) the world of evaluation evidences the proposition that Alfonse is tired. This proposition is true only if ‘\(\epsilon_{\text{vis}}''(w)(s_c)(a)\)’ is defined, which requires that there be some visual experience that Alfonse has produced in the speaker at the world of evaluation, i.e. that the speaker has seen Alfonse. In committing to this proposition’s truth, in virtue of it forming the not-at-issue content of the expression, the speaker therefore commits to having seen Alfonse, and the sensory acquaintance inference is
The non-presuppositional portion of the not-at-issue proposition then simply says that the speaker’s perceptual alternatives all verify that this visual experience of Alfonse that the speaker has evidences that Alfonse is tired, in other words, that the speaker’s visual experience evidences that Alfonse is tired, insofar as he perceives aright. Speakers can then dispute as normal over the at-issue proposition of the assertion, i.e. as to whether Alfonse really does look tired, but the speaker’s commitment, that Alfonse looks tired to him, is secured in virtue of the not-at-issue content automatically, and must be challenged by indirect means. This result generalizes straightforwardly to other sensory verbs and adjectives.

And so we see that speakers commit to acquaintance inferences not in virtue of the at-issue content of the propositions they assert, but via the not-at-issue content independently contributed by the direct evidentiality. The contribution of the commitment to an evidential source then interacts with the independently-motivated experiential semantics to yield the desired result. The speaker-orientation of the inference in turn also derives from the speaker-orientation of evidentiality generally.

It’s worth seeing how this inference interacts with ordinary truth-functional negation, to demonstrate both that the inference projects, and that it can’t be targeted by external negation. For simplicity, taking doesn’t to denote predicate negation (83), we compose Alfonse doesn’t look tired, with a direct evidential commitment, as follows.

\[
\text{[look tired]}^{c,w} = \lambda x_e. \overline{\text{evid}}'(w)(\epsilon'_{\text{vis}}(w)(x))(\lambda w'_s. \text{tired}'(w')(x))
\]

\[
\text{[doesn’t [look tired]]}^{c,w} = \lambda x_e. \overline{\text{evid}}'(w)(\epsilon'_{\text{vis}}(w)(x))(\lambda w'_s. \text{tired}'(w')(x))
\]

\[
\text{[DIR [Alfonse [doesn’t [look tired]]]}^{c,w} = \overline{\text{evid}}''(w)(\epsilon''_{\text{vis}}(w)(a))(\lambda w'_s. \text{tired}'(w')(a)), \\
\lambda w'_s, \forall w'' \in \text{Per}_{s_c,w} \overline{\text{evid}}''(w'')(\epsilon''_{\text{vis}}(w'')(a))(\lambda w''_s. \text{tired}'(w'')(a))]
\]

What the speaker commits to in virtue of the not-at-issue content is that all of her perceptual alternatives verify the proposition that the visual experience that Alfonse is disposed to not evidence that he is tired. We then substitute, as above, ‘\(\epsilon''_{\text{vis}}(w'')(a)\)’ with ‘\(\epsilon''_{\text{vis}}(w'')(s_c)(a)\),’ and again simplify the notation, to get the following not-at-issue proposition to which the speaker commits.

\[
\lambda w_s. \forall w'' \in \text{Per}_{s_c,w} \overline{\text{evid}}''(w'')(\epsilon''_{\text{vis}}(w'')(s_c)(a))(\lambda w''_s. \text{tired}'(w'')(a))]
\]

Where ‘\(\overline{\sim}\)’ yields a defined value only if an operand is defined, this proposition is true only where ‘\(\epsilon''_{\text{vis}}(w'')(s_c)(a)\)’ is defined, hence only if the speaker has seen Alfonse. So in committing to the truth of this proposition, the speaker again commits to having seen Alfonse, and so the inference projects as desired. However, the non-presuppositional part of the not-at-issue proposition carries the negation: the speaker commits to the visual experience that Alfonse produced in her not evidencing that he is tired, insofar as she perceives aright.

