EVIDENCE WORLDS IN ATTITUDE VERBS

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Introduction: Recent research on attitude verbs has focused on the semantic and syntactic structure of different classes of attitude verbs (e.g. Moulton 2009a, b; Anand & Hacquard 2014) based on whether they encode the mental state of the attitude holder or not. Doxastic verbs encode belief worlds via the function DOX, introducing the attitude holder doxastic alternatives. Perception verbs can also express belief, not lexically but through their complementizer (Moulton 2009a). Based on data from Turkish, we support both of these suggestions by showing that doxastic verbs indeed encode belief worlds lexically but perception verbs do not but can accommodate it via a complementizer. It also specifies how this encoding is made: belief worlds are narrowed down to those worlds that the attitude holder has for the embedded proposition.

Data: The attitude verbs in focus are doxastic verbs *dream/imagine, believe, hope, think, know, forget, remember, recall* and perception verbs *see, hear, notice, perceive*. Subcategorization helps establish these two categories as distinct. Doxastic verbs can take either of the nominalized complements in (1) as their internal argument but perception verbs can only take –*DIK*:

    (1) a. [Kardeş-im-in   gel-**me**-sin]-i   um-uyor-um/*gör-üyor-m
           sibling-1S-3GEN come-mE-3S-ACC hope-IMPF-1S/*see-IMPF-1S
           'I hope/am seeing my sibling **comes** (lit. 'my sibling's coming')'
        b. [Kardeş-im-in   gel-**diğ**-in]-i   um-uyor-um/gör-üyor-m
           sibling-1S-3GEN come-DIK-3S-ACC hope-IMPF-1S/see-IMPF-1S
           'I hope/am seeing that my sibling **came**'

-*mE* and –*DIK* in (1) are nominalizers. The outermost layer in both is nominal (DP). -*mE* is argued to be subjunctive or non-factive (Kornfilt 2003), with no tense-aspect information (Erdal 1998) and does not denote a proposition (Demirok 2018). It indicates unrealized events, unless forced to be factive under factive verbs. –*DIK* clauses are indicative, makes a future/non-future distinction (Kornfilt 2003) and denotes a proposition (Demirok 2018). It indicates realized events, unless forced to be non-factive under non-factive verbs. The meaning distinction between these nominalizations are indicated in bolded parts of translations in (1). Based on this distinction, I assume –*mE* to be a VP-nominalization and –*DIK* to be a (defective) TP-nominalization. A subordinator *diye* as in (2), whose complement is a TP with all TAM distinctions (also a proposition), differentiates within perception verbs:

(2) a. Merve [Ali gel-ecek   diye] bil-iyor
         M   A   come-FUT diye   know-IMPF
         'Merve thinks [diye Ali will come]' *(strongest implication: Merve is wrong.)*
      b. Ben [Ali gel-ecek   diye]   bil-iyor-um
         I   A   come-FUT diye   know-IMPF-1S
        'What I know is [that Ali will come] (lit. I know *diye* Ali will come)' *(only implication: I might be wrong (i.e. Ali might or might not come))'*

In (2a), *diye* leads to strong counter-factuality of the embedded proposition and in (2b), it indicates speaker's doubt about the truth of it. These seemingly different meanings can be unified under the concept of evidence. Hence, (2a) can be translated as 'According to Merve's evidence, p' and (2b) as 'According to my evidence, p', indicating shifting of evaluation world from the actual world to the evidence-worlds of the subject (cf. Ozyıldız 2016). Doubt or counter-factuality arises depending on how different the evidence world is from the actual world. Thus, *diye* introduces evidence-worlds. Perception verbs provide a more direct piece of evidence for this. In Turkish, perception verbs indicate belief based on perceptual evidence when

combined with *diye.* That is why it is only compatible with Context 2 in (3), namely, only when the hearer has evidence, in this case reportative (inferential is also possible with perception).

