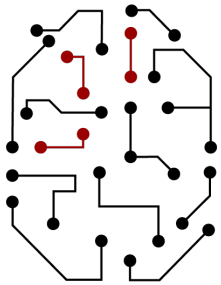
Futurity, evidentiality & modality: Day 5
The acquaintance inference

Fabrizio Cariani (Maryland) & Natasha Korotkova (Konstanz)

NASSLLI 2022 @ USC
June 20, 2022



Jarmush 1984

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

(*Stranger Than Paradise*)

The upshot I

Acquaintance Inference (AI) (Vollhering 1980; Nunan 2014)

A firsthand experience requirement with various subjective expressions: taste predicates (*tasty, delicious*), aesthetic predicates (*beautiful, exquisite*), psych predicates (*like, frighten*), subjective attitudes (*find*), ...

(1) a. Pittsburgh is **beautiful**. ⇢ I've seen it (in real life / on pictures).

b. Disneyland is **fun**. ⇢ I've been there.

c. Milky oolong is **delicious**. ⇢ I've tried it.

d. Kubrick movies are **frightening**. ⇢ I've watched (some of) them.

The upshot II

- Sensory modality: depends on the predicate

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

- Sample size issues:

(3) a. Incomplete experience:
✓I only watched { the trailer / the first five minutes }. This movie is **boring**.

b. No experience:
#This new Allen movie is **boring**. I haven't watched it, but all his movies are the same.

The upshot III

- A host of interrelated issues:
  - **Source of the inference**: is there a dedicated acquaintance principle associated with certain types of knowledge, e.g. aesthetic knowledge? (Briesen 2020; Lord 2016; Ninan 2014; Wollheim 1980)
  - **Nature of the inference**: entailment (Dinges and Zakkou 2021), implicature (Budd 2003; Hopkins 2006; Mothersill 1984), presupposition (Pearson 2013; Anand and Korotkova 2018)
  - **Interaction with other operators**: does the presence of an AI influence the interpretation or pose constraints on distribution?
  - **Role and type of experience**: how much mileage could we get out of treating the AI as an experiential phenomenon? (Bylinina 2017; Charlow 2019; Kaiser and Lee 2017, 2018; Muñoz 2019; Vardomskaya 2018)

The upshot IV

- Focus today:
  - Types of acquaintance and acquaintance-adjacent content
  - Proposal: acquaintance as directness
  - Conceptual issues related to evidence
- Formal details: Anand and Korotkova (2018); Korotkova and Anand (2021) (some useful background on subjectivity: Anand and Korotkova 2022)
- If you want more AI in your life: workshop in Konstanz this fall https://natasha-korotkova.github.io/ai2022.html

Basic data I

- Explicit denials: impossible

(4) a. Taste predicate:
The puerh was **delicious**, #but I never tasted it.

b. Psych predicate:
The bear prints **frightened** me, #but I didn't see them.

c. Subjective doxastic:
I **find** the food in this restaurant authentic, #but I've never tried it.
NB: *authentic* has no AI on its own

Basic data II

- The AI survives under negation:

(5) a. Taste predicate:
The puerh wasn't **delicious**, #but I never tasted it.

b. Psych predicate
The bear prints **didn't frighten** me, #but I didn't see them.

c. Subjective doxastic:
I don't **find** the food in this restaurant authentic, #but I never tried it.

Basic data III

- The AI may disappear in the scope of **obviators**, e.g. epistemic *might*:

(6) a. Taste predicate:
✓The puerh **might have been delicious**, though I never tasted it.

b. Psych predicate
✓The bear prints **might have frightened** me, though I haven't seen them.

c. Subjective doxastic
✓I **might have found** the food in this restaurant authentic, though I've never tried it.

Basic data IV

- Recap of the pattern
  - Present in unmodified root declaratives
  - Present in negated sentences
  - Cannot be explicitly denied
  - Can go away under certain obviators
- Not discussed here: differences between bare uses (tasty, sounds out of tune) and overt uses (tasty to me, I find, sounds out of tune to me)

AI obviation I

- Puzzle:
  - Why is obviation possible while explicit denials aren't?
- Proposal:
  - The AI: a kind of direct evidential requirement
  - AI obviation is rooted in indirectness
- Prediction:
  - Indirect markers (inference/hearsay): obviate
  - Direct markers: don't obviate
- Predictions borne out

AI obviation II

- AI obviators in English (cf. Pearson 2013; Klecha 2014; Ninan 2014)

