Communicative reception reports as hear-say: Evidence from indexical shift in Turkish

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1 Introduction

• Communicative reception reports are ones introduced by attitude verbs like ‘hear, read, understand, learn, …’ as opposed to ‘say, think, or hope.’

The subject of these attitude verbs is the recipient of some piece of information from a source.

We look at indexical shifting under reception verbs in Turkish. We know, from Schlenker (2003) and many other authors, that indexicals shift. The data from attitude reports show that 1st person indexicals under reception verbs yield a three-way ambiguity, while a 2nd person indexical is ambiguous two-ways.¹

1

   Ayşe Mercan.ABL hero-COP.1S DIYE hear-PST.3S
Ayşe, heard from Mercan, that she/i/j/actual speaker was a hero.

   Ayşe Mercan.ABL hero-COP.2S DIYE hear-PST.3S
Ayşe, heard from Mercan, that she/i/s/j/actual addressee was a hero.

(2) 1st person indexicals shift to context authors, 2nd persons, to addressees

a. Ayşe Mercan’dan [ kahramanım diye ] duydu.  1st person shifts to source (1-a)

b. Ayşe Mercan’dan [ kahramansın diye ] duydu.  2nd person shifts to source (1-b)

c. Ayşe Mercan’dan [ kahramanım diye ] duydu.  1st person shifts to subject (1-a)

d. *Ayşe Mercan’dan [ kahramansın diye ] duydu.  2nd person cannot shift to source (1-b)

Core empirical generalization

In Turkish communicative reception reports:

– 1st person indexicals optionally shift to matrix subject or the source argument,
– 2nd person indexicals optionally shift to matrix subject.

¹Unshifted readings are available, but not systematically shown for expository reasons. We leave discussion of shift-together (Anand and Nevins, 2004) for further research.
• Communicative reception reports can be conceptualized in two ways: (We refer to speakers and attitude holders as (context) authors. And addressees as addressees.)

   - As a report of what the source says to the subject:
     The subject is an addressee.
     The source is an author (as the speaker).
   - As describing the mental state of the subject:
     The subject is an author (as an attitude holder).

Indexical shifting data from Turkish supports this intuition.

• Setting aside indexical shift, communicative reception reports in English display a dual behavior regarding the status of the author in examples like (3).

(3)  **Context:** Wonderwoman prevents a bus from driving off a bridge, but destroys multiple buildings in the process. The mayor says to Wonderwoman: “You destroyed the city.”

   a. Wonderwoman heard that she destroyed the city.
      (cf. Wonderwoman heard “You destroyed the city.”)
   b. Wonderwoman heard that she was a hero.
      (... Despite what the mayor actually said).

• **Communicative reception as hear-say**

We propose a syntax and semantics for clausal embedding in Turkish that accounts for the dual behavior of communicative reception reports in Turkish and captures the indexical shifting pattern in (2).

   - Embedded clauses are introduced by the morpheme *diye*, derived from the root *de-*, ‘say.’
   - The ‘say’ component projects a pronominal subject and is interpreted.
   - Either matrix argument can be indexed with the subject. This argument becomes the author of the reported context, ‘by proxy.’

(4)  a. 1st person shifts to source
     Ayşe heard from Mercan$_8$ [ LOGOPHOR- $x_8$ [ SAY [ OP$_{context-shifter}$ I am a hero ] ] ]

     b. 1st person shifts to subject
     Ayşe$_7$ heard from Mercan$_8$ [ LOGOPHOR- $x_7$ [ SAY [ OP$_{context-shifter}$ I am a hero ] ] ]

1st person indexicals shift to the subject of *SAY*, which is bound by one of the matrix arguments. This results in 1st person indexicals shifting to one of the matrix arguments.

2  **Background information**

2.1  **Indexical shifting under belief and emission verbs**

• Indexicals are words like “I, you, here, today” that typically pick up their reference from the actual context of utterance.
This behavior persists even when they are embedded under attitude verbs, which make available alternative speakers, addressees, etc.

