

Decomposing memory reports: a Kurdish perspective*

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- In this talk, I develop a compositional semantics for *memory reports*, sentences headed by predicates corresponding to the English verb *remember*, focusing on a case study from Sorani Kurdish (Northwestern Iranian).
- In this language, memory predicates are expressed with locative and copular morphosyntax. (1) illustrates the kind of sentences I will be focusing on in this talk.

(1) le bîr=m=e Baban le Slêmanî e-ž-ê
P memory=1.SG=COP.PRS.3.SG Baban in Slemani IMPF-live.PRS-3.SG
'I remember Baban living in Slemani.' (Sorani Kurdish)

- I will show that memory reports in Sorani pass diagnostics for stativity, particularly as predicates of *abstract states* (Maienborn, 2007; Cable and Crippen, 2023; Moltmann, 2025).
 - This distinguishes them from imagination reports, to which memory reports are often compared—and to which they are often reduced—in the recent psychological, philosophical, and linguistic literature (Addis et al., 2007; Michaelian, 2016; Liefke, 2024): I will show that imagination reports are predicates of dynamic eventualities in this language.
- Building on decompositional approaches to attitude predicates (Kratzer, 1996; Moulton, 2009, a.o.), I develop a novel analysis of memory reports that does not reduce them to imagination reports and accounts for their form and stativity in Sorani.
 - More broadly, this work contributes to a growing cross-linguistic perspective on the representation and semantics of memory reports in natural language (Rosina and Liefke, 2024).

Roadmap:

1. Background on memory and imagination
2. Memory reports in Sorani Kurdish
3. A compositional analysis for Sorani memory predicates
4. Taking stock and future research

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1 Memory reports as a species of imagination report

- Much work in psychology and the philosophy of memory adopts a *continuist* perspective on the relationship between imagination and (episodic) memory.
- According to continuism, episodic memory (memory of particular sensory experiences) is a specific kind of imaginative simulation, one that involves reconstruction of past experiences, rather than retrieval of stored experiences or information (Michaelian, 2011, 2016; Addis, 2018, 2020).
 - Evidence advanced in favor of this view comes from similarities in patterns of neural activation for both recalled past events and imagined future events, among other things (Addis et al., 2007).
- Building on this work, Liefke (2024) develops a continuist formal semantics for memory reports, on which verbs of memory like *remember* are treated as imagination reports with additional restrictions. Her proposal for the semantics of *remember* is given in (2).

$$(2) \quad \llbracket \textit{remember} \rrbracket^w = \lambda R. \lambda x. \exists e [\text{EXP}_{@}(e, x) \wedge \tau(e) \prec t_{@} \wedge \text{IMAGINE}_{@}(x, \eta\sigma: R(\omega(e), \sigma) \wedge (\sigma \cap \omega(e)) \geq \theta)]$$

- On this semantics, *remember* is a version of *imagine* with the following additional restrictions:
 1. It is *parasitically dependent* on some event that the subject experienced. This event may be either a sensory experience of an actual scene or a non-veridical experience, such as a dream.
 2. It is *past-directed*, by virtue of its reliance on the aforementioned experience, which is required to have happened prior to the time of imagination $t_{@}$.
 3. It is *accurate*: the content of the memory report, represented as a scene σ selected by a choice function η , must match the experienced event's content, denoted $\omega(e)$, up to a certain threshold of accuracy θ .
- This analysis allows for a treatment of memory reports as continuous with imagination reports, while also successfully accounting for clear differences between imagination and memory.
- Memories are required to be largely faithful to the content of a prior experience. Imaginings, on the other hand, need not be based on a prior experience at all, nor do they have to be past-directed.
- The account is also flexible enough to capture a number of other phenomena associated with memory, such as misremembering (due to variation in the setting of the threshold parameter) and the variable factivity of memory reports (due to variation in the kind of remembered experience, i.e. a remembered dream).

2 Memory reports in Sorani Kurdish

- Given the relation between memory and imagination that this approach relies on, two questions arise:
 1. How are memory and imagination reports expressed in other languages?
 2. Cross-linguistically, do memory reports and imagination reports share semantic properties?
- In what follows, I will investigate these questions in Sorani Kurdish.
- The semantic property I will focus on in this talk is *dynamicity*: whether or not a given predicate passes diagnostics for being dynamic vs. stative.
- I will show that memory reports behave quite differently from imagination reports in Sorani.
 - Memory predicates differ from imagination reports with respect to the formal elements out of which they are constructed.
 - Memory reports also differ from imagination reports with respect to dynamicity: imagination reports are dynamic, while memory reports are stative.
- This will lead me to a novel proposal for the semantics of memory reports in Sorani.