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

a. ✓**must/might** have been — EPISTEMIC MODAL AUXILIARIES

b. ✓**probably/possibly/maybe** was — EPISTEMIC ADVERBS

c. ✓**obviously/certainly/apparently** was — PREDICATES OF EVIDENCE/CLARITY

d. ✓**will/is going to** be — FUTURATE OPERATORS

AI obviation III

- Obviation across languages: the AI goes away in the scope of indirect evidentials (Bulgarian evidential perfect, Dutch *schjinen* 'to be said', German *wohl* 'presumably' and hearsay *sollen*)

(8) Turkish (Turkic: Turkey)

a. BARE FORM:

#Durian güzel, ama hiç dene-me-di-m.
durian good, but ever try-NEG-PST-1SG
Intended: 'Durian is good, but I've never tried it'.

b. EVIDENTIAL *miş*:

✓Durian güzel-**miş**, ama hiç dene-me-di-m.
durian good-**IND**, but ever try-NEG-PST-1SG
'Durian is good, *I hear/infer*, but I've never tried it'.

AI obviation IV

- Direct markers: no obviation

(9) Standard Tibetan (Tibetic: Nepal, Tibet): perceptual evidential *'dug*

#kha lag	'di	**bro ba**	**chen**	po	**'dug**	yin na'i	ngas	bro ba	bltas	med
food	this	**taste**	**big**	poss	**DIR**	but	1.ERG	taste	look.PST	

Intended: 'This food is tasty but I haven't tasted it.' (adapted from Muñoz 2019)

- Muñoz's (2019) story differs: direct evidentials, rather than taste/aesthetic predicates give rise to the AI

AI obviation V

Bottom line

Across languages, many obviators convey indirectness/lack of direct knowledge.

A direct proposal I

- Key components:
  - Some predicates comment on direct evidential grounds of a proposition
  - Obviators update the parameter of evaluation they depend on
  - Obviators signal the lack of direct knowledge by eliminating the direct vs. indirect restriction
- Framework: kernels from vFG
- Formal details: Anand and Korotkova (2018)

A direct proposal II

- How it works

(10) a. $[\![$ *delicious* $]\!]^{c,\langle w,x,K_{x,w}\rangle} =$
λo : o is delicious for x in w, defined iff
$K_{x,w}$ directly settles whether o is delicious for x in w.

b. $K_{x,w}$ directly settles whether p iff $\exists q \in K_{x,w}$ [$q \subseteq p \vee q \subseteq \neg p$]

- Sample case

(11) a. This puerh is delicious.

b. $[\![$ The puerh is delicious $]\!]^{c,\langle w,x,K_{x,w}\rangle}$
= puerh is delicious for x in w, defined iff
$K_{x,w}$ directly settles whether puerh is delicious for x in w.

A direct proposal III

- Putting it all together

(12) a. $[\![\text{ must } \alpha]\!]^{c,\langle w,x,K_{x,w}\rangle} = [\![\text{ must }]\!]^{c,\langle w,x,K_{x,w}\rangle}([\![\alpha]\!]^{c,\langle w,x,\bigcap K_{x,w}\rangle})$

b. vFG's semantics for *must*:
$[\![\text{ must }]\!]^{c,\langle w,x,K_{x,w}\rangle} = \lambda p :\ \forall w'.w' \in \bigcap K_{x,w}\ p(w')$ defined iff
K does not directly settle whether p.

- AI obviation

(13) a. The puerh must be delicious.

b. $[\![\text{ must [the puerh is delicious] }]\!]^{\langle \ldots,K_{sp,w},\ldots\rangle,\langle w,x,K_{x,w}\rangle}$
$= [\![\text{ must }]\!]^{\langle \ldots,K_{sp,w},\ldots\rangle,\langle w,x,K_{x,w}\rangle}$
$([\![\text{ the puerh is delicious }]\!]^{c,\langle w,x,\{\bigcap K_{x,w}\}\rangle})$
$= \bigcap K_{sp,w} \subseteq$ (*puerh.delicious*), if defined; and
defined iff $\{\bigcap K_{x,w}\}$ directly settles whether puerh is delicious to x in w and $K_{sp,w}$ does not directly settle whether puerh is delicious to x in w.

A direct proposal IV

Bottom line

AI obviation can be explained via the interaction of the directness requirement of PPTs and the indirectness requirement of obviators.