(5) Travis says: “Mary said that I’m a hero.” [Two contexts, two speakers]
   a. Possible referent for I: Travis (speaker of actual context)
   b. Impossible referent for I: Mary (speaker of reported context)

• In some languages,\(^2\) indexicals are said to shift. This means that they are able to pick up their reference from reported contexts (sometimes obligatorily, sometimes optionally).

(6) ŋon [ŋoŋna ŋn̩] yil-all
    John hero be.PF-1SO 3M.say-AUX.3M
    John₁ says that he₁ (=John) is a hero. (Literally, “John₁ says that I₁ am a hero.”)

• As foreshadowed in the introduction, Turkish also allows indexicals to shift.\(^3\)

(7) a. Seda [pro₁s sınıf-ta kal-di-m] san-yor.
    Seda 1S class-LOC stay-PST-1S believe-PRES.3S
    Seda₁ believes that \{I, she₁\} flunked. Adapted from Şener and Şener (2011)

b. Tunc Ayşe-ye [pro₁s sen-i nere-ye götür-eceğ-im] de-miş?
    Tunc Ayşe-DAT 1S 2S-ACC where-DAT take-FUT-1S say-EVID.3S
    Where did Tunc₁ say to Ayşe₂ that \{I would take you, that he₁ would take her₂\}? Adapted from Özyıldız (2012)

<table>
<thead>
<tr>
<th>The shifting behavior of 1st/2nd person indexicals under belief/emission verbs:</th>
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<tbody>
<tr>
<td>- When unshifted, 1st person refers to actual speaker, 2nd person refers to actual addressee.</td>
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<tr>
<td>- When shifted, 1st person shifts to speaker or attitude holder of reported contexts, 2nd person shifts to addressee of reported contexts.</td>
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2.2 Indexical shifting under reception verbs

2.2.1 Previous findings

• In the literature, there is little mention of indexical shifting under communicative reception verbs (see Deal’s (2016) typology).
  - For Tsez, Polinsky (2015) lists teq-, ‘hear,’ and t’et’r-, ‘read,’ as two of many verbs that allow shifting of 1st person indexicals to shift to the ‘attitude holder,’ defined as the ‘the agent of speaking, the holder of a belief or attitude.’
  - It is unclear whether the source, in communicative reception reports, counts as an attitude holder in this sense, and whether indexicals may shift to it.

\(^2\)For a more comprehensive discussion of the typology of indexical shift, c.f. Deal (2016).

\(^3\)The data presented here are incomplete, for expository purposes. The sentences in (7) have embedded wh- words with matrix scope, to rule out the possibility that the embedded material is being quoted. Quotes are environments in which the regular behavior of indexicals is to shift.
– Sundaresan (2013, 2018): Indexical shifting under 'hear' in Tamil is impossible or harder than shifting under speech verbs.

• Sudo (2010) on indexical shifting under reception verbs in Uyghur

In Uyghur

1. First person indexicals:
   Must shift to the subject of reception verbs & cannot shift to the source, in (8-a).
2. Second person indexicals:
   Cannot shift to subjects of reception verbs, in (8-b).

(8) Adapted from Sudo (2010, p. 40, exx. 73–74):

   Ahmet Aygül–from pro which test–from pass–PAST–1SG C hear–PAST.3
   Which test did Ahmet, hear from Aygül, that (s)he₁/s₁j passed?

   Ahmet Aygül–from pro which test–from pass–PAST–2SG C hear–PAST.3
   Which test did Ahmet, hear from Aygül, that (s)he₂/s₂j passed?

• Sudo’s conclusion:

– In communicative reception reports, the subject is an attitude holder, the source, despite being a speaker, is not.
– 1st person indexicals are restricted to denote attitude holders, not speakers. Therefore, they may shift to attitude holders (Ahmet, in (8-a)), but not to speakers (Aygül, in (8-a) or (8-b)).
– 2nd person indexicals denote the person that the context attitude holder is talking to. Ahmet, the attitude holder in (8-b), is not talking to anyone in (8), so 2nd person does not shift.

2.2.2 Indexical shift under reception verbs in Turkish

• The view from Turkish is different.

In Turkish reception reports:

– a 1st person indexical may shift to the subject, or it may shift to the source,
– a 2nd person indexical may shift to the subject.