2.1 Brief background on Sorani Kurdish

- Sorani Kurdish (also known as Central Kurdish, and henceforth simply Sorani) is a Northwestern Iranian language spoken by 6.1 million people, primarily in northern Iraq and northwestern Iran.
- It is closely related to other Kurdish varieties, such as Kurmanji (aka Northern Kurdish), but is not mutually intelligible with them and has a completely different grammatical system.
- The basic word order is SOV, with a split ergative alignment.
 - The alignment is dependent on transitivity and the stem: agreement with the subject is expressed via a suffix on the verb in intransitive sentences and those headed by non-past stem transitive verbs (3), but with transitive past stem verbs, agreement is marked by a clitic that occupies the second position within the verb phrase (4).

(3) min nan e-xo-m
1.SG bread IMPF-eat.PRS-1.SG
'I am eating (bread).'

(4) min nan=im xward
1.SG bread=1.SG eat.PST
'I ate (bread).'

- Sorani is otherwise mostly head-initial: nominal modifiers follow the noun they modify (5), embedded clauses follow the embedding verb (6), and the language mostly uses prepositions (as well as circumpositions) (7).

(5) ew nûser-êk-î **betwane**=je
3.SG writer-INDEF-IZ skillful=COP.PRS.3.SG
'(S)he is a skilled writer.'

(6) min bawer na-ke-m **to le Manchester bi-ž-ît**
1.SG believe NEG-do.PRS-1.SG 2.SG at Manchester SBJV-live.PRS-2.SG
'I don't believe you live in Manchester.'

(7) min mitmane **be ew** e-ke-m
1.SG trust to 3.SG IMPF- do.PRS -1.SG
'I trust him/her.'

- The data reported here come from two native speakers of Sorani, one from Slêmanî, Iraqi Kurdistan, and the other from Sine, Iranian Kurdistan.

2.2 Expressing memory and imagination in Sorani

- Like most Western Iranian languages, Sorani has a small class of lexical verbs, and relies primarily on combinations of a verb with some non-verbal element (*light verb constructions* or *complex predicates*) to express verbal concepts.
- In line with this general property, there is no lexical verb in Sorani corresponding to the English verb *remember*.
- Instead, memory reports are constructed out of the noun *bîr* 'memory' accompanied by a locative preposition *le*, a clitic cross-referencing the holder of the memory, and a form of the copula *bûn*.¹

(8) le bîr=m=e Baban le Slêmanî e-ž-ê
P memory=1.SG=COP.PRS.3.SG Baban in Slemani IMPF-live.PRS-3.SG
'I remember Baban living in Slemani.'

- Importantly, *le bîr bûn* can only be used to report episodic memories (memories of personally experienced events); it is infelicitous if the memory holder is merely recalling information they acquired from a secondary source, such as a textbook or the news.

¹*le* occurs as the first component of a number of circumpositions, e.g. *le...da* 'in' and *le...ewe* 'from.' The second part is commonly dropped in the two aforementioned cases. While I treat *le* as locative here, my analysis is compatible with a view on which locative semantics is provided by the often omitted second part of the circumposition, and I gloss it as P throughout.

- (9) #le bîr=m=e Barack Obama lê Hawaii le dayk bû=e
 P memory=1.SG=COP.PRS.3.SG Barack Obama P Hawaii P mother be.PTCP=COP.PRS.3.SG
Intended: ‘I remember that Barack Obama was born in Hawaii.’
 CONTEXT: You have read about Barack Obama’s life and recall from your reading that he was born in Hawaii.
- Thus, despite taking a finite clausal complement, *le bîr bûn* is more similar to English *remember* with a gerund complement than to *remember* with a finite clausal complement. For this reason, my glosses will use the gerund throughout.
 - Imagination reports, on the other hand, are expressed with an unrelated complex predicate, constructed from the noun *tesewer* ‘imagination’ and the light verb *kirdin* ‘do/make.’²
- (10) min tesewer=im kird Baban le Slêmanî e-ž-ê
 1.SG imagination=1.SG do.PST-PRT Baban in Slemani IMPF-live.PRS-3.SG
 ‘I imagined Baban living in Slemani.’

2.3 The stativity of memory reports

- A difference in the form of these predicates need not preclude a continuist analysis of memory reports along the lines of Liefke’s.
 - Indeed, many attitude predicates entail (or presuppose) other attitudes, i.e. *discover* entails knowledge, *regret* presupposes belief, etc..
- Nevertheless, if memory reports are a variety of imagination report with additional restrictions, we expect them to share certain properties.
- One of these properties is *dynamicity*, or whether or not a given predicate passes diagnostics for possessing a dynamic Davidsonian eventuality argument.
 - If imagination reports are dynamic, we conclude that they possess a dynamic eventuality argument.
 - If imagination reports are dynamic, and memory reports are simply imagination reports with additional conjuncts constraining their interpretation, we should likewise conclude that memory reports are also dynamic, and thus endowed with a dynamic eventuality argument.
- This leads us to a more serious problem for a continuist semantics for memory reports in Sorani: Sorani memory reports are stative, while imagination reports are dynamic.
 - More specifically, memory reports show the hallmarks of *abstract* or *static* state predicates (Bach, 1986; Moltmann, 2025), also called *Kimian state* predicates (Kim 1976; Maienborn 2005, 2007; Cable and Crippen 2023).
 - Abstract state predicates include *know*, *fear*, *love*, and *resemble*, along with copular expressions like *be tall* or *be angry*.
- I will focus on three diagnostics to distinguish memory reports and imagination reports with respect to dynamicity:
 1. the *happen* test (Maienborn, 2005, 2007; Cable and Crippen, 2023).
 2. Compatibility with the progressive (Dowty, 1979; Cable and Crippen, 2023).
 3. Acceptability in episodic *when*-clauses.
- Memory reports will be shown to fail all three of these tests, while imagination reports pass them all.

