1. Introduction

The acquaintance inference:

- Utterances of simple sentences containing a predicate of taste typically give rise to an *acquaintance inference*, i.e. they typically convey that the speaker has a certain sort of first-hand experience with the object of predication (Mothersill, 1984; Robson, 2012; Pearson, 2013; MacFarlane, 2014; Ninan, 2014; Klecha, 2014; Bylinina, 2017).

- For example, an utterance of (1) would normally suggest that the speaker has tasted the cake in question, an utterance of (2) would normally suggest that speaker had traveled with Mary before, and an utterance of (3) would normally suggest that the speaker had seen the movie in question:

  (1) The carrot cake is delicious.
  \(\rightarrow\) the speaker has tasted the cake

  (2) Traveling with Mary is fun.
  \(\rightarrow\) the speaker has traveled with Mary

  (3) That movie is frightening.
  \(\rightarrow\) the speaker has seen the movie

- If one had not tasted the carrot cake, but had merely heard that it was good, it would, for example, be better to say something like:

  (4) Apparently, the carrot cake is delicious.

- Taste predications contrast with more ‘factual’ predications: If I were to say (5), for example, you wouldn’t necessarily reach any conclusion about the grounds for my assertion:

  (5) The carrot cake contains gluten.

Defeasibility, exocentric uses:

- The inference is a default inference, and doesn’t always arise, even with relatively simple taste sentences.

- One source of defeasibility arises with ‘exocentric’ uses of taste predicates.

- Typically, our use of a simple taste sentence conveys something about our own tastes and sensibilities. These are *autocentric* uses.

- But sometimes we use simple taste sentences to convey something about someone else’s tastes and sensibilities. These are *exocentric* uses.

- Exocentric uses don’t give rise to a *speaker* acquaintance inference, but they may give rise to some sort of acquaintance inference (Anand and Korotkova, 2018).

  (6) a. \([A]\): How is Mary’s trip to Morocco going?
b. \([B]\): It’s great. The food is delicious, she’s met a lot of interesting people, and she loves the beaches.
\[\leftrightarrow the\ \text{speaker\ has\ tasted\ the\ food\ in\ Morocco}\]
\[\leftrightarrow Mary\ has\ tasted\ the\ food\ in\ Morocco\]

- There may be other sources of defeasibility (Pearson, 2013), and there seems to be some speaker variation about how easily defeated the inference is.
- For simplicity, I will mostly set aside exocentric readings here along with other sources of defeasibility.

What is the scope of this phenomenon?

(7) The carrot cake is tasty to me.
\[\leftrightarrow the\ \text{speaker\ has\ tasted\ the\ cake}\]

(8) The soup tastes like it has fish sauce in it.
\[\leftrightarrow the\ \text{speaker\ has\ tasted\ the\ soup}\]

(9) John seemed tired this morning (Pearson, 2013)
\[\leftrightarrow the\ \text{speaker\ interacted\ with\ John\ this\ morning}\]

For simplicity, I focus on predicates of gustatory taste, delicious, tasty, etc..

What is the semantic-pragmatic status of this inference?

Presupposition view (Pearson, 2013):

- The inference projects over negation, and isn’t easily cancellable:

(10) a. The carrot cake is delicious.
    b. The carrot cake is not delicious—it isn’t moist enough.
    \[\leftrightarrow the\ \text{speaker\ has\ tasted\ the\ cake}\]

(11) ? The carrot cake is delicious, but I haven’t tasted it.

- These facts would be nicely explained by the hypothesis that the inference is a presuppositional inference.

(12) a. Mary stopped smoking.
    b. Mary hasn’t stopped smoking.
    \[\leftrightarrow Mary\ smoked\ in\ the\ past\]

(13) # Mary stopped smoking, but she never smoked in the past.

Problem: Modals, conditionals, questions:

- Presuppositions project over epistemic modals, out of the antecedents of conditionals, and out of questions:

(14) a. Mary must have stopped smoking.
    b. Mary might have stopped smoking.
    c. If Mary stopped smoking, her doctor will be pleased.
    d. Did Mary stop smoking?
    \[\leftrightarrow Mary\ smoked\ in\ the\ past\]

- The acquaintance inference doesn’t project out of these environments:
(15) a. The carrot cake must have been delicious.
b. The carrot cake might have been delicious.
c. If the carrot cake was delicious, Mary will be pleased.
d. Was the carrot cake delicious? 

→ the speaker tasted the cake

• Note that the acquaintance inference is not even locally accommodated in these environments:

(15a) The carrot cake must have been delicious.

→ it must have been that: the speaker tasted the cake and it is delicious

• The acquaintance requirement simply seems to disappear.

• Contrast (15a) with the explicitly relativized (16) (Anand and Korotkova, 2018):

(16) The carrot cake must have been tasty to me.

Two accounts of these data:

• Epistemic view: Acquaintance inferences are not presuppositional inferences; they are implicatures generated by the Maxim of Quality together with a principle in the epistemology of taste (Ninan, 2014).

• Presupposition-plus-obviation view: Acquaintance inferences are presuppositional inferences, but some operators (e.g. epistemic modals) obviate or erase any acquaintance requirement in their scope (Anand and Korotkova, 2018; Willer and Kennedy, Forthcoming).

Outline:

• I want to spend most of my time today exploring the presupposition-plus-obviation view. So I’m going to set the epistemic view aside for the moment.