4Bear in mind that Sudo’s finding is that null subjects *must* shift in Uyghur, which explains the ungrammaticality of certain readings expected to be available. In Turkish null subjects can, but need not shift.
a. 1s can shift to subject [like in Uyghur]
Ali Ayşê'den [ nereye atandi-m diye ] duydu?
Ali Ayşê.ABL where appoint.PST-1S DIYE hear.PST.3
Where did Ali hear from Ayşê that he was appointed?

b. 1s can shift to source [unlike in Uyghur]
Ali Ayşê'den [ nereye atandi-m diye ] duydu?
Ali Ayşê.ABL where appoint.PST-1S DIYE hear.PST.3
Where did Ali hear from Ayşê that she was appointed.

c. 2s can shift to subject [unlike in Uyghur]
Ali Ayşê'den [ nereye atandi-n diye ] duydu?
Ali Ayşê.ABL where appoint.PST-2S DIYE hear.PST.3
Where did Ali hear from Ayşê that he was appointed?

Implication: In communicative reception reports:

(10) A heard from B that p
a. A can be construed as a context author (qua perceiver),
b. A can be construed as a context addressee (qua recipient of a speech act),
c. B can also be construed as a context author (qua emitter of a speech act).

• This is puzzling:

(11) Ali heard from Ayşê that [. . . 1s . . . ]

× Hyp #1 1st person indexicals shift to the grammatical subjects of attitude verb (=att. holders?):
1s should only shift to Ali.

× Hyp #2 1st person indexicals shift to speakers:
1s should only shift to Ayşê.
(In addition, belief verbs allow indexical shifting in Turkish.)

(×)Hyp #3 1st person indexicals shift to speakers or to attitude holders.
This could be a viable option for Turkish—but it introduces indeterminacy into how the
first coordinate of a context parameter is determined, which our account does not.

(×)Hyp #4 Lexical ambiguity
‘Hear1’ makes John an addressee and Mary an author.
‘Hear2’ makes John an author.

(12) a. [hear1]\(w(\lambda w. Paul is a hero at w)(John)(from Mary) = 1\) iff
For all \(w'\) compatible with what Mary said to John at \(w\),
Paul is a hero at \(w'\)

b. [hear2]\(w(\lambda w. Paul is a hero at w)(John)(from Mary) = 1\) iff
For all \(w'\) compatible with what John makes of Mary's words at \(w\),
Paul is a hero at \(w'\)

A viable option, but ruled out by parsimony.
3 Proposal

3.1 Overview

- **Goal:** We want to derive the fact that communicative reception reports lead two lives.
  - One where the grammatical subject is a context addressee, and the source, an author.
  - One where the grammatical subject is an attitude holder.

- The proposal in a nutshell:
  - Attitude verbs embed the verb ‘say,’ which projects a logophoric subject and is interpreted.\(^6\)
  - This logophor is invariably the author of the reported context introduced by ‘say.’
  - The logophor must be bound. Whatever binds it ‘becomes’ the author of the reported context introduced by ‘say.’

\[(13)\] a. 1st person shifts to logophoric subject bound by source
  \[\text{Ayşe heard from Mercans} \ \text{LOGOPHOR-} \ x_8 \ \text{SAY [ OPcontext-shifter I am a hero ] ] ]}\]

b. 1st person shifts to logophoric subject bound by subject
  \[\text{Ayşe} \ \text{heard from Mercans} \ \text{LOGOPHOR-} \ x_7 \ \text{SAY [ OPcontext-shifter I am a hero ] ] ]}\]

1st person indexicals shift to the subject of `SAY`, which is bound by one of the matrix arguments. This results in 1st person indexicals shifting to one of the matrix arguments.

3.2 The interpretation of say-derived “complementizers”

- In Turkish, embedded clauses are introduced by the morpheme `diye`.

\[(14)\] Ayşe [ kahraman-ı-m \text{ diye } ] \{duydu, düşünüyor, … \}
  Ayşe hero.COP-1S \text{ DIYE heard, thinks}
  Ayşe \{heard, thinks, … \} that \{she, I\} was a hero.