²Kurdish possesses another predicate, *xeyâl kirdin* (=ewe), which speakers sometimes translate as ‘imagine.’ On closer inspection, however, *xeyâl kirdin* works quite differently from imagination reports, and is better translated as ‘to believe falsely.’ I set this predicate aside here.

2.3.1 The *happen* test

- One of the most robust tests for distinguishing between eventive and stative predicates is the *happen* test (Maienborn, 2005; Cable and Crippen, 2023).
- (11) *Happen* test
- i) If a proform referring back to an eventuality introduced in a previous sentence can felicitously serve as the subject of *happen*, then the eventuality in question is a dynamic event.
 - ii) If the sentence with a proform acting as the subject of *happen* is infelicitous in the discourse, then there is no dynamic event to refer back to.
- We can see the results of this test in English in (12) below.
 - The discourse in (12-a) is felicitous, with *that* referring back to John’s dancing.
 - The discourse in (12-b) is infelicitous: John’s love of Mary is not something that can be described as a happening.
- (12) a. John danced. That happened yesterday morning.
 b. John loved Mary. #That happened last year.
- Sorani’s analogue of *happen* is *rû dan* (lit. give face). It makes the same distinction between dynamic and abstract state predicates that *happen* does in English.
- (13) a. qaç=im şka. em-e hefte=î raburdû rû=y da
 leg=1.SG break.PST this-DEF week=IZ past face=3.SG give.PST
 ‘My leg broke. That happened last week.’
 b. min hez=im le Meryem bû. #em-e hefte=î raburdû rû=y da
 1.SG liking=1.SG P Maryam COP.PST this-DEF week=IZ past face=3.SG give.PST
 ‘I liked Maryam. #That happened last week.’
- Memory reports are incompatible with *rû dan*: having something in one’s memory cannot be described as an event that happened.
- (14) le bîr=im bû Baban le Slêmanî e-ž-ê. #eme dwênê rû=y
 P memory=1.1.SG cop.PST.3.SG Baban in Slemani IMPF-live.PRS.3.SG this yesterday face=3.SG
 da
 give.PST
Intended: ‘I remembered Baban living in Slemani. #This happened yesterday.’
- Imagination reports with *tesewer kirdin*, on the other hand, are readily compatible with *rû dan*: an event of imagining can be felicitously described as something that happened, as (15) shows.
- (15) tesewer=im kird Baban le Slêmanî e-ž-ê. eme dwênê rû=y da
 imagination=1.SG do.PST-PRT Baban in Slemani IMPF-live.PRS.3.SG this yesterday face=3.SG give.PST
 ‘I imagined Baban living in Slemani. This happened yesterday.’
- The results of this test are already telling: memory reports in Sorani are stative.
 - Imagination reports are straightforwardly eventive.
 - This shows us that memory reports should not be endowed with a dynamic event argument, while imagination reports should be.
 - While this test tells us that memory predicates are not predicates of dynamic *events*, it is not enough to completely rule out a dynamic analysis; it leaves room for the possibility that memory reports are predicates of *dynamic states*.
 - Examples of dynamic state predicates in English include *sleep*, *wait*, and verbs of position like *sit* and *stand*.
 - Additional tests are needed to rule out a dynamic analysis more conclusively.

