Person and Licensing in Georgian: Puzzles for Cyclic Agree

Susana Béjar, Milan Rezac

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1. Introduction

Many systems show complementarity in agreement patterns such that core arguments seemingly compete to be controllers. Potential controllers of agreement are herein designated as A, S, O, R, standing for subject of a transitive clause (A), subject of an intransitive clause (S), object of a transitive clause (O), and indirect object (R), all visible to φ-Agree. This paper examines patterns in Georgian where complementarity in the core agreement slot plays out as in ((1).

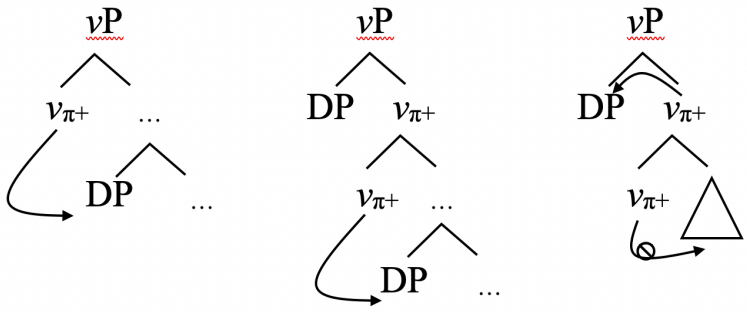
(1) A > O/R: a. 3 > 1/2 b. 1/2>3 c. 2>1 d. 1>2

Traditional analyses solved the complementarity problem by positing two distinct dependencies that are subject to morphological co-occurence restrictions. The theory of Cyclic Agree (Béjar & Rezac 2009) modelled complementarity by positing a single dependency — a many-to-one relation between arguments and probe — that is subject to general syntactic conditions like cyclicity and locality. This approach is broadly outlined in (2) and schematized in (3).

(2) Cyclic Agree:

- The search-space of a probe for Agree expands as structure is built through cycles of Merge. If we take search-space to be the built syntactic object or some part thereof like the sister of its root, then in (3a) it can only be the complement, but in (3c) it can include the specifier.
- Agree and Merge can only apply cyclically by a principle like Earliness or No Tampering or Minimal Search: in (3c), only those features of the probe that did not find a match when the complement was added can match when the specifier is.
- Satisfaction of a probe is relativised by its content, which can be more or less articulated. We abbreviate a person probe fully satisfied only by 1st/2nd person, π+, for something like [π[PART]].

(3) a. First-cycle Agree b. First-cycle Agree c. Second-cycle Agree



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Central here is (3b), a configuration where $v_{\pi+}$ fully matches a goal in its complement but there is a higher argument (A/S) that is a potential match or second-cycle controller. In this paper, we address three puzzles arising in such scenarios for the CA analysis of Georgian. **Puzzle 1** is **extra person morphology** that tracks person of A/S alone and independently of cyclic control of $v_{\pi+}$ by A, S, O, or R. **Puzzle 2** is the unexpected satisfaction of the **Person Licensing Condition (PLC)** by π-bearing A/S even when O/R controls $v_{\pi+}$. In CA, such extra morphology and licensing were explored for Basque, where precisely configurations in which $v_{\pi(+)}$ is controlled by 1st/2nd O have extra agreement for 1st/2nd A. This was analysed as *added probe* licensed in order to satisfy convergence for PLC. We will propose that in Georgian, that probe is also present, but as ordinary, obligatory probe, like $v_{\pi+}$. This solves puzzle 1 of extra person person morphology and puzzle 2 of extra licensing potential for PLC. We will also propose that it solves **Puzzle 3**. In Basque, S of unaccusatives controls first-cycle morphology of $v_{\pi+}$ and not the added probe, like O and not A. This is expected under CA from the O-like position of S below v. In Georgian, S always agrees like A and not O. This is derivable from its extra obligatory probe T_{π} and independent principles. The resulting system broadly aligns agreement as ergative in Basque and nominative in Georgian according to added/obligatory probe, but also nuances these alignments with splits due to a.o. to separation of π and # and different articulations of π probes (cf. Laka 2000, 1993).

In §2 we lay out Puzzle 1, followed by Puzzle 2 in §3. In §4 we present the analysis that resolves both puzzles. A comparison with Basque is presented in §5, followed by conclusions in §6.

2. Puzzles 1 and 2: i-set agreement and PLC

2.1. m/v-set

Puzzle 1 is extra morphology that tracks the potential second-cycle controller independently of its control of $v_{\pi+}$. The morphology of the Georgian finite verbal complex is schematized in (4). The complementary agreement that has received a CA analysis realizes prefixal slots 2 and 3, which for CA are construed as a single probe. The extra morphology of puzzle 1 is found in slot 8.

(4) Simplified slot chart of Georgian finite verbs (cf. Cherchi 1997:11, Tuite 1998: 13)

1	Preverb(s)	1+2+3+4+Root+6+7+8
2	v-set markers	
3	m(/h)-set markers	
4	Preradical (“version” or “character”) vowels	
5	Root	
6	Passive/inchoative, causative, and present/future (“thematic”) stem markers	
7	Imperfect stem formant (“extension”)	
8	Screeve, person and number markers = our *i*-set and *es*-plural	
9	*t*-pluraliser	

The agreement slot 2+3 tracks 1st vs. 2nd person of core arguments via a prefix controlled by either the highest internal argument — realised by so-called **m-set** exponents of the prefix (5a) — or, that failing, a coargument realised by the so-called **v-set** (5b). This is illustrated in (6) for the root ‘kill’ in the transitive scaffold of the aorist, $\mathbf{ERG_{agent} > v > NOM_{theme}}$, with m-set prefix in (6a,b) but v-set in (6c).