• Question: Is there a pattern as to which operators obviate the acquaintance requirement and which don’t?

➢ Suppose we examine a sentence of the form O(the cake is delicious) that we’ve yet to consider.

➢ Is there a generalization about operators that will allow us to predict whether or not O(the cake is delicious) will carry the acquaintance requirement?

• We’ll look at some data that suggest a simple pattern:

➢ Intensional operators in general seem to obviate the acquaintance inference (Klecha, 2014; Cariani, Forthcoming).

➢ Extensional operators (e.g. Boolean connectives, quantifiers) do not seem to obviate the acquaintance inference.

* Furthermore, the way the acquaintance requirement interacts with extensional operators is broadly similar to the way presuppositions interact with those operators.

• I’ll then offer a theory that predicts some of these data. The theory combines three components:

➢ A supervaluationist account of projection.

➢ A mechanism that allows operators to obviate the acquaintance requirement.

➢ A constraint on lexical entries concerning which operators obviate the acquaintance requirement.

• Time-permitting, I may also say something about the epistemic view, and why the behavior of the acquaintance requirement w.r.t. extensional operators poses a problem for it.

1 Willer and Kennedy don’t describe their view this way, but it is, I think, a not inaccurate description of their view.
2. An apparent pattern

Intensional operators:

- If we set aside interrogatives, we saw above that epistemic modals and indicative conditionals obviate the acquaintance inference.
- Klecha (2014) observes that future operators also obviate the acquaintance inference:
  
  (17) The cookies in the oven will be tasty when they’re done. It’s a shame that they contain arsenic and so will have to be destroyed.  
  \( \rightarrow \) the speaker has tasted/will taste the cookies (Ninan, 2014)
- On many views, future operators are themselves modal operators of some kind (e.g. Copley, 2009; Cariani and Santorio, 2018). So the generalization here seems to be that modals obviate the acquaintance inference (Cariani, Forthcoming).
- Let’s say an operator is intensional just in case it shifts the world of evaluation.
- INTENSIONAL CONJECTURE: All intensional operators obviate the acquaintance inference.

What about extensional operators?

Boolean connectives:

- Negation: Acquaintance inference projects over negation.
- Conjunction: This seems true of conjunction as well:

  (18) The cake is delicious and it is gluten-free.  
  \( \rightarrow \) the speaker has tasted the cake
- Disjunction: Cariani (Forthcoming) observes that a disjunction of simple taste sentences seems to give rise to a disjunction of acquaintance claims:

  (19) A has just arrived at the wedding banquet. He’s hungry.  
   a. \( [A] \): What’s good here?  
   b. \( [B] \): Either the moussaka is delicious or the lasagna is—I couldn’t tell which was which.  
   \( \rightarrow \) the speaker has tasted the moussaka or the speaker has tasted the lasagna

  The acquaintance requirement doesn’t project, but it is interpreted.
- So it seems that Boolean connectives (negation, conjunction, disjunction) do not obviate the acquaintance requirement.

Quantifiers:

- When a simple taste sentence occurs in the (nuclear) scope of an existential quantifier, it seems to give rise to a (quantified) acquaintance requirement:

  (20) Something on the dessert table is delicious.  
  \( \rightarrow \) something on the dessert table is such that the speaker has tasted it
- This seems true of other quantifiers as well. For example:

  (21) Everything on the dessert table is tasty.  
  \( \rightarrow \) everything on the dessert table is such that the speaker has tasted it
Strong conjecture:

- **EXTENSIONAL CONJECTURE**: No extensional operator obviates the acquaintance inference.
- Putting our two conjectures together we get:
  
  **STRONG CONJECTURE**: An operator $O$ obviates the acquaintance inference iff $O$ is an intensional operator.

- This is strong, and so I wouldn’t be surprised if it proved false, but provisionally adopting it may help guide our theorizing by, e.g., pointing us to a more adequate generalization regarding obviation.

Comment on **EXTENSIONAL CONJECTURE**:

- Two different claims:
  
  (i) No extensional operator obviates the acquaintance inference, i.e. the acquaintance requirement affects the interpretation of complex sentences in which a simple taste sentence is embedded under such an operator.
  
  (ii) The acquaintance requirement behaves like a presupposition with respect to such operators.

- I’m a bit more confident in (i) than I am in (ii), but the following examples are suggestive:

  (22) **Negation**:
  
  a. The carrot cake is not delicious—it isn’t moist enough.
  
  $\Leftarrow$ *the speaker has tasted the cake*

  b. Mary hasn’t stopped smoking.

  $\Leftarrow$ *Mary smoked in the past*

  (23) **Disjunction**:

  a. The cake is delicious or the pie is delicious.

  $\Leftarrow$ *the speaker has tasted the cake or the speaker has tasted the pie*

  b. Mary stopped smoking or John stopped smoking.

  $\Leftarrow$ *Mary smoked in the past or John smoked in the past*

  (24) **Conjunction**:

  a. The cake is delicious and it is gluten-free.

  $\Leftarrow$ *the speaker has tasted the cake*

  b. Mary stopped smoking and she feels much better now.

  $\Leftarrow$ *Mary smoked in the past*

  (25) **Existential quantification**:

  a. Something on the dessert table is delicious.

  $\Leftarrow$ *something on the dessert table is such that the speaker has tasted it*

  b. Some student stopped smoking.