2.3.2 Compatibility with the progressive

- A well-known test for distinguishing dynamic predicates (both eventive and stative) from abstract state predicates is compatibility with the progressive (Dowty, 1979; Cable and Crippen, 2023).
 - In English, dynamic predicates are felicitous with the progressive, but abstract state predicates resist it, and are most natural in the simple present.³
- (16) a. John is sleeping/waiting for the bus/eating bread
 b. #John is knowing the answer/loving Mary/hating Bill
 cf. John knows the answer/loves Mary/hates Bill
- Sorani uses the adjective *xerîk* ‘busy, engaged’ along with an embedded finite clause to express the progressive aspect.
 - *Xerîk* distinguishes dynamic predicates from abstract state predicates.
- (17) a. *xerîk*=im nân a-xo-m
 engaged-COP.PRS.1.SG bread IMPF-eat.PRS-1.SG
 ‘I am eating bread.’
 b. #*xerîk*=im wellam-eke e-zan-im
 engaged-COP.PRS.1.SG answer-DEF IMPF-know.PRS-1.SG
Intended: ‘I am knowing the answer.’
- Memory reports are incompatible with the progressive, providing more definitive evidence that they are abstract state predicates.
- (18) #*xerîk*=e/im le bîr=m=e Baban le Slêmanî e-ž-ê
 engaged=COP.PRS.3/1.SG P memory=1.SG=COP.PRS.3.SG Baban in Slemani IMPF-live.PRS-3.SG
Intended: ‘I am remembering Baban living in Slemani.’
- Imagination reports, on the other hand, are completely natural with the progressive. This provides further evidence that these predicates are dynamic.
- (19) *xerîk*=im tesewer e-ke-m Baban le Slêmanî e-ž-ê
 engaged=COP.PRS.1.SG imagination IMPF-do.PRS-1.SG Baban in Slemani IMPF-live.PRS-3.SG
 ‘I am imagining Baban living in Slemani.’

2.3.3 Episodic *when*-clauses

- The final diagnostic I will use to distinguish memory reports from imagination reports is clauses headed by the equivalents of *when* (Sorani *katêk*), used episodically (rather than generically) to locate an eventuality within the time provided by the *when*-clause.
 - I am not aware of prior work that uses this as a diagnostic, but it makes the same cut as the *rû dan* and progressive tests.
 - Dynamic predicates may appear naturally in *katêk* clauses (20), but abstract state predicates are judged unacceptable (21).
- (20) *katêk* nan=im e-xward, dez-êk dezdan=eke=m=î dezî
 when bread=1.SG IMPF-eat.PST thief-IND wallet=DEF=1.SG=3.SG steal.PST
 ‘When I was eating, a thief stole my wallet.’
- (21) #*katêk* wellam=eke=m e-zanî, dez-êk dezdan=eke=m=î dezî
 when answer=DEF=1.SG IMPF-know.PST thief-IND wallet=DEF=1.SG=3.SG steal.PST
 ‘When I knew the answer, a thief stole my wallet.’

³There are well-known exceptions to this in English, such as the famous McDonald’s slogan *I’m loving it..* This is ordinarily described as occurring when the state in question is in some sense temporary (Dowty, 1979; Deo, 2009). The Kurdish equivalent of the progressive does not appear to have this property, so the progressive test may be more reliable in this language.

- Applying this test to memory and imagination reports, we find that memory reports once again pattern with abstract state predicates and imagination reports with dynamic predicates: the former are unacceptable in an episodic *when*-clause (22), while the latter are natural (23).

- (22) #katêk le bîr=im bû le kener derya pyase=m e-kird, dez-êk
 when P memory=1.SG COP.PST P edge sea walk=1.SG IMPF-do.PST thief-IND
 dezdan=eke=m=î dezî
 wallet=DEF=1.SG=3.SG steal.PST
 Intended: ‘When I remembered walking on the beach, someone stole my wallet.’
- (23) katêk tesewer=im e-kird le kener derya pyase e-ke-m, dez-êk
 when imagination=1.SG IMPF-do.PST-EWE at edge sea walk IMPF-do.PRS-1.SG thief-IND
 dezdaneke=m=î dezî
 wallet=1.SG=3.SG steal.PST
 ‘When I was imagining walking on the beach, someone stole my wallet.’

- This is yet more evidence that memory reports diverge from imagination reports: memory reports are predicates of abstract states, but imagination reports are predicates of dynamic eventualities.

2.4 Interim summary

- On Liefke’s analysis, memory reports are simply imagination reports with additional conjuncts constraining their interpretation.
 - We thus expect them to pattern with imagination reports with respect to dynamicity: if imagination reports are dynamic, so are memory reports.
- However, memory and imagination reports exhibit very different behavior in this regard: memory reports are abstract state predicates, while imagination reports are dynamic eventive predicates.
- Taking recent work seriously that argues for an ontological distinction between dynamic eventualities and abstract states (Maienborn, 2005, 2007; Cable and Crippen, 2023; Moltmann, 2025), we should not treat Sorani memory predicates as imagination reports with additional restrictions on their interpretation: they are predicates of different kinds of things!
- While Liefke’s analysis may be appropriate for a language like English, it is not appropriate for Sorani: an analysis that captures the stative nature of memory reports in Sorani is to be preferred.

3 A compositional analysis for Sorani memory predicates

3.1 A guiding metaphor

- We often speak of memory as though it were a kind of *abstract location*, a repository of stored mental states, each of which is a record of some prior experience.
- We can also think of our memory as the totality of these recorded experiences, with each individual memory corresponding to one of the mental states contained within this totality.
- My analysis of the Sorani memory predicates discussed above amounts to a formalization of this guiding intuition.

