

## Leftover Agreement: Spelling out Kartvelian number

Tanya Bondarenko (tbond@mit.edu) & Stanislaw Zoppi (zoppi@mit.edu)

**INTRODUCTION:** We show that in Kartvelian languages (Georgian, Laz, Megrelian, Svan) whether a higher number probe agrees or not depends on the exponent used by a lower probe. Only the *unexponed* (= *leftover*) features of the lower probe can get agreed with by the higher probe. We call such agreement Leftover Agreement (LA), and argue that it lends new support to an architecture that cyclically interleaves syntax and Spell-Out (Calabrese & Pescarini 2014, Martinović 2019, a.o.).

**BACKGROUND:** Kartvelian verbs have three agreement slots. We assume the first slot (*g-* in (1)) corresponds to a *v*-probe, the second (*-da*) to a T-probe, and the third (*-t*) to a higher Agr-probe.

- (1) (is) (tkven) gada-**g**<sub>v</sub>-c'er-**da**<sub>T</sub>-**t**<sub>Agr</sub> *Georgian*  
 (3SG.NOM) (2PL.ACC) PVB-**2**-describe-**COND.3SG-PL** ‘(S)he would describe you (pl).’

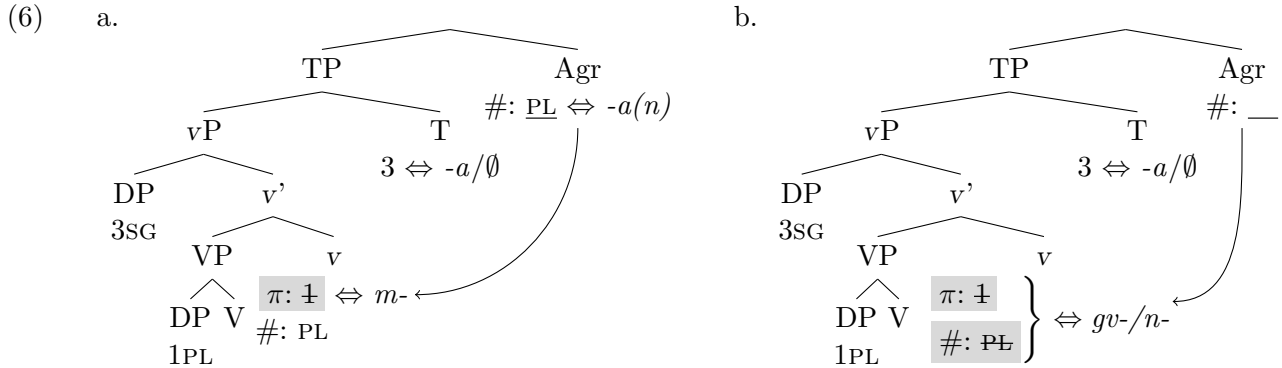
While previous works (Halle & Marantz 1993; Harley & Lomashvili 2011; Blix 2016; Foley 2017, a.o.) have treated the interaction between *v*-agreement and Agr-agreement as a purely morphological phenomenon, we argue that it arises from the interaction of vocabulary insertion and syntax.

**THE PUZZLE:** In Kartvelian, suffixal plural agreement with an NP shows up on Agr only if there is no *v*-prefix that can expone plural agreement with that NP—a case of “discontinuous bleeding”.

- |  |   |
|--|---|
| <p>(2) <b>Georgian</b> (Aronson 1990: 172)<br/> <b>gv</b>-nax-a / <b>g</b>-nax-a-t<br/> <b>1PL</b>-see-AOR.3SG / <b>2</b>-see-AOR.3SG-PL<br/>         ‘(S)he saw us / (S)he saw you (PL).’</p>   | <p>(4) <b>Laz</b> (Lacroix 2009: 294)<br/> <b>m</b>-dziom-<b>an</b> / <b>g</b>-dziom-<b>an</b><br/> <b>1</b>-see.PRS-PL / <b>2</b>-see.PRS-PL<br/>         ‘(S)he sees us / (S)he sees you (PL).’</p>                         |
| <p>(3) <b>Svan</b> (Testelets 1989: 9)<br/> <b>n</b>-adgäri / <b>ž</b>-adgäri-x<br/> <b>1PL.EX</b>-kill.PRS / <b>2</b>-kill.PRS-PL<br/>         ‘(S)he is killing us / is killing you (PL).’</p> | <p>(5) <b>Megrelian</b> (Kipshidze 1914: 076)<br/> <b>m</b>-tʃ’arən-<b>a(n)</b> / <b>r</b>-tʃ’arən-<b>a(n)</b><br/> <b>1</b>-write.PRS-PL / <b>2</b>-write.PRS-PL<br/>         ‘(S)he writes us / (S)he writes you (PL).’</p> |