(5) a. 1st ↔ m-/gv- 2nd ↔ g- *m*-set
b. 1st ↔ v- 2nd ↔ 0- *v*-set

(6) a. =***m/g-****k’l-a*
$1_m/2_m$-kill-S/A
‘he killed $\mathbf{me_m/you_m}$’
(cf. 3b)

b. =***m****-k’al-i*
1_m-kill-S/A
‘you ... $\mathbf{me_m}$’
(cf. 3b)

c. =***v****-k’al-i*
1_v-kill-S/A
‘$\mathbf{I_v}$ ... him’
(cf. 3c)

The perfect of transitive ‘kill’ recruits applicative unaccusative morphosyntax, $\mathbf{v > DAT_{agent} > NOM_{theme}}$. It is illustrated (7) in the past of this formation, i.e. pluperfect ‘had killed’, also the aorist of the applicative unaccusative of the same root, ‘was killed for’. Again, we see the same complementarity

as before. The Agree relation is controlled by either the highest internal argument — realised by **m-set** morphology (7a-b) — or, failing that, a co-argument realised by **v-set** morphology (7c).[1]

(7)	a.	=***m/g-e-k'l-a***	b.	=***m-e-k'al-i***	c.	=***v-e-k'al-i***
		$1_m/2_m$-APPL-kill-S		1_m-APPL-kill-S		1_v-APPL-kill-S
		'**I$_m$/you$_m$** ... him'		'I$_m$ … you'		'he … **me$_v$**'

2.2. i-set

The CA analysis does not take into account what we will call the *i*-set: root ablaut that tracks 1st/2nd : 3rd person distinctions, and suffixes that track the same fusionally with tense, mood, and conjugation class. We illustrate again with the aorist (8) and pluperfect (9), this time with *i*-set suffixes and controllers boxed. A 3rd person *i*-set controller occurs with a zero grade root and suffixes *-a*, *-es* (8a), (9a) and 1st/2nd is with a full grade root and suffix *-i* (8b,c), (9b,c). In 3rd person, the suffixes moreover distinguish 3SG : 3PL, in the aorist 3SG *-a* : 3PL *-es*, which we will call the *e*s-plural. The *i*-set person and *es*-plural suffixes are part of the same slot and have the same controllers.

(8) *Aorist*

a.	=***m/g-k'l-a***	b.	=***m-k'al-i***	c.	=***v-k'al-i***
	$1_m/2_m$-kill-3_i		1_m-kill-2_i		1_v-kill-1_i
	'he$_i$ killed **me$_m$/you$_m$**'		'you$_i$ ... **me$_m$**'		'**I$_{v/i}$** ... him'

(9) *Pluperfect*

a.	=***m/g-e-k'l-a***	b.	=***m-e-k'al-i***	c.	=***v-e-k'al-i***
	$1_m/2_m$-APPL-kill-3_i		1_m-APPL-kill- 2_i		1_v-APPL-kill-1_i
	'**I$_m$/you$_m$** ... him$_i$'		'I$_m$ … you$_i$'		'He… **me$_{v/i}$**'

The set of 1st/2nd person controllers for the i-set differs from that of the m/v-set: it is the set of "potential" v-set controllers, i.e. the argument that does control the v-set, or would if another argument did not control the m-set. The 3rd person controllers of the *es*-plural is the same. To illustrate:

- In the aorist of a transitive ((8), the m-set controller is NOM O, the potential v-set controller is ERG A, and the i-set always differentiates 3 (8a) vs. 1/2 (8b,c) of this A.
- In the pluperfect of transitive (9) (= aorist of applicative unaccusatives), the m-set controller is DAT A/R, the "potential" v-set controller is NOM O/S, and the i-set always 3 theme (9a) vs. 1/2 theme (9b,c) of this O/S.

The *es*-plural suffixes are generally recognised as tracking SG/DFLT : PL for 3rd person, and so have often been treated along with *i*-set ablaut and/or suffixes as tracking 1st/2nd : 3rd person (Harris 1985 for ablaut, Boeder 2005, Wier 2011 for suffixes; we add diachronic support in Béjar & Rezac in prep).[2]

3. Puzzle 2: Person licensing

Puzzle 2 involves the problem of licensing the controller that doesn't Agree. We know that in ditransitive environments **v > DAT R > DAT/NOM O** (10), R blocks control of the prefix by O (11). 1st/2nd O without prefix agreement is ineffable (Person-Case Constraint (PCC), Bonet 1991). Instead

[1] Throughout, we will use the term unaccusative for all formations where S originates below v, and so comprising a.o. achievements in conjugation class 2, states in class 4, and passives of state, though the position of S and associated structures may differ (Nash 2022).

