Marking belief shifts

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1 Preliminaries

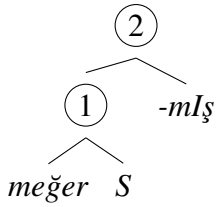
- The focus of this presentation is the discourse marker *meğer* in Turkish.
- *Meğer* can combine with different types of clausal complements and obligatorily occurs with the so-called indirect (hearsay, inferential) evidential marker *-mIş*.

(1)

$$\text{Meğer + (Con (+1.SG))} \left\{ \begin{array}{l} \text{(1) Declarative sentence} \\ \text{(2) Constituent question} \\ \text{(3) Polar question} \end{array} \right\} + \text{Obligatory Indirect Evidential (-mIş)}$$

- In (2), I present the simplified syntactic structure that I will assume for *meğer* clauses.

(2)



- A *meğer* clause combined with either one of the sentence types yields the following entailments:
  1. The speaker of utterance previously believed that the proposition p *meğer* combined with was false (they believed that ¬p was true).
  2. They currently believe that p is true.
  3. and p

WHY IS THIS INTERESTING?

- Usually, we can hint at doxastic or epistemic changes in certain ways.

- For example, a belief predicate in the past tense has this implication as shown in (3).

  (3) a. I **believed** that Aramis was in France.
  b. ⇝ Now, I do not believe that Aramis was in France.

- However, this inference is pragmatic in nature and not a logical consequence of what is expressed by (3a). This explains why sentences like (3a) are equally compatible with continuations that affirm or deny the prejacent, as demonstrated in (4):

  (4) a. I **believed** that Aramis was in France.
  b. ... and he was in France.
  c. ... but he was not. / he was in Italy.

- Conversely, one's current belief does not provide any information about their past doxastic state, as illustrated in (5).

  (5) a. I now **believe** that Aramis was in France.
  b. ... but I did not believe so previously.
  c. ... and indeed I previously believed so as well.

- There are also adverbs that might imply such changes in English.

  (6) a. I talked with Aramis yesterday. **Apparently**, he was in Italy.
  b. ⇝ I did not believe that he was in Italy.

- However, English *apparently* is compatible with situations where the speaker previously believed that its prejacent was true as well, as illustrated in (7).

  (7) I believed that Aramis was in France. **Apparently**, he was.

- The same holds for *actually*

  (8) I believed that Aramis was in France, and he actually was./ but he actually was not.

- *Meğer* is special in that it uniquely encodes a belief reversal: it entails that the speaker of utterance initially believed the proposition it combines with to be false but now believes it to be true.

2 Empirical observations

2.1 Declarative sentences

- Informally, *meğer* contrasts what the speaker believed to be true in the past with what is actually true.

(9) a. Ben Aramis Fransa-da diye düşün-müş-tü-m.
1.SG Aramis France-LOC C believe-ANT-PST-1.SG
'I believed that Aramis was in France.'
b. ... **meğer** İtalya-da-y-mış.
meğer Italy-LOC-COP-EVID
'... *meğer* he is/was in Italy.'

- When the prejacent of *meğer* lacks a contrastive content to the previous belief, the *meğer* clause is infelicitous.

(10) a. Ben Aramis Fransa-da diye düşün-müş-tü-m.
1.SG Aramis France-LOC C believe-ANT-PST-1.SG
'I believed that Aramis was in France.'
b. ... (**#meğer**) Fransa-da-y-**mış**.
meğer France-LOC-COP-EVID
'... *meğer* he is/was in France.'

- Note that the continuation is felicitous without *meğer*. Thus, the infelicity of the continuation must result from the contribution of *meğer*.
- I understand this contrastive content requirement to be the reflection of the false belief requirement on the prejacent. Accordingly, *meğer* clauses are felicitous when the negation of the prejacent is explicitly asserted to have been believed by the speaker. This is illustrated in (31).

(11) a. Ben Aramis Fransa-da değil diye düşün-müş-tü-m.
1.SG Aramis France-LOC NEG C believe-ANT-PST-1.SG
'I believed that Aramis was not in France.'
b. ...**meğer** Fransa-da-y-mış.
meğer France-LOC-COP-EVID
'...*meğer* he is/was in France.'

- Therefore, a context that guarantees the truth of the previous belief is expected to render the use of *meğer* infelicitous. This is illustrated in (29).

(12) a. Context:Since he first went to Italy, Athos has known that Aramis has been in Italy.

b. Dün Aramis-le konuş-tu-m. #**Meğer** İtalya-da-y-mış.
yesterday Aramis-COM talk-PST-1.SG meğer Italy-LOC-COP-EVID
'I talked with Aramis yesterday. *Meğer* he is/was in Italy.'

