Acquaintance inferences are evidential effects
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1 Acquaintance inferences: two old hypotheses and a new one


(1) bethany: Licorice is tasty.
⇒ Bethany has tasted licorice.

(2) bethany:
   a. Apparently, licorice is tasty.
   b. Licorice might be tasty.
   c. Licorice is tasty, I hear.
   ¬⇒ Bethany has tasted licorice.

Hypothesis I: acquaintance inferences are presuppositional.

Reason (i): projects out of negation, resists cancellation.

(3) bethany: Licorice isn’t tasty.
⇒ Bethany has tasted licorice.
(4) ?Licorice is tasty, but I’ve never tasted it.

Reason (ii): other direct experience presuppositions independently attested, triggered by subjective attitude verbs (SAVs) (5-a) and dativus iudicantis PPs (DI PPs) (5-b).

(5) a. Bethany finds licorice tasty.
   b. Licorice is tasty to Bethany.
   ⇒ Bethany has tasted licorice.

Assimilating acquaintance inferences to (5-b) is promising: tasty takes an experiencer argument, which can be overtly manifested as a DI PP.

(6) a. \[[\text{tasty}]^{c,w} = \lambda x.\lambda y.\text{taste} - \text{good'}(w)(x)(y)\]
   b. \[[\text{tasty to Bethany}]^{c,w} = \lambda y.\text{taste} - \text{good'}(w)(b)(y)\]

Where \text{taste} - \text{good'}(w)(x)(y) = \text{true} iff in \(w\), \(y\) has tasted \(x\) and likes its flavor (and is undefined if \(y\) hasn’t tasted \(x\) in \(w\)).

Bare cases like (1) involve definite implicit arguments, like poisonous and local. (1) is then as in (7), where \(x_j\) denotes \(c_j\), the experiencer/’judge’ relevant in \(c\).

(7) \[[\text{licorice is tasty } x_j]^{c,w} = \text{taste} - \text{good'}(w)(c_j)(l)\]

The argument defaults to the speaker, so (1) has its implication for the same reason as (8).

(8) bethany: Licorice is tasty to me.
⇒ Bethany has tasted licorice.

In the right ‘exocentric’ context, \(c_j\) can be another salient individual (Lasersohn 2005: 670-674). The acquaintance inference shifts to that individual.

(9) context: Bethany is watching her cat enjoy eating a new brand of food.
bethany: The cat food is tasty.
⇒ The cat has tasted the cat food.

The problem of acquaintance inferences thus reduces to the problem of direct experience presuppositions generally.
Problem (i): no cancellation beneath external negation.

(10) BETHANY:
   a. Licorice \emph{isn't} tasty to me, because I haven't tasted it.
   b. Licorice \emph{isn't} tasty, because I haven't tasted it.

Problem (ii): no local accommodation.

(11) BETHANY:
   a. Licorice must be tasty to me.
      $\leftrightarrow$ It must be that Bethany has tasted licorice and likes it.
   b. Licorice must be tasty.
      $\nleftrightarrow$ It must be that Bethany has tasted licorice and likes it.

Problem (iii): no projection into the future.

(12) BETHANY:
   a. The soup will be tasty to me. (?Too bad I won't get to taste it.)
      $\nleftrightarrow$ Bethany will taste the soup.
   b. The soup will be tasty. (Too bad I won't get to taste it.)
      $\nleftrightarrow$ Bethany will taste the soup.

Problem (iv): no presuppositions at all in questions, beneath some attitude verbs.

(13) BETHANY:
   a. Is licorice tasty?
   b. I wonder whether licorice is tasty.
      $\nleftrightarrow$ x has tasted licorice, for some x.
   c. Is licorice tasty to x? 
   d. I wonder whether licorice is tasty to x.
      $\nleftrightarrow$ x has tasted licorice.

The acquaintance inference doesn’t behave like a presupposition (pace Pearson 2013, Anand & Korotkova 2017).

Hypothesis II: acquaintance inferences reflect conditions on belief or knowledge.


(14) a. Bethany thinks licorice is tasty.
   b. Bethany considers licorice tasty.
      $\nleftrightarrow$ Bethany has tasted licorice.

(15) Acquaintance inferences as belief commitments
   a. Speakers don’t believe that \emph{x is tasty} unless they have tasted \emph{x}.
   b. If a speaker utters \emph{\(\phi\)}, s/he commits to believing it.
   c. So, a speaker who utters \emph{x is tasty} commits to having tasted \emph{x}.

The problem of acquaintance inferences thus reduces to figuring out why (a) holds.

