Concord feeds apparent non-local allomorphy in Bidhaawyeet

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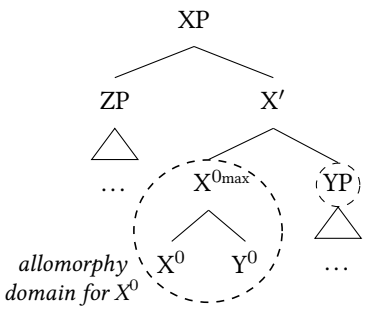
1 The locality of allomorphy

- **Observation:** Allomorphic conditioning is often lost in periphrastic constructions:
  ① Adjectival root suppletion with adjectives found in synthetic but not periphrastic comparatives in various languages (Bobaljik 2012).
  ② Verb root suppletion found with short-form (synthetic) negation but not long-form (periphrastic) negation in Korean (Chung 2009, Choi and Harley 2019).
- **Proposal:** Maximal (and intermediate) projections are barriers for allomorphic conditioning:

(1)



(2) *Locality Condition on Allomorphy* (Bobaljik and Harley 2017: 150)
β may condition α in (a), not (b):

a. $\alpha \ldots]_{X^0} \ldots \beta$
b. $\alpha \ldots]_{X^n} \ldots \beta$, where $n > 0$.

(Allomorphy may be conditioned within a complex $X^{0^{max}}$ or by the sister of $X^{0^{max}}$.)

- What about problematic cases of allomorphic conditioning by specifiers (and beyond)?
  - Option 1: Reanalyze problematic cases, e.g. as complements (Bobaljik and Harley 2017).
  - Option 2: Adopt a more permissive locality condition (Ackema and Neeleman 2003, Toosarvandani 2016, Weisser 2019)
  - Option 3: Non-local features are made locally available by Agree (Thornton 2019).

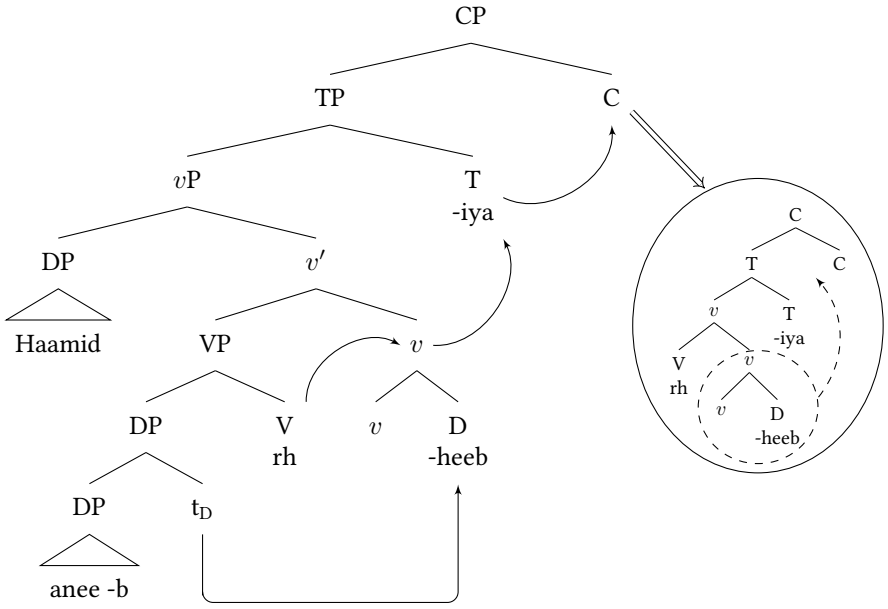
This talk

- We will provide arguments for Option 3. Apparent non-local conditioning in Bidhaawyeet relative clauses is actually local allomorphy within the same complex head domain.
- DP-internal concord processes make the features of the head noun available within the relative clause.
- Evidence from periphrastic constructions show that being within the same complex head as relative C is a necessary requirement for allomorphic conditioning.