Note further that insofar as negation composes with the at-issue content of an expression, it will be unable to target the not-at-issue content, and so not even external negation that...
voids presuppositions carried by at-issue content should be able to cancel the acquaintance inference, explaining the infelicity of ?Alfonse doesn’t look tired, because I haven’t seen him (cf. (14)). The not-at-issue commitment that the speaker incurs must also, like the commitments imposed by grammaticized evidentials, be such that they are not cancelable (cf. (12)), and so have a force stronger than ordinary conversational implicature: see Section 5.2 for comments on this topic.

We also ultimately want to ensure that these inferences behave as acquaintance inferences are meant to with respect to the conditions in which they are voided. Doing this would require a careful examination of how this proposed inference interacts with independently motivated accounts of the semantics of the expressions that void the inferences. I won’t do that here, but a plausible story can be told in each case.

For instance, that must cancels acquaintance inferences (cf. (6-b)) plausibly follows from extant accounts on the felicity conditions of the modal. If, following Giannakidou & Mari (2016), we think that an assertion of must p requires that the speaker’s epistemic modal base contain some worlds in which p is false, and hence that the speaker does not know p, then a sentence like Tripe must be tasty will commit speaker to not knowing whether tripe is tasty. Cross-linguistically, having direct evidence for a proposition and knowing it are tightly correlated. I noted in Section 2.2 that in many languages, commitment to reportative evidence for an asserted proposition is often compatible with lack of commitment to knowledge on the part of the speaker; but so far as I know, this is not true of direct evidence in any language, and a speaker who commits to having direct evidence verifying a proposition is conventionally committed to knowing it. If must is an overt marker of lack of knowledge, then it ipso facto serves as a marker of lack of direct evidence, which will void the inference insofar as the default commitment to direct evidence disappears. This also will happen if, per von Fintel & Gilles (2010), must itself hard-codes a requirement of evidential indirectness.

4.3 Affective acquaintance inferences

In Section 1, it was shown that affective acquaintance inferences, which have to do with the quality of experience that the speaker is committed to having, arise with deverbal psych adjectives derived using -ing in English, and in Section 3.1, it was shown how the semantics of these expressions relates to experiential kinds, like fear and excitement. We’re now in a position to derive these acquaintance inferences via direct evidentiality.

We do this using a Standard Tibetan example of a psych adjective, zhed snang tsha po ‘frightening,’ which like English frightening is transparently morphologically related to a noun that denotes an experiential kind, zhed snang ‘fear,’ via the adjectival suffix -po. The results generalize to other Standard Tibetan psych adjectives, and their English counterparts, in the obvious way. Given the results of Section 3.1, we take zhed snang tsha po in its positive form to denote a property, true of individuals who are disposed to produce a non-zero degree of fear.

$$J_{zhed snang tsha po}^c(w) = \lambda x.\epsilon_{FEAR}(w)(x) > 0_{FEAR}$$

We then place this adjective in a predicative construction using the direct evidential ‘dug,
which gives rise to the expected affective acquaintance inference.

(90) \( \text{gsar 'gyur 'di zhed snang tsha po 'dug.} \)

\( \text{news} \quad \text{this frightening} \quad \text{COP.DIR} \)

‘This news is frightening.’

\( \rightarrow \) The speaker’s experience of the news is one of fear.

Note that there is no sensory acquaintance inference: one need not to have experienced the news through any particular sensory channel to be frightened by it.

We compose the sentence by assuming that ‘\text{dug}’ has the function of \text{DIR} from Section 4.1 – that is, it contributes direct evidentiality.\(^{43}\)

(91) \( \text{['dug]}_{c,w} = \lambda p_{st} \cdot \langle p(w), \lambda w'. \forall w'' \in P_{s',w'}[p(w'')] \rangle \)

From here, the composition is straightforward, and goes as follows, where ‘\(d_c\)’ denotes the object demonstrated in \(c\).