  $\Leftarrow$ *some student smoked in the past*

  (26) **Universal quantification**:

  a. Everything on the dessert table is tasty.

  $\Leftarrow$ *the speaker has tasted everything on the dessert table*

  b. Every student stopped smoking.

  $\Leftarrow$ *every student smoked in the past*
3. The presupposition-plus-obviation view

The account I develop below builds on previous work:

- The basic idea I shall be pursue can be found in Anand and Korotkova (2018) and Willer and Kennedy (Forthcoming).
- Taste predicates: Lasersohn (2005), Stephenson (2007a,b), Sæbø (2009), and MacFarlane (2014).
- Trivalent accounts of presupposition projection: Peters (1979), Beaver and Krahmer (2001), Fox (2008), George (2008a,b), and Schlenker (2008).
- Supervaluationism, esp. as developed in branching time frameworks: Thomason (1970, 1984), and MacFarlane (2014).

Starting idea: at a point of evaluation $e$, $a$ is delicious says that $a$ is delicious according to the standard of taste determined by $e$.

3.1. Basic framework

Standards of taste:

- Assume we have a set of worlds $W$ and a domain of individuals $D$ (we ignore times for the sake of simplicity).

**Definition.** A standard of taste is a (possibly partial) function $f$ from $D$ to $\{0, 1\}$. $f(o) = 1$ if $f$ evaluates $o$ positively, $f(o) = 0$ otherwise.

**Definition.** An agent $j$’s dispositional standard of taste in world $w$, $\delta^{w,j}$, is a total function from $D$ to $\{0, 1\}$.

Intended interpretation (roughly):

$\triangleright$ $\delta^{w,j}(o) = 1$ if it’s true in $w$ that if $j$ were to try $o$, she would like it, and

$\triangleright$ $\delta^{w,j}(o) = 0$ if it’s true in $w$ that if $j$ were to try $o$, it is not the case that she would like it.

**Definition.** An agent $j$’s categorical standard of taste in world $w$, $\chi^{w,j}$, is the restriction of $\delta^{w,j}$ to the things $j$ has tasted in $w$.

$\triangleright$ So $\chi^{w,j}$ will typically be a partial function.

$\triangleright$ If $o \in \text{dom}(\chi^{w,j})$, then $\chi^{w,j}(o) = \delta^{w,j}(o)$.

Intended interpretation (roughly):

$\triangleright$ $\chi^{w,j}(o) = 1$ if $j$ has tasted $o$ and liked it in $w$,

$\triangleright$ $\chi^{w,j}(o) = 0$ if $j$ has tasted $o$ and did not like it in $w$, and

$\triangleright$ $o \notin \text{dom}(\chi^{w,j})$ if $j$ hasn’t tasted $o$ in $w$

We ignore the possibility that one is disposed to like something, but didn’t like it on a particular occasion because of some extenuating circumstance (e.g. one is feeling ill).

- Example: If you have not tried sea urchin, your categorical standard is not defined for it, but your dispositional standard is. If you have tried it, both standards evaluate it in the same way.

Standards generators:

- Let a centered world be a pair of a world and an individual.
• Definition. A *(standards) generator* is a (total) function from centered worlds to standards of taste. A generator takes a centered world and ‘generates’ a standard of taste. Assume $\delta$ and $\chi$ are generators in this sense (letting $\delta_{w,j} = \delta(w,j)$).

• Definition. A generator $\sigma$ is **complete** iff for all $(w,j)$, $\sigma_{w,j}$ is a total function.

• Definition. A generator $\sigma$ is a **complete extension** of $\chi$ iff

  (i) $\sigma$ is complete, and

  (ii) for all $(w,j)$ and all $o \in D$, if $o \in \text{dom}(\chi_{w,j})$, then $\sigma_{w,j}(o) = \chi_{w,j}(o)$.

So a complete extension of $\chi$ agrees with $\chi$ on all the cases that $\chi$ decides, but then goes on and decides all other cases as well.

Some complete extensions of $\chi$:

• So $\delta$ is a complete extension of $\chi$, since $\delta$ is complete, and if $o \in \text{dom}(\chi_{w,j})$, then $\delta_{w,j}(o) = \chi_{w,j}(o)$.

• But there are other complete extensions of $\chi$. Two important ones:

  ▶ Definition. The ‘picky’ generator $\sigma_0$ defined as follows:

    (i) $\sigma_0 \geq \chi$, and

    (ii) for all $(w,j)$ and all $o \notin \text{dom}(\chi_{w,j})$, $\sigma_{0,w,j}(o) = 0$.

  So $\sigma_{0,w,j}$ maps everything not in the domain of $\chi_{w,j}$ to 0.

  ▶ Definition. The ‘easy-to-please’ generator $\sigma_1$ defined as follows:

    (i) $\sigma_1 \geq \chi$, and

    (ii) for all $(w,j)$ and all $o \notin \text{dom}(\chi_{w,j})$, $\sigma_{1,w,j}(o) = 1$.

  So $\sigma_{1,w,j}$ maps everything not in the domain of $\chi_{w,j}$ to 1.²

Language, models:

• Formal language: variables, individual constants, $n$-ary predicates (including a distinguished one-place taste predicate $T$), Boolean connectives, generalized quantifiers, epistemic modals, attitude verbs.

