# Futurity, evidentiality & modality: Day 2
# Philosophical Positions on Evidence

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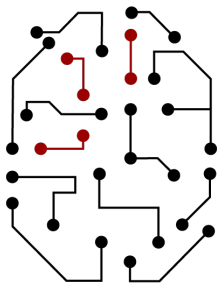
NASSLLI 2022 @ USC
June 20, 2022





# Plan

1. Leftover material from yesterday.
2. Crash course: epistemological concepts.
3. Evidence-type constraints on knowledge and assertibility.
4. A first puzzle about **will**. (if we manage)

# I. LEFTOVERS

# Lassiter's corpus data

(1) I have an injected TB42 turbo and don't like the current setup. There is an extra injected located in the piping from the throttle body ... **Must** be an old DTS diesel setup but **I'm not certain**. Why would they have added this extra injector?

(2) This is a very early, very correct Mustang that has been in a private collection for a long time ... The speedo[meter] shows 38,000 miles and **it must be** 138,000, but **I don't know for sure**.

# vF&G's reply

- Lassiter"has found some examples in the wild where epistemic modals undergo shifts in the possibilities deemed relevant, the modal horizon" (von Fintel and Gillies 2021:99)

(3) a. That must be an old DTS diesel setup but I'm not certain. Why would they have added this extra injector?

b. So, given that you're not certain, do you still think that it must be an old DTS diesel setup?

c. I guess not./Yeah, it must be; I'm sure of it./
?*Like I said: it must be and I'm not certain.

The highlighted bit is ... controversial, let's survey it.

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  - makes strange predictions about the assertability of **must** in certain situations of perfectly clear statistical evidence.

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(4) Suppose I flip extremely biased coin whose bias towards heads is arbitrary close but not identical to 100%. I flip the coin but do not show you the results.

a. It must have landed heads $\mapsto$ *False*

# Mandelkern's Core generalization

Support : **must** A needs an argument for A that is salient (or made salient) to the interlocutors and endorsed by the speaker.

- **Support** is unlike **Indirectness** in part because based on **interpersonal** facts.
- Also, obviously because of the emphasis on **argument**.

# The data for Support

(5) *Context: Patch the rabbit sometimes gets into the cardboard box where her hay is stored. On his way out the door, Mark hears a snuffling from the box and thinks to himself, 'Patch must be in the hay box.' When he gets to school, Bernhard asks him how Patch is doing.*

a. (Mark:) ?? She's great. She must have gotten into the hay box this morning.

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- *Mandelkern:* something's off with Mark's comment in (5).
- *Explanation:* no argument that is salient to participants.

# what are “salient arguments”?

**argument**

*I will treat an argument for p as a set of propositions which the speaker is commonly recognized to believe provides reason to believe p—either by deductively entailing its conclusion; by inductively supporting the conclusion; or by showing how the conclusion follows from what is already accepted. (p. 229)*

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**salient:** the argument in question:

1. Need not be common ground or commonly accepted.
2. Can be salient without being made explicit.
3. Need not be salient at the time of the assertion.
4. Must be endorsed by the speaker.

# Can Support explain Indirectness? I

1. **must** A is a proposal to update the common ground with A.
2. By Support, this has to be based on a salient argument for A.
3. By pragmatic considerations, this argument cannot be too obvious (Maxim of Manner).
4. If the argument was of the form *I see the rain, therefore it's raining*, it would be too obvious.
5. In general, if it was **direct**, it would be too obvious.

# Can Support explain Indirectness? II

- There is a research program here:
  - Can indirectness really be derived (Mandelkern) vs. hard-wired (vFG)?
  - Does Support play a role with other modals, e.g. *might*?
  - What about markers have been categorized as linguistic evidentials (subject of Day 3)?

# II. CRASH COURSE: EPISTEMOLOGICAL CONCEPTS

# Knowledge, Assertibility, Justification

- (We) epistemologists love knowledge.
- This love is tricky to explain to others because knowledge is hard to define, and yet oh so valuable.

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- *Example:* I am driving my mom to my garden where I plant various things. Before she has seen anything she says,

(6) Your tomato plants need to be watered.

Suppose it is true. There is something defective about her assertion. Plausibly it's that *she doesn't know that!*.

# Knowledge norm of assertion: evidence for

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II. Helps explain the badness of:

(7) # It's raining but I don't know that it is.