- The belief in the falsity of the prejacent of *meğer* rules out the belief in the possibility of the prejacent.
- Therefore, *meğer* clauses are predicted to be infelicitous when preceded by a sentence asserting that the speaker believed that the prejacent was possibly true. This prediction is borne out, as shown in (32).

(13) a. Ben Aramis Fransa-da ol-abil-ir diye düşün-müş-tü-m.
1.SG Aramis France-LOC be-MOD-AOR C believe-ANT-PST-1.SG
'I believed that Aramis might be/ have been in France.'
b. #...**meğer** Fransa-da-y-mış.
meğer France-LOC-COP-EVID
'...*meğer* he is/was in France.'

- Of course, a belief in the falsity of the prejacent entails a belief in the possible falsity of the prejacent.
- Therefore, *meğer* clauses are expected to be compatible with sentences asserting that the speaker believed the prejacent was possibly false. This prediction is also borne out, as shown in (33).

(14) a. Ben Aramis Fransa-da ol-ma-yabil-ir diye düşün-müş-tü-m.
1.SG Aramis France-LOC be-NEG-MOD-AOR C believe-ANT-PST-1.SG
'I believed that Aramis might not be/might not have been in France.'
b. ...**meğer** Fransa-da-y-mış.
meğer France-LOC-COP-EVID
'...*meğer* he is/was in France.'

GENERALIZATION: *Meğer* clauses require their prejacents to have been believed to be false by their speakers, and assert their prejacents.

2.2 Interrogative sentences

- In Turkish, constituent questions are formed with the help of a wh-item, while polar questions are marked with the question particle *mI*. Illustrative examples of each are provided in (15).

(15) a. Aramis **nereye** git-ti?
Aramis where go-PST
'Where did Aramis go?'

b. Aramis Italyada **mı**?
Aramis go-PST Q
'Is Aramis in Italy?'

- *Meğer* clauses can host both constituent and polar questions in their prejacent, as shown in (16).

(16) a. Ben Aramis Fransa-da diye düşün-müş-tü-m. **Meğer** nereye git-miş?
1.SG Aramis France-LOC C believe-ANT-PST-1.SG meğer where go-EVID
'I believed that Aramis was here. Meğer where did he go?'
b. Ben Aramis Fransa-da diye düşün-müş-tü-m. **Meğer** İtalya-da
1.SG Aramis France-LOC C believe-ANT-PST-1.SG meğer Italy-LOC
mı-y-mış?
Q-COP-EVID
'I believed that Aramis was in Istanbul. Meğer is he in Italy?'

- I observe that *meğer* with questions is only felicitous when there is a particular answer that the speaker believes to be true.
- In this sense, these are not genuine information-seeking questions; they are more akin to exclamatives (Zanuttini and Portner, 2003).
- For example, (16a) is felicitous only in the context provided in (17a), which guarantees that the speaker knows where Aramis has already gone.
- This contrasts with the context in (17b), where the speaker asks a genuine question.

(17) a. Context:{When Athos went to the apartment of Aramis, he did not find him there} and called him. Aramis told him that he was in Italy. **✓(16a)**
b. Context: {...} and called a friend of his to ask his whereabouts. **✗(16a)**

- Similarly, (16b), a *meğer* clause with a polar question prejacent, is acceptable only under (18a), where the speaker already knows that Aramis is in Italy.
- This contrasts with (18b), where the speaker asks an information-seeking question.

(18) a. Context: As they checked the live broadcast of Aramis online, Athos and Porthos saw that Aramis was abroad in Italy. Athos said (16b) to Porthos. **✓(16b)**
b. Context: Athos heard that Aramis went abroad, but he is not sure. He asked Porthos whether Aramis went abroad. **✗(16b)**

- The false belief requirement on the prejacent seems to hold for questions as well.
- In the context provided in (36a), since the constituent question must refer to the proposition that Aramis was in France, the false belief requirement for the prejacent is violated,

explaining the infelicity of (36b).

(19) a. Context: Ali believed that Aramis was in France. He later discovered that he was indeed in France.
b. Ben Aramis Fransa-da diye düşün-müş-tü-m. #Meğer
1.SG Aramis France-LOC C believe-ANT-PST-1.SG meğer
nerede-y-miş?
where-COP-EVID
'I believed that Aramis was in France. Meğer where was he?'

- In contrast, when the prejacent is understood to have been considered false, a *meğer* clause with a constituent prejacent is grammatical, as illustrated in (37).

(20) a. Context: Ali believed that Aramis was in France. He later discovered that he was in fact in Italy.
b. Ben Aramis Fransa-da diye düşün-müş-tü-m. Meğer nerede-y-miş?
1.SG Aramis France-LOC C know-ANT-PST-1.SG meğer where-COP-EVID
'I believed that Aramis was in France. Meğer where was he?'