3.2 Ingredients

- My setup involves the following sorts of objects (disjoint subsets of the universe of discourse).
 1. Ordinary entities (elements of the domain D_e , variables x, y, z , etc.)
 2. Dynamic eventualities (elements of the domain D_v , variables e, e', e'' , etc.)
 3. Abstract states (elements of the domain D_s , variables s, s', s'' , etc.)

- We'll of course also have the familiar truth values $\{T, F\}$, along with domains for functions from any type to any other type.
 - I will also make ancillary use of times, as well as scenes in the analysis of the content of memories, following Liefke (2024). I consider the use of scenes to be non-essential to the analysis.
- I understand abstract states to be distinct from dynamic eventualities.⁴
- I think of abstract states as akin to *tropes* in the sense of Moltmann (2009; 2025): concrete, fully specified, particular instantiations of a property.
- For simplicity, from this point on I will follow Baglini (2015) and Wellwood (2015) in simply referring to them as states.
 - I assume that states, like other kinds of objects, possess mereological structure: states may have other states as parts, and one may be in a plurality of states of certain kinds. This will play a role in the analysis to come.

3.3 Analysis

- On my proposal, the memory noun *bîr* denotes a function from individuals to states, where the state in question is maximal with respect to the set of memory states to which the individual has mental access (denoted by ACC).

$$(24) \quad bîr \rightsquigarrow \lambda x. \text{MAX}(\{s \mid \text{MEM}(s) \wedge \text{ACC}(x, s)\})$$

where $\text{MAX}(P) = \iota s[P(s) \wedge \forall s'[P(s') \rightarrow s' \leq s]]$ (the maximal state in a set P is the state of which all other states in P are a part)

- As the memory noun returns a state upon composing with an individual, additional material is needed to convert it into a predicate.
- I propose that this is accomplished by the preposition *le*,⁵ analyzed as a function from a state *s* to a predicate of states that are parts of *s*.

$$(25) \quad le \rightarrow \lambda s. \lambda s'. s' \leq s$$

- I assume the copula is semantically vacuous, an identity function on stative predicates.

$$(26) \quad =e \rightarrow \lambda P. \lambda s. P(s)$$

- Finally, I treat the embedded clause as introducing the content of the state (Kratzer, 2006; Moulton, 2009; Elliott, 2017, *inter alia*), with the content of a state being a selected scene, as in Liefke's (2024) analysis.

$$(27) \quad \text{Baban le Slêmanî ežê} = \lambda P. \lambda s'. P(s') \wedge \text{CONT}(s') = \eta\sigma: \exists e[\text{LIVE}(\text{baban}, \text{slêmani}, e) \wedge e \leq \sigma]$$

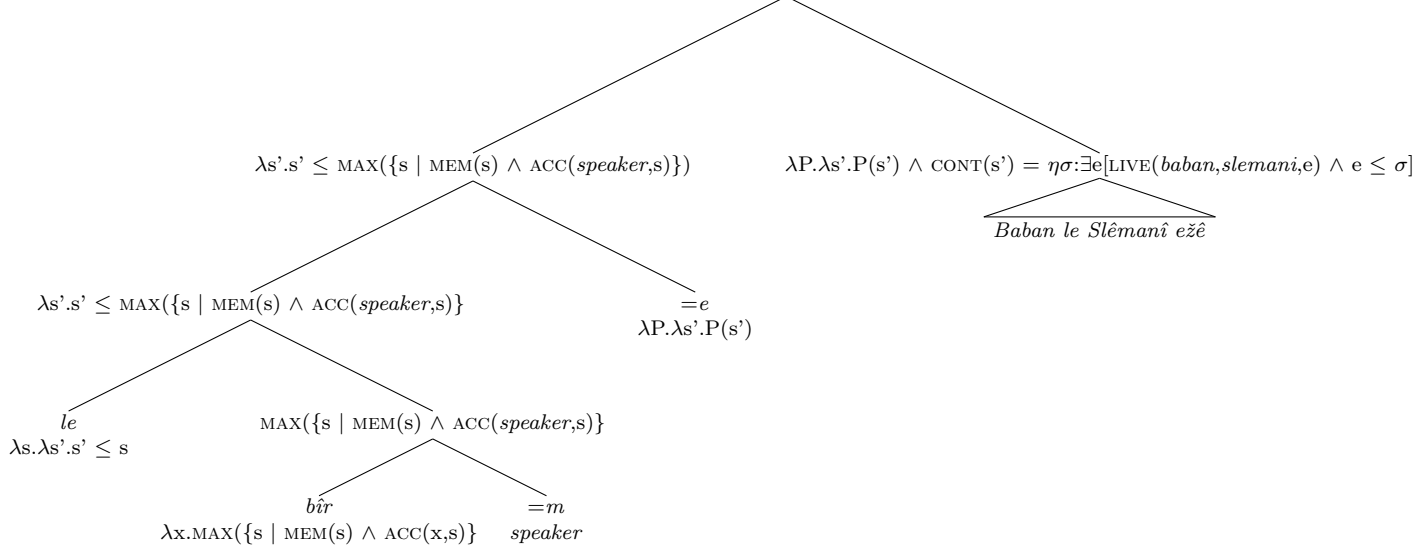
- Putting all of this together, a Sorani memory report receives the compositional analysis in (28).⁶ Upon existential closure of the state variable, the derived truth conditions are those in (29).