(Williamson 2000)

# Knowledge norm: two foundations

derivative: the knowledge norm strengthens Grice's **maxim of quality**.

> "one tries to be truthful, and does not give information that is false or that is not supported by evidence."

constitutive: the knowledge norm *is constitutive of* the speech act of assertion, in a similar way to how the rules of a game, say, basketball constitute what it is to play that game.

# Knowledge, Assertibility, Justification

- It is widely believed that in order to know some proposition $p$ one must be justified in believing $p$.
- Unlike knowledge, justification does not require truth.
  - Someone may be justified in believing a falsehood (e.g. that *Dani is the thief*), e.g. if they were given misleading evidence.
- Beyond this there are many incompatible conceptions of justification. Distinguishing between them requires complex argument.

# Evidence

What about evidence?

- As with all these, there is much disagreement about what evidence is.
- One standard picture: *evidence is what makes beliefs justified*.
- Sample linking principle: $\alpha$'s belief in $p$ is (doxastically) **justified** iff $p$ is supported by $\alpha$'s **evidence**.
- If justification is required for knowledge, this forges a link between evidence and justification.

For more on this kind of thing, always go for the Stanford Encyclopedia of Philosophy, in this case Kelly (2016)

# III. EVIDENTIAL CONSTRAINTS ON KNOWLEDGE

# Lottery

There is a lottery with 10,000,000 tickets with equal probability of winning.
Consider the badness of (8):

(8) # Ticket number 372 won't win [sometimes called a 'lottery proposition']

(9) (past-directed version: imagine you have not seen the lottery results)

a. # Ticket number 372 did not win.

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- **targeted claim**: believing $p$ is a matter of assigning high subjective probability to $p$. Note that it's totally fine to assert:

(10) It's highly likely that ticket number 372 won't win.

# Lottery Propositions and Knowledge

A standard explanation:

- You can't assert (8) because you don't know it.
- You don't know it in part because this kind of purely statistical evidence is not, by itself, enough for knowledge.
- If purely statistical evidence was enough for knowledge in lottery cases, it would be enough to know every proposition of the form:

(11) Ticket number *n* won't win

- But that's impossible: exactly one of the propositions of the form of (11) is false and so you can't know it.

for extensive discussions: Harman (1968); Hawthorne (2004); Smith (2016)

# Wait what?

Some claims that are supported by statistical evidence seem just fine.

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big difference:

(a) relying on *statistical information as part of larger reasoning*.

(b) relying on *purely statistical* information.

- Dedicated markers of weak inference: not licensed in pure statistical scenarios

# Case 2: Blue Bus (Buchak 2014)

*Suppose it is late at night...and an individual's car is hit by a bus. This individual cannot identify the bus, but she can establish that it is a blue bus, and she can prove as well that 80 percent of the blue buses in the city are operated by the Blue Bus Company, that 20 percent are operated by the Red Bus Company, and that there are no buses in the vicinity except those operated by one of these two companies. Moreover, each of the other elements of the case – negligence, causation, and, especially, the fact and the extent of the injury – is either stipulated or established to a virtual.* *(reported by Buchak on p. 290)*

# Three claims about the Blue Bus case

Claims: the purely statistical fact of the bus distribution, no matter how robust, is not sufficient for:

1. a **legal finding** against the Blue Bus Company.
2. **asserting** *It was a bus from the Blue Bus company that did it.*
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An interesting hard case: what about **justified belief**?

# Case 3: Green Bus

*Suppose it is late at night, and an individual's car is hit by a green bus. The two bus companies in the area, the Green Bus Company and the Yellow Bus Company, each operate 50 percent of the green busses. There is an eyewitness, who identifies the bus as belonging to the Green Bus Company (the two bus companies operate busses with distinctive shapes). It is night-time, and so her vision is not ideal: let us say she makes mistakes 25 % of the time. All of the other elements of the case remain the same. (reported by Buchak on p. 291)*

# Claims and Questions about Green Bus case

Claims: the eyewitness testimony is:

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Claims: the eyewitness testimony is:

1. sufficient for a **legal finding** against the Green Bus Company.
2. on the fence about **asserting** *It was a bus from the Green Bus company that did it.*
3. on the fence about **knowing** and not sufficient for *It was a bus from the Green Bus company that did it.*
4. sufficient for **belief** (?)