2 Allomorphy of object clitics in Bidhaawyeet

- Bidhaawyeet (Beja) is a Cushitic language spoken in Sudan, Egypt, and Eritrea.
- It has SOV word order. Verbal morphology is either suffixing or templatic (verb-dependent).
- Objects are marked by an object clitic on the verb (also in addition to an object pronoun):

(3) *Haamid aneeb rhiyaheeb*
Haamid anee -b rh -iya -heeb
Haamid 1SG -ACC see -PFV.3MSG -me
'Haamid saw me.'



- *Mirror Principle issue:* Tense/agreement inflection always appears closest to the verb. There must be some additional morphological process (e.g. metathesis/Local Dislocation (Embick 2007)/displacement (Arregi and Nevins 2012)) to ensure the exponent of T is closest to the verb.

- The form of object clitics is sensitive to the head noun of a relative clause:

(4) *Ootak iru rhiyanook akteen*

[$_{DP}$ oo- tak [$_{CP}$ iru rhiya -ook]] akteen
DEF.ACC.MSG- man yesterday saw.3MSG -you$_{ACC.SG}$ know.1SG
'I know the man who saw you yesterday.'

(5) *Uutak iru rhiyanuuk ikteenheeb*

[$_{DP}$ uu- tak [$_{CP}$ iru rhiya -uuk]] ikteen -heeb
DEF.NOM.MSG- man yesterday saw.3MSG -you$_{NOM.SG}$ know.3MSG -me
'The man who saw you yesterday knows me.'

(6) *Eenda iru rhiyaaneek akteen*

[$_{DP}$ ee- nda [$_{CP}$ iru rhiyaan -eek]] akteen
DEF.ACC.MPL- men yesterday saw.3PL -you$_{ACC.PL}$ know.1SG
'I know the men who saw you yesterday.'

(7) *Aanda iru rhiyaanaak ikteennaheeb*

[$_{DP}$ aa- nda [$_{CP}$ iru rhiyaan -aak]] ikteenna -heeb
DEF.NOM.MPL- men yesterday saw.3PL -you$_{NOM.PL}$ know.3PL -me
'The men who saw you yesterday know me.'

Generalization

The form of an object pronoun inside a relative clause is determined by the case and number of the head of the relative clause.

- This is the full paradigm for object pronouns:

(8)

		Head of relative clause			
		ACC.SG	ACC.PL	NOM.SG	NOM.PL
1SG	-heeb	-oo	-ee	-uu	-ii
1PL	-hoon	-oon	-een	-uun	-aan
2SG	-hook	-ook	-eek	-uuk	-aak
2PL	-hookna	-ookna	-eekna	-uukna	-aakna

Claim

The features of the head noun of the relative clause are locally available within the relative clause.

3 Nominal concord in Bidhaawyeet

- Determiners mark definiteness, case, number and gender. They often surface in a reduced form (triggered by various phonological factors).

(9) *Definite determiner forms*

	FULL ($\mu\mu$)	REDUCED 1 (μ)	REDUCED 2
M.SG.NOM	uu-	u-	w-
M.SG.ACC	oo-		
M.PL.NOM	aa-	i-	y-
M.PL.ACC	ee-		
F.SG.NOM	tuu-	tu-	t-
F.SG.ACC	too-		
F.PL.NOM	taa-	ti-	
F.PL.ACC	tee-		

(10) a. *Oobaaba rhan*
oo- baabaa rhan
DEF.ACC.MSG- father I.saw
I saw the father.

b. *Toondi rhan*
too- (n)dee rhan
DEF.ACC.FSG- mother I.saw
'I saw the mother.'

- For feminine indefinites (both subjects and objects), the form *-t* appears. The suffix *-b* is an accusative marker that shows up with masculine objects and with vowel-final feminine proper names.

(11) *Baabaab rhan*
baabaa -b rhan
father -ACC I.saw
'I saw a father.'

(12) *Deet rhan*
(n)dee -t rhan
mother -F I.saw
'I saw a mother.'

(13) *Uutak Faatimaab rhiya*
uu- tak Faatima -b
the- man Faatima -ACC
rhiya
he.saw
'The man saw Faatima.'

