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An Empirical Critique of Cyclic Agree
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Proposal: Béjar and Rezac (2009) (henceforth B&R) argue for a theory of cyclic syntax based on evidence from agreement in φ features. In this paper, I will present an empirical critique of their theory of Cyclic Agree based on Laz and Georgian agreement systems, which they also discuss to provide evidence for Cyclic Agree.

0. What is Cyclic Agree?

- Cyclic Agree is a theory of φ agreement that promises to explain the shifts in agreement control. Consider the Laz examples in (1) below. (Let us first focus on prefixal agreement as B&R does.)

(1)   a.   [**g**]-dzir-i   [g] → Internal Argument
                2-see-1.PST
                'I saw **you**.'
    b.   [**b]**-dzir-i   [b] → External Argument
                1-see-1.PST
                '**I** saw him/her/it[1].'

- The controller of the *prefixal* agreement is the internal argument (IA) in (1a) while it is the external argument (EA) in (1b). Notice also that two prefixal markers cannot co-occur.

(2)   a.   *b-g-dzir-i
                 1-2-see-1.PST
    b.   *g-b-dzir-i
                 2-1-see-1.PST
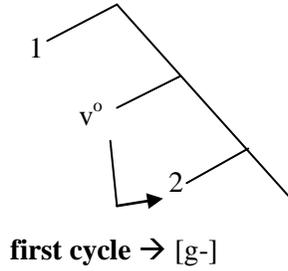   Intended: 'I saw you.' (cf. 1a)

- The prefixal agreement realization in (1) and (2) exhibits a competition between EA and IA, alluding to a hierarchy between the two. The shift from IA to EA occurs when there is no IA or when the IA is defective (i.e. third person as in (1b)).
- On way to account for this hierarchy is a cyclic system for Agree. B&R, assuming that the locus of the Probe is low in the structure, i.e on. v°, propose that the preference of IA>EA is achieved through the cyclic expansion of the probe's search space, i.e. first downwards and then upwards search.
- Iff a φ value is found in the first cycle (i.e. in the c-command domain), the prefixal agreement realizes the person value of the IA as in (1a).
- If the Probe fails to find a Goal or finds a third person Goal, the Probe will search for a person value outside its c-command domain, i.e. via upwards Agree. In this case, the Probe will find the EA in the spec-vP, deriving the EA controller pattern in (1b). See (3) below.
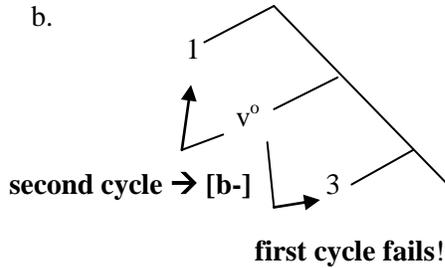
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[1] [b] does not mark 3P internal argument. Consider (i) below.
(i)   a.   ø-dzir-i
                 -see-2.PST
                'You saw her/him/it.'
    b.   ø-dzir-u
                 -see-3.PST
                'S/he saw her/him/it.'

(3) a.

first cycle → [g-]

b.

second cycle → [b-]

first cycle fails!

1. Problems with Cyclic Agree

1.1 Unaccusatives

- In unaccusative predicates, there is no EA[2]. Hence, the prediction of Cyclic Agree is not borne out.
- As (4a) shows, the prefixal agreement is preserved with unaccusatives and must reflect the value of the IA with the *second* cycle exponent [b-].
- The prediction, however, would be the ungrammatical form in (4b) with the *first* cycle exponent [m-][3]. (IA is marked by a first cycle exponent in B&R's system.)

(4)   a.   b-ğur-i   b.   *m-ğur-i
              1-die-PST   1-die-PST
              'I died.'   'I died.'

- One way B&R could circumvent the problem with unaccusatives would be the raising of the IA to a position higher than the Probe, i.e. v. However, there is no evidence of IA raising. See (5).

(5)   A xordza-s   k'ata oxori   mdv.a.rg.u
         a woman-DAT   every house.NOM   was built
         'Every house was built for a woman.'   (a>every, *every>a)

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[2] In Laz, the case alignment is active (Dixon, 1994). IA is marked NOM while EA is marked ERG regardless of transitivity.

[3] When there is a 1P internal argument, [m-] must surface. See (ii) below.

(ii)   m-dzir-u
          1-see-3.PST
          'S/he saw me.'

1.2 DAT subjects

- The second major problem occurs with the Perfect in Laz, where the *external* argument is DAT and is cross-referenced by the *first* cycle exponent (i.e. contra the *second cycle* prediction of Cyclic Agree). Consider (6) below.

(6) Ma   bere-pe   [m]-i-dzir-ap.un   /   *[b]-i-dzir-ap.un
     I.DAT   child-PL.NOM   1-APPL-see-PERF /   1-APPL-see-PERF
     'I have seen the children.'