[2] In certain present atelic formations, *i*-set *-∅* has been replaced by morphology recruited from the copula; if this has been reanalysed as part of the *i*-set, then the *i*-set also distinguishes 1st : 2nd person (Chierchi 1997, Wier 2011), but our proposal is compatible with the copula remaining synchronically (Lomashvili & Harley 2011, Nash 2022, Béjar and Rezac in prep). The *i/es*-slot 8 is followed by the *t*-plural slot 9 in (4), controlled by 1st/2nd and sufficiently "proximal" 3rd DAT (Tuite 1998; Béjar 2003). It only interacts with the system here by obliteration of some or all *es*-plural morphemes before *-t* according to variety, which we set aside from now on.

there appear otherwise unavailable structures as repairs, such as reflexives for pronouns (10b) (Boeder 1968, Harris 1981).

(10) a. * *vin mo=m-i-k'l-a (šen)* → b. *... mo=m-i-k'l-a šeni tav-i*
who PVB=1_m-APPL-kill-3.S/A you your self-NOM
'Who killed you for me.' (Boeder 1968: 1.6)

(11) … *v* you$_{dat}$ me$_{nom}$ **PLC*
m-

CA models ineffability in ((10) through the **Person Licensing Condition (PLC),** an interface condition that requires that π-bearers participate in π-dependencies, replacing or part of the Case Filter. The repairs (10b) are analysed as last-resort π-dependencies added to satisfy the PLC as an interface requirement, such as a π-probe added to *pronoun* that turns it into *pronoun's self* (Rezac 2011: ch. 5).

As we saw in ((7), the system also has **v > DAT > NOM** unaccusatives with DAT subjects, used as such and as perfects of transitives. CA with solely $v_{\pi+}$ predicts for them the same PLC failure and repair, incorrectly (12). However, the prediction is met in Basque, where PLC gives DAT > 3/*½.NOM, and the repair adds a π probe on T for just 1st/2nd.S (op.cit.).

(12) a. *... mo=**m**-e-k'al-i (šen)* *→ b. * *... mo=**m**-e-k'al-i šeni tav-i*
PVB=1_m-APPL-kill-PART.S/A your self-NOM
'**I$_m$** had killed you', 'You were killed for me' (constructed, cf. Harris 1981: 3.2, 5.3)

Moreover, CA wrongly expects *PLC for all combinations of core arguments involving 1st/2nd person distinct from the 1st/2nd person controller of the m-set, e.g. (6b),(8b) repeated in (13):

(13) a. *mo=**m**-k'al-i*
PVB=1_m-kill-s/A
'you killed **me$_m$**'

b. you$_{erg}$ *v* me$_{nom}$
[π+]
*CA wrongly predicts *PLC*
m-

4. Puzzles 1 and 2: T_π in bivalent configurations

We now show that the *i*-set puzzle 1 resolves the PLC puzzle 2: the i-set reveals a π probe on T, T_π, like the added probe of Basque above, but obligatory. In the system, T_π turns out to be valued only by potential controllers of v- but not m-set on $v_{\pi+}$; T_π added to $v_{\pi+}$ correctly satisfies PLC in bivalent configurations and limits its failure to trivalent ones. We illustrate first with bivalent configurations in transitive A.NOM~ERG + O.DAT~NOM (§4.1) and continue in intransitive R.DAT + S.NOM (§4.2).

4.1. Transitives

The characteristics of transitives to be explained are as follows (and similarly intransitives in §4.2):

- obligatory i-set morphology additional to m/v-set of $v_{\pi+}$;
- restriction of i-set to potential v- and not m-set controllers: A (also S), not O (nor R);
- consequent doubling of i- by v-set if A controls v-set (ditto S);
- absence of PLC violations even if both arguments are 1st/2nd in A+O(/R) (ditto S+R)

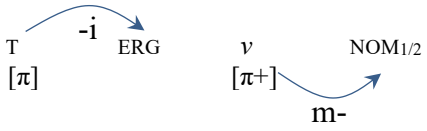
In Georgian, agreement and case are relatively divorced on the surface in transitives, and we will introduce case only as diagnostic of syntactic (in)transitivity. In the aorist (14) and present tense series, there is a genuine transitive scaffold, A > v > O, and it is associated with ERG on A and NOM on O in the aorist, NOM on A and DAT on O in the present. The perfect series uses an applicative unaccusative scaffold to which we turn in §4.2.

(14) Aorist

i. m-set prefix (1st cycle)		ii. v-set prefix (2nd cycle)	
a. =***m/g-k'l-a***	b. =***m/g-k'al-i***	a. =***k'l-a***	b. =***v/ø-k'al-i***
$1_m/2_m$-kill-S/A	$1_m/2_m$-kill-s/A	kill- S/A	$1_v/2_v$-kill-S/A
'he killed **me$_m$/you$_m$**'	'**I** ... **you$_m$**', 'you ... **me$_m$**'	'**He** ... him'	'**I$_v$/you$_v$**...him'

Under CA, the m/v-set prefix reflects $v_{\pi+}$, which includes [π[PART]], perhaps as part of a larger structure like [φ[π[PART]]]. It matches at least any π-bearer and is satisfied by any PART-bearer. 1st/2nd person have all of [[π]PART] and so satisfy the probe, while "3rd" person lacks π and so is invisible to the probe (as O/S; we return to R below). Thus in 1/2.A→1/2.O *m/g-k'al-i*, the goal of $v_{\pi+}$ is 1/2.O, the sole findable argument when v combines with its complement, and Agree with it is spelled out by the first-cycle or m-set prefixes, 1st *m-*, 2nd *g-* (14.i), (15).