- We therefore treat *-b* as a general marker of accusative that is blocked by *-t* with feminine nouns:

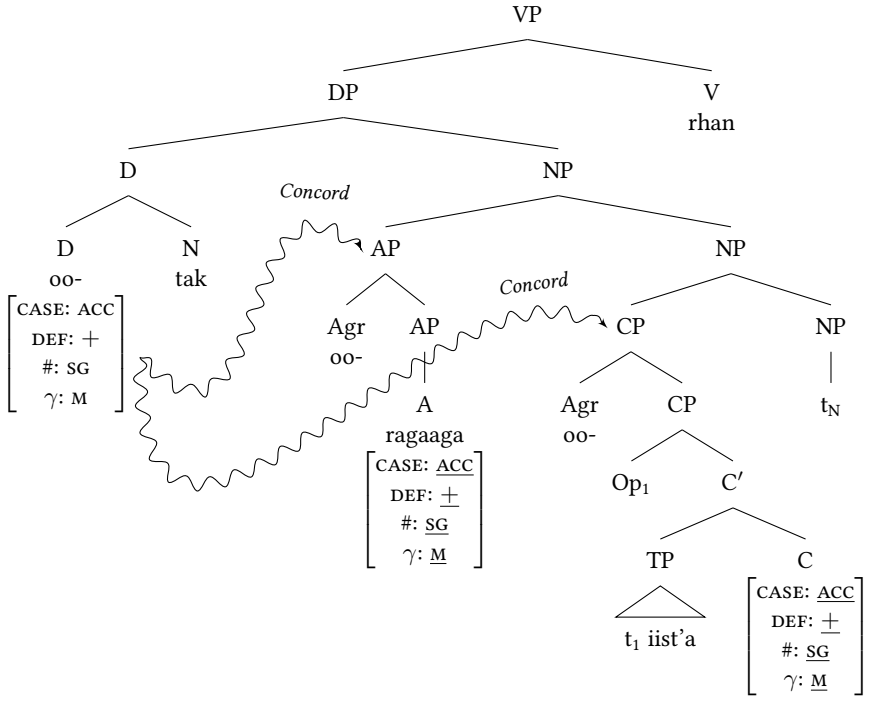
(14) *Indefinite determiner forms*

F	ACC
-t	-b

- We find the determiner forms as concord markers on both adjectives and relative clauses:

(15) *Ootak uragaaga w'iist'a rhan*
[$_{DP}$ oo- tak [$_{AP}$ oo- ragaagaa] [$_{CP}$ oo- iist'a
DEF.ACC.MSG- man DEF.ACC.MSG- tall DEF.ACC.MSG- sit.3MSG.PRES
]] rhan
I.saw
'I saw the tall man who was sitting.'

(16)