A competing view I

- Another view on AI obviation (Ninan 2020)
  - No extensional operator obviates the AI
  - All intensional operators obviate the AI (cf. Cariani 2021; Klecha 2014)
- In light of previous lectures: how can we tell?
  - An extensional indirect marker that obviates
  - An intensional direct marker that does not obviate

A competing view II

- *Find*-verbs: subjective attitudes with an acquaintance requirement (Kennedy and Willer 2016; Korotkova and Anand 2021; Stephenson 2007)
- Evidence from *find*-verbs:
  - No obviation
  - Support for the evidential account

(14) a. # Pascal finds the movie boring, but he hasn't seen it.

b. # I find milky oolong delicious, but I haven't tried it.

- Ninan's (2020) works only if *find*-verbs are extensional (evidence for intensionality: complex affair, Anand & Korotkova at the subjectivity workshop earlier this week)

Find-verbs and evidence I

- *Find*-verbs: interesting issues related to modelling evidence
- Across languages: *find*-verbs associated with firsthand experience requirement independently of the predicate (Anand and Korotkova 2018; Korotkova and Anand 2021)

(15) Ich habe es noch nie probiert aber ... [German]
I have.1SG.PRES yet never try.PRT but
'I haven't tried it yet but ... (voiding acquaintance)

a. ✓...eine Karriere in der Starfleet ist schwierig.
INDEF career in DEF starfleet be.3SG.PRES difficult
...a career in Starfleet is difficult.'

b. #...ich **finde**, daß eine Karriere in der St. schwierig
I **find.1SG.PRES** COMP INDEF career in DEF St. difficult
ist.
be.3SG.PRES
...I find a career in Starfleet difficult.'

Find-verbs and evidence II

- Unlike with *delicious* and *beautiful*: the AI is not purely experiential
- Even with abstract notions: some acquaintance necessary

(16) a. I find his goals unattainable, # but I have no idea what they are, I just know that he has his head in the clouds.

b. I think that his goals unattainable, ✓but I have no idea what they are, I just know that he has his head in the clouds.

- Yet another piece of data supporting propositional notion of directness

Find-verbs and evidence III

- More evidential restrictions: *find*-verbs ban markers of indirectness in their complements (Korotkova and Anand 2021)
  - Evidential markers
  - *Must*-modals (only epistemic)
  - *Might*-modals (only epistemic)

(17) Magda **findet**, [German]
Magda **find.3SG.PRES**

dass	der	Tee	lecker	sein	muss .
COMP	DEF.M	tea	delicious	be.INF	□.3SG.PRES

≈ 'Magda is of the opinion that the tea must be delicious.'
(i) ✓**epistemic**: e.g., based on the taste and color;
(ii) ✓**deontic**: e.g., based on the tea ceremony requirements.

- Proposal: a clash in directness, also rooted in (revised) kernels

Find-verbs and evidence IV

- Interesting asymmetry: epistemic *might* vs. *likely*
- *Might*-modals and epistemic adjectives: frequently assigned the same semantics (Lassiter 2017)
- Epistemic adjectives: very common

(18) German

Descartes	**findet**	es	**wahrscheinlich**,	dass	Gott	die	Welt	von	Beginn	an
Descartes	**find.3SG.PRES**	this	**likely**	COMP	God	DEF	world	from	beginning	on

so	gemacht	hat,	wie	sie	sein	sollte.	
so	make.PRT	have.3SG.PRES	how	she	be.INF	should	

'Descartes finds it likely that from the start God created the world the way it should be'.

(http://www.cosmologica.de/metaphysik/descartes1inh.htm)

Find-verbs and evidence V

- *Might*-modals: banned in the epistemic interpretation

(19) Der Tee **kann** aus Japan sein. [German]
DEF.M tea ◇ from Japan be.INF
'The tea may be from Japan.'
(i) ✓**epistemic**: we don't know where the tea is from, it can also be from Japan;
(ii) ✓**deontic**: e.g., the tea served for picky guests is allowed to be Japanese.

(20) Magda **findet**, dass der Tee aus Japan sein **kann**.
Magda **find.3SG.PRES** COMP the tea from Japan be.INF ◇
#**epistemic**, ✓**deontic**: 'Magda is of the opinion that the tea may be from Japan.'

Find-verbs and evidence VI

- Embedding under *find*: diagnostic of **semantic** indirectness
  - *Might*-modals semantically encode indirectness (cf. von Fintel and Gillies 2010; Matthewson 2015)
  - Modal adjectives, despite an arguably similar semantics, do not

Find-verbs and evidence VII

- Party message: there is more to say about modals & evidence, come talk to us if interested!