(15) m-set agreement (14.i)



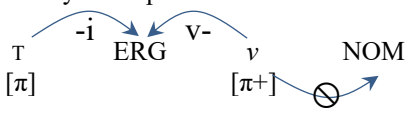
- NOM controls obligatory π+ probe on v (m-set agreement)
- ERG controls obligatory π probe on T (i-set agreement)

We now add to CA a π-probe on T, realised as the *i*-set, and distinguishing at least 1st/2nd : 3rd/DFLT (15). The probe has its analogue in Basque, distinguishing 1st : 2nd : 3rd/DFLT. In Basque, T_π is only added for convergence to satisfy the PLC, and so only if there is 1st/2nd A *and* it does not control $v_{\pi+}$ as *v*-set (and never with the m-set controlling S, §5). In Georgian, T_π is obligatory, and tracks A whether or not it controls the v-set (and consequently also S, §5). In both systems, cyclicity and locality results in 1st/2nd A + 1st/2nd O tracking O by m-set of $v_{\pi+}$ and A by i-set of T_π.

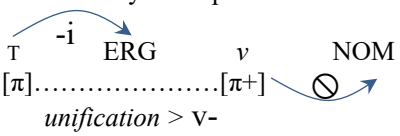
When O is nonperson "3rd", $v_{\pi+}$ finds no match in its complement, and can find a goal in its specifier when that is added. This is *direct* cyclic expansion of search-space of $v_{\pi+}$ (16a). Valuation of $v_{\pi+}$ on other than the first cycle is realised as *v*-set in Georgian and its analogue in Basque.

(16) v-set agreement (14.ii)

a. direct cyclic expansion



b. indirect cyclic expansion



In Georgian, the obligatory π-probe on T makes available a second, *indirect* search-space expansion, (16b). It follows under two hypotheses about how Agree works that have been argued for independently. One is that Agree unifies matching features; the other is that Agree can match unvalued features of a probes as much as it can valued features of goals (Frampton & Gutmann 2000). Thus, even if $v_{\pi+}$ has [PART] as *residue* that has not matched O or A upon completion of the vP, Agree by $T_{\pi+}$ unifies both with the residual [PART] on v or its projection, and with the valued [PART] of 1st/2nd A.

With transitives, we have no way of disentangling direct and indirect expansion for $v_{\pi+}$: in particular, if we derive the cyclicity of Agree from its obligatory application from Earliness, direct expansion is forced as soon as Spec,v is added to any residue of $v_{\pi+}$, but if we derive it from No Tampering or Minimal Search, Agree is not forced when Spec,v is added and the residue can be valued indirectly through T_π. We will add a configuration where only indirect expansion is possible presently (§4.2), and then explore principles that force it even in transitives (§5). Only direct expansion is possible in Basque, since so long as $v_{\pi+}$ can license A by direct expansion, π cannot be added to T (for the analysis in CA and leading to different treatment of S in Basque and Georgian, §5).

So far, we have kept to A + O combinations without R. If R is present, with or without O, R behaves like O of plain transitives for agreement, i.e. agreement is secundative, though the case of O is tense-invariant DAT, i.e. case is indirective. Thus we get $=m_{m\text{-set}}$-*i-k'al-*$i_{i\text{-set}}$ 'you killed it for me' like $=m_{m\text{-set}}$-*k'al-*$i_{i\text{-set}}$ 'you killed me', apart from the version vowel *-i-* typical of benefactive applicatives. To this there is an apparent exception: 3rd DAT is not invisible to $v_{\pi+}$ but controls a 3rd *h-* and its allomorphs like

h- + *-i-* = *u-* (Harris 1981). We see in this a minimal π-specification of 3rd person DAT in contrast to the absence of π on 3rd person O, specifically [π] without [PART] (Anagnostopoulou 2003: 5.4.2, as in Basque, Rezac forthc.). Since R is always below v, [π] of 3rd DAT R partly values the [[π]PART] $v_{\pi+}$, realised as *h-*. DAT R's [π] halts the downward search of [π[PART]] on v into its complement as the closest matching goal, and thereby prevents [π[PART]] from continuing to O, giving the PCC of (10) as *PLC (see §4.3). However, when the search-space is expanded to the specifier, A is the closest goal to [π[PART]], and 1st/2nd valuation from A is realised as *v*-set. Such 3rd DAT + second cycle 1st/2nd combinations are thus expected to be the only configurations in the system where prefixes cumulate, correctly, as in *v-~~h~~-u-k'al-i* 'I killed it for him'.

Finally, we have not addressed configurations with 3rd A, which become particularly relevant in Georgian with its obligatory π probe on T. However, we have no direct evidence about the articulation of T_{π} and so about whether it would or would not match a π-less A, nor is it obvious that 3rd A is π-less like O and S (Rezac forth.). Moreover, in both Basque and Georgian, there is an *es*-plural controlled by 3rd person of all and only the same arguments as control the *i*-set and is realised in the same slot, likely reflecting $T_{\#}$, and also arguably added in Basque, but fixed in Georgian. This raises the possibility that T_{π} and $T_{\#}$ are simply T_{φ}, with [φ] rather than its articulations like [φ[π]] or subsets thereof like [π], and match any φ-bearer. For now, the *es*-plural qua $T_{\#}$ will only play a diagnostic role for intransitives below (§4.2), but we return to its possible interaction with T_{π} later (§5).