- First let us consider the binding and WCO facts in (7), which indicate DAT external argument is higher than the NOM internal argument.

(7) a.   Bere-s   ti.muşi   u.dzir.ap.un
            child-DAT   REFL.NOM   has seen
            'The child has seen herself.'
     b.   Nana-muşi-s $_{i/*k}$ mi $_k$ u.dzir.ap.un?
            mother-POS.3-DAT   who.NOM   has seen
            'Who has his mother see before?'

- For Cyclic Agree to deliver the right results, DAT subject must be below the Probe,
- Hence, the structure Cyclic Agree predicts is v> DAT>NOM. However, there is robust evidence that suggests DAT external argument is generated above v. Consider (8) below.

(8) *Ham top'i-s   u.kt.ap.un
     this ball-DAT   has turned around
     'This ball has turned around before.'

- In Laz, unaccusatives cannot be inflected for Perfect, which suggests the head that introduces the DAT external argument selects for a v*. Hence, the structure we have must be DAT>v>NOM, which is not what Cyclic Agree predicts.

1.3 Treatment of Empirical Data in B&R (2009)

- The treatment of empirical data in B&R is what makes Cyclic Agree deserve a strong criticism.
- B&R considers Georgian, which has the identical agreement paradigm with Laz, as a system that has a single agreement Probe. To do so, they must completely *ignore* the suffixal agreement, which they achieve by glossing them as in (9).

(9) m-xedav-**s**
     1.IA-see-**x**
     'He sees me.'

- By ignoring the suffixal agreement altogether, they make their point and bring evidence for Cyclic Agree from Georgian.

- Let us now look at what they would have found out if they had looked at the interaction between the suffixal and prefixal agreement in Georgian [an observation available in literature (Anderson 1984, Carmack 1997)].
- A crucial property of languages that show supporting evidence for Cyclic Agree is that there are at least two agreement slots and the agreement slot that may host exponents for IA *or* exponents for EA shows a dependency with the other agreement slot(s).
- Georgian (and almost identically Laz) exhibits the canonical prefixal-suffixal agreement paradigm in (10), where there is a gap that outlaws a form like *v-verb-*a* (Laz: *b-verb-*u*).

Table 4. Georgian (and Laz) Agreement Paradigm

(10)

s:EA, o:IA	-i	-a (Laz: -u)
m-	2s:1o	3s:1o
g-	1s:2o	3s:2o
v- (Laz: -b)	1s:3o	*
0-	2s:3o	3s:3o

prefixes → (arrow to g- row); → suffixes (arrow to -a column)

- Since B&R do not consider the interaction of the prefixal agreement with the *suffixal* agreement, their analysis provides only an incomplete picture and cannot predict the gap in the paradigm and the dependency between the two agreement slots.
- For Georgian and Laz agreement systems, it is crucial that the value of the so-called second cycle prefixal exponent is in fact totally dependent on the value of the suffixal exponent.
- Let us remember that when the IA is third person (i.e. ø as in (11a)), the EA is also marked prefixally as in (11c).
- Yet, if the value of the IA is not third person, the prefixal agreement must reflect the value of the IA as in (11b).

(11)   a.   ø-dzir-u   b. g-dzir-i   c.   b-dzir-i
              3-see-3.PST   2-see-1.PST   1-see-1.PST
              'S/he saw her/him.'   'I saw you.'   'I saw her/him'

- Let us now see if this fact is true everywhere. Consider (12) below.

(12)   a.   Bere-s   ma   (*b)-u-dzir-ap.ur-t'-u
              Child-DAT   1.NOM   (*1)-APPL-see-PERF-COP-3.PST
        b.   Bere-s   ma   (*m)-u-dzir-ap.ur.t'-u
              Child-DAT   1.NOM   (*1)-APPL-see-PERF-COP-3.PST
        c.   Bere-s   ma   ø-u-dzir-ap.ur-t'-u
              Child-DAT   1.NOM   3-APPL-see- PERF-COP-3.PST
              'The child had seen me before.'

- As (12a) and (12b) show, the NOM IA cannot be marked on the verb when there is a DAT external argument. What is relevant for the agreement paradigm is that (11) and (12) do not exhibit uniform behavior.
- Although the prefixal agreement is null, the so called second cycle exponent [b-] cannot be used to index the IA. This cannot be morphological blocking as the expected pattern seems to be OK in (11c) while it is out in (12a). Demirok (2013) argues that this intervention is a syntactic blocking effect, in particular PIC.
- As B&R do not consider the suffixal agreement at all, they cannot predict why (12a) and (12b) are ungrammatical (i.e. why there is no *b-stem-*u* form).

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- The use of the so-called second cycle prefixal exponent [b-] is strictly dependent on the suffixally marked first person value (i.e. exponent →[-i]).