- In polar questions, if the proposition in the question nucleus was not believed to be false, then a *meğer* clause with that question in the prejacent is infelicitous. This is illustrated in (21).

(21) Ben Aramis Fransa-da diye düşün-müş-tü-m. #Meğer Fransa-da
1.SG Aramis France-LOC C believe-ANT-PST-1.SG meğer France-LOC
mı-y-mış?
Q-COP-EVID
'I believed that Aramis was in France. Meğer was he in France?'

- In order to make (21) felicitous, the prejacent of *meğer* must be a negative polar question, as illustrated in (43).
- In (43), the proposition in the question nucleus was believed to be false by the speaker. This aligns with the falsity requirement of the prejacent in *meğer* clauses.

(22) Ben Aramis Fransa-da diye düşün-müş-tü-m. Meğer Fransa-da değil
1.SG Aramis France-LOC C believe-ANT-PST-1.SG meğer France-LOC NEG
mi-y-miş?
Q-COP-EVID
'I believed that Aramis was in France. Meğer was he not in France?'

- If the proposition in the question nucleus was believed to be false in the past, then the question is felicitous as the prejacent of a *meğer* clause, as expected. This is shown in (44).

(23) Ben Aramis Fransa-da değil diye düşün-müş-tü-m. Meğer Fransa-da
1.SG Aramis France-LOC NEG C know-ANT-PST-1.SG meğer France-LOC
mı-y-mış?
Q-COP-EVID
'I believed that Aramis was not in France. Meğer was he in France?'

3 Formal implementation

3.1 Declarative sentences

- A more or less standard version of possible world semantics will suffice to model the aforementioned facts for *meğer*.
- I argue that *meğer* combines with the characteristic functions of sets of propositions, introducing the definedness condition that the speaker of the utterance previously considered the prejacent in that set to be false but now considers it true.This is shown in (24).
- I relativize lexical entries to context quadruples, consisting of the world of utterance (w_c), the time of utterance (t_c), the speaker of the utterance (s_c), and the assignment function (g_c).

(24) For any quadruple $\langle w_c, t_c, s_c, g_c \rangle$,
$[\![\text{meğer}]\!]^{\langle w_c,t_c,s_c,g_c\rangle} = \lambda P_{\langle st,t\rangle} : \exists t' \, [t' < t_c \wedge C(t') = 1] \wedge \exists! q[P(q) = 1$
$\wedge \text{DOX}_{w_c,t',s_c}(\neg q) = 1 \wedge \text{DOX}_{w_c,t_c,s_c}(q) = 1].\iota q[P(q) = 1 \wedge \text{DOX}_{w_c,t',s_c}(\neg q) = 1$
$\wedge \text{DOX}_{w_c,t_c,s_c}(q) = 1]$

(25) For any world w, time interval t, individual x, and proposition p,

$\text{DOX}_{w,t,x}(p) = 1 \iff \forall w' \, [w'$is doxastically accessible from w for x at t, $p(w') = 1]$.

- I assume that declarative sentences are characteristic functions of sets of worlds, as shown in (26).

(26) $[\![$Aramis was abroad$]\!]$ = λw. Aramis was abroad in w

- However, they are type-shifted to combine with *meğer*.
- I will not make any commitments with respect to this type-shifting mechanism, but there are conceivable ways of doing this, e.g., with a covert type shifter in syntax.
- What is important for our purposes is that this type-shifting results in a characteristic function of a singleton containing the proposition denoted by the declarative sentence, as shown in (27).

(27) $[\![\uparrow$Aramis was abroad$]\!]$ = $\lambda \text{p}_{\langle s,t\rangle}$. p = λw. Aramis was abroad in w

- Accordingly, *meğer* can combine with declarative sentences without a type mismatch, as shown in (28).

(28) a. $[\![\text{meğer Aramis was abroad}]\!]^{\langle w_c,t_c,s_c,g_c\rangle}$ **is defined only if**
$\exists t'\,[t' < t_c \wedge C(t')] \wedge \exists! q[q = \lambda w.\text{Aramis was abroad in } w$
$\wedge\, \text{DOX}_{w_c,t',s_c}(\neg q) = 1 \wedge \text{DOX}_{w_c,t_c,s_c}(q) = 1]$

b. **if defined** $[\![\text{meğer Aramis was abroad}]\!]^{\langle w_c,t_c,s_c,g_c\rangle}$ =
$\iota q[q = \lambda w.\text{Aramis was abroad in } w$
$\wedge\, \text{DOX}_{w_c,t',s_c}(\neg q) = 1 \wedge \text{DOX}_{w_c,t_c,s_c}(q) = 1]$

- Informally, (28a) is defined only if there is a contextually salient past time when the speaker believed that Aramis was not abroad and currently believes that he was.
- Notice that since the type-shifted declarative sentence is a singleton set, the uniqueness requirement is trivially satisfied.
- If the definedness conditions of *meğer* are met, the combination results in the proposition that satisfies these conditions. In (28b), the return value happens to be the proposition that Aramis was abroad.