4.2. DAT+NOM intransitives

Bivalent intransitives let us study the interaction of two arguments in novel configurations. We have two diagnostics of structure for NOM S + DAT R intransitives. One is antecedence of local anaphora, indicated by >. These seem to diagnose thematic positions against A' and at least some A-positions (Harris 1981, McGinnis 1998). The other is control of the *es*-plural by NOM S, which had been thought to diagnose subjecthood (op.cit.), but perhaps can do with a weaker relation below (see type (iii)). With these diagnostics, we find three configurations for NOM + DAT intransitives and analyse them as follows (building on the findings and literature in Tuite 1998, Nash 2016).

(17) DAT+NOM intransitives

i) $NOM_{agentive}$>DAT	ii) NOM_{theme} ><DAT	iii) DAT>$NOM_{theme/holder}$
•S originates above v like A •NOM>DAT only • *es*-plural ✔	• S originates below v/Appl like O • S can raise above v • NOM>DAT and DAT>NOM • *es*-plural ✔	• S originates below v/Appl like O and must remain below DAT • DAT>NOM only • *es*-plural ✘/✔

In all these intransitive configurations, DAT controls m/h-set, like DAT R does in transitives, and for us this follows if DAT always originates below v, even when coding A in the perfect series (Béjar 2003), recapitulating the historical recruitment of applicative unaccusative formations (Harris 1985). In all these configurations, as well, NOM controls the i(+v)-set, like present-series NOM, aorist-series ERG A in transitives, rather than the m-set, like present DAT, aorist NOM O of transitives. In type (i), this will be straightforward, because NOM S is above v like A before relating to T, and the same configuration is extensible to raised S in type (ii). However, it is inadequate for type (iii) where NOM remains below v (v>DAT>NOM). This type was illustrated in (7),(9) for the pluperfect of transitive 'kill', essentially identical to an applicative unaccusative of the same root (Ppf. of *mo=k'l-av-s* 'had killed' = Aor. of appl. pass. *e-k'vl-eb-a* 'was killed for'). See further under §4.2.3.

4.2.1. Agentive S>DAT

In type (i), we posit S in an A-like position above v and so above DAT. The derivation therefore works precisely like that of transitives with A > v > DAT/O: π+ on v is controlled by 1st/2nd DAT as m-set on first cycle or 1st/2nd NOM as v-set on second cycle, and π on T by the higher NOM as i-set.

If instead of S we have A, these are simply transitives-unergatives, in telic "class 1", mostly with O but not always, *a-xed-av-s* 'looks at DAT', or atelic "class 3", with no or at least unagreed-with O, 3

mo=s-t'ir-i-s 'comes crying at DAT'. They have the characteristic tense-dependent case on A, present NOM, aorist ERG, perfect DAT, against invariant NOM S of intransitives.

However, intransitives with their characteristic tense-invariant NOM of S include a number where S is A-like in agentivity, strict S>DAT by anaphora, and control of *es*-plural (Tuite 1998 with lit.). Some have been called "deponent" because of this apparent mismatch in morphosyntax and interpretation. They include basic members of the telic intransitive "class 2" like NOM A + DAT O *mo=h-q'v-eb-a* 'recounts', NOM A + DAT R + DAT O *mo=u-q'v-eb-a* 'recounts to'. Most are derived members of class 2, e.g. "comitatives", which take a member of class 3 with its NOM-ERG-DAT A, *čxub-ob-s* 'quarrels', *lap'arak'-ob-s* 'talks', add DAT R, and thereby switch A to NOM S and the formation to class 2, *e-čxub-eb-a* 'quarrels with', *el-lap'arak'-eb-a* 'talks with'. Others that may belong are "inverse syntax" uses of "labile" intransitives in class 2, such as *e-mal-eb-a* 'hide' in 'the deer (managed to) hide from the hunters'. For our purposes, we can take A-like S to originate in Spec,v like A, but more nuanced structures like raising from below v are possible (given §5; see Pineda and Berro 2020 for Basque counterparts like *borrokatu* 'fight', *mintzatu* 'speak (with)').

4.2.2. NOM>DAT>~~NOM~~ raising

In type (ii), there is some evidence of base configuration DAT>NOM, studied in type (iii) below, but NOM can raise above v and DAT unlike in (iii), perhaps because there is less structure than in (iii) (see Wood and Sigurðsson 2014 on symmetric vs. asymmetric DAT+NOM in Icelandic). If it raises, the derivation ends up with the same Agree dependencies as type (i): $T_{i=NOM}$ > NOM > $v_{m=DAT,v=NOM}$ > DAT. We leave open the how and where of the raising of NOM and the consequent details of Agree with T: Agree of T with NOM in-situ past DAT, raising NOM; independent raising of NOM to T feeding T Agree; or independent raising of NOM to between v and T which would work like type (i). $v_{\pi+}$ itself cannot Agree with NOM S, since DAT R intervenes, with [π] even as 3rd person, and any match halts further search by a probe beyond it in a given search-space, and this would give a PLC failure without T_{π}, as it does in transitives (§4.3).