Georgian and Svan have a 1PL prefixal exponent, and in those forms that contain it, the number suffix is bled by its presence—unlike in Megrelian and Laz, which lack a 1PL prefix. None of the languages has a 2PL prefix, so they all have suffixal number agreement with 2PL NPs. **The question** we address is: why does the suffix’s presence depend on the features expone by the prefix?

**THE PROPOSAL:** We argue that the correlation between the prefix exponent and the suffix results from an architecture that interleaves syntax and Spell-Out: it arises due to Leftover Agreement between the *v*- and the Agr-probes. We illustrate our proposal with the 3SG subject, 1PL object configuration; (6a) represents ⟨3SG, 1PL⟩ in Megrelian and Laz; (6b), in Georgian and Svan.



► **v-AGREEMENT:** To save space, we provide a simplified version: *v* agrees with participant NPs in  $\phi$ -features; it first searches in its complement, then in its specifier (Béjar & Rezac 2009). In (6), *v* copies features from the 1PL direct object ( $\pi:1, \#:PL$ ). ► **T-AGREEMENT:** T agrees with the subject.

► **Agr-AGREEMENT:** [1] We assume Agr is on a phase head and that Chomsky’s (2001) Weak PIC holds: Agr can access the lower phase head *v* and its specifier but not *v*’s complement or any NPs within it. This means **any Agr-agreement with objects must result from LA**. [2] We assume that when Agr is merged, while VP becomes completely inaccessible, the whole TP undergoes Vocabulary Insertion (VI), and the accessibility of features on heads from *v* to T depends on the choice of these heads’ exponents. We argue that VI is only partly replacive: if an exponent’s specifications perfectly match a whole bundle of uninterpretable features, the whole bundle becomes inaccessible for further syntactic operations; but if an exponent is only specified for a subset of an uninterpretable feature bundle, the features that it is not specified for — the *leftovers* — remain accessible to higher probes. [3] **In Laz/Megrelian**, (6a), the prefix *m-* expones only a subset of the features on *v*: only the 1st person. The unexponed PL feature is *left over* and remains visible to the higher Agr-probe. LA happens between the two probes, and the PL feature gets copied on the Agr-probe and ultimately exponed there. **Georgian and Svan**, (6b), have *v*-exponents that expones the whole bundle {1, PL} (*gv-*, *n-*). Thus, after Spell-Out, there are no leftover features on *v* that Agr could agree with. Hence, a failure to agree (Preminger 2014) results in no PL suffix.

**v-EXPONENTS MATTER:** Key evidence that the presence of suffixal agreement on Agr depends on the *v-exponent*’s featural specifications comes from Georgian’s ‘inverse’ agreement with DAT subjects and NOM objects. In such forms, object agreement is exponed by a different prefix series: in particular, 1PL objects cooccur not with the fully specified exponent *gv-* but with the underspecified *v-*, matching only a subset ({1}) of the {1, PL} bundle. This allows the minimal pair in (7):

- |  |  |
|--|--|
| <p>(7) a. <b>Direct:</b> <i>gv-naxa</i><br/> <b>1PL-see.AOR.3SG</b><br/> ‘s/he saw us’</p> | <p>b. <b>Inverse:</b> <i>v-u-nax-i-var-t</i><br/> <b>1-3APPL-see-PERF-PRS.1-PL</b><br/> ‘s/he has seen us’</p> |
|--|--|

While the features of subject and object are crucially the same across (7a) and (7b), in the direct *v* ends up with no leftover features for Agr to agree with, resulting in no plural suffix (7a), whereas in the inverse *v* has a leftover PL feature, which Agr agrees with and finally expones as *-t* (7b).