(3) *Context 1 (direct perception):* Murat heard Ali walking downstairs. He said to his wife:
 Context 2 (indirect perception): Murat's friend told him Ali arrived. Murat later said to his wife:

        [Ali   gel-di   diye]   duy-du-m   (*Context 1, [ok]Context 2)
   A   come-PST   diye   hear-PST-1S
        'I heard diye Ali came'

Table 1 summarizes the patterns so far.

Table 1: Classes of Attitude Verbs

	-mE or -DIK	diye
Doxastic verbs	-mE, -DIK	ok
Direct perception	-DIK	*
Belief-Introducing Perception	-DIK	ok

Proposal: I propose that doxastic verbs always take E(vidence)P as their complement and perception verbs can take EP when they encode belief. The head of EP is realized as *diye* when its complement is a full TP (4b). If it is a VP or a defective TP under DP (4c), it is empty (DP is required for syntactic reasons in Turkish and is semantically empty). The structure of doxastic verbs is in (4b)-(4c) whereas that of perception verbs is in (4a). But the latter can also have the structure in (4b) when they indicate belief:
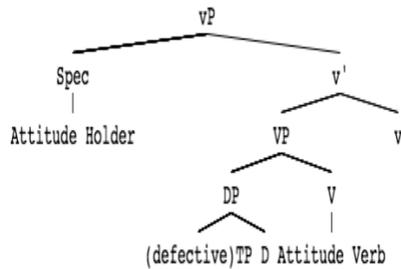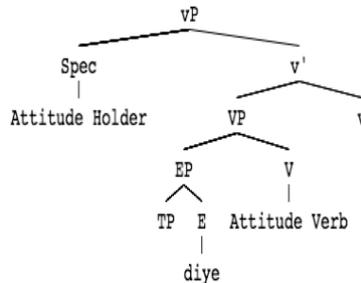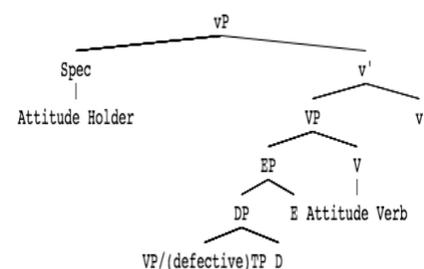
(4) a.   b.   c.

Only doxastic verbs can accommodate a non-propositional complement with *–mE.* Given that these verbs always take EP, it must either be that EP allows non-propositions as complements or that it is allowed for the same reason EP is obligatory under such verbs. I believe the latter might be the better option, as doxastic verbs are compatible with content (Moulton 2009b) and *–mE* indicates content. Because EP is a state, states are compatible with content as well.

Discussion: The present proposal supports Moulton (2009a) in that it indicates that belief/evidence comes from the complement rather than the verb itself in perception verbs because the verbs themselves do not directly encode belief (e.g. *I see that he is coming* versus *I see him to be a bad person,* where the accusative-infinitive complement is responsible for belief). However, I specify the nature of these belief worlds to evidence alternatives. Thus, EP has the semantic entry: [[EV]]= λx. λw. {w': w' is compatible with the evidence x has in w}. This function can be combined with attitude verbs just like DOX is combined as a function: For example: [[believe $(p)(x)(w)$]]=1 iff $\forall$w' $\in$DOX (x, w): $p(w')$=1 (EV replaces DOX). This is simplified from Moulton's F$_{DOX}$, responsible for introducing belief in Moulton (2009a) and encodes more information than EP (e.g. attitude, attitude holder etc.) proposal also supports analyses of doxastic verbs as content takers (e.g. Kratzer 2006; Moulton 2009b; partly Anand & Hacquard 2014). **Selected References: Anand, P., & Hacquard, V.** (2014). Factivity, belief and discourse. *The art and craft of semantics: A festschrift for Irene Heim*, *1*, 69-90. **Moulton, K.** (2009a). Natural selection and the syntax of clausal complementation. PhD Dissertation, UMASS. **Moulton, K.** (2009b). Clausal complementation and the wager-class. In *Proceedings of the 38th annual meeting of the North East Linguistic Society, ed. Anisa Schardl, Martin Walkow, and Muhammad Abdurrahman* (Vol. 165178).