The best candidates for raising are unaccusative-passive achievements in class 2 that add a high dative like benefactive-possessor, and yet allow not only DAT>NOM but also NOM>DAT and let NOM control *es*-plural. This is the behavior of verbs like *i-k'arg-eb-a* 'be lost' → *e-* 'to DAT', *k'vd-eb-a* 'die' → *u-* 'on DAT' (in Tuite 1998). Also here might verbs like *i-mal-eb-a* 'hide' → *e-mal-eb-a* 'from DAT', the class 2 passive of class 1 transitive *u-mal-av-s* with high DAT>O (Nash 2016) but not only DAT>NOM but also NOM>DAT and allows NOM control of *es*-plural (in Tuite 1998). However, it cannot be excluded that with some or all verbs here we have rather roots that can systematically occur in two scaffolds, unaccusative DAT>S (type (iii)) and unergative S>DAT (see type (i)) (thus for English *follow,* Italian *seguire* Burzio 1986: 2.7.3). This analysis may be more appealing for speakers who have only DAT>S 'be lost to' and S>DAT 'hide from' (Nash 2016).

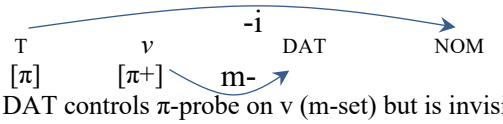
4.2.3. DAT>NOM

In type (iii), the configuration is strictly DAT>NOM by anaphora, but control of *es*-plural varies. Clearest members of (iii) are DAT>NOM subtypes that do not allow NOM to control *es*-plural, like psych-statives in "class" 4 *u-q'var-s* 'loves', and like these is the perfect series of transitives. However, DAT>NOM is also strict for inchoatives of class 4 in class 2 and these do allow *es*-plural, *u-q'var-d-eb-a* 'falls in love', and like them are certain statives, including class 2 *e-gul-eb-a* 'deem', 4 *h-q'van-s* 'has' (Tuite 1998, Hewitt 1995). The combination of strict DAT>NOM with *es*-plural suggest that *es*-plural does not strictly diagnose that its controller is in Spec,T as subjecthood A-position. We tentatively propose that it *es*-plural may merely require NOM to be sufficiently close to T. Possibly, differences in control of *es*-number among DAT>ABS verbs reflect differences in the structure between T and in-situ NOM (cf., for theoretical options, Wood and Sigurðsson 2014 on Icelandic DAT>NOM *líka* vs. DAT><NOM *hugnast* with D'Alessandro and Roberts 2008 on raising for participle agreement).[3]

[3] We have supposed that NOM><DAT with type (ii) *e-k'arg-eb-a* indicates that raising feeds anaphora to give NOM > v > DAT > ~~NOM~~ *e-k'arg-eb-ian ertmanet-s* 'they are lost to each.other' (Tuite 1998). However, if this is really 'lose' in an unergative scaffold, local anaphora could strictly diagnose thematic positions (Harris 1981) and *es*-plural structural subject in Spec,T (McGinnis 1998, close to Harris 1981, but we exclude *t*-plural), even with

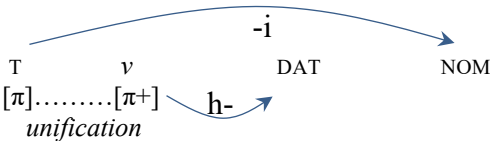
The configuration T > v > DAT > NOM presents mechanics we have not examined so far since T and v are separated from NOM by DAT and lead us to the following elements:

(18) m-set agreement only (=*m-e-k'al-i* 'I had killed you')



- DAT controls π-probe on v (m-set) but is invisible to T (activity)
- NOM controls obligatory π-probe on T past invisible DAT (i-set)

(19) v-set agreement (=*v-0-e-k'al-i* 'He had killed me')



- DAT only partly values π-probe on v (h-set) and is invisible to T (activity)
- **Unification of T-v** results in shared probe valuing T (i-set) and v (v-set) from NOM

Cyclic expansion through unification: We have seen that, for transitives, direct cyclic expansion by Agree of $v_{\pi+}$ with Spec,v is indistinguishable from indirect expansion where T_{π} unifies with unvalued residue of $v_{\pi+}$ and both are valued from the goal found by T_{π}. Here NOM remains below v, so indirect expansion is the only pathway to v-set control by NOM.

(In)activity: In T > v > DAT > NOM, DAT is the closest goal to v and so obligatorily controls m/h-set on v, as expected. Always being a match for π+, it prevents further downward search as noted for type (ii). However, DAT is invisible to T, as can be seen when there is no other 1st/2nd controller for the i-set, *m-c'on-s* 'me.DAT likes it.NOM', and even when there is no obvious i-set controller at all as S, *m-ši-a* 'me.DAT hungers', *m-e-šin-i-a* 'me.DAT fears': m_{1m}-*e-šin-od-a*$_{3i}$/*$i_{1/2i}$ 'me.DAT feared'. Georgian converges with secundative dative in varieties of Basque where probe added to T in raising and ergative displacement also fails to see DAT (type *iruditzen nazu*, *nau* 'you, it seems to me' in Rezac 2011: 5.6). One way to construe this invisibility of DAT to T is as a consequence of prior Agree of DAT with v under some version of inactivation upon Agree. This is consistent with the generalisation that *m*-set controllers never control *i*-set, DAT R and DAT, NOM O, though *v*-set controllers do, NOM S and ERG, NOM A, and with O, too, there are transitives with no obvious i-set controller as A (Hewitt 1995: 4.10.3, 2008: 5.0, Tuite 1998: 8.2.5). It would then follow that *i*-set control by A/S requires indirect cyclic expansion since direct expansion by Agree of v_{π} would make A/S invisible to T_{π}. Another way to approach the invisibility of DAT to T is through the copresence on T of the π-probe underlying the *i*-set and the # probe underlying *es*-PL and their interaction with the inherent case revealed in DAT by invariance with tense and passivisation (cf. π-# interactions in Coon & Bale 2014, Deal 2015, and # absent on quirky DAT, Anagnostopoulou 2003, Rezac forthc.).