The morpheme `diye` is morphologically complex. We propose to **interpret** both morphemes.\(^7\)

\[(15)\] a. `de`, ‘say.’

b. -(y)A, a verbal linker.\(^8\)

\(^6\)This is reminiscent of Kratzer’s (2013) covert reportative modal labeled [say]. The main difference here is that our ‘say’ morpheme contributes an event description.

\(^7\)A relationship between complementizers that contain the verb ‘say’ and the licensing of indexical shift was noted in Sudo (2010) and Podobryaev (2014), but their status as verbs is not pursued as a tenable analysis. Sudo writes: “[I]t is a possibility to analyze ‘φ dep’ as a tenseless controlled clause that means while saying φ, but this analysis is inadequate for attitude verbs such as angla- ‘hear.’” Messick (2017) on the other hand gives special treatment to “say” complementizers, but does not use this fact to propose a distinct structure for complementation. A syntactic analysis along these lines can be found in Khanina (2007), but she does not provide a compositional semantics and admittedly stipulates a type of nominalization not found elsewhere in Mishar Tatar, as noted by Podobryaev (2014).

• Interpreting ‘say’ and capturing indexical shift

We assume an event based model of attitude reports: Attitude verbs are modeled as predicates of eventualities. These eventualities have propositional content.


(16) Darcy believes that it is raining.

\[ ((16))_w = 1 \text{ iff } \exists s [\text{belief}(s) \land \text{experiencer}(s) = \text{darcy} \land \forall w' \in \text{CONTENT}(s) [\text{rain}(w')]] \]

\( s \) is a state, ex. adapted from Hacquard (2006) ex. 208

(17) a. Lexical entry for \textit{de-}:

\[ [\textit{de-}]^{c,i} = \lambda p. \lambda x. \lambda e. \text{say}(e) \land \text{AGENT}(e) = x \land \forall i \in \text{CONTENT}(e) = p(i) \]

\( 'e \) is a saying event whose agent is \( x \) and whose content is \( p' \)

b. Abbreviated lexical entry for \textit{de-}: (for expository purposes)

\[ [\textit{de-}]^{c,i} = \lambda p. \lambda x. \lambda e. \text{say}(e, x, p) \]

• Interpretation is relativized to a context parameter \( c \) and an index parameter \( i \).

\( c = \langle a_c, h_c, w_c \rangle \) \hspace{1cm} author, hearer and world coordinates of \( c \)

\( i = \langle a_i, h_i, w_i \rangle \) \hspace{1cm} author, hearer and world coordinates of \( i \)

(18) a. \[ [[\text{I'm a hero}]]^{c,i} = 1 \text{ iff } a_c \text{ is a hero at } w_i \] (here, \( w_i = w_c \))

b. \[ [[\text{You're a hero}]]^{c,i} = 1 \text{ iff } h_c \text{ is a hero at } w_i \]

The value of \( c \) is fixed* and stores the actual speaker, hearer and world.

Modals quantify over \( i \).

• With the entry in (17-b), we can interpret the boxed portion of (14), repeated from above.

(14) \[ \text{Ayşe } \textit{kahraman-im diye duydu.} \]

Ayşe heard that \{she, I\} was a hero.

(19) \[ \text{vP } \lambda e. \text{say}(e, g(\overline{7}), \lambda i. \text{hero}(a_c, w_i)) \]

\[ \text{DP } \text{vP } \text{VP } \text{LOG-x7 } \text{CP } \text{V } \text{CP} \]

\[ [[\text{CP}]]^{c,i} = \lambda i. \text{hero}(a_c, w_i) \]

\[ \text{kahraman-im } \text{‘I'm a hero’} \]

\[ \text{‘e is a saying event whose agent is g(7)} \]

\[ \text{and whose content is that } a_c \text{ is a hero’} \]

Add'l definitions

\[ [\text{LOG}] = \lambda x_e : x \text{ is a logophoric center. } x \]

\[ [x_n]^g = g(n) \]

\[ [\text{kahraman}]^{c,i} = \lambda x. \text{hero}(x, w_i) \]

\[ [-\text{im}]^{c,i} = [1]^{c,i} = a_c \]
– The de- in diye introduces a subject.
  * Syntactically projected,
  * Saturated by a null logophoric pronoun.\(^9\)

Logophors are controlled by attitude or perspective holders.
We encode logophoricity as a presuppositional pronominal feature (like gender).
(Heim and Kratzer, 1998; Sudo, 2010).