(92) \( \text{[gsar 'gyur]}_{c,w} = \lambda x_c. \text{news}'(w)(x) \)

(93) \( \text{['di]}_{c,w} = \lambda P_{et,tx}[x = d_c \land P(x)] \)

(94) \( \text{[[gsar 'gyur] 'di]} = \text{['di]}_{c,w} \cdot \text{[[gsar 'gyur]}_{c,w} \)

\( = [\lambda P_{et,tx}[x = d_c \land P(x)](\lambda x_c. \text{news}'(w)(x)) \)

\( = \epsilon x[x = d_c \land \text{news}'(w)(x)] \)

(95) \( \text{[[[gsar 'gyur] 'di] zhed snang tsha po]}_{c,w} = \)

\( \text{[zhed snang tsha po]}_{c,w} \cdot \text{[[gsar 'gyur] 'di]}_{c,w} \)

\( = [\lambda x_c, \epsilon'_{\text{FEAR}}(w)(x) > 0_{\text{FEAR}}](\epsilon x[x = d_c \land \text{news}'(w)(x)]) \)

\( = \epsilon'_{\text{FEAR}}(w)(\epsilon x[x = d_c \land \text{news}'(w)(x)] > 0_{\text{FEAR}}) \)

(96) \( \text{[[[[gsar 'gyur] 'di] zhed snang tsha po] 'dug]}_{c,w} = \)

\( \text{['dug]}_{c,w}(\lambda w_s. \text{[[[gsar 'gyur] 'di] zhed snang tsha po]}_{c,w}) \)

\( = \lambda p_{st} \cdot \langle p(w), \lambda w_s. \forall w'' \in P_{s',w'}[p(w'')] \rangle \)

\( (\lambda w_s, \epsilon'_{\text{FEAR}}(w)(\epsilon x[x = d_c \land \text{news}'(w)(x)]) > 0_{\text{FEAR}}) \)

\( = (\epsilon'_{\text{FEAR}}(w)(\epsilon x[x = d_c \land \text{news}'(w)(x)]) > 0_{\text{FEAR}}, \lambda w_s \forall w'' \in P_{s',w'}[\epsilon'_{\text{FEAR}}(w'')(\epsilon x[x = d_c \land \text{news}'(w'')(x)]) > 0_{\text{FEAR}}]) \)

The result is that the at-issue extension of \text{gsar 'gyur 'di zhed snang tsha po 'dug}, relative to a context \(c\), is true just in case the news demonstrated at \(c\) is disposed to produce a non-zero degree of fear. In addition, the speaker who makes an assertion using this expression becomes committed, in virtue of its not-at-issue content, to the proposition that his perceptual alternatives verify the proposition that the demonstrated news is disposed to produce a non-zero degree of fear.

By the same reasoning seen in Section 4.2 regarding how perceptual and experiential alternatives relate, this means that ‘\(\epsilon'_{\text{FEAR}}(w'')(\epsilon x[x = d_c \land \text{news}'(w'')(x)])\)’ can be replaced

\(^{43}\)This is a simplification. Since ‘\text{dug}, like \text{yod red}, can also be used in existential constructions, and to communicate alienable possession, direct evidentiality is not the only semantic contribution of the copula. It is also probably best not to treat the copula as a propositional operator. But this suffices for the present illustration.
in the second member of the ordered pair with \( \epsilon'_{fear}(w')(s_c)(lx[x = d_c \land news'(w')(x)]) \). So simplifying, the not-at-issue proposition to which the speaker commits is as follows.

\[(97) \quad \lambda w_s. \forall w' \in Per_{s_c,w}[\epsilon''_{fear}(w')(s_c)(lx[x = d_c \land news'(w')(x)]) > 0_{fear}]\]

And again, as for the sensory acquaintance inferences seen in Section 4.1, committing to the truth of this proposition requires that \( \epsilon''_{fear}(w')(s_c)(lx[x = d_c \land news'(w')(x)]) \) be defined, and hence that the demonstrated news has produced degree of fear in the speaker, hence that the speaker has experienced the news in such a way appropriate to produce fear. The non-presuppositional part of the not-at-issue proposition then says that this experience of fear is of degree greater than 0 in all the speaker’s perceptual alternatives, which is to say that it’s so in a subset of his experiential alternatives. Because his experiential alternatives are uniform with respect to that experience of fear (see Section 4.2), this means just that the news is frightening in all of his experiential alternatives, hence that the news is frightening to him. Hence speaker’s experience of the news is one of fear, and the acquaintance inference is derived, and no sensory acquaintance inference results.