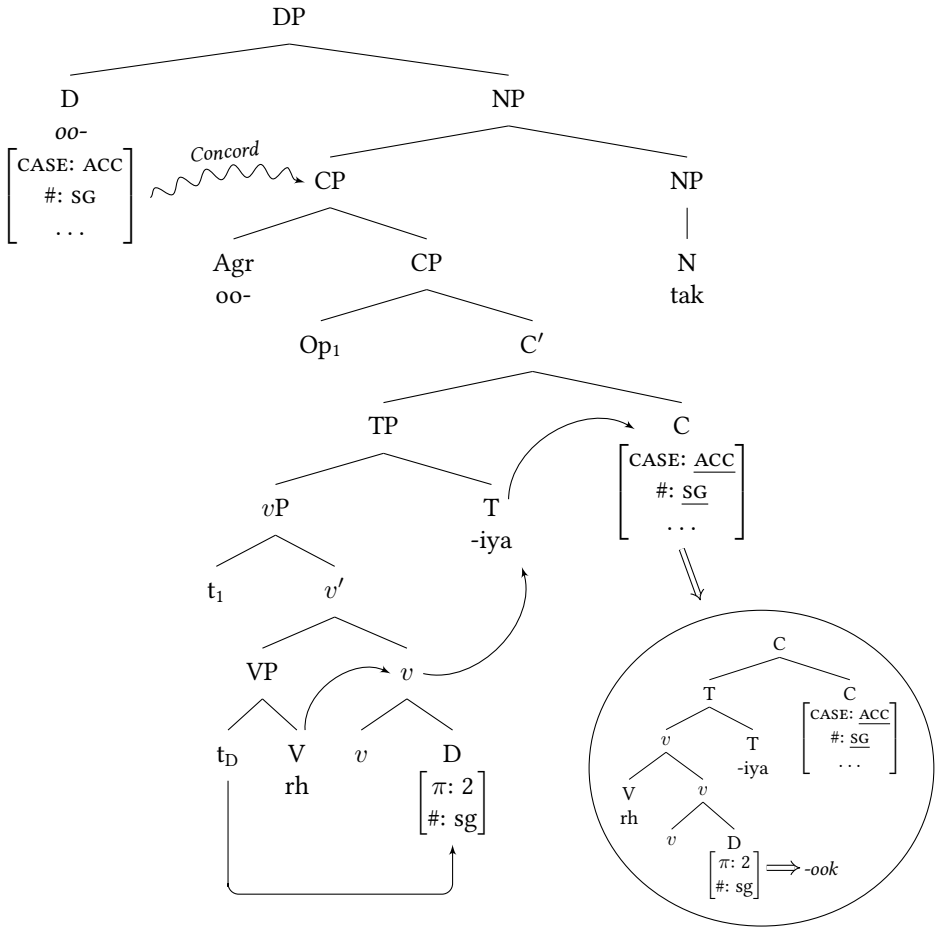


- Relative clauses and adjectives undergo concord for case, definiteness, number, and gender.
- Concord markers are hosted by post-syntactically inserted Agr heads (following Norris 2014). These Agr nodes can also be adjoined to phrases as well as heads (see Hanink 2018).
- Agr must be adjacent to a head to be realized (it is dropped if phrasal material intervenes):

(17) *Ootak iru rhiyanook akteen*
[$_{DP}$ oo- tak [$_{CP}$ iru rhiya -ook]] akteen
DEF.ACC.MSG- man yesterday saw.3MSG -you$_{ACC.SG}$ know.1SG
'I know the man who saw you yesterday.'

- If we omit the adverb, a concordial prefix surfaces on the relative clause here, too:

(18) *Ootak urhiyanook akteen*
[$_{DP}$ oo- tak [$_{CP}$ oo- rh -iya -ook]] akteen
DEF.ACC.MSG- man DEF.ACC.MSG- saw -3MSG -you$_{ACC.SG}$ know.1SG
'I know the man who saw you.'



- We therefore assume the following realization rule for the head hosting the object clitic:

(19) [π: 2, #: sg] ⟶ *-ook* / $[\,[\ldots\ \_\_\ \ldots]\ \begin{bmatrix}\text{CASE: ACC}\\ \text{\#: SG}\end{bmatrix}\,]_{X^0}$

(If c-commanded by a head bearing accusative and singular features within the same maximal X^0)

- In order to derive the full set of 2nd singular forms, we need the following set of realization rules:

(20) a. $[\pi\text{: 2, \#: sg}] \longrightarrow$ *-ook* $/$ $[\,[\ldots\ \_\_\ \ldots]\ \begin{bmatrix}\text{CASE: ACC}\\ \text{\#: SG}\end{bmatrix}\,]_{X^0}$ (X)

b. $[\pi\text{: 2, \#: sg}] \longrightarrow$ *-uuk* $/$ $[\,[\ldots\ \_\_\ \ldots]\ \begin{bmatrix}\text{CASE: NOM}\\ \text{\#: SG}\end{bmatrix}\,]_{X^0}$ (X)

c. $[\pi\text{: 2, \#: sg}] \longrightarrow$ *-eek* $/$ $[\,[\ldots\ \_\_\ \ldots]\ \begin{bmatrix}\text{CASE: ACC}\\ \text{\#: PL}\end{bmatrix}\,]_{X^0}$ (X)

d. $[\pi\text{: 2, \#: sg}] \longrightarrow$ *-aak* $/$ $[\,[\ldots\ \_\_\ \ldots]\ \begin{bmatrix}\text{CASE: NOM}\\ \text{\#: PL}\end{bmatrix}\,]_{X^0}$ (X)

e. $[\pi\text{: 2, \#: sg}] \longrightarrow$ *-hook*

- To derive the remaining rows in the paradigm in (8), we will need similar sets of rules.

4 Periphrastic constructions

Prediction

If the clitic cannot enter a head-local relation with C, then C cannot condition its form.