⁴In this, I follow Maienborn (2007), Cable and Crippen (2023), and Moltmann (2025), and do not follow Elliott (2017) and Bondarenko (2022), who treat attitude predicates as predicates of contentful events. See Moltmann (2024) for an argument against treating attitude verbs as predicates of events with content.

⁵Or its omitted second component *-da*, as discussed in footnote 1.

⁶This analysis makes a simplifying assumption about the syntax, namely, that the clitic to the right of the memory noun is a possessive clitic. See the appendix for arguments in favor of a syntactic analysis of memory predicates as a variety of *experiencer psychological complex predicates*, as analyzed by Taghipour (2024, 2025), and a semantic analysis compatible with such a syntactic structure. The derived truth conditions are unaffected by the choice of syntax.

$$(28) \quad \lambda s'.s' \leq \text{MAX}(\{s \mid \text{MEM}(s) \wedge \text{ACC}(\text{speaker}, s)\}) \wedge \text{CONT}(s') = \eta\sigma:\exists e[\text{LIVE}(\text{baban}, \text{slemanî}, e) \wedge e \leq \sigma]$$



$$(29) \quad \exists s'[s' \leq \text{MAX}(\{s \mid \text{MEM}(s) \wedge \text{ACC}(\text{speaker}, s)\}) \wedge \text{CONT}(s') = \eta\sigma:\exists e[\text{LIVE}(\text{baban}, \text{slemanî}, e) \wedge e \leq \sigma]]$$

3.4 Imagination reports in brief

- In the interest of time, I will not linger much on imagination reports.
- Since imagination reports are dynamic, an adequate semantics would treat them as denoting a predicate of dynamic eventualities.
- A straightforward way to do this would be to treat the imagination noun as a predicate of events of imagination, as in (30).

$$(30) \quad \text{tesewer} \rightsquigarrow \lambda e.\text{IMAGINING}(e)$$

- The light verb *kirdin* ‘do’ simply serves to relate the eventive noun to its agent.

$$(31) \quad \text{kirdin} \rightarrow \lambda V.\lambda x.\lambda e.V(e) \wedge \text{AGENT}(e) = x$$

3.5 Reconciling my analysis with Liefke’s

- I’ve argued against treating Sorani memory reports as restricted imagination reports.
- In line with this, my semantics for these reports is not based on a semantics for imagination reports.
- Nevertheless, my proposal is capable of incorporating many of the insights of Liefke’s analysis.
- For example, the past-directedness and relative accuracy of memory states can be encoded as part of what it means to be a memory possessed by an individual.
 - This can be implemented by associating any memory state with a previous experience (analyzed as a perceptual event, as in Liefke’s analysis), the content of which must be sufficiently similar to the content of the memory.
 - We do not place any constraints on the nature of this event of experience: it may be a sensory experience or a dream, as in Liefke’s approach.

$$(32) \quad \forall s\forall x[\text{MEM}(s) \wedge \text{ACC}(x, s) \iff \exists e[\text{EXP}(e, x) \wedge \tau(e) \prec \tau(s) \wedge \text{SIM}(\text{CONT}(e), \text{CONT}(s)) \geq \theta]]]$$

- A boon of my approach is that, while it is flexible enough to cover the range of data that Liefke uses to motivate her account, my analysis is not married to any of her claims about the entailments of memory reports.
- If any of them turn out to be dubious, this has no effect on the tenability of my own analysis.

4 Concluding remarks and future research

- While recent work in philosophy and psychology has defended a view of memory as a form of imagination, memory reports are treated very differently from imagination reports in some languages.
- My semantics, motivated by the form and properties of memory reports in Sorani Kurdish, is able to capture the stativity and structure of memory reports in the language, and is capable of incorporating insights from Liefke’s continuist semantics.
- More broadly, my proposal is in line with approaches concerned with natural language metaphysics Bach (1986): semantic analysis reflects what people talk as though there is, independently of its real-world status.
- Interesting avenues for future research include the following.

4.1 A cross-linguistic look at memory predicates

- While my focus in this presentation has been on memory reports in Sorani, similar constructions can be found in other Iranian languages.
- For example, Persian (Southwestern Iranian) expresses memory reports in a nearly identical way to Sorani, using a memory noun *yâd* along with the copula (33).