If the sentence is negated, the result is that the speaker is committed to having had direct experience of the news of the sort suitable to produce fear, but that the degree of fear produced by the news in him is 0: hence, he experienced the news, and it failed to frighten him.

\[(98) \quad [mi]_{c,w}^{g,w} = \lambda p_t. \neg p \]
\[(99) \quad [[[gsar ‘guyr’ ‘di] zhed snang tsha po]_{c,w}^{g,w} = \epsilon'_{fear}(w)(lx[x = d_c \land news'(w')(x)]) > 0_{fear} \]
\[(100) \quad [[[gsar ‘guyr’ ‘di] zhed snang tsha po]_{c,w}^{g,w} mi = \neg \epsilon'_{fear}(w)(lx[x = d_c \land news'(w')(x)]) > 0_{fear} \]
\[(101) \quad [[[gsar ‘guyr’ ‘di] zhed snang tsha po]_{c,w}^{g,w} ‘dug]_{c,w}^{g,w} = \langle \neg \epsilon'_{fear}(w)(lx[x = d_c \land news'(w')(x)]) > 0_{fear}, \lambda w'_s. \forall w'' \in Per_{s_c,w'}[\neg \epsilon''_{fear}(w'')(lx[x = d_c \land news'(w'')(x)]) > 0_{fear}] \rangle \]

Reducing the not-at-issue proposition as above, it commits the speaker via the definedness conditions of its extension to having an experience of fear produced in him by the news. But the proposition states that it is not true that this degree is greater than the zero-degree of fear. This in turn means that the experience of fear produced in the speaker is the zero-degree. So the not-at-issue proposition is as follows, where \( 'x = 0_k ' \) is to be read as \( 'x \) is an experience of the zero-degree of \( k ' \).

\[(102) \quad \lambda w_s. \forall w' \in Per_{s_c,w}[\epsilon''_{fear}(w')(s_c)(lx[x = d_c \land news'(w')(x)]) = 0_{fear}] \]

### 4.4 Multiple inferences

By now it should be clear how both sensory and affective acquaintance inferences can be triggered by a single predicate whose semantics is simultaneously sensitive to both sensory modality and quality of experience. Below this is briefly demonstrated for an English example, *Alfonse sounds funny*, and a Standard Tibetan example, *ku shu zhim po ‘dug ‘Apples*
are delicious.’

\[(103) \quad [\text{Alfonse [sounds funny]}]^{C,w} = \epsilon'_{\text{HILARITY}}(w)(\epsilon'_{\text{AUD}}(w)(a)) > 0_{\text{HILARITY}}\]

\[(104) \quad [\text{DIR [Alfonse [sounds funny]]}]^{C,w} =
\langle \epsilon'_{\text{HILARITY}}(w)(\epsilon'_{\text{AUD}}(w)(a)) > 0_{\text{HILARITY}},
\lambda w_s' \forall w'' \in \text{Per}_{s_c,w'}[\epsilon''_{\text{HILARITY}}(w')(s_c)(\epsilon''_{\text{AUD}}(w')(a))] > 0_{\text{HILARITY}} \rangle\]

The at-issue content of (104) is true just in case the auditory experience that Alfonse is disposed to produce is disposed to produce hilarity. The not-at-issue content to which the speaker commits is defined only if the auditory experience that Alfonse produces in the speaker produces hilarity in the speaker. Hence, the commitment presupposes that the speaker has heard Alfonse, and that this auditory experience has produced an experience of hilarity in him. It then states that this hilarity is of a non-zero degree, i.e. that the speaker experienced a humorous reaction from the sounds Alfonse made. The reader can confirm that where negated, the sentence will presuppose that the speaker has heard Alfonse, and that this auditory experience failed to produce a humorous reaction in him.