WHAT DO WE ACCOUNT FOR?

- First, the definedness conditions of *meğer* ensure that *meğer* clauses are infelicitous in contexts where the prejacent has always been believed to be true, as illustrated in (29), repeated below:

(29) a. Context:Since he first went to Italy, Athos has known that Aramis has been in Italy.
b. Dün Aramis-le konuş-tu-m. #**Meğer** İtalya-da-y-mış.
yesterday Aramis-COM talk-PST-1.SG meğer Italy-LOC-COP-EVID
'I talked with Aramis yesterday. *Meğer* he is/was in Italy.'

- Conversely, these definedness conditions explain how *meğer* clauses can felicitously occur with sentences entailing the speaker's previous belief in the falsity of the prejacent, as in (30) and (31).

(30) a. Ben Aramis Fransa-da diye düşün-müş-tü-m.
1.SG Aramis France-LOC C believe-ANT-PST-1.SG
'I believed that Aramis was in France.'
b. ... **meğer** İtalya-da-y-mış.
meğer Italy-LOC-COP-EVID
'... *meğer* he is/was in Italy.'

(31) a. Ben Aramis Fransa-da değil diye düşün-müş-tü-m.
1.SG Aramis France-LOC NEG C believe-ANT-PST-1.SG

'I believed that Aramis was not in France.'

b. ...**meğer** Fransa-da-y-mış.
meğer France-LOC-COP-EVID
'...*meğer* he is/was in France.'

- Finally, since the speaker is presupposed to have previously believed in the negation of the prejacent, we predict that *meğer* clauses cannot felicitously occur with sentences asserting a past belief in the possibility of the prejacent, as illustrated in (32).
- In contrast, sentences asserting a past belief in the possibility of the negation of the prejacent are expected to be compatible with them, as shown in (33).

(32) a. Ben Aramis Fransa-da ol-abil-ir diye düşün-müş-tü-m.
1.SG Aramis France-LOC be-MOD-AOR C believe-ANT-PST-1.SG
'I believed that Aramis might be/ have been in France.'

b. #...**meğer** Fransa-da-y-mış.
meğer France-LOC-COP-EVID
'...*meğer* he is/was in France.'

(33) a. Ben Aramis Fransa-da ol-ma-yabil-ir diye düşün-müş-tü-m.
1.SG Aramis France-LOC be-NEG-MOD-AOR C believe-ANT-PST-1.SG
'I believed that Aramis might not be/might not have been in France.'

b. ...**meğer** Fransa-da-y-mış.
meğer France-LOC-COP-EVID
'...*meğer* he is/was in France.'

3.2 Constituent questions

- Constituent questions are commonly assumed to be sets of propositions corresponding to possible or true answers to the question (Hamblin, 1976; Karttunen, 1977).
- Additionally, constituent questions are not necessarily singleton sets.
- In fact, as Dayal (2016) notes, constituent questions are necessarily plural sets because wh-elements generate alternative answers by default.
- I will adopt this common assumption for the purposes of this presentation.
- Additionally, I will follow Atlamaz (2023) in assuming that, for Turkish, questions have two values: an ordinary and an alternative semantic value.
- This aligns with analyses of focus and questions, which introduce an additional focus value alongside the ordinary values for linguistic items (Rooth, 1985, 1992).
- I argue that *meğer* takes ordinary semantic values as arguments.
- This restriction could be formalized as *meğer* being in the domain of the interpretation function relative to the ordinary value ($meğer \in \mathrm{dom}([\![]\!]^{o})$), but undefined for it relative to the

alternative value (*meğer* $\notin$ dom($[\![]\!]^{a}$)).[1]

- The ordinary semantic value of a constituent question is a set of propositions, as illustrated in (34).

(34) a. Aramis nereye git-ti?
Aramis where go-PST
'Where did Aramis go?'

b. $[\![$Aramis nereye gitti?$]\!]^{o\langle w_c, t_c, s_c, g_c\rangle}$ = $\lambda p_{\langle st, t\rangle}$. $\exists$x : place(x) $\wedge$ p = λw. Aramis went to x in w

- Since the meanings of constituent questions are also characteristic functions of sets of propositions, they can freely combine with *meğer*. This is illustrated in (35).