• Models: an $n$-tuple that includes the following elements: $W, D, \delta, \chi$, and $I$, where $I$ assigns functions from worlds to extensions to all individual constants and to all $n$-ary predicates other than the taste predicate $T$.

• Assume for simplicity that all individual constants are rigid. If $a$ is an individual constant, we simply write $a$ for the denotation of $a$.

Recursive clause for atomic taste sentences:

• Let $Ta$ translate *The cake is delicious*.

• Definition. Let a **point of evaluation** be a $n$-tuple $(w,j,\sigma,g)$ consisting a world $w$, a judge $j$, a complete generator $\sigma$, and a variable assignment $g$.

• $[Ta]_{w,j,\sigma,g} = 1$ iff $\sigma_{w,j}(a) = 1$

• Since $\sigma$ is a complete generator, truth-at-a-point-of-evaluation is bivalent.

Supervaluationist definition of truth/falsity at a context:

²It is possible that we could restrict the set of complete extensions over which we supervaluate to just these two complete extensions; see George (2008b) for related discussion in the Strong Kleene setting.

7
• **Definition.** Let a context \( c \) be a \( n \)-tuple \((w_c, s_c, j_c, g_c)\) consisting of a world \( w_c \), a speaker \( s_c \), a judge \( j_c \), and a variable assignment \( g_c \).

  ▷ When the judge is the speaker, we get autocentric readings of taste predicates.
  ▷ When the judge is distinct from the speaker, we get exocentric readings.

• **Definition.** Truth and falsity at a context:

  A sentence \( \phi \) is **true** at a context \( c \), \( [\phi]^c = 1 \), iff for all \( \sigma \geq \chi \), \( J_{\phi}^{w_c, j_c, \sigma, g_c} = 1 \).

  A sentence \( \phi \) is **false** at a context \( c \), \( [\phi]^c = 0 \) iff for all \( \sigma \geq \chi \), \( J_{\phi}^{w_c, j_c, \sigma, g_c} = 0 \).

Result for atomic taste sentences:

**Fact 1.** \( [Ta]^c = 1 \) only if \( \chi^{w_c, j_c}(a) = 1 \)

**Proof.** Note that:

\[
[Ta]^c = 1 \text{ iff } \forall \sigma \geq \chi, [Ta]^{w_c, j_c, \sigma, g_c} = 1 \text{ iff } \forall \sigma \geq \chi, \sigma^{w_c, j_c}(a) = 1.
\]

Suppose that \( [Ta]^c = 1 \). So for all \( \sigma \geq \chi \), \( \sigma^{w_c, j_c}(a) = 1 \). And suppose, for reductio, that \( \chi^{w_c, j_c}(a) \neq 1 \). Then either \( \chi^{w_c, j_c}(a) = 0 \) or \( a \notin \text{dom}(\chi^{w_c, j_c}) \). In either case, the picky extension of \( \chi \), \( \sigma_o \), will be such that \( \sigma_o^{w_c, j_c}(a) = 0 \). But since \( \sigma_o \geq \chi \), that contradicts the claim that every \( \sigma \geq \chi \) is s.t. \( \sigma^{w_c, j_c}(a) = 1 \).

Comment: If in an autocentric context, I say *The cake is delicious*, this will imply that I have tasted the cake and liked it.

### 3.2. Extensional operators

Classical recursive clauses for Boolean connectives:

- \( \lnot \phi^{w, j, \sigma, g} = 1 \text{ iff } \phi^{w, j, \sigma, g} = 0 \)
- \( [\phi \land \psi]^{w, j, \sigma, g} = 1 \text{ iff } [\phi]^{w, j, \sigma, g} = [\psi]^{w, j, \sigma, g} = 1 \)
- \( [\phi \lor \psi]^{w, j, \sigma, g} = 1 \text{ iff } [\phi]^{w, j, \sigma, g} = 1 \text{ or } [\psi]^{w, j, \sigma, g} = 1 \)

Some results:

**Fact 2.** \( [\lnot Ta]^c = 1 \) only if \( \chi^{w_c, j_c}(a) = 0 \)

**Fact 3.** \( [Ta \land \phi]^c = 1 \) only if \( \chi^{w_c, j_c}(a) = 1 \)

**Fact 4.** \( [Ta \lor Tb]^c = 1 \) only if \( \chi^{w_c, j_c}(a) = 1 \) or \( \chi^{w_c, j_c}(b) = 1 \)

Comments:

- So if you say, *The cake is not delicious*, this will imply that you tasted and didn’t like the cake.
- If you say *The cake is delicious and it’s gluten-free*, this will imply that you tasted and liked the cake.
- If you say, *Either the cake is delicious or the pie is*, this will imply that either (you tasted and liked the cake) or (you tasted and liked the pie).

  ▷ So the disjunction will imply that you tasted at least one of them, but it in fact implies something stronger: that you tasted and liked at least one of them.
Result 1:

- If you tasted the pie and didn’t like it, and you didn’t taste the cake but are disposed to like it, the disjunction will not be true.

Problem: disjunction:

(27) We’re in a restaurant, about to order, seeing everyone around us eating lobster rolls. I say:

- Either the lobster rolls here are delicious or they’re out of everything else.

- The theory predicts that my utterance is true only if either (I’ve tasted and liked the lobster rolls) or (they’re out of everything but lobster rolls).