\[(105) \quad [[\text{ku shu} | \text{zhim po}]]^{C,w} = \epsilon'_{\text{PLEASURE}}(w)(\epsilon'_{\text{GUS}}(w)(a)) > 0_{\text{PLEASURE}}\]

\[(106) \quad [[[\text{ku shu} | \text{zhim po}]] \text{ 'dug}]^{C,w} =
\langle \epsilon'_{\text{PLEASURE}}(w)(\epsilon'_{\text{GUS}}(w)(a)) > 0_{\text{PLEASURE}},
\lambda w_s' \forall w'' \in \text{Per}_{s_c,w'}[\epsilon''_{\text{PLEASURE}}(w')(s_c)(\epsilon''_{\text{GUS}}(w')(s_c)(a))] > 0_{\text{PLEASURE}} \rangle\]

The not-at-issue content here is defined only if the speaker has tasted apples, and it’s then true just in case that gustatory experience of apples produced pleasure in the speaker. Negating the sentence will project the sensory acquaintance inference as usual, and commit the speaker to having experienced a zero-degree of pleasure from the taste of apples.

5 The puzzle recast

With the above said, we can ask in virtue of what speakers become committed to direct sources of evidence when making assertions using experiential predications. Section 5.1 briefly comments on how this works in languages with grammaticized markers of direct evidentiality, and Section 5.2 offers some suggestions as to how to tackle the more difficult question of why speakers become committed to direct evidential sources with experiential predications when, as in languages with no grammaticized direct evidential markers, an assertion is apparently underspecified for evidential source in the semantics.

5.1 Languages with grammaticized direct evidentiality

If the above treatments of experiential semantics and direct evidentiality are independently plausible, then in principle there is no mystery as to how commitments to direct evidence arise in languages that mark direct evidentiality overtly (at least, in the constructions that allow such marking). Where direct evidentiality is contributed by the conventional semantics of a functional item, the speaker will have no choice, due to the compositional meaning of
what is asserted, but to commit to the acquaintance inference when using such an evidential. In such languages, the source of the inference is thus transparent.

There is an important issue in this area that I haven’t touched on in the above, which is how differing evidential markers relate to lack of evidence of a kind not associated with that marker. In particular, while I’ve assumed that direct evidentials hard-code a commitment to perceptual experience, this does not in itself explain why indirect evidentials encode a lack of such experience – having indirect evidence is compatible with having direct evidence as well, but I’ve taken for granted all along that markers of indirect evidentiality commit a speaker not to having direct evidence. This is an observable fact about the function of indirect evidentials, and this asymmetry – that direct evidentials don’t typically rule out having indirect evidence as well as direct, but that indirect evidentials do typically rule out having direct evidence as well – is cross-linguistically robust. It’s for this reason that evidential hierarchies like that in Barnes (1984: §3) have been proposed, which rank which sort of evidential a speaker prefers by default, and which sort are dispreferred unless a more preferred source of evidence is lacking.

I take it that the present proposal can piggyback off of this independently explicable phenomenon – indirect evidentiality implies lack of direct evidence regardless of what we say about acquaintance inferences, and once we add the machinery of experiential semantics, it turns out that the voiding of acquaintance inferences by indirect evidentials follows. I also take it that a similar story will be told for languages that overtly mark only indirect evidentiality in a construction: that a construction overtly unmarked for indirect evidentiality can imply a direct evidential source, and that acquaintance inferences should arise in these constructions, should be justified by whatever mechanism one uses independently to explain the evidential contrast when only one overt marker is available – it doesn’t matter for present purposes whether the unmarked option explicitly encodes the evidentiality in question, or merely conventionally implies it by the absence of its overt counterpart.