Problem (i): The inference doesn’t resist cancellation in the report: why in bare assertion?

(16) Bethany thinks licorice is tasty, but she’s never tasted it.

Problem (ii): It depends on what doxastic verb you choose. Believe has an evidential distancing effect (Stephenson 2007: 62-64).

(17) Bethany believes licorice is tasty.
      $\nleftrightarrow$ Bethany hasn’t tasted licorice.

A hypothesis as to why this is: believe has an argument slot for indirect evidential source; think/consider don’t. (18-c) defeats and ‘reverses’ the inference.

(18) BETHANY:
   a. I believe you.
   b. I believe that licorice is tasty.
   c. I believe you that licorice is tasty.
      $\nleftrightarrow$ Bethany hasn’t tasted licorice.
   d. *I think you (that licorice is tasty).

Using a form that doesn’t mark indirect source implicates direct source where appropriate (and hence, direct experience?). The evidential effect is general (19-a): the inference seems not to be a matter of belief, but of lacking direct evidence (19-b).

(19) a. Bethany believes Alfonse came to the party last night.
      $\nleftrightarrow$ Bethany lacks direct evidence that Alfonse came to the party last night.
b. Bethany believes licorice is tasty.
   \(\leadsto\) Bethany lacks direct evidence that licorice is tasty.
   \(\approx\) Bethany hasn’t tasted licorice.

Compare Ninan (2014: 302)’s epistemic proposal:

\(\text{(20)}\) **Acquaintance inferences as knowledge commitments**

a. **Acquaintance principle**: Normally, in an autocentric context, \(c_s\) knows (at \(c_t\) in \(c_w\)) whether \([x\text{ is tasty}]^{c,w}\) is true only if \(c_s\) has tasted \(x\) prior to \(c_t\) in \(c_w\).

b. **Knowledge Norm**: For all contexts \(c, c_s\) must assert \(p\) only if \(c_s\) knows \(p\) at \(c_t\) in \(c_w\) (cf. Gazdar 1979: 46).

c. So, a speaker who utters \(x\text{ is tasty}\) commits to having tasted \(x\).

The acquaintance inference thus reduces to explaining why (a) holds (and why would it? cf. *ibid.*: 306-307).

But attributing knowledge seems to defeat the inference in the right context, like other epistemic qualifiers.

\(\text{(21)}\) **CONTEXT**: Bethany’s friends, whose tastes she trusts, have been raving to her about how great licorice is.

a. **BETHANY**: I know licorice is tasty.
   (I hope I get to taste it some day).

b. **BETHANY**: ?Licorice is tasty.
   (?I hope I get to taste it some day).

Maybe it’s not a matter of knowledge or reliability of evidence, but an evidential effect (source of evidence).

\(\text{(22)}\) **Acquaintance inferences as evidential commitments**

a. Acquaintance inference-triggering propositions are always composed in a certain way using lexical items that have an **experiencer semantics**.

b. Having **direct evidence** for such a proposition entails having direct experience of a specific sort.

c. Bare assertions of these propositions commit speakers to having direct evidence of them.

d. So, bare assertions of these propositions commit speakers to having direct experience of a specific sort.

**Prediction**: In languages that obligatorily mark the direct/indirect evidential distinction, (at-issue) assertion of such propositions trigger acquaintance inferences when, and only when, direct evidential markers occur.\(^1\)

\section{Experiencer semantics and direct evidence}

Perceptual raising verbs (*look*) and deverbal psych adjectives composed using *-ing* (*frightening*) also trigger acquaintance inferences.

\(\text{(23)}\) **BETHANY**:

a. Alfonse looked tired today.
   \(\leadsto\) Bethany has seen Alfonse today.

b. The movie is frightening.
   \(\leadsto\) Bethany has seen the movie.

These behave exactly as (1) with respect to the tests above (try it!).

The kind of experience required depends on the lexical semantics of the predicate/propositional operator, leading to fine-grained distinctions in inferences.

\(\text{(24)}\) **BETHANY**:

a. Sulfur is smelly.
   \(\not\leadsto\) Bethany has tasted sulfur.

b. Alfonse sounded tired today.
   \(\not\leadsto\) Bethany has seen Alfonse today.

There are many appropriate channels through which to be frightened, making *frightening*’s requirement looser.

\(\text{(25)}\) **BETHANY**: The news is frightening.

\(\leadsto\) Bethany is acquainted with the news (in such a way that it could directly cause an experience of fright in her).

These predicates/operators have an experiencer semantics: they take an experiencer argument \(\epsilon\), not an individual but a set of worlds. The lexical semantics can then enforce restriction to a sensory modality.