(35) a. $[\![$meğer where did Aramis go?$]\!]^{\langle w_c,t_c,s_c,g_c\rangle}$ **is defined only if**
$\exists t'\,[t' < t_c \wedge C(t')] \wedge \exists! q[\exists x : place(x) \wedge q = \lambda w.$Aramis went to x in w
$\wedge$ DOX$_{w_c,t',s_c}(\neg q) = 1 \wedge$ DOX$_{w_c,t_c,s_c}(q) = 1]$

b. **if defined** $[\![$meğer where did Aramis go?$]\!]^{\langle w_c,t_c,s_c,g_c\rangle}$ =
$\iota q[\exists x : place(x) \wedge q = \lambda w.$Aramis went to x in w
$\wedge$ DOX$_{w_c,t',s_c}(\neg q) = 1 \wedge$ DOX$_{w_c,t_c,s_c}(q) = 1]$

- Accordingly, *meğer* combined with the ordinary value of the constituent question in (35) is defined only if there was a salient past time when the speaker believed a unique proposition in the question set to be false and if she currently believes it to be true.
- If defined, that proposition is asserted. This accounts for the false belief requirement that we observed with *meğer* clauses with constituent question prejacents, as shown in (36) and (37), repeated below:

(36) a. Context: Ali believed that Aramis was in France. He later discovered that he was indeed in France.

b. Ben Aramis Fransa-da diye düşün-müş-tü-m. #Meğer
1.SG Aramis France-LOC C believe-ANT-PST-1.SG meğer
nerede-y-miş?
where-COP-EVID
'I believed that Aramis was in France. Meğer where was he?'

(37) a. Context: Ali believed that Aramis was in France. He later discovered that he was in fact in Italy.

b. Ben Aramis Fransa-da diye düşün-müş-tü-m. Meğer nerede-y-miş?
1.SG Aramis France-LOC C know-ANT-PST-1.SG meğer where-COP-EVID
'I believed that Aramis was in France. Meğer where was he?'

[1] Although I do not use ^{o} and ^{a} in the derivations that follow, the interpretation function is understood to return the ordinary values in each derivation.

- Notice that there can be more than one proposition in the set denoted by the question, depending on how many individuals are in the domain of the existential.
- However, a single proposition will satisfy these definedness conditions. In other words, these definedness conditions will hold true for only a single x.
- In environments where such uniqueness is violated, *meğer* clauses with constituent question prejacents are infelicitous. This is illustrated in (38).

(38) a. Context: Athos learns that Aramis went to Italy and France.
b. Ben Aramis ne Italya-ya ne de Fransa-ya git-ti diye
1.SG Aramis neither Italy-DAT nor also France-DAT go-PST C
düşün-müş-tü-m. #Meğer nereye git-miş?
believe-ANT-PST-1.SG meğer where go-EVID
'I believed that Aramis went to neither Italy nor France. Meğer where did he go? (≈he went to both Italy and France.)'

- The context in (38) forces x to have more than one value, hence forcing two propositions to have been believed to be false by the speaker and currently to be believed to be true.
- Since this violates the uniqueness requirement, the *meğer* clause in (38b) is infelicitous.
- However, if we ensure that the domain of the existential is composed of pluralities, then x can have a single value again in the same context, ensuring that it refers to a single plural individual.
- This is predicted to save the *meğer* clause in (38b), as the uniqueness requirement is satisfied once more.
- That is, there is a single proposition—where Aramis went to x (where $x =$ Italy $\bigoplus$ France)—that was believed to be false and is currently believed to be true by the speaker.
- This is achieved by the plural morpheme on the wh-word, as illustrated in (39).

(39) Ben Aramis ne Italya-ya ne de Fransa-ya git-ti diye
1.SG Aramis neither Italy-DAT nor also France-DAT go-PST C
düşün-müş-tü-m. Meğer nere-**ler**-e git-miş?
believe-ANT-PST-1.SG meğer where go-EVID
'I believed that Aramis went to neither Italy nor France. Meğer which places did he go? (≈he went to both Italy and France.)'

- Finally, since *meğer* clauses assert the proposition that satisfies the definedness conditions of *meğer*, in our derivation in (35), the speaker already knows where Aramis went.
- This explains why these constructions are not truly questions. In other words, given that the result value of the combination of *meğer* with constituent questions is the assertion of a proposition, these constructions cannot serve an information-seeking purpose, as we previously illustrated.

3.3 Polar questions

- Polar questions in Turkish are formed with the help of the question particle *mI*.
- The exact status of this particle is currently a topic of debate. Proposals vary with respect to whether it is truly just a question marker or a topic/focus marker (Kamali and Büring, 2011; Kamali and Krifka, 2020; Atlamaz, 2023).
- I will not make any particular assumptions regarding its relation to focus and topichood.
- However, I will assume that polar questions in Turkish also come with two values: one ordinary value and one alternative value (Atlamaz, 2023).
- Differently from constituent questions, though, the ordinary and alternative values of polar questions are distinct.
- The ordinary value of a polar question is a singleton containing the proposition denoted by the question nucleus, whereas alternatives are generated as alternative values (see Atlamaz 2023).
- Hence, the ordinary and alternative values of a polar question are illustrated in (40).

