The case for indexical shift in Tachelhit

Indexicals embedded under attitude or speech verbs can shift their reference from the utterance context to the reported speech context in many languages (e.g. Amharic, Schlenker 1999; Zazaki, Anand and Nevins 2004; Anand 2006; Nez Perce, Deal 2014, 2020; Korean, Park 2016), a phenomenon known as 'Indexical Shift' (IS). This paper presents empirical evidence from Tachelhit (*taʃləhit*), an understudied Berber language, based on primary data from native speakers. It shows that Tachelhit exhibits optional IS in the complements of speech-attitude verbs, with both temporal and locative indexicals allowing shifted readings, as illustrated in (1)—a pattern not previously documented. I argue that the Tachelhit IS profile supports a monster-operator-based analysis along the lines of Park's (2016) approach to Korean, where a covert adverbial operator derives spatio-temporal shift. These findings expand the empirical basis for the typology of IS and broaden Afro-Asiatic coverage beyond Amharic and Late Egyptian (Kammerzell and Peust 2002), contributing not only new empirical data but also a theoretically revealing case that refines our understanding of the cross-linguistic mechanisms underlying IS.

(1) a. Situations to be reported:
i. On Monday, June 3rd, Sana says: "I will leave tomorrow."
ii. On Monday, June 3rd, Sana says: "I will leave on the 11th." On June 10th, I tell Ayoub:

ltnin	*lli:*	*izəri:n*	*t-nna:-jji*	*sana*	*ʁa-tftu:*	*$s^ʕ$ba:h*
monday	C	passed	F3S-say.PAST-to.me	sana	FUT-F3S.walk	tomorrow

Last Monday, Sana told me that she would leave the next day= June 4th ✓Shifted
Last Monday, Sana told me that she would leave tomorrow= June 11th ✓Non-shifted

b. Situations to be reported:
i. In Ait Melloul, Sana says:"people are nice here."
ii. In Ait Melloul, Sana says:"people are nice in Nantes." In Nantes, I tell Ayoub:

lli:ɣ	*t-lla:*	*ɣ-ajt*	*məlluːl*	*t-nna:-jji*	*sana*	*ifʒʒiʒ*	*ɣi:d*
when	F3S-be.Loc	in-ait	melloul	F3S-say.PAST-to.me	sana	nice	here

When she was in Ait Melloul, Sana told me that it was nice there= Ait Melloul ✓Shifted
When she was in Ait Melloul, Sana told me that it was nice here= Nantes. ✓Non-shifted

The Tachelhit sentences in (1) are ambiguous: they can be used to report either of the situations in (i)-(ii). In (1a) the time indexical *$s^ʕ$ba:h* 'tomorrow' may either retain its indexical interpretation, referring to the day after the day of utterance (June 10th) reporting situation (ii), or it may shift to the day after the day of the reported speech event (June 3rd) reporting situation (i). In (1b), the locative indexical *ɣi:d* 'here' similarly may receive either an indexical interpretation, referring to the actual utterance location (Nantes, in this case) reporting situation (ii), or a shifted interpretation, referring to the reported attitude location (Ait Melloul) reporting situation (i). Thus, both spatial and time indexical adverbs in Tachelhit allow either an indexical or a shifted (anaphoric) reading in speech attitude reports. The same pattern has been established for Moroccan Arabic (cf. Iguir et al. 2024).

I offer six canonical arguments from the literature demonstrating that the shifting behavior of temporal and spatial indexicals in Tachelhit exhibits the hallmark properties of genuine IS and cannot be reduced to alternative phenomena/analyses:

Licensing environment: **i.** Shift in Tachelhit is restricted to finite complement clauses of attitude verbs and does not occur in relative or adjunct clauses—a pattern consistent with the typological observation that IS is limited to finite attitude complements (Schlenker 2003; Deal 2020).