- This doesn’t look correct. This is a problem both for our semantics and for (the L-to-R direction) of our strong conjecture (unless disjunction is intensional (Zimmermann, 2000)).

- If we are willing to permit an exception our strong conjecture, we could posit a silent operator in (27) that shifts σ to δ. But unless we can constrain its distribution, the resulting theory would over-generate readings.

Standard recursive clauses for generalized quantifiers:

- \([\text{some}_x(\phi)(\psi)]^{w,j,\sigma,g} = 1\) iff \(\{o \in D : \psi[w,j,\sigma,g[x/o] = 1\} \cap \{o \in D : \psi[w,j,\sigma,g[x/o] = 1\} \neq \emptyset\)

- \([\text{every}_x(\phi)(\psi)]^{w,j,\sigma,g} = 1\) iff \(\{o \in D : \psi[w,j,\sigma,g[x/o] = 1\} \subseteq \{o \in D : \psi[w,j,\sigma,g[x/o] = 1\}\)

- \([\text{most}_x(\phi)(\psi)]^{w,j,\sigma,g} = 1\) iff \(|\{o \in D : \psi[w,j,\sigma,g[x/o] = 1\} \cap \{o \in D : \psi[w,j,\sigma,g[x/o] = 1]\}| > |\{o \in D : \psi[w,j,\sigma,g[x/o] = 1]\} - \{o \in D : \psi[w,j,\sigma,g[x/o] = 1]\}|\)

- \([\text{exactly two}_x(\phi)(\psi)]^{w,j,\sigma,g} = 1\) iff \(|\{o \in D : \psi[w,j,\sigma,g[x/o] = 1\} \cap \{o \in D : \psi[w,j,\sigma,g[x/o] = 1]\}| = 2\)

Result 1:

- First note that for each generalized quantifier \(Q_x\), there is a corresponding binary relation \(Q_R\) on subsets \(A, B\) of \(D\):
  - \(\text{some}_x : A \cap B \neq \emptyset\)
  - \(\text{every}_x : A \subseteq B\)
  - \(\text{most}_x : |A \cap B| > |A - B|\)
  - \(\text{exactly two}_x : |A \cap B| = 2\)

- Then we have:

  **Fact 5.** For any generalized quantifier \(Q_x\) and corresponding binary relation \(Q_R\) on subsets of \(D\):

  \(If [Q_x(Fx, Tx)]^c = 1, then Q_R(\{o \in D : o \in I(F)(w_c)\}, \{o : \chi^{w_c,j_c}(o) = 1\})\).

- If you say \(Q\) things on the dessert table are delicious, this will imply that there are \(Q\) things on the dessert table that you tasted and liked.

- For example, if you say, *Something on the dessert table is delicious*, this will imply that there is something on the dessert table that you tasted and liked.

  - Note again that this is stronger than just: there is something on the dessert table that you tasted.
  - It’s not enough that you have tasted something on the table, didn’t like, but are disposed to like something else on the table.

- Another example: if you say, *Exactly two things on the dessert table are delicious*, this implies that exactly two things on the table are such that you tasted and liked them.
Result 2:

- There are some more specific results pertaining to particular quantifiers, such as:
  
  **Fact 6.** If \([\text{EXACTLY TWO}_x (Fx, Tx)]^c = 1\), then for all \(o \in D\), if \(o \in I(F)(w_c)\), then \(o \in \text{dom}(\chi^{w_c,j_c})\).

- So if you say, *Exactly two things on the dessert table are delicious*, this implies that you’ve tasted everything on the dessert table.

- Note that our earlier result was that if you say, *Exactly two things on the dessert table are delicious*, this implies that you’ve tasted and liked exactly two things on the table.

- One thing interesting about this is that there’s apparently an empirical difference here between the behavior of the acquaintance requirement and standard presuppositions. Consider

  \[(28) \quad \text{Exactly two students in my class stopped smoking recently.}\]

- Suppose there are ten students in my class, two of whom smoked in the past and no longer smoke, eight of whom never smoked.

- According to George (2008a, 13), (28) has a reading on which it is true in this situation, a judgment I agree with.

- This consequence is a problem for the supervaluational treatment of presupposition triggers like *stops* (and for the Strong Kleene approach George develops), but the corresponding prediction seems right in the case of taste predicates.

### 3.3. Intensional operators

How do intensional operators obviate the acquaintance requirement?

- An operator will obviate the acquaintance requirement in this system if it shifts the generator parameter \(\sigma\) to \(\delta\), viz. the generator that maps each \((w, j)\) to \(j\)'s dispositional standard at \(w\) (cf. Anand and Korotkova, 2018).

- Example:

  \[
  \llbracket \text{must } \phi \rrbracket^{w,j,\sigma,g} = 1 \iff \text{for all } w' \in R(w), \llbracket \phi \rrbracket^{w',j,\delta,g} = 1
  \]

  where \(w' \in R(w)\) iff \(w'\) is compatible with what is known in \(w\).

- So:

  \[
  [\text{must } Ta]^c = 1 \iff \text{for all } \sigma \geq \chi:\ [\text{must } Ta]^{w_c,j_c,\sigma,g_e} = 1 \iff \text{for all } \sigma \geq \chi:\ \text{for all } w' \in R(w_c) : [Ta]^{w',j_c,\delta,g_e} = 1 \iff \text{for all } w' \in R(w_c) : \delta^{w',j_c}(a) = 1
  \]

- Note that this condition places no constraint on \(\chi^{w_c,j_c}\), and so it can hold even if \(a\) is not in the domain of \(\chi^{w_c,j_c}\), i.e. even the speaker has not tasted the cake.