– 1st person Indexicals shift to the subject of de-
We assume an operator based approach to indexical shift.
(Anand and Nevins 2004, a.o.)

Indexical shifting operators ‘overwrite’ the context parameter with the index parameter.

\[ (20) \]
\[
\begin{align*}
  & a. \quad [\text{OP}_{\text{shift}} \text{I'm a hero}]^{c,i,g} = [\text{I'm a hero}]^{i,i,g} = 1 \text{ iff } a_i \text{ is a hero at } w_i \\
  & b. \quad [\text{Mary said } \text{OP}_{\text{shift}} \text{I'm a hero}]^{c,i,g} = 1 \text{ iff } \\
  & \quad \text{[said]}^{c,i}([\text{OP}_{\text{shift}} \text{I'm a hero}]^{c,i}) ([\text{Mary}]^{c,i}) = 1 \text{ iff } \\
  & \quad \text{[said]}^{c,i}([\text{I'm a hero}]^{c,i}) ([\text{Mary}]^{c,i}) = 1 \text{ iff } \\
  & \quad \exists e [\text{say}(e) \land \text{AGENT}(e) = \text{mary} \land \forall i' \in \text{CONTENT}(e) [a_{i'} \text{ is a hero at } w_{i'}]]
\end{align*}
\]

In Turkish, this operator optionally occurs under de-.\(^{10}\)

\[ (21) \]

Structure with the context shifting operator:

\[
\begin{align*}
  & \text{vP} \\
  & \quad \lambda e. \text{say}(e, x_7, \lambda i. \text{hero}(a_i, w_i)) \\
  & \quad \text{DP} \\
  & \quad \text{vP} \\
  & \quad \text{LOG-x}_7 \\
  & \quad \text{CP} \quad \text{V} \\
  & \quad \text{[CP]}^{i,i} = \lambda i. \text{hero}(a_i, w_i) \\
  & \quad \text{DP} \quad \text{vP} \\
  & \quad \text{LOG-x}_7 \\
  & \quad \text{CP} \quad \text{OP}_{\text{shift}} \quad \text{‘say’} \\
  & \quad \text{kahramanım} \\
  & \quad \text{‘I’m a hero’} \\
  & \quad ‘e is a saying event whose agent is g(7) and whose content is that } a_i \text{ is a hero’}
\end{align*}
\]

– Key observation:
The agent of de-, ‘say,’ is the logophoric pronoun.
This makes the value of the pronoun the context author.
1st person pronouns are predicted to shift to the value of the pronoun.
2nd person pronouns are predicted to shift the author’s addressee.

\(^9\)We speculate that this logophoricity restriction might be coming from the thematic role assigned by ‘say’ to its subject.
\(^{10}\)We speculate that the operator does not occur anywhere else. Indeed, indexical shift is only licensed in embedded clauses introduced by diye.
• Interpreting the linker -(y)A and composing the embedded clause with the matrix verb

At this stage, we would like to compose the embedded clauses from (19)/(21) with the matrix verb.

(14) **Ayse [kahramanım di]ye duydu.**

Ayse heard that {she, I} was a hero.

This is done with the verbal linker -ye, interpreted as in (22).