4.3. Emergence of the PLC

In all DAT+NOM configurations, CA derives control of T by NOM (always), along with its control of v-set on v, if DAT is not controlling m-set as 1st/2nd. Because intransitives lack A, that makes available an extra π probe relative to transitives, and so we predict PLC to never arise in them. However, when the same DAT+ACC/ABS combinations are embedded in a transitive scaffold under a NOM/ERG external argument (0, the latter is always the highest argument and controls T, and ACC/ABS incurs

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DAT>NOM *še=u-q'vard-nen* 'they fell in love with them', *h-q'van-an* 'they have them' (Tuite 1998), *da=e-k'arg-nen* 'they were lost to them' (Harris 1981, even for DAT>NOM-only speakers, to go by McGinnis 1998, cf. Nash 2016). Then there may be no raising type (ii), and DAT>NOM *es*-plural √ 'fall in love with' : * 'love', √ 'was lost to' : * 'had lost' reflect the same thematic structure but raising of NOM past DAT only in the former, arguably because of less structure (see refs. in text). Key evidence might come from OC *pro* (so far only used to show that it can correspond to DAT, Vamling 1989, Ganenkov 2019). All this highlights the need for indirect expansion in DAT>NOM with * *es*-plural: *v-u-q'var-d-i, mo=v-e-k'al-i* '(the spy who) loved me, had killed me'.

*PLC. There is no option of $v_{\pi+}$ looking past a partial match, nor of looking past a match by displacing or inactivating a match, in order to account for PCC as PLC regardless of the articulation of the relevant probe, A-movement of R, or secundativity-indirectivity of R (CA: 46n6). In Georgian, PLC failure in ditransitives can be avoided by added probes in other parts of the structure like the O DP.

(20) 

PLC violation

5. Puzzle 3: T_π in plain intransitives

We now turn to Puzzle 3. In Basque, S of unaccusatives aligns with O in that it controls first-cycle morphology of $v_{\pi+}$ and not the added probe (only controlled by A). This is expected under CA from the O-like position of S below v. In contrast, Georgian S always agrees like A and not O. We argue here that this difference emerges from the contrasting distribution of obligatory vs. added probes in Georgian and Basque. This difference aside, the two-probe system described above for Georgian has point-by-point analogues in Basque, modulo independent differences in the coupling of v/T probes and case morphology. To facilitate comparison, we label Basque morphology in Georgian terms: $v_{\pi+}$ is realised by a prefix, valued from 1st/2nd or default if there is none; first vs. expanded cycle valuation of $v_{\pi+}$ is indicated by "thematic markers" labelled as *m-* vs. *v*-set in our examples; and T_π or the clitics licensed by it are labelled as *i*-set. In (21) we show Basque and Georgian examples side by side, with m-set, v-set and i-set indicated via subscripts in the glosses. In transitives of both systems, $v_{\pi+}$ tracks 1st/2nd of the internal argument O by the m-set, and only if there is not one, of the external argument A by the v-set. In both systems, if a 1st/2nd O controls $v_{\pi+}$, m-set, a 1st/2nd A controls the i-set reflecting T_π, and thus both satisfy the PLC. In Georgian however, T_π probe is obligatory and so also present if A controls the v-set, while in Basque T_π is only added if a structure would not converge without it, and so the v-set is not doubled by the i-set. If Agree by v_π makes A invisible to T, then there is the further difference: Georgian can only get v-set control of A by indirect expansion of $v_{\pi+}$ through unification with T_π, while Basque has only direct expansion when the PLC can be met by $v_{\pi+}$ alone so that there is no T_π.

(21) Basque | Georgian
*The * <u>underlined</u> bits are the i-*set *in Basque where we would expect it from Georgian, and the m-*set *in Georgian expected from Basque where Georgian rather uses v-*set.

	Transitive	**'carry' (Basque)**	**'kill' (Georgian)**
a.	2S→1S	*n-ind-ekar-na-n*	*mo=m-k'al-i*
		1S-m-carry-2S$_i$-PST	PVB=1$_m$-kill-1/2$_i$
b.	1S→3S	*n-ø-ekarr-[*<u>da</u>-]en*	*mo=v-k'al-i*
		1S-v-carry-[1S$_i$-]PST	PVB=1$_v$-kill-1/2$_i$
c.	3S→1S	*n-ind-ekarr-en*	*mo=m-k'l-a*
		1S-m-carry-PST	PVB=1$_m$-kill-3$_i$
d.	3S→3S	*z-ekarr-en*	*mo=k'l-a*
		DFLT.PST-carry-PST	PVB=kill-3$_i$
	Intransitive	**'go' (Basque)**	**'be killed' (Georgian)**
e.	1S	*n-ind-oa-[*<u>da</u>-]en*	*mo=v/*<u>m</u>-i-k'al-i*
		1S-m-go-*1S$_i$-PST	PVB=1$_v$/*1$_m$-PASS-kill-1/2$_i$
f.	3S	*z-ihoa-n*	*mo=i-k'l-a*
		DFLT-go-PST	PVB=PASS-kill-3$_i$

This difference between obligatory and last-resort T_π reveals itself in the strikingly different treatment of the NOM (ABS) S of unaccusatives in the two systems. Basque has $v_{\pi+}$ as its sole obligatory probe: it can Agree with S as it can with O, and therefore must, if S is 1st/2nd person and needs licensing for PLC. T_π is only licensed if the derivation fails to converge (or rather, $T_{\pi+\#=}$ with the Basque version

of *es*-plural). This is so when DAT R is present and halts downward search of $v_{\pi+}$ (§4.3). Such v > DAT > NOM unaccusatives then have T agreeing with NOM S (Rezac 2011: 5.6).