\(^1\)See Bylinina (2017), Anand & Korotkova (2017) for preliminary evidence in Japanese and Turkish, respectively.
In (26), \( \text{taste}(w)(x)(y) \) denotes the taste of \( x \) in \( w \), and \( \text{pleasure}(\epsilon)(x) = \text{true} \) iff in all \( w \in \epsilon \), the experiences that \( x \) directly causes are (generically) experiences of pleasure.

\[
[\text{tasty}]^c_w \equiv \lambda \epsilon. \lambda x. \epsilon. \text{pleasure}(\epsilon)(\text{taste}(w)(x)(y))
\]

Where \( \text{tasty} \) occurs ‘bare,’ unrelativized to an individual, it composes with \( \epsilon \), which denotes \( \{w\} \), the set containing just the world of evaluation: thus (27) is true iff the taste of licorice directly causes experiences of pleasure in the world of evaluation.

\[
[\text{licorice is tasty} \quad \epsilon_w]^c_w = \text{pleasure}(\{w\})(\text{taste}(w)(l)(y))
\]

Composing with a DI PP: these denote sets of worlds compatible with the experiences of an individual. To converts an individual into the corresponding experiencer (28-a), a set of ‘experiential alternatives’ (28-b), constrained by the condition in (28-c).

\[
\begin{align*}
(28) & \text{a.} \quad [\text{to}]^c_w = \lambda x. \text{Exp}\_c, \epsilon \quad w \\
& \text{b.} \quad \text{Exp}\_c, \epsilon = \{w' : w' \text{ is compatible with } x'\text{'s experiences in } w\} \\
& \text{c. For all } y \text{ and } w' \in \text{Exp}_c, \epsilon: \text{the experiences directly caused by } y \text{ in } w' \text{ are those experiences directly caused by } y \text{ in } x \text{ in } w.
\end{align*}
\]

\( \text{Exp}_c, \epsilon \) is the set of worlds that are as \( x \) experiences \( w \) to be: and in these worlds, everything produces \textit{simpliciter} exactly those experiences that they produce in \( x \) in \( w \).

\[
[\text{licorice is tasty to Bethany}]^c_w = \text{pleasure}(\text{Exp}_c, \epsilon)(\text{taste}(w)(l)(y))
\]

(29) is true iff the experiences that the taste of licorice directly causes in all of Bethany’s experiential alternatives are experiences of pleasure, i.e. iff the taste of licorice directly causes experiences of pleasure in Bethany.

If Bethany hasn’t tasted licorice, (29) has no value, so presupposition failure results: the taste of licorice won’t directly cause any experiences in the worlds in \( \text{Exp}_b, \epsilon \) unless it has directly caused experiences in Bethany in \( w \), i.e. unless she has tasted licorice in \( w \).

A notion of direct evidence, defined in terms of experiential alternatives:

\[
(30) \quad \phi \text{ is true according to } x\text{'s direct evidence in } w \text{ iff } \forall w' \in \text{Exp}_x, \epsilon[w'(\phi(w'))].
\]

For a non-experiential proposition like that \textit{Alfonse is a student}:

\[
(31) \begin{align*}
& \text{a.} \quad [\text{Alfonse is a student}]^c_w = \text{student}(w)(a) \\
& \text{b. It is true that Alfonse is a student according to Bethany’s direct evidence in } w \text{ iff } \forall w' \in \text{Exp}_b, \epsilon[\text{student}(w')(a)].
\end{align*}
\]

This doesn’t require Bethany to have had experience of any specific sort.

Sloting in the experiential proposition \textit{that licorice is tasty} unrelativized to an individual (as in (27)) into the schema in (30) results in (32).

\[
(32) \quad \text{It is true that licorice is tasty according to Bethany’s direct evidence in } w \text{ iff } \forall w' \in \text{Exp}_b, \epsilon[\text{taste}(w')(l)(y)]
\]

Because of the constraint in (28-c), Bethany has such direct evidence according to (32) only if she has tasted licorice, since \( \text{Exp}_b, \epsilon \) must contain only worlds in which the experiences that licorice produces are experiences of pleasure, meaning that the taste of licorice must directly produce pleasure in Bethany in \( w \); so she must have tasted licorice in \( w \).