(40) a. Aramis İtalya-da mı?
Aramis Italy-LOC Q
'Is Aramis in Italy?'
b. $[\![$Aramis Italyada mı?$]\!]^{o}$ = $\lambda p_{\langle s,t\rangle}$. p = λw. Aramis is in Italy in w
c. $[\![$Aramis Italyada mı?$]\!]^{a}$ = $\lambda p_{\langle s,t\rangle}$. p = λw. Aramis is in Italy in w or p = $\lambda w'$. Aramis is not in Italy in w'

- As in constituent questions, *meğer* takes the ordinary value as its argument.
- This means that it imposes the condition that the single proposition denoted by the question nucleus was believed by the speaker to be false and is currently believed to be true.
- Consequently, it asserts that proposition as the return value. This is illustrated in (41).

(41) a. $[\![$meğer is Aramis in Italy? $]\!]^{\langle w_c,t_c,s_c,g_c\rangle}$ **is defined only if**
$\exists t'\,[t' < t_c \wedge C(t')] \wedge \exists! q[q = \lambda w.$Aramis is in Italy in w
$\wedge$ DOX$_{w_c,t',s_c}(\neg q) = 1 \wedge$ DOX$_{w_c,t_c,s_c}(q) = 1]$

b. **if defined** $[\![$meğer is Aramis in Italy?$]\!]^{\langle w_c,t_c,s_c,g_c\rangle}$ =
$\iota q[q = \lambda w.$Aramis is in Italy in w
$\wedge$ DOX$_{w_c,t',s_c}(\neg q) = 1 \wedge$ DOX$_{w_c,t_c,s_c}(q) = 1]$

- This account explains the properties discussed previously regarding *meğer* clauses with polar question prejacents.
- For example, if the proposition denoted by the question nucleus was believed to be true in the past, then the *meğer* clause is infelicitous, as shown in (21).

(42) Ben Aramis Fransa-da değil diye düşün-müş-tü-m. Meğer Fransa-da
1.SG Aramis France-LOC NEG C know-ANT-PST-1.SG meğer France-LOC
mı-y-mış?
Q-COP-EVID
'I believed that Aramis was not in France. Meğer was he in France?'

- This is predicted by my account, as the ordinary value of a polar question is a singleton.
- Conversely, if the polar question prejacent was believed to be false in the past, *meğer* clauses are felicitous, as shown in (43) and (44).

(43) Ben Aramis Fransa-da diye düşün-müş-tü-m. Meğer Fransa-da değil
1.SG Aramis France-LOC C believe-ANT-PST-1.SG meğer France-LOC NEG
mi-y-miş?
Q-COP-EVID
'I believed that Aramis was in France. Meğer was he not in France?'

(44) Ben Aramis Fransa-da değil diye düşün-müş-tü-m. Meğer Fransa-da
1.SG Aramis France-LOC NEG C know-ANT-PST-1.SG meğer France-LOC
mı-y-mış?
Q-COP-EVID
'I believed that Aramis was not in France. Meğer was he in France?'

- This particular analysis for polar questions makes an interesting prediction with respect to NPI licensing.
- It is well known that polar questions license NPIs crosslinguistically. *Hiç* 'ever' in Turkish is not licensed in positive declarative sentences.
- However, when the sentence is negated, it works as expected. The contrast is illustrated in (45).

(45) Ahmet bura-ya hiç gel-di mi?
Ahmet here-DAT ever come-PST Q
'Did Ahmet ever come here?' (Görgülü, 2018, 138)

- As expected, *hiç* is licensed in polar questions as well, as shown in (46).

(46) Ahmet bura-ya hiç gel-di mi?
Ahmet here-DAT ever come-PST Q
'Did Ahmet ever come here?' (Görgülü, 2018, 138)

- *Meğer* takes as its argument the ordinary value of a polar question, i.e., the singleton containing the proposition denoted by the question nucleus, and asserts that proposition.

- In other words, *meğer* clauses with polar question prejacents are on a par with declarative sentences.
- This predicts that *hiç* would be licensed in *meğer* clauses with polar question prejacents as long as the regular licensing conditions of *hiç* in declarative sentences are met; namely, as long as the proposition denoted by the question nucleus has negation.
- If not, *meğer* clauses with polar question prejacents are expected to be ungrammatical with *hiç*. This prediction is borne out, as shown by the contrast in (47).