(33) *yâd=am=e* *ye ankabut dâsht* *târ mi-bast*
memory=1.SG=COP.PRS.3.SG a spider PROG.PST web IMPF-tie.PST
‘I remember a spider spinning a web.’ (Persian)

- Persian memory reports have the same properties as their Sorani equivalents: they cannot be described as happenings (34), they are incompatible with the progressive (35), and cannot appear in episodic *when*-clauses (36).

(34) *yâd=am* *bud* *ye ankabut dâsht* *târ mi-bast.* *#in ettefâq diruz* *oftâd.*
memory=1.SG COP.PST.3.SG a spider PROG.PST web IMPF-tie.PST this event yesterday fall.PST
Intended: ‘I remembered a spider spinning a web. #This happened yesterday.’ (Persian)

(35) *#dâr-e* *yâd=am=e* *ye ankabut dâsht* *târ mi-bast*
PROG.PRS-3.SG memory=1.SG=COP.PRS.3.SG a spider PROG.PST string IMPF-tie.PST
Intended: ‘I am remembering a spider spinning a web.’ (Persian)

(36) *#vaghti yâd=am* *bud* *dâsht-am* *bâ Rahâ mi-raqsid-am,* *dozd pul=am=o*
when memory=1.SG COP.PST PROG.PST-1.SG with Raha IMPF-dance.PST-1.SG thief money=1.SG=DOM
dozdid
steal.PST
Intended: ‘When I remembered dancing with Raha, a thief stole my money.’

- Persian memory reports can be analyzed essentially the same way as their Sorani equivalent.
- The difference lies just in positing a the partitive preposition with the same meaning as Sorani *le*.

(37) $\emptyset \rightarrow \lambda s. \lambda s'. s' \leq s$

- Similar constructions can be found in languages outside of the Iranian family as well.
- Consider the Hindi example in (38), which is constructed from the noun *yâd* ‘memory’ and the copula *honâ*.

(38) *mujhe* *bîc* *par baiṭh-nâ yâd* *hai*
1.SG.DAT beach on sit-INF memory COP.PRS.3.SG
‘I remember sitting on the beach.’

- Like the Sorani memory reports discussed previously, *yâd honâ* cannot be referred back to as something that happened, nor is it acceptable with the progressive *rahâ* (40).

- (39) mujhe bīc par baiṭh-nā yād hai. #ye kal huā.
 1.SG.DAT beach on sit-INF memory BE.PRS.3.SG this yesterday become.PST.3.SG.MASC
 ‘I remember sitting on the beach. #This happened yesterday.’
- (40) #mujhe bīc par baiṭh-nā yād ho rahā hai.
 1.SG.DAT beach on sit-INF memory COP PROG.SG.MASC BE.PRS.3.SG
Intended: ‘I am remembering sitting on the beach.’

- This just adds to the list of memory reports behaving as abstract state predicates, to which the spirit of my analysis could be extended.
- I’m also aware of a similar strategy for memory reports in at least one non-Indo-European language (Telugu). It would be great to learn about more.

4.2 Memory and motion: memory as an abstract location

- In this presentation, I have focused on memory reports using locative morphosyntax. This was largely because such reports are clearly stative and thus most interesting for my broader agenda.
- However, Sorani possesses more obviously eventive memory predicates as well.
- Interestingly, they are constructed out of the same noun found in the memory reports discussed above, *bîr*.
- What differentiates them from the primary objects of my study is the verb used, a verb meaning ‘come,’ *hatin*.

- (41) t-êt-e bîr=im Baban le Slêmanî e-žê
 come.PRS-3.SG-DIR memory=1.SG Baban at Slemani IMPF-live.PRS
 ‘I remember Baban living in Slemani.’ (lit. it comes to my memory Baban lives in Slemani)

- This is part of a more general pattern of memory-related predicates in the Iranian languages, one based on motion verbs.
- For example, one finds equivalents of ‘forget’ constructed out of the memory noun and the verb meaning ‘go/leave.’
- One can even express *caused recall* (the equivalent of English ‘remind’) by putting the memory noun with a verb meaning ‘bring.’

- (42) le bîr=im çû Baban le Slêmanî e-žê
 from memory=1.SG go.PST Baban at Slemani IMPF-live.PRS
 ‘I forgot Baban lived in Slemani.’ (lit. it went from my memory Baban lives in Slemani)

- (43) em eks=e hawird=y=e bîr=im Baban le Slêmanî bû
 this picture=DEF bring.PRS=3.SG=DIR memory=1.SG Baban at Slemani be.PST
 ‘This picture reminded me of Baban being in Slemani.’ (lit. This picture brought to my memory Baban being in Slemani.)