Against a binding analysis: **ii.** Shifted adverbs are true indexicals: they cannot be analyzed as containing a bindable anaphor responsible for their shifted reading, since they cannot be bound by/covary with a quantifier, unlike *ɣinn* 'there' or *sˤaːhaːn* 'the next day' (cf. Kaplan 1989).
Against (partial) quotation analysis: shifted readings cannot be derived from full/partial quotation:

iii. Embedded clauses containing shifted indexicals appear in *nonverbatim* form, requiring no faithfulness to the original words (Shklovsky and Sudo 2014).

iv. Shifted indexicals are possible in embedded environments where an argument is interpreted *de re*, which quotations cannot license, as the attitude holder would not be committed to the descriptive content (Schlenker 2003; Anand and Nevins 2004; Deal 2020).

v. Availability of long-distance extraction from an embedded clause containing a shifted indexical incompatible with quotation (cf. Sudo 2012), as shown in (2).

vi. Shifted indexicals obey the *Shift-Together Constraint* (Anand and Nevins 2004; Anand 2006) a hallmark of genuine IS: all indexicals within the same embedded domain must shift together. In (2), both embedded adverbs may shift ((a)) or remain unshifted ((b)), but mixed readings ((c–d)) are ungrammatical—a pattern that partial quotation cannot account for, since it predicts mixed readings in which some indexicals are "quoted" and others are not. Crucially, the shift cannot be attributed to direct quotation, since a *wh*-phrase undergoes long-distance movement out of the embedded clause and is resumed by the pronominal clitic *-t* 'F3S.OBJ' on the embedded verb; quotations are islands for movement (Sudo 2012).

(2) Shifted context: Speaker asks this question on a Friday in Nantes.

manza-ta t-nna sana ltniːn lli izərin ɣ-ajt məlluːl bəlli ra-sti-t-zər
Who-F3S F3S-say.PAST sana monday C passed in-ait melloul C° FUT-F3S.OBJ-F3S-see
ɣiːd *sˤaːh* *?*
here tomorrow

Lit: 'Who did sana say, last Monday in Ait Melloul, that She would see here tomorrow?'
a.'here'= Ait Meloul, 'tomorrow'= Tuesday *c.'here'= Ait Melloul, 'tomorrow'= Saturday
b.'here'= Nantes, 'tomorrow'= Saturday *d.'here' = Nantes, 'tomorrow'= Tuesday

To account for the shifted readings of spatio-temporal indexicals, I follow standard assumptions (Kaplan 1989; Schlenker 1999), should be that the interpretation function to a context *c* and an index (point of evaluation) *i* $[[.]]^{c,i}$, with contexts and indices modeled as tuples of coordinates (author, hearer, time, location, world). Adopting this framework, I assume that IS is triggered by a covert operator that overwrites the context parameter (Anand and Nevins 2004; Anand 2006). Extending Park's (2016) proposal for Korean, I argue that Tachelhit hosts a dedicated OP_{ADV} operator in the embedded CP of a speech attitude verb that overwrites the time and location coordinates of the context parameter with those of the index parameter (3a). This correctly predicts that only temporal and locative adverbials can shift, while person indexicals remain anchored to the utterance context. The proposal also derives the Shift-Together effects: all indexicals sensitive to OP_{ADV} must be interpreted relative to the same shifted context.

(3) Semantics of the context-shift operator:

a. $\text{OP}_{\text{ADV}} : [\![\text{OP}_{\text{ADV}}\ [\alpha]]\!]^{\langle \ldots, T_c, L_c \rangle, i} = [\![\alpha]\!]^{\langle \ldots, T_i, L_i \rangle, i}$

b. Truth conditions:
$[\![\text{Sana say}[\text{OP}_{\text{ADV}}\ \text{Laila saw Ayoub here yesterday}]]\!]^{c,i} = 1\ iff\ \forall i'.i' \in Say_{<Sana,i>} :$
$in\ world\ (i')\ laila\ saw\ ayoub\ in\ Loc\ (i')\ on\ the\ day\ preceeding\ the\ time\ of\ (i').$

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