(47) a. *Meğer Aramis bura-ya hiç gel-miş mi?
meğer Aramis here-DAT ever come-EVID Q
'*Meğer did Aramis ever come here?'
b. Meğer Aramis buraya hiç gel-**me**-miş mi?
meğer Aramis here ever come-NEG-EVID Q
'Meğer didn't Aramis ever come here?'

4 Evidential marking

- As indicated in the beginning, *meğer* clauses require *-mIş*, the so-called 'indirect' evidential marker in Turkish (Şener, 2011). I repeat the relevant example in (48).

(48) Ben Aramis burada diye düşün-müş-tü-m. Meğer
1.SG Aramis here C believe-IMPERF-PST-1.SG meğer
git*(-miş)/(*-ti/*iyor/*-edecek).
go-EVID/-PST/-IMPERF/-FUT
'I believed that Aramis was here. Meğer he (has) left, is leaving/will leave.'

- Descriptively, *-mIş* is used when the speaker has an indirect source of knowledge, such as hearsay or inferential knowledge, regarding the truth of a proposition, whereas sentences without *-mIş* are assumed to be directly known to the speaker.
- (49) provides an example from the literature to illustrate this distinction.

(49) Context: Gül learned from Ali that Ali planted an oak tree in his garden.
a. Ali to Gül: Bahçe-ye bir meşe ağac-ı dik-ti-m.
garden-DAT an oak tree-ACC plant-PST-1.SG
'I planted an oak tree in the garden.'
b. Gül to Orhan: Ali bahçe-sin-e bir meşe ağac-ı dik-miş.
Ali garden-POSS-DAT an oak tree tree-ACC plant-EVID
'Ali has apparently planted an oak tree in his garden./I heard that Ali planted an oak tree in his garden.' (adapted from Göksel and Kerslake 2004, 309)

- The general observation is that *meğer* clauses always mark an epistemic shift and always come with evidential marking.

- This is because their definedness conditions require the speaker to have believed a proposition p in the past, to believe its negation currently, and to assert the negation of that proposition.
- When we create other environments without *meğer* where these conditions are met, evidential marking remains obligatory. This is illustrated by the contrast in (50).

(50) a. Aramis-in İtalya-da ol-duğ-un-u bil-iyor-du-m. Aslında
Aramis-GEN Italy-LOC be-NMZ-POSS-ACC know-IMPERF-PST-1.SG in.fact
tüm yaz orada-y-dı.
all summer there-COP-PST
'I knew that Aramis was in Italy. In fact, he was there all summer.'

b. Aramis İtalya-da diye bil-iyor-du-m. Aslında tüm yaz
Aramis Italy-LOC COMP believe-IMPERF-PST-1.SG in.fact all summer
Fransa-da-y*(-mış)/*-dı.
France-LOC-COP-EVID/PST
'I believed that Aramis was in Italy. (Apparently) he was in France.'

- In (50a), where no overt evidential marking is present, the speaker is understood to have already known that Aramis was in France all summer.
- The second sentence serves as a supplementary piece of information to the first. In contrast, in (50b), the truth of the prejacent of the matrix epistemic predicate contradicts the second sentence.
- If Aramis was in France all summer, he could not possibly have been in Italy. Thus, if the speaker believed that Aramis was in Italy, they could not have known that he was in France all summer.
- Based on the contrast in (50), I observe that the so-called indirect evidential *-mIş* must be used when there is a shift in knowledge.
- Specifically, when the proposition combining with the evidential morpheme was not **known** to the speaker at a salient past time prior to the speech time, the sentence must be marked with the indirect evidential morpheme.
- I will argue that this is the presupposition of *-mIş* in Turkish. More formally, *-mIş* is a partial identity function over propositions, introducing the definedness condition that the speaker **did not know** the proposition in its prejacent at a contextually salient past time prior to the utterance time.[2]
- The accessibility relation for knowledge is stricter than for belief, in that it is veridical, requiring the proposition p to hold in the actual world as well.

(51) a. $[\![\text{-mIş}]\!]^{\langle w_c, t_c, s_c, g_c\rangle} = \lambda p_{\langle s,t\rangle}\colon \exists t'\ [t' < t_c \wedge C(t') = 1] \wedge K_{w_c, t', s_c}(p) = 0.\ p$

[2]Many thanks to Ömer Demirok for helpful discussions about evidentiality in Turkish.

