

# Shifty Operators in Changing Contexts: Interpreting Indexicals in Slave

Pranav Anand & Andrew Nevins (MIT)

**1. An Indexical Puzzle.** This paper discusses the constraints on the interpretations of indexicals (e.g. I, you, here, tomorrow) in the Athapaskan language Slave. Slave allows the indexical shift of 1st person indexicals, whereby the counterparts of *I* and *we* can take reference from the context of an attitude verb. However, this shifting is not unconstrained:

- (1) All shiftable indexicals within the same speech-context domain must be bound by the same context.

The constraint in (1) is surprising for existing theories of indexical shift (Schlenker 1999, 2003; von Stechow 2002), which cannot derive it without stipulation. We argue that it follows naturally under a typology of context-shifting operators, which manipulate the inner structure of the context parameter of the evaluation function. (1) has also been shown to constrain indexical shift in the Indo-Iranian language Zazaki, in which *all* indexicals are shiftable (Anand & Nevins 2003). Cross-linguistic variation in what can shift we argue is a product of what operators a language makes use of, but the cross-linguistic stability – captured in (1) – is evidence for the unified mechanism of indexical interpretation we advocate.

**2. 1st Person shift in Slave.** Slave is an Athapaskan language spoken primarily in the Canadian Northwest Territories. As documented in Rice (1986), Slave 1st person (but not 2nd person, or temporal or locative) indexicals can shift under certain attitude verbs (as (2) is utterable when Simon was not speaking to the utterance hearer and not all indexicals shift, this cannot be direct quotation):

- (2) Simon rásereyineht’u hadi  
Simon 2.sg-hit-1.sg 3.sg-say  
‘Simon said that you hit him.’

The above data are not fundamentally different from those reported in the literature (Aghem; Hyman 1979, Navajo; Speas 1999, Amharic; Schlenker 2003), and at least two proposals have been advanced to account for similar facts. One proposal is *lexical underspecification*: Schlenker (2003) proposes that shiftable indexicals are underspecified for allowing binding by a particular context (matrix or local); for instance, Amharic ‘I’ is underspecified, thus accounting for its optional shifting under attitude verbs.

The second proposal is *deletion under binding*: von Stechow (2003) argues that verbs-of-saying, being inherently quantificational over context-worlds, may optionally bind pronominal elements in the embedded clause, in the process deleting the presuppositions of the pronominal (following Kratzer 1998). While such theories can explain the data in (2), they crucially predict that binding possibilities of indexicals within the same clause are independent. This is incorrect for Slave 1st person indexicals, which must be bound by the same context if they are in the same local domain:

- (3) sehlégé segha goníhkie rárulu yudeli  
1.sg-friend 1.sg-for slippers 3.sg-will-sew 3.sg-want-4.sg  
‘She<sub>j</sub> wants her<sub>j</sub> friend to sew slippers for her<sub>j</sub>.’

(3) contrasts with the Amharic exemplar [John said I will not obey me], which both Schlenker (2003) and the Amharic grammar of Leslau (1995) indicate can mean [John said that **he** will not obey **me**]. In Schlenker’s system, this is captured by which context binds a given indexical. However, our informants have reported that the exemplar cannot mean [John

said that **I** will not obey **him.**], an interpretation predicted to be present under Schlenker’s system.

(3) also demonstrates Slave indexical shift is not simply limited to verbs-of-saying, unlike Amharic *et al.* Nonetheless, Slave shifting is lexically-conditioned. Only certain attitude verbs (‘say’, ‘tell/ask’, and ‘want’ (intr. & trans.)) can shift indexicals; further, *hadi* ‘he says’, obligatorily shifts – (2) cannot mean ‘Simon said that you hit **me.**’

While it is possible to capture the constraint exemplified by (3) by stipulation, we argue that the data is naturally captured by specifying in the lexicon whether a verb may take the context-shifting defined below, which overwrites the author argument of the context parameter with that of the index parameter, but leaves the hearer, time, and world arguments (H, t, and w, respectively) unaltered:

$$(4) \quad \llbracket \text{OP}_{auth} \alpha \rrbracket^{c,i} = \llbracket \text{OP}_{auth} \alpha \rrbracket^{<A_c, H_c, t_c, w_c>, <A_i, H_i, t_i, w_i>} = \llbracket \alpha \rrbracket^{<A_i, H_c, t_c, w_c>, <A_i, H_i, t_i, w_i>}$$

**3. Cross-linguistic variation: Pan-Indexical shift in Zazaki.** Anand & Nevins (2003) observe that in Zazaki, an Indo-Iranian language spoken by ethnic Kurds in southeast Anatolia, all indexicals are shiftable under verbs-of-saying. For example, one can in Zazaki report [A week ago, Hesen said, “I saw Rojda yesterday.”] by [A week ago, Hesen said that he saw Rojda yesterday.] Nonetheless, Zazaki indexicals show the same constraint on binding context exemplified in (3) – when one indexical within a local domain shifts, all other indexicals must also. Anand & Nevins (2003) propose that Zazaki verbs-of-saying are optionally introduced into the syntax with an operator that overwrites not simply the context author, but entire context parameter itself:

$$(5) \quad \llbracket \text{OP}_{\forall} \alpha \rrbracket^{c,i} = \llbracket \text{OP}_{\forall} \alpha \rrbracket^{i,i} = \llbracket \alpha \rrbracket^{<A_i, H_i, t_i, w_i>, <A_i, H_i, t_i, w_i>}$$

The differences between Slave and Zazaki are thus a matter of what indexicals can shift in a given language. Under an operator account, this reduces to the availability of certain operators within the language, and not to properties of the indexicals themselves.

**4. Conclusion.** We argue that the evidence for indexical shift in Slave and Zazaki advocates in favor of a family of context-shifting operators, all of which force all shiftable indexicals within a clause to shift together. Cross-linguistic variation in indexical shift is thus a matter of what types of operators UG makes available. We have considered two such: author-shifting and context-shifting. We speculate that the family is larger, and that otherwise puzzling cases, such as free indirect discourse, where temporal and locative indexicals shift but the person indexicals do not (Banfield 1982), may be assimilated into the present model, where languages have the option of both choosing amongst context-shifting operators and selecting their environments.

#### Selected References.

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