- If you say, *The cake must be delicious*, you’re saying that it follows from what is known that you are disposed to like the cake. This can be true even if you’ve never tasted the cake.

**Strong conjecture:**
• **STRONG CONJECTURE**: An operator \( O \) obviates the acquaintance inference iff \( O \) is an intensional operator.

• Here is the conjecture cast in terms of the present theory:

  **STRONG CONJECTURE’**: An operator \( O \) shifts the generator parameter to \( \delta \) iff \( O \) shifts the world parameter.

• We assume that if an operator shifts the generator parameter, then it shifts it to \( \delta \).

• So the lexicon can contain only certain types of operators:

  \[
  \begin{align*}
  &\checkmark \ [O\phi]\{w,j,\sigma,g\} = 1 \text{ iff } \checkmark [\phi]\{w,j,\sigma,g'\} \ldots \\
  &\checkmark [O\phi]\{w,j,\sigma,g\} = 1 \text{ iff } \checkmark [\phi]\{w',j,\delta,g\} \ldots \\
  &\vnot \ [O\phi]\{w,j,\sigma,g\} = 1 \text{ iff } \vnot [\phi]\{w',j,\sigma,g\} \ldots \\
  &\vnot [O\phi]\{w,j,\sigma,g\} = 1 \text{ iff } \vnot [\phi]\{w,j,\delta,g\} \ldots 
  \end{align*}
  \]

• This is for unary operators, but it presumably holds for \( n \)-ary operators in general.

**Summary:**

• Intensional operators seem to obviate the acquaintance inference.

• Extensional operators seem not to obviate it. And the acquaintance requirement interacts with extensional operators in much the same way presuppositions do.

• We tried to capture some of these data in a system that combines a supervaluationist account of projection together with a mechanism that allows operators to obviate the acquaintance requirement.

• We also essentially stipulated a constraint on lexical entries. Ideally, we would have derived that stipulation from something independent, but I don’t quite see how to do that at the moment.

4. Attitude verbs

**Believes:**

• The literature generally seems to agree that *believes, thinks*, and *knows* obviate the acquaintance inference, and do not even imply that the subject of the attitude has tasted the item in question.\(^3\)

  Example: *believes*:

  (29) John believes the carrot cake is delicious.

  \[ \leftrightarrow \text{the speaker has tasted the carrot cake} \]

  \[ \leftrightarrow \text{John has tasted the carrot cake} \]

• Obviation will follow from our **STRONG CONJECTURE** together with the claim that *believes* shifts the world parameter.

• We assume *believes* also shifts the judge parameter, so that it is the subject of the attitude’s standard that matters for the interpretation of the taste predicate, not the speaker’s.

• Entry for *believes*:

  \[
  \begin{align*}
  [B_{\phi}]\{w,j,\sigma,g\} = 1 \text{ iff for all } w' \in B_{w,a}, [\phi]\{w',a,\delta,g\} = 1 .
  \end{align*}
  \]

  (Note that the judge parameter is shifted to the subject of the attitude verb.)

---

Finds:

- *Finds* seems to imply that the subject of the attitude verb has tasted the object of the taste predication (Stephenson, 2007b):

\[ (30) \text{John finds the cake tasty.} \]
\[ \rightarrow \text{John has tasted the cake} \]

- So if *finds* is an intensional operator, it may be a (R-to-L) counterexample to our STRONG CONJECTURE.

- But on one influential treatment of *finds*—that of Sæbø (2009)—it is *not* an intensional operator in our sense, for it does not shift the world of evaluation—it merely shifts the judge parameter. So our STRONG CONJECTURE would require that it leave the generator parameter alone.

- In our setup, Sæbø’s idea would yield:

\[ \llbracket F_a \phi \rrbracket^{w,c,a,\sigma,g} = 1 \iff \llbracket \phi \rrbracket^{w,c,a,\sigma,g} = 1 \]

- So:

\[ [F_a T b]^c = 1 \iff \]
\[ \text{for all } \sigma \geq \chi, \llbracket F_a T b \rrbracket^{w,c,a,\sigma,g} = 1 \iff \]
\[ \text{for all } \sigma \geq \chi, \llbracket T b \rrbracket^{w,c,a,\sigma,g} = 1 \iff \]
\[ \text{for all } \sigma \geq \chi, \sigma^{w,c,a}(b) = 1 \]

And this can only be true if \( \chi^{w,c,a}(b) = 1 \), which means \( a \) must have tasted and liked \( b \) in \( w_c \).

- *John finds the cake tasty* is true only if John has tasted and liked the cake.

5. Definedness condition or assertability condition?

Two objections to treating the acquaintance requirement as a presupposition:

(i) Metalinguistic negation can target standard presuppositions, but can’t target the acquaintance requirement (Ninan, 2014):

\[ (31) \]
\[ \text{a. Mary didn’t stopped smoking—she’s never smoked a cigarette in her life!} \]
\[ \text{b. The carrot cake isn’t delicious—I haven’t even tried it!} \]

(ii) A more conceptual objection:

- Suppose I haven’t tried the carrot cake.
- I think it might be delicious, but I’m not sure.
- Is thinking that the carrot cake *might* be delicious compatible with knowing that the sentence *The carrot cake is delicious* is not true in my context?
- If I think the carrot cake might be delicious, shouldn’t I also think that that sentence might be true in my context?
- Similarly, I might have non-zero credence \( n \) that the carrot cake is delicious. Is that compatible with knowing that the sentence *The carrot cake is delicious* is not true in my context?
- Shouldn’t my credence that that sentence is true be \( n \) as well?\(^4\)

An alternative way of construing the proposal?