(22) 
\[
[-(y)A] = \lambda P_{vt}.\lambda Q_{vt}.\lambda e_v.\exists e_1 \exists e_2 [e = e_1 \oplus e_2 \land P(e_1) \land Q(e_2)]
\]

‘e is the sum of e_1 and e_2, and e_1 satisfies P and e_2 satisfies Q’

(the operator \(\oplus\) sums two events together)

(23)

\[
\begin{array}{c}
\text{Conj} \\
\lambda Q_{vt}.\lambda e.\exists e_1 \exists e_2 [e = e_1 \oplus e_2 \land \text{say}(e_1, g(7), \lambda i.\text{hero}(a_{i/c}, w_i)) \land Q(e_2)]
\end{array}
\]

\[
\begin{array}{c}
\text{vP} \\
\lambda e.\text{say}(e, g(7), \lambda i.\text{hero}(a_{i/c}, w_i))
\end{array}
\]

\[
\begin{array}{c}
\text{Conj} \\
\text{(OP}\text{shift}) \text{LOG-x7 kahramanım diye}
\end{array}
\]

‘e is the sum of e_1 and e_2, e_1 is an event of g(7) saying that a_{i/c} is a hero, and e_2 is a Q event’

• Composing the embedded clause with the matrix attitude verb

An attitude verb like duy-, ‘hear,’ denotes a predicate of events.

(24) 
\[
[[\text{duy-}]]^{c,i} = \lambda e.\text{hear}(e)^{11}
\]

(14) **Ayse [kahramanım di]ye duydu.**

Ayse heard that {she, I} was a hero.

(25)

\[
\begin{array}{c}
\text{VP} \\
\lambda e.\exists e_1 \exists e_2 [e = e_1 \oplus e_2 \land \text{say}(e_1, g(7), \lambda i.\text{hero}(a_{i/c}, w_i)) \land \text{hear}(e_2)]
\end{array}
\]

\[
\begin{array}{c}
\text{Conj} \\
\lambda Q_{vt}.\lambda e.\exists e_1 \exists e_2 [e = e_1 \oplus e_2 \land \text{say}(e_1, g(7), \lambda i.\text{hero}(a_{i/c}, w_i)) \land Q(e_2)] \\
\lambda e.\text{hear}(e)
\end{array}
\]

\[
\begin{array}{c}
\text{V} \\
\text{(OP}\text{shift}) \text{LOG-x7 kahramanım diye}
\end{array}
\]

‘e is the sum of e_1 and e_2, e_1 is an event of g(7) saying that a_{i/c} is a hero, and e_2 is a hearing event’

---

^{11}We omit the internal argument of ‘hear’ for expository purposes. Readers who should require including it could safely assume that it is existentially closed off.
• The two arguments of ‘hear’ are introduced regularly.

(14)’ a. Aysê kahramanım diye duydu.
Aysê I’m a hero DIYE heard
Aysê heard that she (=Aysê) was a hero.12
\[ \lambda e. \exists e_1 \exists e_2 [ e = e_1 \oplus e_2 \land \text{EXPERIENCER}(e) = \text{ayse} \land \ldots ] \]

b. Aysê Mercan’dan kahramanım diye duydu.
Aysê Mercan-ABL I’m a hero DIYE heard
Aysê heard from Mercan that she (=Aysê or Mercan) was a hero.
\[ \lambda e. \exists e_1 \exists e_2 [ e = e_1 \oplus e_2 \land \text{EXPERIENCER}(e) = \text{ayse} \land \text{SOURCE}(e) = \text{mercan} \land \ldots ] \]

• Capturing the indexical shifting pattern

  – The logophoric subject of de- can be bound by the arguments of the matrix verb, provided that the binder is a logophoric center.

(26) Under reception verbs: Two logophoric centers
   a. Hear-say ‘hear’
      Aysê heard from Mercan \( \lambda 7 \) [ LOG-\( x_7 \) SAY [ OP\_shift I’m a hero ] ]
      Logophor bound by source: 1st person shifts to source.
      2nd person shifts to addressee of source.
   b. Mental attitude ‘hear’: A single logophoric center
      Aysê \( \lambda 8 \) heard from Mercan [ LOG-\( x_8 \) SAY [ OP\_shift I’m a hero ] ]
      Logophor bound by subject: 1st person shifts to subject.
      2nd person doesn’t shift (1st has no addressee).