Georgian v > DAT > NOM unaccusatives work the same way, but T_{π} is obligatory (or again, rather $T_{\pi+\#=\varphi}$, §4.2.2-3). That obligatoriness leads to a different outcome even when there is no DAT and NOM S could be reached and licensed by $v_{\pi+}$. Our expectations in this configuration depend on whether syntactic operations apply obligatorily when their conditions are met, in which case $v_{\pi+}$ would have to Agree with NOM S and track it by *m*-set, or freely up to convergence, in which case $v_{\pi+}$ can Agree, but need not, so long as another nonadded, obligatory probe Agrees and licenses NOM S. This is T_{π}, tracking NOM S by *i*-set, and through indirect cyclic expansion, *v*-set.

Empirically, only this last option is available (21e). We take the *availability* of T_{π} qua *i(+v)*-set for S to indicate that syntactic operations apply freely up to convergence, suggesting that cyclicity follows from Minimal Search or No-Tampering rather than Earliness. The *impossibility* of $v_{\pi+}$ qua *m*-set for S suggests further that T_{π} must (rather than can) find a goal. This fits the classical Inverse Case Filter for English T, whereby φ-probes not only can Agree, but must be valued, and has analogues in the uses to which it has been put, notably the unavailability of NOM-less constructions like *me regrets of this, it was danced* in English. We can adopt the proposal that probes do not need to Agree in syntax as such (Preminger 2014), and reduce the need of some probes to Agree to unavailability of PF realisation of unvalued probes (cf. Schäfer 2012). Since T_{π} must find a goal, in unaccusatives, S must not have Agreed with v_{π} and been rendered inactive for T_{π}, unlike O, which leaves A for T_{π}. This derives the unavailability of S controlling $v_{\pi+}$ on first cycle and so *m*-set, leaving S for T_{π}, whereby S controls *i*-set, and through indirect expansion whereby T_{π} unifies with the unvalued obligatory $v_{\pi+}$, *i*(+*v*)-set.[4]

Finally, returning to DAT>3.NOM unaccusatives with this view of free Agree up to convergence, we might now seem to expect the choice of either $v_{\pi+}$ tracking DAT by *m/h*-set and $T_{\pi/\varphi}$ NOM by *i(+v)*-set, as above, or $T_{\pi/\varphi}$ alone tracking DAT directly and $v_{\pi+}$ indirectly through expansion as *i(+v)*-set, not found. However, it is a systematic property of both Georgian and even secundative varieties of Basque that while DAT can value the π+ probe of v as *m*-set, it cannot value either the *i*-set π-probe or the *es*-plural #-probe of T, even when it is the only candidate for valuing them, as in raising. We have suggested that the culprit here is the interaction of φ-features with inherent case, which makes visible only π, and makes it impossible to satisfy the need of $T_{\pi+\#}$ to find a goal for its #-component (see lit. in 4.3.3; the #-probe qua number-gender sees singular on NOM, Rezac forthc, unlike #-PL *t*-pural).

In summary, the contrasting distribution of obligatory vs. added probes in Georgian and Basque has consequences for the resulting alignment of agreement dependencies. Basque has broadly ergative alignment for agreement of S with O against A because T_{φ} is added only if v_{φ} is taken up. Georgian does not because both T_{φ} and v_{φ} are obligatory. The alignments are modulated by the availability of π and # dependencies and different articulations of π probes as well as interface conditions like spell-out of unvalued probes.

6. Conclusion and consequences

CA and PLC for the person prefix, modeled as a 1/2-3 π-probe on v, lead to apparent PLC failures for a wide range of argument combinations, but all are, as expected, defused by the observable higher π-probe on T motivated by the suffix-ablaut system. The higher π-probe is obligatory and this creates interactions between agreement loci as though general mechanisms which result in probe unification. The added morphology, i-set suffixes, expones this obligatory higher probe. A comparison between Georgian and Basque reveals systematic differences attributable to Georgian having an obligatory π-probe on T while in Basque the π+-probe of T is added to satisfy the PLC as part of Full Interpretation. This explains why we see m/*v for S in Basque but *m/v for S in Georgian. Details of the analysis support a view where syntactic operations apply freely up to convergence, suggesting that cyclicity follows from Minimal Search or No-Tampering rather than Earliness.

[4] Apparently missing S, A with verbs like *mešinoda/*(m)ešinodi* 'me.DAT 1_m-feared-3/*1_i' is unproblematic if there is quasiargumental S, like the V2-persistent *es* of German *mir graut (es)* (q.v. Schäfer 2008), or T_{π} relates to another quirky oblique than DAT like +GEN ≈ German *vor* of the object feared (q.v. Cherchi 1997: 1.3 (1.19)).

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