A similar result for \textit{look}, where it’s given a lexical semantics as in (33-a), where \( \text{Vis}_w \) is the set of \( w \)’s ‘visual alternatives,’ defined as in (33-b).

\[
\begin{align*}
(33) & \text{a.} \quad [\text{look}]^c_w = \lambda \phi. \lambda \epsilon. \forall w' \in \epsilon[w'' \in \text{Vis}_w'[\phi(w'')]] \\
& \text{b.} \quad \text{Vis}_w' = \{w' : w' \text{ is compatible with the visual experiences directly caused in } w\}
\end{align*}
\]

(33-a) says roughly that \textit{look }\phi \text{ is true in } w \text{ iff all worlds that are as } w \text{ looks to be are } \phi\text{-worlds.}

\[
\begin{align*}
(34) & \text{a.} \quad \text{Alfonse looks tired.} \\
& \text{b.} \quad [\text{look}]^c_w([\text{Alfonse tired}]^c_w)([\epsilon_w]^c_w) = \\
& \quad \forall w'' \in \{w\}[\forall w''' \in \text{Vis}_w'[\text{tired}(w''')(a)] = \\
& \quad \forall w' \in \text{Exp}_b, \epsilon[\text{tired}(w')(a)]
\end{align*}
\]

(35) a. Alfonse looks tired to Bethany.

b. \( [\text{look}]^c_w([\text{Alfonse tired}]^c_w)([\text{to Bethany}]^c_w) = \\
\quad \forall w'' \in \text{Exp}_b, \epsilon[\forall w''' \in \text{Vis}_w'[\text{tired}(w')(a)]] \]
(34-b) says that all worlds compatible with Bethany’s visual experiences are worlds in which Alfonse is tired. It lacks a denotation unless Bethany has had a visual experience determining whether Alfonse is tired according to her direct evidence.\footnote{Most often, this will be a visual experience of Alfonse, hence Bethany must see Alfonse. But not always: the inference in (23-a) is really simplified.}

Slotting (34-b) in for the schema in (30):

(36) It is true that Alfonse looks tired according to Bethany’s direct evidence in $\iff \forall w' \in \text{Exp}_b,w \forall w'' \in \text{Vis}_w[w'(\text{tired}(w'')(a))]$.

And with frightening:

(37) a. $[(\text{frightening})^c]_w = \lambda x.e.xxx.e.x.xxx.fright'\{e\}(x)$
   b. $[(\text{the news is frightening})^c]_w = fright'\{\text{news}'(w'(y))\}$
   c. $[(\text{the news is frightening to Bethany})^c]_w = fright'(\text{Exp}_b,w)(\text{news}'(w'(y))\text{y})$
   d. It is true that the news is frightening according to Bethany’s direct evidence in $\iff \forall w' \in \text{Exp}_b,w[fright'\{w'(y)\text{news}'(w'(y))\}]$

(37-d) requires direct experience of a specific sort, but it’s less specific than with tasty, look: Bethany only needs for the news to have directly caused an experience of fright in her, by some means or other.

So direct evidence of propositions composed in the right way using lexical items with an experiencer semantics requires direct experience of a certain sort, determined by said lexical semantics.

3 Rephrasing the puzzle: bare assertion and direct evidence

Given the above, the problem of acquaintance inferences can be rephrased on new terms.

(38) The wrong questions:
   a. How do direct experience presuppositions arise compositionally in acquaintance-inference triggering propositions?
   b. Why must one have direct experience of a certain sort to believe/know/be certain of these propositions?
   c. Why, in languages with no grammaticized evidential markers distinguishing between direct and indirect source of evidence, is bare assertion of acquaintance-inference triggering propositions conventionally limited to a direct source?

Typically in such languages, bare assertion is compatible with either sort of source:

(40) BETHANY: Booze Control played The Wizard at the show last night.
   $\not\implies$ Bethany was at the show last night.
   $\not\implies$ Bethany was not at the show last night.

With prior reason to believe Bethany would(n’t) be at the show, one can infer accordingly about the evidential source. The point is these general pragmatic strategies are blocked when experiential propositions are asserted, and the speaker must commit to a direct evidential source.

(41) A suggestion for future research:
   a. Experiential propositions are systematically unreliable, due to differences in experiential reactions among speakers.
   b. No matter how high quality or reliable an indirect source of an experiential proposition (reportative, learned from reactions of other individuals), it may conflict with direct evidence. This is not so for non-experiential propositions, where increased reliability of direct and indirect evidence systematically converge on truth/falsity.
   c. Where direct and indirect evidence conflict, speakers typically privilege direct evidence and reject indirect evidence.
   d. Given that a speaker commits to the truth of an experiential proposition, hearers have a priori reason to take the commitment to be based on direct evidence.
   e. For pragmatic (possibly game-theoretic) reasons, this slight a priori bias ‘snowballs’ into a convention that such commitment is obligatory.
References