Insufficiency seems like due to 75% being a low-ish probability.
Bump that probability to 99% and, or imagine there are 2-3 independent witnesses ...and all of a sudden it seems like ordinary fallible knowledge.

# Upshot

Evidence-type has an effect on knowledge and assertibility.

We may fall short of knowing (in significant part) because our evidence is not of the right kind.

That suggests that there are evidential constraints on assertion that are not tied to any one lexical item.

# IV. AN EVIDENTIAL PUZZLE ABOUT **WILL**

# The Puzzle (from Ninan fc) with mods)

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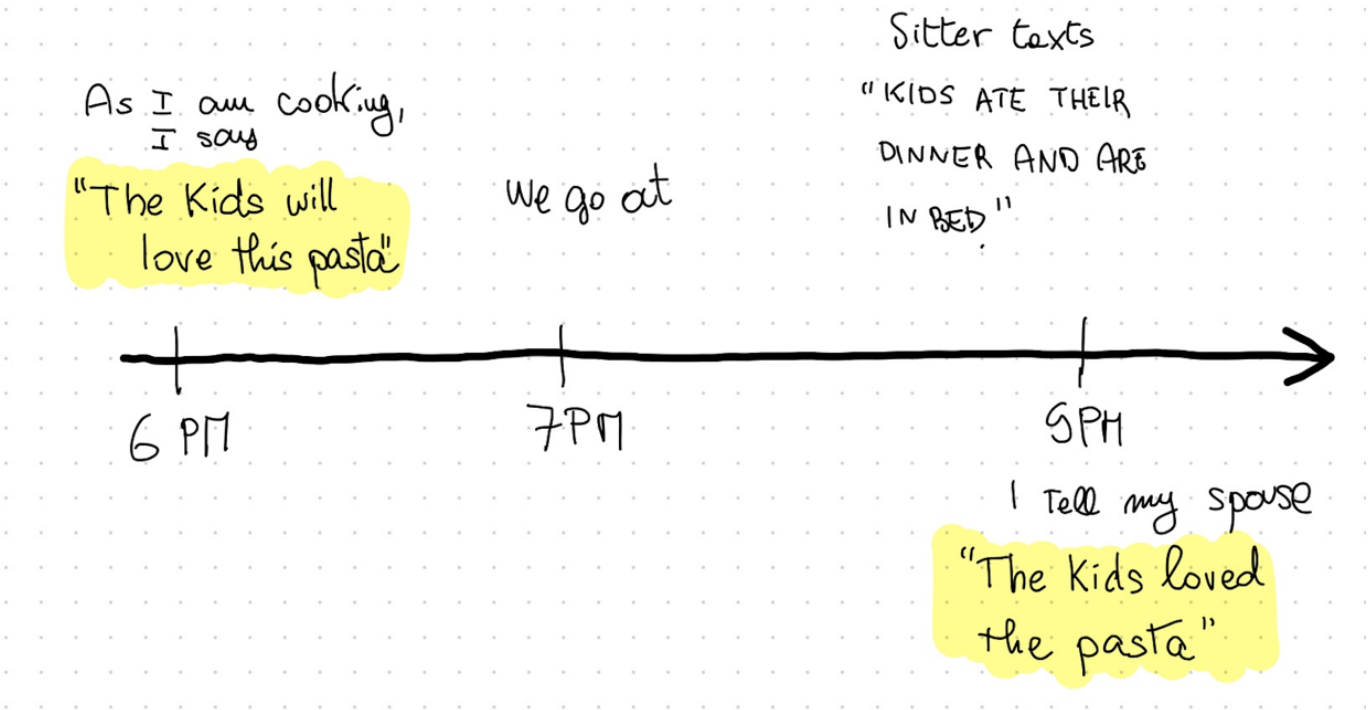

# Articulating the puzzle

## The data:

(15) a. (**earlier**) The kids will love this pasta. ↦ good

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## Argument:

(P1) In their contexts, the truth conditions of (15a) and (15b) are (approximately) same.

(P2) The quality of your evidence does not deteriorate with time.

(P3) Given (P1) and (P2) we should expect the acceptability conditions of my assertion to be the same.

Taken together with the data, these claims are problematic

# "Available evidence view"

Perhaps (P2) is false: your evidence gets worse not because it deteriorated, but because it is no longer the best available.

