INDEXICAL SHIFT IN ARMENIAN

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ABSTRACT

Indexical shift (IS) is a pervasive phenomenon across languages that allow indexicals in speech reports to be *shifted*, i.e. to refer to the context of the embedded clause rather than the context of utterance. Modern Eastern Armenian (Indo-European: Armenia, Yerevan region) allows optional indexical shift and exhibits a number of 'shifty configurations' that challenge current approaches of IS. We present them in turn and outline a possible solution.

INDEXICAL SHIFT

Indexicals are context-dependent elements such as *I, here* and *now* used to refer the context of utterance. As 'rigid designators' in the sense of Kripke (1972), they must do so and cannot be 'displaced' (Kaplan, 1989).However, some languages seem to allow just that. Modern Eastern Armenian (MEA) is one of them:

(1) Mariam-nə asɛl-a vɔr (jɛs)
Mariam.NOM-DEF say.PST-3SG COMP 1SG
haχtɛl-ɛm
win.PST-1SG

✓ "Mariam said that I won" (indexical)
✓ "Mariam$_i$ said that she$_i$ won" (shifted)

TWO THEORIES OF IS

First theory: monster operator. Shifting is introduced at the level of the embedded clause by a **context-shifting** operator (Anand and Nevins 2004, Deal 2020):

(2) **Monster operator**
$[\![\text{👻} \, \phi]\!]^{c,i} = [\![\phi]\!]^{i,i} = 1$

Since indexicals can only get their reference from a single context, if the context have been shifted (due to the presence of a monster), then the matrix context is not available anymore.

Second theory: binding. Since IS occurs only in attitude environments, Schlenker (1999, 2003) proposes to treat attitude verbs in languages allowing IS as *quantifiers over contexts* that bind a context variable associated with the indexical pronoun:

(3) $\lambda_c ... say ... [_{CP} ... I_c ... you_c ...]$

Crucially, the c-variable is specified as a bindable feature in languages allowing IS.

MULTIPLE EMBEDDINGS

In multiply-embedded constructions, indexicals in MEA must receive their value from the closest 'shifty' C-domain:

(4) Samuel-ə asɛl-a Anna-in vɔr
Samuel.NOM-DEF say.PST-3SG Anna.DAT COMP
Narɛk-ə Mariam-in asɛl-a vɔr
Narek.NOM-DEF Mariam.DAT say.PST-3SG COMP
(jɛs) kɛz sirum-ɛm
1SG 2SG love.PTCP.PRS-1SG

✓ 'Samuel$_i$ said to Anna$_j$ that Narek$_k$ said to Mariam$_m$ that he$_k$ loves her$_m$'
✗ 'Samuel$_i$ said to Anna$_j$ that Narek$_k$ said to Mariam$_m$ that he$_i$ loves her$_j$'

The **operator-based approach** would predict an intermediate shifted reading, where the 👻 is inserted by the highest attitude verb: however, this reading is unavailable. The **binding approach** similarly overgenerates in predicting the same reading, since nothing in principle prevents the two indexicals of being bound by the topmost λ-binder.

SPLIT-ANTECEDENCE

Another problem for the operator-based approach is the availability of shifted readings of plural indexicals referring to two coordinated DPs in the matrix clause:

(5) Anna-n u Mariam-ə asəl-ən
Anna.NOM-DEF and Mariam.NOM-DEF say.PST-3PL
te gnalu enk kefi miasin
COMP go.PTCP-FUT be.PRS.1PL party.DAT together

✓ Anna$_i$ and Mariam$_j$ said that we$_{i,j}$ will go to the party together.

🦇 The preferred reading for this sentence is a *dependent* one (Beck and Sauerland, 2000), whereby Anna and Mariam each said something like 'I will go to the party with Anna/Mariam' (a group reading is not excluded, but dispreferred).

🦇 Preference for the dependent reading of plural *enk* is expected under the assumption that shifted indexicals (like their non shifted counterparts) are interpreted *de se* (Anand 2006, LaTerza et al. 2014): each speaker x attributes to herself the property P such that x will go to the party with y (and $x \neq y$).