5.2 Languages without grammaticized direct evidentiality

We saw above that a commitment to a direct evidential source for the assertion of an experiential predication yields acquaintance inferences of the desired sort depending on the semantics of the predicate, and that in languages that overtly mark commitment to a direct evidential source, how this commitment arises is in principle no mystery. But there remains a puzzle: why is it that in languages like English, which do not have grammaticized evidential markers, speakers are conventionally committed to a direct source of evidence for experiential predications? We demonstrated that such a commitment derives the correct results, and given that the inferences pattern just like they do in languages with direct evidentials, it is appealing to think the same mechanism drives the inferences in languages like English. It is as if there were a direct evidential marker accompanying experiential predications.

Note first that this commitment is not due to the behavior of assertion alone in such languages: we saw in Section 1 that many predicates do not commit the speaker to having a direct evidential source for their claim. That is, in languages like English, an assertion can leave the evidential source genuinely underspecified, and bare assertions can be made in general on the basis of direct or indirect evidence. This seems to change when we’re dealing with experiential predicates – so something about their semantics should be driving this.
I want to note first that the commitment to a direct source appears not to be a fact primarily about assertion, but rather about belief – that is, there is a convention to the effect that if a speaker believes a proposition expressed by an experiential predication, then as a very robust default, she does so on the basis of direct rather than indirect evidence. This can be seen from the fact that doxastic reports typically preserve the acquaintance inference for the subject of the attitude.

(107) Alfonse thinks that tripe is delicious.
    ⇔ Alfonse has tasted tripe.
    ⇔ Alfonse’s gustatory experience of tripe is highly pleasant.

If this is true, then following Ninan (2014), we can take acquaintance inferences arising from assertion to be due to Moorean effects, but due to the commitment that assertion makes to belief, rather than to knowledge. That is, if belief in such propositions generally implies direct evidential source, then assertion, which implies belief, does so as well. But we saw in Section 2.2 that knowledge of such propositions doesn’t require a direct source of evidence – and still less does belief.

This can be seen even more clearly in English from the behavior of the verb believe. As Stephenson (2007: §5.2) notes, this verb implies a lack of direct evidence for the believed proposition on the part of the believer.

(108) Alfonse believes that tripe is delicious.
    ⇒ Alfonse has not tasted tripe.

It is strange to report Alfonse’s opinion about tripe’s taste using believe if he has tasted it before. The reason for this is plausibly that believe marks indirect evidentiality lexically, and has an argument slot for indirect evidential source. With believe, unlike with think, this indirect source can be overtly marked as an argument (109-a). The propositional and evidential source arguments can even appear overtly together (109-b). Neither is possible for an evidentially neutral doxastic verb like think.

(109) a. Alfonse believes me.
    b. Alfonse believes me that tripe is delicious.

(110) a. *Alfonse thinks me.
    b. *Alfonse thinks me that tripe is delicious.

Acquaintance inferences thus look to behave the same way in attitude reports as they do in assertions: where there is an overt marker of indirectness, they are voided, showing that direct evidence is not required for a belief per se, but where there is no marker, the inference to direct evidence arises as a robust default.

But this only reframes the puzzle: why is there such a default commitment to direct evidence on belief of these propositions? We saw in Section 2.2 that cross-linguistic associations between certain types of evidential source and certain types of belief are commonplace, so in principle there is nothing strange about this state of affairs. And there is nothing in principle strange about this association being robust enough that unlike ordinary conversational
implicatures, it cannot be overtly denied, but must be voided through the use of explicit linguistic markers in the assertion or belief ascription itself.

In fact the behavior of evidentials in Standard Tibetan seems to provide further evidence that this is what is happening. There is another predicative copula in the language, red, which is fairly atypically used with adjectives – when it is used, it communicates that the speaker has no particular evidential source for the adjectival predication, and it is used to describe properties of individuals that are just generally known facts that one need not justify. So, one can say the following to assert a well-known property of apples.

\[ (111) \quad ku\ shu\ mngar\ mo\ red. \]
\[ \quad \text{apple} \hspace{0.5cm} \text{sweet} \hspace{0.5cm} \text{COP.AST} \]
\[ \quad \text{‘Apples are sweet.’} \]