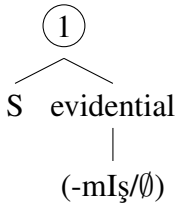
b. For any world w, time interval t, individual x, and proposition p,

$\mathrm{K}_{w,t,x}(p) = 1 \iff \forall w' \left[w' \text{ is epistemically accessible from } w \text{ for } x \text{ at } t, p(w') = 1\right].$

c. $[\![\emptyset_{direct}]\!]^{\langle w_c, t_c, s_c, g_c\rangle} = \lambda \mathrm{p}_{\langle \mathrm{s,t}\rangle}.\ \mathrm{p}$

- I further assume that each matrix assertion has an evidential level.

(52)



- Direct and so-called indirect evidential marking are in competition with each other.
- Specifically, I formalize this competition based on *Maximize Presupposition* (Heim, 1991).

(53) *Maximize Presupposition!*
If two competing elements ϕ and ψ are truth conditionally equivalent, and ψ is presuppositional while ϕ is not, then choose ψ over ϕ whenever the presuppositions of ψ are satisfied. (adapted from Heim 1991)

- Accordingly, whenever the presupposition of *-mIş* is satisfied, it will be chosen over direct evidentiality by *Maximize Presupposition!*.
- Under the assumption that knowledge is justified true belief, knowing a proposition p logically implies believing p, as presented in (54a).[3]
- Additionally, as Stalnaker (2006, 179) points out, "given the fact that our idealized believers are logically omniscient, we can assume, in addition, that their beliefs will be consistent," as illustrated in (54b).

(54) (Stalnaker, 2006, 179)
a. $\vdash K\phi \rightarrow B\phi$ Knowledge implies belief
b. $\vdash B\phi \rightarrow \neg B\neg\phi$ Consistency of belief

- Of course, *meğer* clauses always come with the presupposition that the speaker believed at a past time that p was false, i.e., that $\neg p$ was true.
- By (54b), believing $\neg p$ entails not believing p.

[3]This thesis, namely the entailment thesis, has been largely accepted in the linguistic literature, though its validity has been questioned in philosophy, mostly through cases like Radford (1966)'s unconfident examinee. But there are also convincing arguments made against such cases by Rose and Schaffer (2013), where knowledge entails 'dispoisitional belief' even in those cases, though see Ambardekar (forthcoming).

- This, in turn, implies not knowing p at that past time, by the contraposition of (54a).
- In other words, whenever the presupposition of *meğer* is satisfied, the presupposition of *-mIş* is satisfied by default.
- This ensures that *-mIş* is chosen over direct evidentiality by *Maximize Presupposition!* (Heim, 1991), hence the obligatoriness of *-mIş* in *meğer* clauses.

5 Final remarks on *meğer* and knowledge

- The formula in (54a) posits that knowing a proposition p entails believing it.
- Since *meğer* introduces the presupposition that at a salient past time, the speaker believed that the proposition in the prejacent was false, a sentence asserting that the speaker knew that the prejacent was true would be contradictory to the *meğer* clause.
- This prediction is borne out as shown in (56).

(55) Aramis-in İtalya-da ol-duğ-un-u bil-iyor-du-m. *#Meğer*
Aramis-GEN Italy-LOC be-NMZ-POSS-ACC know-ANT-PST-1.SG meğer
İtalya-da-y-mış.
Italy-LOC-COP-EVID
'I knew that Aramis was in Italy. Meğer he was in Italy.'

- However, I must note that the current analysis also takes the evidential morpheme to introduce the presupposition that the speaker did not know p.
- Hence, the infelicity of the continuation in (56) can also understood to be the clash between the presupposition of the evidential and the previous assertion.
- Indeed, the continuation in (56) is also infelicitous without *meğer*.

(56) Aramis-in İtalya-da ol-duğ-un-u bil-iyor-du-m.
Aramis-GEN Italy-LOC be-NMZ-POSS-ACC know-ANT-PST-1.SG
#İtalya-da-y-mış.
Italy-LOC-COP-EVID
≈'I knew that Aramis was in Italy. He apparently was in Italy.'

- In contrast, not knowing p, or not knowing whether p, does not have any logical consequence for believing p.
- Therefore, these are expected to be compatible with the presupposition of *meğer* clauses. This prediction is borne out, as illustrated in (57).

(57) a. Aramis-in Italya-da ol-duğ-un-u bil-m-iyor-du-m.
Aramis-GEN Italy-LOC be-NMZ-POSS-ACC know-NEG-IMPERF-PST-1.SG
Meğer Italya-da-y-mış.
meğer Italy-LOC-COP-EVID
'I did not know that Aramis was in Italy. Meğer he was in Italy.'

b. Aramis Italya-da mı değil mi bil-m-iyor-du-m. Meğer
Aramis Italy-LOC Q not Q know-NEG-IMPERF-PST-1.SG meğer
İtalya-da-y-mış.
Italy-LOC-COP-EVID
'I did not know whether Aramis was in Italy. Meğer he was in Italy.'

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