4.1 Periphrastic future

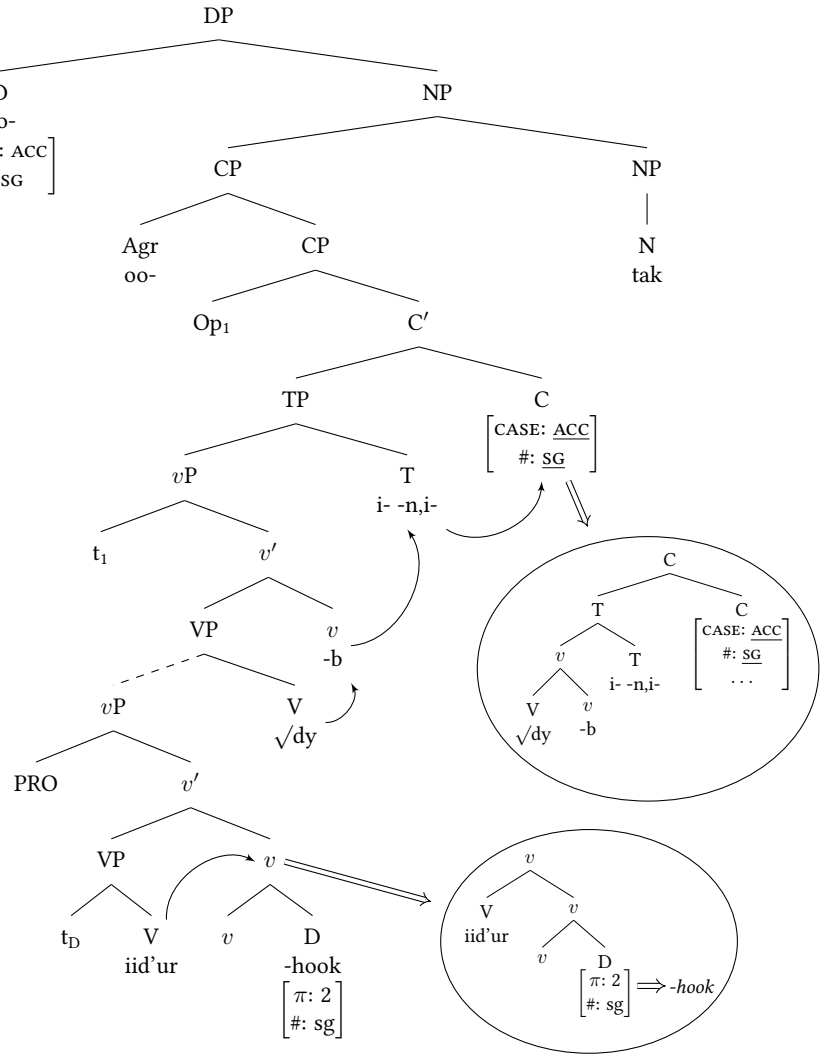
- The future tense in Bidhaawyeet is expressed by means of a periphrastic construction involving a finite form of the verb $\sqrt{dy}$ ('say') and a verb in a special future form.

(21) *Kantiimeek, giigi andi*
[$_{CP}$ $\sqrt{}$ktm -an-ii- -eek] giig -i a- $\sqrt{}$dy -n-i-
arrive -PRES.SG- -if leave -FUT 1SG- say -PRES.SG-
'If he arrives, I'll leave.'

(22) *Yakni neeyad*
yak -ni nee- $\sqrt{}$dy -a-
start -FUT.1PL PRES.1PL- say -PRES-
'We will start.'

- The verb whose v hosts the object clitic does not move to C. Instead, the higher verb 'say' does.
- A future tense verb inside a relative clause takes the default form of the object clitic (23)!

(23) *Ootak w'iid'urhook indiib akteen*
[$_{DP}$ oo- tak [$_{CP}$ oo- iid'ur -hook i- $\sqrt{}$dy -n,i-
DEF.MSG.ACC- man DEF.ACC.MSG- marry.FUT -you$_H$ 3MSG- say -PRES.SG-
-b]] akteen
-ACC know.1SG
'I know the man who will marry you.'