Thank you!

References I

Anand, P. and N. Korotkova (2018). Acquaintance content and obviation. In U. Sauerland and S. Solt (Eds.), *Sinn und Bedeutung 22*, Berlin, pp. 161–173. ZAS.

Anand, P. and N. Korotkova (2022). How to theorize about subjective meaning: A lesson from 'de re'. *Linguistics and Philosophy 45*, 619–681.

Briesen, J. (2020). *Ästhetische Urteile und Ästhetische Eigenschaften*. Frankfurt am Main: Klostermann.

Budd, M. (2003, 10). The Acquaintance Principle. *The British Journal of Aesthetics 43*(4), 386–392.

Bylinina, L. (2017). Judge-dependence in degree constructions. *Journal of Semantics 34*(2), 291–331.

Cariani, F. (2021). *The Modal Future: A Theory of Future-Directed Thought and Talk*. Cambridge: Cambridge University Press.

Charlow, N. (2019). Gradable predicates of experience. Ms.

Dinges, A. and J. Zakkou (2021). Taste, traits, and tendencies. *Philosophical Studies 178*(4), 1183–1206.

von Fintel, K. and A. S. Gillies (2010). Must ...stay ...strong! *Natural Language Semantics 18*(4), 351–383.

References II

Hopkins, R. (2006). How to form aesthetic belief: Interpreting the acquaintance principle. *Postgraduate Journal of Aesthetics 3*, 85–99.

Kaiser, E. and J. H. Lee (2017). Experience matters: A psycholinguistic investigation of predicates of personal taste. In J. C. Dan Burgdorf, S. Maspong, , and B. Stefánsdóttir (Eds.), *Semantics and Linguistic Theory 27*, pp. 323–339.

Kaiser, E. and J. H. Lee (2018). Predicates of personal taste and multidimensional adjectives: An experimental investigation. In W. G. Bennett, L. Hracs, and D. R. Storoshenko (Eds.), *West Coast Conference on Formal Linguistics 35*, Somerville, MA, pp. 224–231. Cascadilla Proceedings Project.

Kennedy, C. and M. Willer (2016). Subjective attitudes and counterstance contingency. In M. Moroney, C.-R. Little, J. Collard, and D. Burgdorf (Eds.), *Proceedings of the 26th Semantics and Linguistic Theory Conference*, pp. 913–933.

Klecha, P. (2014). Diagnosing modality in predictive expressions. *Journal of Semantics 31*(3), 443–455.

Korotkova, N. and P. Anand (2021). *Find*, *must* and conflicting evidence. In *Sinn und Bedeutung 25*.

References III

Lassiter, D. (2017). *Graded Modality: Qualitative and Quantitative Perspectives*. Oxford: Oxford University Press.

Lord, E. (2016). On the rational power of aesthetic testimony. *The British Journal of Aesthetics 56*(1), 1–13.

Matthewson, L. (2015). Evidential restrictions on epistemic modals. In L. Alonso-Ovalle and P. Menendez-Benito (Eds.), *Epistemic Indefinites*, pp. 141–160. Oxford: Oxford University Press.

Mothersill, M. (1984). *Beauty Restored*. Oxford: Clarendon Press.

Muñoz, P. (2019). *On tongues: The grammar of experinetial evaluation*. Ph. D. thesis, Univesrity of Chicago.

Ninan, D. (2014). Taste predicates and the acquaintance inference. In T. Snider, S. D'Antonio, and M. Weigand (Eds.), *Semantics and Linguistic Theory 24*, pp. 290–309. LS.

Ninan, D. (2020). The projection problem for predicates of personal taste. In J. Rhyne, K. Lamp, N. Dreier, and C. Kwon (Eds.), *Semantics and Linguistic Theory 30*, pp. 753–778. LSA.

References IV

Pearson, H. (2013). A judge-free semantics for predicates of personal taste. *Journal of Semantics 30*(1), 103–154.

Stephenson, T. (2007). *Towards a Theory of Subjective Meaning*. Ph. D. thesis, Massachusetts Institute of Technology.

Vardomskaya, T. (2018). *Sources of Subjectivity*. Ph. D. thesis, University of Chicago.

Wollheim, R. (1980). *Art and Its Objects*. Cambridge: Cambridge Univeristy Press.