(27) Under emission verbs
   a. #Aysê said to Mercan \( \lambda 7 \) [ LOG-\( x_7 \) SAY [ OP\_shift I’m a hero ] ]
      Logophor bound by source: Logophoric presupposition fails, addressees are not logophoric centers.13
   b. Aysê \( \lambda 8 \) said to Mercan [ LOG-\( x_8 \) SAY [ OP\_shift I’m a hero ] ]
      Logophor bound by subject: 1st shifts to subject, 2nd shifts to addressee.

  – Supporting data from Korean: Under ‘hear,’ the long-distance reflexive caki can be bound by the subject or the source. Under ‘say,’ only the subject, and not the dative argument.

(28) a. Under ‘say,’ only subject binds caki
      John-nom Mary-to caki-Nom cancer-be-C said
      John said to Mary that he/’she has cancer.
   b. Under ‘hear,’ subject or source binds caki
      John-i Mary-lopwute [ caki-ka am-i-lako ] tul-ess-ta
      John-nom Mary-from caki-Nom cancer-be-C heard
      John heard from Mary that he/she has cancer.

(Yoon 1989, cited from Park 2014)

12The first person could shift to a source here if one is salient in the (con)text.
13There is then an asymmetry between the addressee of reception reports, and that of emission reports.
4 Discussion

• Physical utterances and mental ‘utterances’
  – We have discussed two types of hearing:
    * Centered around the physical signal that the hearer receives from the source,
      \( \approx \) “Ayşe hears Mercan, Mercan says p.”
    * Centered around the hearer’s mental state (based on what she hears from the source).
      \( \approx \) “Ayşe hears Mercan, Ayşe says p.”
  – When the source is the agent of ‘say,’ the embedded clause describes the words physically produced by the source.
  – When the subject is the agent of ‘say,’ the embedded clause describes the words from the subject’s ‘internal voice.’
  – How is this captured in the present system?
    The denotation of de-, or of ‘say,’ is not only true of physical events of speaking, as in (29-a), but also of mental speech or thought events, as in (29-b).

(29)  a. Mary (started speaking and) said that she was a hero. [physical]  
      b. Mary said (to herself) that she was a hero. [mental]  
      c. Mary says to herself that she’s a hero. [mental]

* Hearing as perceiving a physical signal: Physical ‘say.’
* Hearing as being in a certain mental state: Mental ‘say.’

– Perhaps the choice of what kind of event is denoted by de-, ‘say,’ is restricted contextually?

– A potential worry:
  We have observed polysemy with ‘hear,’ and now we are claiming that this is underlyingly due to polysemy with ‘say.’
  The compatibility of ‘say’ with mental or physical events of saying, however, does not require lexical ambiguity.

(30)  a. Lexical ambiguity with ‘hear’
  ‘Ayşe heard\(_1\) from Mercan that p’ \(\rightarrow\) Ayşe is author of reported context.
  ‘Ayşe heard\(_2\) from Mercan that p’ \(\rightarrow\) Mercan is author of reported context.

  b. No lexical ambiguity with ‘say’
  ‘Ayşe said that p’ \(\rightarrow\) Ayşe is author of reported context

• Grammaticalization?
  Our proposal makes available two event descriptions:

(31) \(\lambda e.\exists e_1 \exists e_2 [e = e_1 \oplus e_2 \land say(e_1) \land hear(e_2)]\ldots\)

We might expect to be able to negate, modify, etc., the two event descriptions individually.
In (32-a) de-, ‘say,’ is modified by the manner adverbial ‘quickly.’
The attempt to modify de-, in (32-b), seems to fail.
Two options to explain the negative result in (32-b):

- diye might not be a fully transparent form in its use introducing complement clauses,
- or, independent semantic or pragmatic restrictions bear on modifying attitude verb + ‘say’
  complexes.

• A prediction made by our account is that if the ‘kind’ of reception report (physical vs. mental) is
  fixed independently (either grammatically, or by context), we expect to see a matching indexical
  shifting pattern.

(33) a. Reception report independently fixed to physical: 1st person should shift to source.
   b. Reception report independantly fixed to mental: 1st person should shift to subject.

5 Concluding remarks

• A novel indexical shifting pattern under communicative reception verbs in Turkish.

• This motivates an analysis of communicative reception reports as involving a syntactically and
  semantically articulated ‘say’ component.

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