\(^4\)A similar issue arises for supervaluational treatments of future operators; see MacFarlane (2014, Ch. 11) for discussion.
• Keep the same recursive semantics, but change the ‘postsemantics’.

• Bivalent truth at a context:

  **Definition.** A sentence φ is true at a context c, 
  \[ [\phi]^c = 1 \text{ iff } \llbracket \phi \rrbracket_{w,j,c,δ,g} = 1 \]

• So if I say, *The cake is delicious*, the proposition I express is that I am disposed to like the cake.

• Re-deploy the supervaluationist machinery to characterize assertability:

  **Definition.** A sentence φ is assertable at a context c iff
  \[ \llbracket \phi \rrbracket_{w,j,σ,g} = 1 \text{ for all complete extensions } σ \text{ of } X. \]

• If one hasn’t tasted the cake, both *the cake is delicious* and its negation will be unassertable.

Is this just terminological? Perhaps, but depending on one’s account of metalinguistic negation, it may make an empirical difference.

6. The epistemic view

Epistemic view:

**MAXIM OF QUALITY (KNOWLEDGE NORM):** One may assert φ only if one knows φ (Gazdar, 1979; Williamson, 1996).

  If the speaker asserts φ, that implies that the speaker knows φ.

  \[ \phi \leftrightarrow K\phi \]

**ACQUAINTANCE PRINCIPLE:** One knows whether *a is delicious* is true only if one has tasted *a* (Wollheim, 1980; Ninan, 2014).

  If the speaker knows that *a* is delicious, that implies that the speaker has tasted *a*.

  If the speaker knows that *a* is not delicious, that implies that the speaker has tasted *a*.

  \[ KT_a \leftrightarrow Aa \]

  \[ K\neg T_a \leftrightarrow Aa \]

Notation:

• Think of *a* here as a singular term (e.g. *the carrot cake*).

• For the moment, \( \phi \leftrightarrow \psi \) (“\( \phi \) implies \( \psi \)”) iff \( \psi \) is an entailment or a Quality implicature of \( \phi \).

• \( K\phi \) translates *the speaker knows φ*, \( T_a \) translates *a is delicious*, \( Aa \) translates *the speaker has tasted a*.

The epistemic view predicts the initial data that led us to the presupposition view:

(10) a. The carrot cake is delicious.

  \( T_a \leftrightarrow KT_a \leftrightarrow Aa \)

b. The carrot cake is not delicious—it isn’t moist enough.

  \( \neg T_a \leftrightarrow K\neg T_a \leftrightarrow Aa \)

(11) ? The carrot cake is delicious, but I haven’t tasted it.

  \( T_a \land \neg Aa \leftrightarrow K(T_a \land \neg Aa) \leftrightarrow KT_a \leftrightarrow Aa \)

  \( T_a \land \neg Aa \leftrightarrow \neg Aa \)

On the epistemic view, (11) is akin to the Moore-paradoxical (32):
(32) Mary was at the office, but I don’t know that Mary was at the office.

Modals, conditionals, and questions:

- Note that the **ACQUAINTANCE PRINCIPLE** only concerns *atomic* taste sentences \( Ta \) and their negations \( \neg Ta \).
- So it simply doesn’t say anything about other kinds of embeddings. So it doesn’t predict that the acquaintance inference will project over modals, conditional operators, etc...
- Furthermore, the acquaintance inference does seem to pattern like a Quality implicature here:

  (15) a. The carrot cake must have been delicious.
    b. The carrot cake might have been delicious.
    c. If the carrot cake was delicious, Mary will be pleased.
    d. Was the carrot cake delicious?
      \( \not\rightarrow \) *the speaker has tasted the cake*

  (33) a. Mary must have been at the office.\(^5\)
    b. Mary might have been at the office.
    c. If Mary was at the office, she’ll be tired.
    d. Was Mary at the office?
      \( \not\rightarrow \) *the speaker knows Mary was at the office*

Problem: extensional operators:

- The fact that the acquaintance requirement appears to interact non-trivially with extensional operators poses a problem for this view.
- This is because the **ACQUAINTANCE PRINCIPLE** only concerns atomic taste sentences and their negations.
- Example: disjunction:

  (34) The cake is delicious or the pie is delicious.
      \( \not\rightarrow \) *the speaker has tasted the cake or the speaker has tasted the pie*

- Acquaintance under disjunction: \( (Ta \lor Tb) \not\rightarrow (Aa \lor Ab) \)
- The epistemic view doesn’t predict this. It predicts:

  \( (Ta \lor Tb) \not\rightarrow K(Ta \lor Tb) \)

- But the **ACQUAINTANCE PRINCIPLE** is simply silent on what \( K(Ta \lor Tb) \) implies about what the speaker has tasted.

Quantifiers raise a similar problem.