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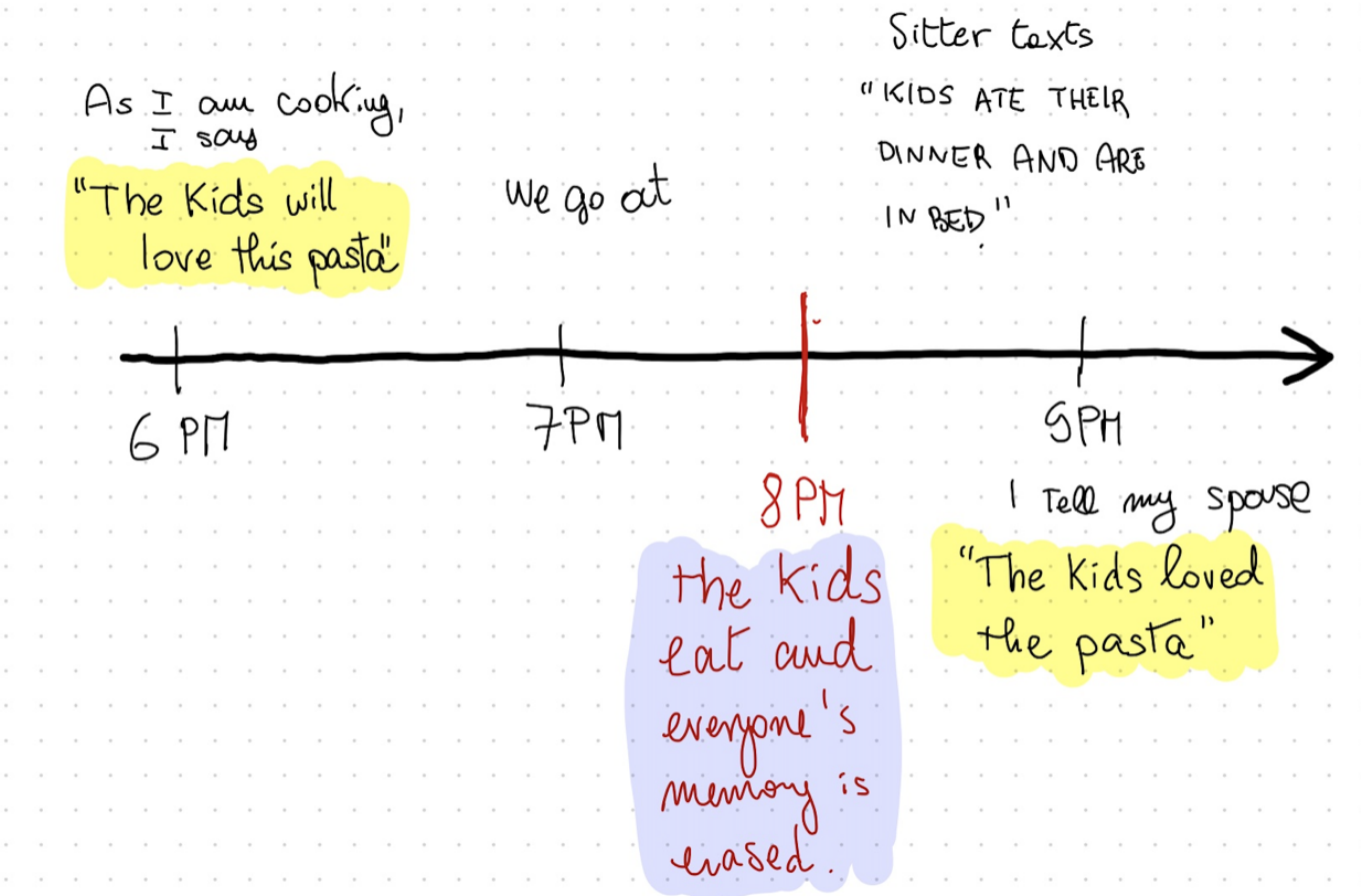

# Ninan's view

There is a past / future asymmetry.

- The potential for abnormalities in the future does not disrupt knowledge.
- The potential for abnormalities in the past typically does.