**FURTHER EVIDENCE:** Previous accounts captured the pattern in (2)-(5) by morphological means (Halle & Marantz 1993; Lomashvili & Harley 2011; Blix, to appear, a.o.). Instead, we view the number suffix as a syntactically distinct probe (cf. Foley 2017), and thus predict LA to be subject to **intervention effects** and **locality conditions**. Both predictions are borne out. ① Svan exhibits intervention effects: LA with object features on *v* is blocked by participant subjects: *ž-adgäri-x* ‘s/he kills you<sub>PL</sub>’ (LA) ~ *ž-adgäri-∅* ‘I kill you<sub>PL</sub>’ (\*LA). While unexpected on morphological accounts, this follows if Svan’s Agr-probe is relativized to PL **or PART**, so that participant subjects — even singular ones — can halt its search. This is especially plausible in light of other evidence showing that Svan’s Agr (unlike Georgian’s) agrees in person as well as number: *m-amāre-d*<sub>PART.PL</sub> ‘you<sub>PL</sub> prepare me’ ~ *m-amāre-x*<sub>NONPART.PL</sub> ‘they prepare me.’ The fact that LA uses the NONPART.PL suffix *-x* (cf. (3)) is also predicted for free: by the time Agr probes, *v*’s person feature has already been exponed, and is thus inaccessible to LA. ② Evidence for sensitivity to locality comes from agreement of Agr with 3PL objects in Georgian. Such agreement is normally out: *v* doesn’t agree with 3rd-person NPs, so no LA is possible with them, and 3PL objects inside *vP* are not directly accessible to Agr due to the PIC. However, 3PL objects *can* be agreed with directly by Agr if moved out of *vP*:

- (8) [<sub>OBJ</sub> mesame seri-is     **nakt’v-eb-s**]<sub>i</sub> [<sub>VP</sub> [<sub>SUBJ</sub> saerto punkcia]     t<sub>i</sub> a-ertianeb]-**t**  
third series-GEN **form-PL-DAT**     common function.NOM     PFV-unite-**PL**  
‘A common function unites the forms of the 3rd series.’ (direct; L. Nash, via Blix 2018)

We close by exploring the question of whether there are any true cases of fission within agreement (e.g. Oxford 2018 on Algonquian), or whether all such cases are instances of Leftover Agreement.

**REFERENCES:** ARONSON, H.I. (1990). *Georgian: A reading grammar*. Slavica. • BÉJAR, S. and M. REZAC (2009). Cyclic Agree. *LI* 40:35–73. • BLIX, H. (2018). Spans in South Caucasian agreement. Ms. NYU. • CALABRESE, A. and D. PESCARINI (2014). Clitic metathesis in the Friulian dialect of Forni di Sotto. *Probus* 26:275–308. • CHOMSKY, N. (2001). Derivation by phase. In *Ken Hale: A life in language*, pp. 1–52. MIT Press. • FOLEY, S. (2017). Morphological conspiracies in Georgian and Optimal Vocabulary Insertion. *CLS* 52. • HALLE, M. and A. MARANTZ (1993). Distributed Morphology and the pieces of inflection. In *The view from Building 20*, pp. 111–176. MIT Press. • KIPSHIDZE, I. (1914). *Grammatika mingrel’skago (iverskago) jazyka s xrestomatijeju i slovarem*. St. Petersburg Academy Press. • LACROIX, R. (2009). *Description du dialecte laze d’Arhavi*. PhD thesis. Lyon 2. • LOMASHVILI, L. and H. HARLEY (2011). Phases and templates in Georgian agreement. *Studia Linguistica* 65:233–267. • MARTINOVIĆ, M. (2019). Interleaving syntax and postsyntax. *Syntax* 22:378–418. • OXFORD, W. 2018. Fission in Algonquian and the status of morphological templates. *Workshop on the Structure and Constituency of Languages of the Americas* • PREMINGER, O. (2014). *Agreement and its failures*. MIT Press. • TESTELETS, Y.G. (1989). Svan. Unpublished materials of the Lomonosov Moscow State University expedition into Svaneti in 1989.