Other problems for the epistemic view are discussed in Anand and Korotkova (2018); Franzén (2018); Muñoz (2019); Willer and Kennedy (Forthcoming).

\(^5\)The point is controversial with *must*. If *must \( \phi \) entails \( \phi \) (von Fintel and Gillies, 2010), then asserting *must \( \phi \) will imply \( K(\text{must } \phi) \). If knowledge is closed under deduction, this will imply \( K\phi \).
7. Some proofs

Fact 4. \([Ta \lor Tb]\)\(_c\) = 1 only if \(\chi^{w_c,j_c}(a) = 1\) or \(\chi^{w_c,j_c}(b) = 1\)

Proof. Suppose \([Ta \lor Tb]\)\(_c\) = 1. Then for all \(\sigma \geq \chi\), either \([Ta]^{w_c,j_c,\sigma,g_c}\) = 1 or \([Tb]^{w_c,j_c,\sigma,g_c}\) = 1. So for all \(\sigma \geq \chi\), either \(\sigma^{w_c,j_c}(a) = 1\) or \(\sigma^{w_c,j_c}(b) = 1\).

Suppose for reductio that both \(\chi^{w_c,j_c}(a) \neq 1\) and \(\chi^{w_c,j_c}(b) \neq 1\). Then the picky extension \(\sigma_o\) of \(\chi\) will be such that \(\sigma_o^{w_c,j_c}(a) = 0\) and \(\sigma^{w_c,j_c}(b) = 0\). But that contradicts the claim that for all \(\sigma \geq \chi\), either \(\sigma^{w_c,j_c}(a) = 1\) or \(\sigma^{w_c,j_c}(b) = 1\).

\(\square\)

Fact 5. For any generalized quantifier \(Q_x\) and corresponding binary relation \(Q_R\) on subsets of \(D\):

If \([Q_x(Fx,Tx)]\)\(_c\) = 1, then \(Q_R\{\{o \in D : o \in I(F)(w_c)\}, \{o : \chi^{w_c,j_c}(o) = 1\}\}\)

Proof. Suppose \([Q_x(Fx,Tx)]\)\(_c\) = 1.

So for all \(\sigma \geq \chi\), \([Q_x(Fx,Tx)]^{w_c,j_c,\sigma,g_c}\) = 1.

So for all \(\sigma \geq \chi\), \(Q_R\{\{o \in D : o \in I(F)(w_c)\}, \{o \in D : \sigma^{w_c,j_c}(o) = 1\}\}\).

Suppose, for reductio, that it is not the case that \(Q_R\{\{o \in D : o \in I(F)(w_c)\}, \{o : \chi^{w_c,j_c}(o) = 1\}\}\).

Note that, where \(\sigma_o\) is the picky extension of \(\chi\), we have the following:

\(\{o \in D : \chi^{w_c,j_c}(o) = 1\} = \{o \in D : \sigma_o^{w_c,j_c}(o) = 1\}\)

It follows from this and our reductio assumption that it is not the case that \(Q_R\{\{o \in D : o \in I(F)(w_c)\}, \{o \in D : \sigma_o^{w_c,j_c}(o) = 1\}\}\).

But this contradicts our assumption that for all \(\sigma \geq \chi\), \(Q_R\{\{o \in D : o \in I(F)(w_c)\}, \{o \in D : \sigma^{w_c,j_c}(o) = 1\}\}\).

\(\square\)

Fact 6. If \([\text{exactly two}\_x(Fx,Tx)]\)\(_c\) = 1, then for all \(o \in D\), if \(o \in I(F)(w_c)\), then \(o \in \text{dom}(\chi^{w_c,j_c})\).

Proof. Suppose \([\text{exactly two}\_x(Fx,Tx)]\)\(_c\) = 1. So for all \(\sigma \geq \chi\):

\(|\{o \in D : o \in I(F)(w_c)\} \cap \{o \in D : \sigma^{w_c,j_c}(o) = 1\}| = 2.\)

And note that, by Fact 5 we have:

\(|\{o \in D : o \in I(F)(w_c)\} \cap \{o \in D : \chi^{w_c,j_c}(o) = 1\}| = 2.\)

So let \(o_1, o_2\) be distinct elements of \(D\) such that:

\(\{o \in D : o \in I(F)(w_c)\} \cap \{o \in D : \chi^{w_c,j_c}(o) = 1\} = \{o_1, o_2\}\).

Now suppose, for reductio, that there is an \(o \in I(F)(w_c)\) such that \(o \notin \text{dom}(\chi^{w_c,j_c})\). Let \(o_3\) be such an \(o\). Note that \(o_3\) is distinct from both \(o_1\) and \(o_2\) since \(\chi^{w_c,j_c}\) maps both of those to 1.

Then the easy-to-please extension \(\sigma_1\) of \(\chi\) will be such that \(\sigma_1^{w_c,j_c}(o_1) = \sigma_1^{w_c,j_c}(o_2) = \sigma_1^{w_c,j_c}(o_3) = 1.\)

Thus:

\(\{o \in D : o \in I(F)(w_c)\} \cap \{o \in D : \sigma_1^{w_c,j_c}(o) = 1\} = \{o_1, o_2, o_3\}\).

But then:
which contradicts the claim that for all $\sigma \geq \chi$:

$$|\{o \in D : o \in I(F)(w_c)\} \cap \{o \in D : \sigma^{w_c,j_c}(o) = 1\}| = 2.$$