- As predicted by our rules, the case of the head noun cannot condition the form of the object pronoun here as it does not stand in a head-local relation to the relative C head.

4.2 Periphrastic negative past

- In matrix clauses, negation is typically expressed by an affix *ka-* on the main verb. Here, we find the H-form as we would expect in a matrix clause:

(24) *Ani karhanhook*
ani ka- rh -an [-hook -you$_{H}$]
1SG NEG- see -PRES.1SG
'I don't see you'

- In the negative past, however, a periphrastic construction is used:

(25) *Ani rhaayook kaaki*
ani rh -aa [-ook -you$_{ACC.SG}$] ka- a- √ky -i-
1SG see -PTCP NEG- 1SG- be -PFV-
'I didn't see you'

- Negation surfaces on a form of the copula verb √*ky* ('be') and the verb is in a participle form (*-aa*). Here, we unexpectedly find the ACC-form in a matrix clause!
- The predicate position of a copula bears overt accusative case:

(26) a. *Ani amnaabu*
ani amna -b -u
I guest -ACC -be.1SG
'I am a guest.'

b. *Uutak ragaagaabu*
uu- tak ragaaga -b -u
DEF.NOM.MSG man tall -ACC -be.3MSG
'The man is tall.'

- We assume the participle formed by *-aa* is a deverbal adjective:

(27) a. *Dayyaran*
dayyar -an
be.tired -PFV.1S
I have grown tired.

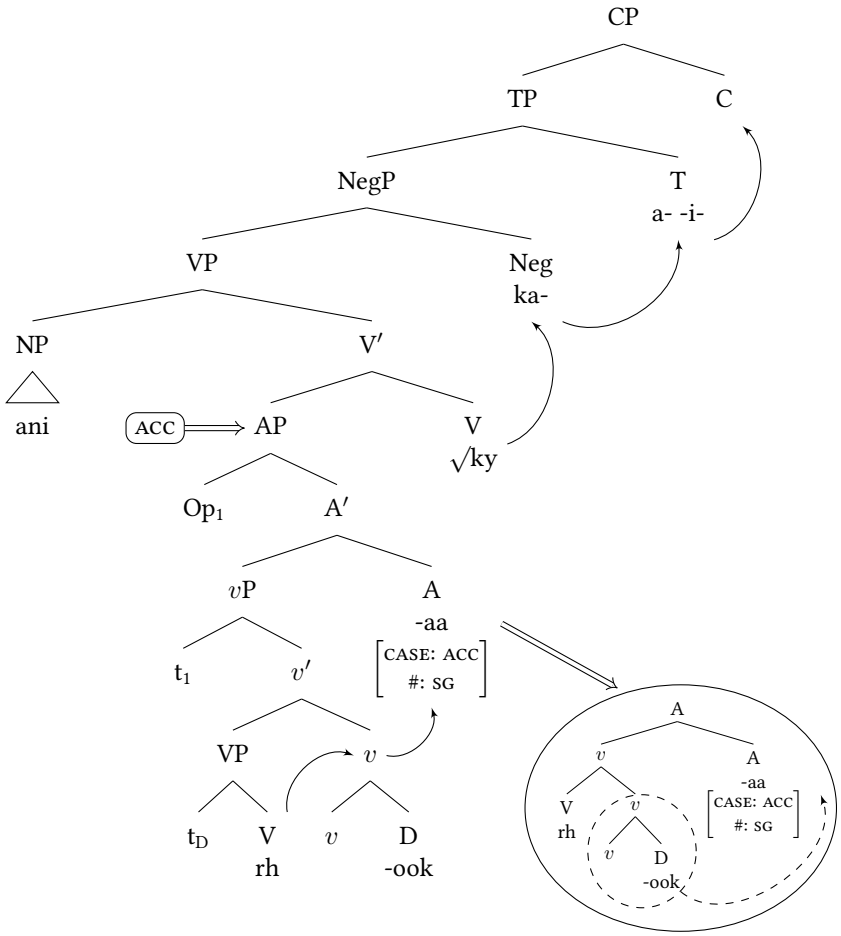
b. *Ani dayyaraabu*
ani dayyar -aa -b -u
I be.tired -PTCP -ACC -be.1SG
I am tired.