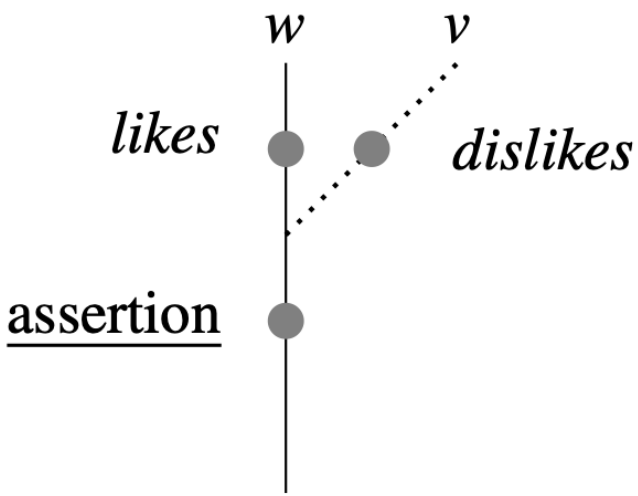


**Figure 13.1:** Future abnormality

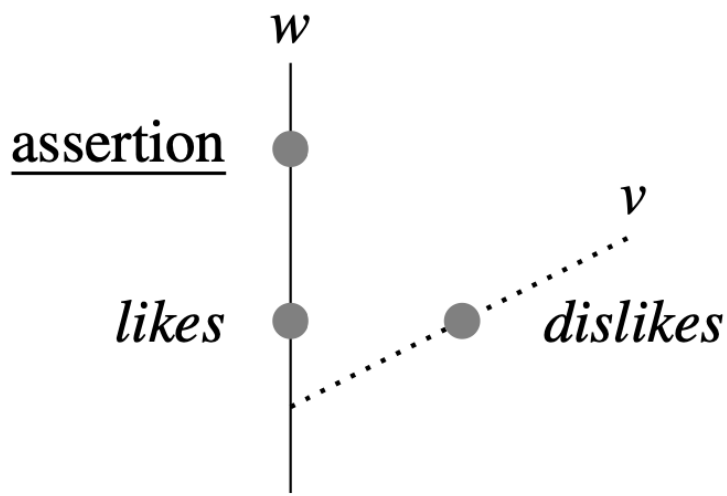


**Figure 13.2:** Past abnormality

# Events that stretch across p/f Cariani (2021)

(16) Marta's colleague Lorenzo is scheduled to land in Rome from Los Angeles on Tricolor airlines at 5 PM. Tricolor airlines is famous for its reliability and punctuality. Indeed, that particular flight from Los Angeles to Rome has never been late. It is now noon and Lorenzo has been flying for a few hours already, though Marta hasn't checked for any updates. Marta says to her friend:

a. Lorenzo will land at 5 PM

# Events that stretch across p/f Cariani (2021)

(17) Andy pledges to cook a meal for each member of our department on the occasion of their birthday during the next calendar year. Andy's team will research each of these meals ahead of time to maximize the extent to which the birthday person will enjoy it. Andy and his team are generally remarkably good at this. If the birthday person likes the meal, Andy will collect a badge.

a. (at the beginning of the calendar year) Andy will collect all of the badges.

b. (at the halfway through the calendar year) Andy will collect all of the badges.

# Taking stock

1. Ninan uncovered a new puzzle involving the evidential constraints of **will** vs. past.
2. There are substantial problems for both the available evidence view and the abnormality view.
3. For an account one of us stands behind, hold on for days 4 and 5!

# References I


Buchak, L. (2014). Belief, credence, and norms. *Philosophical studies 169*(2), 285–311.

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

Eckardt, R. (2020). Conjectural questions: The case of German verb-final *wohl* questions. *Semantics and Pragmatics 13*(9), 1–17.

von Fintel, K. and A. S. Gillies (2021). Still going strong. *Natural Language Semantics*.

Harman, G. (1968). Knowledge, inference, and explanation. *American Philosophical Quarterly 5*(3), 164–173.

Hawthorne, J. (2004). *Knowledge and lotteries*. Oxford University Press.

Kelly, T. (2016). Evidence. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2016 ed.). Metaphysics Research Lab, Stanford University.

Ninan, D. (fc). Assertion, evidence, and the future. *The Philosophical Review*.

# References II

Smith, M. (2016). *Between Probability and Certainty: What Justifies Belief*. Oxford University Press.

Williamson, T. (2000). *Knowledge and Its Limits*. Oxford: Oxford University Press.