- All of the above predicates are change of state predicates (predicates of recall and forgetting), and all are derived from verbs of motion.
- Given that memory reports make use of locative morphosyntax in Sorani, it is not surprising that changes of memory state are expressed as changes of location.
- This ultimately fits into a perspective on which one’s memory is a species of abstract location, as alluded to in my analysis of *le bîr bûn*.
- A good next step would be to capitalize on this connection to locative semantics, and to extend the analysis to cover cases of recall and forgetting based on an interaction of the meaning of memories *qua* locations and the semantics of motion verbs.

Thank you!

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A More on the syntax and compositional semantics of memory reports

- There is more to say about the syntactic properties of the memory predicates I have investigated here, which in turn has implications for its compositional semantic treatment.
- Focusing on the Sorani Kurdish memory predicate, we find that the clitic cross-referencing the holder of the memory exhibits second-position clitic behavior, rather than behaving like a possessive clitic.

– Notice that the 1.SG clitic =*im* is enclitic to the object DP *žīyan=î Kurdistan* ‘life in Kurdistan.’

- (44) min žīyan=î Kurdistan=*im* le bîr=*e*
 1.SG life=EZ Kurdistan=1.SG P memory=COP.PRS.3.SG
 ‘I remember life in Kurdistan.’

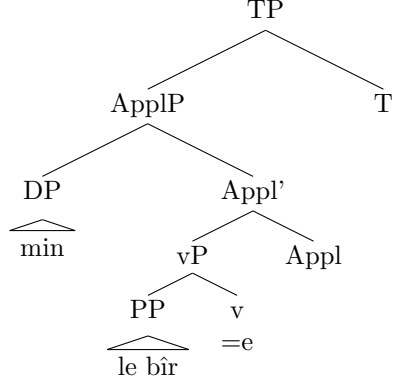
- In addition to this second-position behavior, the clitic cannot be replaced with a full pronoun linked to *bîr* by *ezafe*. This contrasts with true possessive constructions.

- (45) a. le bîr=*m=e* Baban le Kurdistan e-ž-ê
 P memory=1.SG=COP.PRS.3.SG Baban P Kurdistan IMPF-live.PRS-3.SG
Intended: ‘I remember Baban living in Kurdistan.’
- b. *le bîr=*î* min=*e* Baban le Kurdistan e-ž-ê
 P memory=EZ 1.SG=COP.PRS.3.SG Baban P Kurdistan IMPF-live.PRS-3.SG
Intended: ‘I remember Baban living in Kurdistan.’

- (46) a. balla=*m* berz=*e*
 height=1.SG high=COP.PRS.3.SG
 ‘I am tall.’ (lit. my height is high)
- b. balla=*y* min berz=*e*
 height=EZ 1.SG high=COP.PRS.3.SG
 ‘I am tall.’ (lit. my height is high)

- This suggests that the syntax of the memory report should, in some way, reflect that of experiencer-class psychological constructions, like those studied by Taghipour (2024; 2025).
- This doesn’t invalidate the general semantics I’ve provided for memory reports in the main part of this talk. Rather, what it suggests is that we need a slightly different syntax, where the memory holder is introduced as an applied argument outside of the PP.
- As in Taghipour’s analysis, agreement with the Appl head is spelled out as a second position clitic.

(47) Structure of a Sorani Kurdish memory report



- To hook this up with the semantics, we'll need to modify the compositional setup from §3.
- This can be done without modifying the analysis of the memory noun or the preposition I adopted above.
- Instead, I'll adopt a standard composition rule of FUNCTION COMPOSITION, defined below.

(48) FUNCTION COMPOSITION
 $f \circ g = \lambda y.f(g(y))$

- Function Composition works by saturating an argument of one function, applying the second function to the result, and then abstracting over the saturated argument place of the first function.
- This means that the meaning I assigned to *le*, which takes a state and returns another state, can compose with the meaning I assigned to *bîr*, which takes an individual and returns a state, via Function Composition.

(49)
$$\begin{aligned} \llbracket le \rrbracket \circ \llbracket bîr \rrbracket &= \lambda y.\llbracket le \rrbracket(\llbracket bîr \rrbracket(y)) = \lambda y.[\lambda s.\lambda s'.s \leq s(\lambda x.MAX(\{s \mid MEM(s) \wedge ACC(x,s)\})(y))] \\ &= \lambda y.\lambda s'.s' \leq MAX(\{s \mid MEM(s) \wedge ACC(y,s)\}) \end{aligned}$$

- We can also keep our analysis of the copula the same as an identity function over predicates, and use Function Composition to compose it with *le bîr*. Composition with the embedded clause, which has the same type as the copula on my analysis, may proceed in the same way.
- We then compose the experiencer DP with this derived predicate via Function Application.
- This delivers the same truth conditions as the approach developed above, but with a compositional semantics that is consistent with the syntax in (42).
- An interesting consequence is that we treat *le bîr* as a kind of complex preposition, which was independently suggested by Thackston (2006) in his Sorani Kurdish grammar for descriptive reasons.