- The predicate position of a copula verb is assigned accusative case (either adjectives or DPs).
- Third person objects do not trigger object clitics in the negative past tense. Here, we find accusative *-b* on the participle (NB: *-b* is blocked by an overt object clitic):

(28) *Ani rhaab kaaki*
ani rh -aa -b ka- a- √ky -i-
1SG see -PTCP -ACC NEG- 1SG- be -PFV-
'I didn't see him/her/them.'

- We adopt a structure similar to adjectival participles in Germanic (Bruening 2014):

(29) *Ani rhaayook kaaki*
ani rh -aa [-ook -you$_{ACC.SG}$] ka- a- √ky -i-
1SG see -PTCP NEG- 1SG- be -PFV-
'I didn't see you'



- Since the object clitic does not move to C, external conditioning by the head noun fails:

(30) a. *Uutak uurhaayook baakaay ikteenheeb*
[$_{DP}$ uu- tak [$_{CP}$ uu- [$_{AP}$ rh -aa [-ook -you$_{ACC.SG}$]] baa-kaay]]
DEF.NOM.MSG- man DEF.NOM.MSG- see -PTCP NEG-be
ikteen -heeb
know.3MSG -me
'The man who didn't see you knows me.'

b. *Ootak oorhaayook baakaay kaakan*

[$_{DP}$ oo- tak [$_{CP}$ oo- [$_{AP}$ rh -aa [-ook / -you$_{ACC.SG}$]] baa-kaay]]
DEF.ACC.MSG- man DEF.ACC.MSG- see -PTCP NEG-be
ka-akan
NEG-know.1SG
'I don't know the man who didn't see you.'

- In non-periphrastic negative constructions (present tense), the distinction re-emerges:

(31) a. *Ootak oobaarhaayook akteen*

[$_{DP}$ oo- tak [$_{CP}$ oo- baa- rh -aa [-ook / -you$_{ACC.SG}$]]]
DEF.ACC.MSG- man DEF.ACC.MSG- NEG- see -NEG.SBJV
akteen
know.1SG
'I know the man who doesn't see you.'

b. *Uutak uubaarhaayuuk ikteenheeb*

[$_{DP}$ uu- tak [$_{CP}$ uu- baa- rh -aa [-uuk / -you$_{NOM.SG}$]]]
DEF.NOM.MSG- man DEF.NOM.MSG- NEG- see -NEG.SBJV
ikteen -heeb
know.3MSG -me
'The man who doesn't see you knows me.'

- This is exactly what we expect if a head-local relation is needed for allomorphic conditioning.

5 Allomorphy in possessive NPs

- Possessive suffixes in the noun phrase are sensitive to the case/number of the possessum.
- On our analysis, these would be also be D heads incorporated from possessor position.

(32) *Tukwaatuuk rhitaheeb*

[$_{DP}$ tuu- kwaa -t -uuk] rh -ita -heeb
DEF.NOM.FSG- sister -F -your$_{NOM.SG}$ see -3FSG.PFV -me$_{H}$
'Your sister saw me.'

(33) *Amsi tugahwaatook shagasaab kittaa*

amsi [$_{DP}$ too- gahwaa -t -ook] shaga-s -aa -b ki- t- √ky -aa
today DEF.ACC.FSG- café -F -your$_{ACC.SG}$ work-CAUS -PTCP -ACC NEG- 2SG- be -2MSG
'You didn't operate your café today.'

- The allomorphy here can be captured using the same rules as above. Here, the conditioning head is D rather than A or C (hence why the rule does not refer to a specific category).

Summary

- We have argued that apparent non-local allomorphy of object clitics in Bidhaawyeet relative clauses is actually local allomorphy conditioned by the C^0 of the relative CP.
- The relevant features are made locally available via the independently supported processes of concord within the DP.
- Periphrastic constructions provide evidence that the relevant domain for allomorphic conditioning is the complex head/morphological word.
- This lends further support to the claim that a strictly local approach to allomorphy domains can be upheld in the face of apparent counterexamples. Cases of putative non-local conditioning are actually local allomorphic relations created by a syntactic mechanism such as Agree or concord.

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