Oddly, however, this copula is bizarre to use with zhim po ‘delicious.’

\[ (112) \quad ?ku\ shu\ zhim\ po\ red. \]
\[ \quad \text{apple} \hspace{0.5cm} \text{delicious} \hspace{0.5cm} \text{COP.AST} \]
\[ \quad \text{Intended: ‘Apples are delicious.’} \]

If red really does flag a lack of any particular evidential source, and it is systematically strange with experiential predicates, this may track speakers’ understanding that there is no default, non-direct source of evidence used to justify that individuals have experiential properties. Such predicates are taken to require justification of a certain sort that others are not: in particular, either direct evidence, or reason to believe indirectly that the individual would provide direct evidence of a certain sort.

But does the present treatment of experiential semantics have anything to say about this state of affairs? I believe that it does, which we can see if we note that the semantics provided in Section 3 cast experiential predicates as having a special relation to direct evidentiality that other predicates do not have. Experiential predicates are true of individuals just in case those individuals are disposed to produce direct evidence that they have the very property that the experiential predicate denotes. In other words, for an experiential predicate, to be disposed to directly evidence that one has a property is the very same thing as to actually have that property. If Alfonse is disposed to produce direct evidence that he looks tired, this is just to say that he is disposed to produce visual experience evidencing that he’s tired in an experiencer who perceives aright. But this in turn, according to the semantics we’ve given, is the very same thing as for Alfonse to look tired.

Other predicates are not like this: for Alfonse to be tired is not just for him to be disposed to produce perceptual evidence that he is tired. Indeed, as mentioned in Section 3.2, it’s perfectly possible for Alfonse to look tired, sound tired, etc., and not be tired, and vice-versa. In other words, tired is true of individuals in virtue of their having some

\[ ^{44} \text{This copula is often called the ‘assertive,’ and is sometimes taken to flag ‘unmarked’ evidentiality. It is sometimes used in narratives, even when recounting stories that a speaker personally witnessed: see the narrative in DeLancey (2017: §27.6).} \]

\[ ^{45} \text{The result of this discussion is of course that mngar mo ‘sweet’ is not an experiential predicate. I think this is the right thing to say, since it doesn’t give rise to acquaintance inferences, where we’re talking about general properties of kinds of food.} \]
non-perceptual property. In virtue of having this property, they often will produce direct evidence that they have it, but these notions are not equivalent. For experiential predicates, they are.

This in turn provides a clue as to why experiential predicates privilege direct evidentiality. If to have an experiential property is just to be disposed to produce direct evidence that one has that property, then the only way to have indirect evidence of that property is for it to be indirect evidence that the individual would produce the relevant direct evidence. This can be seen by what happens when acquaintance inferences are voided, e.g. beneath must.

(113) Tripe must be tasty.
                   ⚫ If the speaker were to taste tripe, then it would produce gustatory experience in the speaker that would produce pleasure.

Even though the inference doesn’t survive, what the speaker is committed to is that they themselves would have certain experiences of tripe if they had gustatory contact with it. In other words, even indirect evidence with respect to experiential predicates only exists insofar as it serves a disposition to direct evidence, which given the semantics of these expressions is the sole relevant determiner of whether an individual has the property or not. Hence, direct evidence is the privileged means by which beliefs about experiential properties are established, and speakers are sensitive to this fact.

It’s worth noting in turn that the disposition to direct evidence to which speakers are sensitive is typically their own direct evidence, and not speakers’ generally. This makes sense if, in keeping with the fact that there is a robust cross-linguistic association between having direct evidence for a proposition and being committed to knowing it, a speaker is pragmatically committed by default to taking her own direct evidence to be accurate. If this is so, then combined with the semantics of experiential predicates, it follows that a speaker is by default committed to taking an individual to having an experiential property just in case it’s disposed to produce the relevant experience in her. This robust default is voided only where the speaker has independent reason to believe her direct evidence is for some reason faulty (such cases do exist: cf. Anthony 2016).