🦇 This is a problem for the OP-based approach, since the speaker parameter $sp(c)$ is not a plurality of individuals in the original context of utterance.

REFERENTIAL ACCESSIBILITY

A final problem concerns accessibility of potential referents for indexicals: for 1st and 2nd person indexicals within the same embedded domain to shift, their corresponding binders have to be realized as matrix subject and object DPs, respectively. When this is not the case, shifting is blocked (similar data was mentioned by Özyıldız 2012 for Turkish):

(6) Annai maman asɛl-ə (**Anna-in**) vɔr
Anna.GEN mom say.PRS-3SG Anna.DAT COMP
du pɛtk-ə indʒ ognɛs
you.NOM need-COP me.DAT help-PRS.2SG
tun-ə makrelu hamar
house-DEF clean-PTCP.FUT for

✓ 'Anna's mother said (**to Anna**) that you should help me with the cleaning' (indexical)
✓ 'Anna$_j$'s mother$_i$ said **to Anna**$_j$ that she$_j$ should help her$_i$ with the cleaning' (shifted)
✗ Anna$_j$'s mother$_i$ said that she$_j$ should help her$_i$ with the cleaning.

In (6), the 2SG indexical agreement marking *-ɛs* can only refer to the actual addressee, not to Anna (the addressee of the reported context), if the DP *Anna* is not realized as the internal matrix argument of *asɛl* (*say*).

LOCALITY

In order to account for (4), we need to provide the theory with a principled way of 'blocking' the intermediate reading, i.e. enforce closest binding, in the spirit of Fox (2000) *Rule H* or relativized minimality (Rizzi, 2004) for contexts variables, as proposed by Sundaresan (2018):

(7) **Context-relativized minimality (Sundaresan, 2018)**
In a configuration $\lambda c ... \Phi ... \lambda c' ... \Psi ...$ in which Φ and Ψ are indexicals of the same category, Φ and Ψ must be bound by the closest context-λ-abstractor.

REFERENCES

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This is all ongoing work, comments most welcome!
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DISTRIBUTIVITY OPERATOR

We can solve problem 2 within a binding framework by assuming that in the case of (5), the indexical *enk* actually denotes a set of variables ranging over speakers of multiple contexts.

🦇 A distributive operator $\oplus$ ensures that the dependent reading of *say* obtains, and returns 'true' if any member of the variable set $\{Anna, Mariam\}$ each said 'I'll go to the party' (Rullmann 2003, 2004, Laterza et al. 2014, 2015).

🦇 This allow for a singular, *de se* reading of shifted indexicals in sentences like (5), where

(8) $[\![\textit{enk}]\!]^{g,c} = sp(c_A) \oplus sp(c_M)$

Plural indexical *enk* will be true if each of the authors of the sum of contexts C each said 'I will come to the party'.

LOCAL REFERENCE

To account for cases like (6), we propose a pragmatic constraint that forces indexical reference to be resolved in local contexts:

(9) **Local reference for indexicals**
In a shifty language L that has optional shifting of indexical Ψ, Ψ will be resolved locally provided that (i) it obeys **context-relativized minimality**), and (ii) it is indexed to an argument in the matrix clause that matches its Θ-role; it will resolve globally otherwise.

🦇 Further evidence for such a constraint comes from related domains in anaphoric processing such as ellipsis resolution: the parser will likely consult immediately preceding linguistics antecedent before consulting discourse-available information (Frazier & Clifton 2000, 2005, Arregui et al. (2006) i.a.)

🦇 Similar data support the Θ-condition in (ii): parallelism and thematic roles are more important factors in determining pronominal reference than mere discourse saliency or recency (Terken and Hirschberg (1994), Smyth (1994))

CONCLUSION

The operator-based approach is at pains to account for the three cases presented here. The binding approach can account for the data, if it is provided with (i) a locality constraint on binders and (ii) a constraint on local vs global reference.