This in turn would explain why speakers take ‘disposed to produce direct evidence’ to mean ‘disposed to produce direct evidence for me,’ and ‘disposed to produce an experience’ to mean ‘disposed to produce an experience in me.’ In other words, these norms on direct evidentiality, in concert with the semantics of experiential predicates, might explain why speakers by default evaluate such predicates autocentrically, to use Lasersohn’s (2005) term. And to the extent that speakers are committed to using their own experiences to evaluate, and these experiences relevantly diverge due to their differing constitutions, it will follow that indirect evidence for experiential properties is systematically unreliable, as it is in general no guide to direct evidence (read: direct evidence for oneself). The only time indirect evidence is relevant is when it is indirect evidence for how one would react experientially to the individual, if one came into contact with it: hence the interpretation of (113).

How to cash all of this out formally is an interesting question for future research, and would require a more detailed study of direct evidentiality cross-linguistically. But whatever we end up saying, we might think that no matter how robust a default acquaintance inferences are in dealing with experiential predicates, that in languages without grammaticized
evidentials, they sometimes can be voided even without linguistic markers. Given the above, this would happen when the direct evidence the majority speakers are disposed to have more or less aligns due to robust similarities in their perceptions, and the experiential properties of the individual are robust enough to warrant ‘default’ belief in the individual having the experiential property even without direct evidence. In fact there look to be such cases, like (114).

(114) Vinegar tastes acidic.

Plausibly, one can say something like (114) without committing to having tasted vinegar: so robust and consistent is the direct gustatory evidence attested that the above concerns are all vitiated. This ought never to happen when an overt direct evidential is included in the assertion: then, the conventional semantics of the evidential forces the acquaintance inference regardless of context.

### 6 Conclusion

The foregoing has offered a mechanism for deriving acquaintance inferences, commitments to direct experience of an individual that speakers make in virtue of making experiential predications. I’ve suggested that these arise due to the semantics of experiential predicates, which predicate the property of being disposed to produce experience of a certain sort, interacting with direct evidentiality, which commits a speaker to having had perceptual evidence of an asserted proposition. I’ve further shown how whether a predicate is experiential, and hence whether it gives rise to acquaintance inferences, is often entirely predictable from its composition, and what sort of inference it gives rise to is predictable from its semantics.

The present proposal has both rejected and preserved aspects of previous work on acquaintance inferences. Pearson (2013) asked: in virtue of what does the experiencer argument of a predicate anchor to the speaker? Ninan (2014) asked: in virtue of what does a speaker need to have direct experience of an individual to know that it has a certain property? I have suggested that these are the wrong questions, and that instead we ought to ask: (i) how does direct evidentiality give rise to acquaintance inferences with experiential predicates, and (ii) in virtue of what are speakers typically committed to a direct source of evidence in making experiential predications? With Pearson, we preserve the speaker-orientation of the inference, but by attributing it to the not-at-issue speaker-orientation of evidentiality, rather than the asserted content of a predication. With Ninan, we preserve the Moorean nature of acquaintance inferences, but due to a default restriction on belief rather than a requirement on knowledge. And we conclude, with Anand & Korotkova (2018), that acquaintance inferences are constitutively tied to direct evidentiality, but rather than baking this sensitivity to directness into the predicate itself, we take it to arise via two independently plausible mechanisms.

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46 What about classical ‘predicates of taste’ like delicious – given the variability in speakers’ tastes, can one ever make a bare assertion using these without committing to an acquaintance inference? This is extremely rare, but I adduce one plausible example: an imam, describing the fruits of jannah, paradise, says: ‘The fruits of jannah are so delicious.’ It’s not clear to me why the acquaintance inference should be voided here, but my intuition is robust that the imam is not at all committed to having tasted the heavenly fruits.
If what’s proposed here is on the right track, then future research ought to study the behavior of direct evidentiality cross-linguistically, to determine to what extent the convention associating direct evidence and belief holds, why it holds, and how it can be used to deepen our understanding of how mismatched direct evidence between speakers can give rise to widespread divergences in evaluation of predicates.

References