2. Proposal

- In languages like Laz and Georgian, where Cyclic Agree appears to be at work, the IA-to-EA shift in the agreement realization might as well be explained by post-syntactic realizational mechanisms such as Distributed Morphology (Halle and Marantz, 1993, 1994) or Phrasal Spell-out (Pantcheva, 2011) and Spanning (Svenonius, 2012) in Nanosyntax.
- What is crucial regarding the suffixal and prefixal agreement interaction in such languages is there is a dependency between the two agreement nodes. Consider (13) below for a summary of how indexing interacts.

(13)

agr node-1	agr node-2		
x	y	→	disjoint values indexed
y (iff no x)	y	→	joint values indexed

- What the system in (13) predicts is a one-way dependency. The failure to get a value for [x] does not induce a separate valuation. Rather, the [y] value is shared. This is not the result of a syntactic hierarchy in valuation but most probably the morphological outcome of syncretism and realizational principles. Hence, the variation is lexical not syntactic.
- Notice in (14) below that the suffixal exponent [-i] is syncretic in that it is used to mark both first and second person external arguments. However, in the paradigm there is no overall person ambiguity; i.e. each cell has a different form.
- What makes this possible is the apparently *extended exponence* of the suffixal value, i.e. double marking or joint marking.

(14)

subj\obj	1	2	3
1	*	g-stem-i	b-stem-i
2	m-stem-i	*	ø-stem-i
3	m-stem-u	g-stem-u	ø-stem-u

- If we assume that person values are syntactically complex as in (15), we might have an answer for the realizational interaction between the two agreement nodes.

(15) [speaker[participant[person]]] – [1]
      [participant[person]] – [2]
      [person] – [3]

- In (16), notice that the glossing of the suffixal exponent is [2] in (16a) while it is [1] in (16b).

(16) a. m-dzir-**i** b. b-dzir-**i**
          1-see-**2.PST** 1-see-**1.PST**
          'You saw me.' 'I saw her/him/it.'

- Let us also assume[4] that the prefixal and suffixal agreement nodes are syntactically adjacent. This would give us the realizational interactions described in (17).

(17)

		Probe₂	Probe₁	

     a.   [person + [speaker[participant[person[past […   [b]-dzir-[i]

Probe₂ realizes as **b-**, Probe₁ realizes as **-i**

             b-   -i   1-see-1.PST
                                          'I saw him.'

     b.   [participant [person + [speaker[participant[person[past […   [g]-dzir-[i]

Probe₂ realizes as **g-**, Probe₁ realizes as **-i**

             g-   -i   2-see-1.PST
                                          'I saw you.'

     c.   [speaker[participant[person + [person[past […   [m]-dzir-[u]

Probe₂ realizes as **m-**, Probe₁ realizes as **-u**

             m-   -u   1-see-3.PST
                                          'S/he saw me.'

     b.   [speaker[participant [person + [participant[person[past […   [m]-dzir-[i]

Probe₂ realizes as **m-**, Probe₁ realizes as **-i**

             m-   -i   2-see-1.PST
                                          'You saw me.'

- The implication of (17) is that the agreement exponents can realize the complex syntactic nodes given in (18).

(18)
     [m-]   → [speaker[participant [person]]]
     [g-]   → [participant [person]]
     [b-]   → [person[speaker]]

     [-i]   → [speaker[participant[person[past]]]] **or** [participant[person[past]]]
     [-u]   → [person[past]]

- This is the point where the post-syntactic theories would differ. A Distributed Morphology account would propose an underspecified vocabulary item while a Nanosyntax account would propose an over-specified lexical entry, using Subset Principle and Superset Principle, respectively. Where the theories differ is given in (19).

(19)   DM: [-i]   → [participant[person[past]]]
        Nanosyntax: [-i]   → [speaker[participant[person[past]]]]

3. Conclusion

- It is clear that Cyclic Agree (Béjar and Rezac, 2009) can only provide a partial analysis for the person agreement systems of Georgian and Laz.
- Yet, I have attempted to show that the languages that are discussed to bring evidence in fact provide counter evidence for the theory.

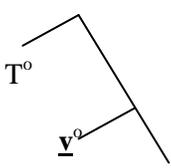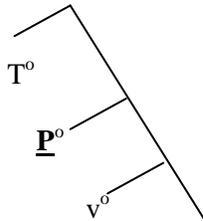[4] Due to the time limitation, I provide the argumentation for the hierarchy of the Probes in the appendix.
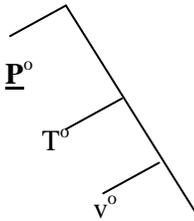
- As an alternative, I have argued that the competition in the prefixal agreement node does not belong to syntax proper and hence a realizational mechanism will suffice to derive the realizational (i.e. morphological) competition.
- Once it is assumed that interacting Probes are in a local spell-out domain, i.e. adjacent, a post-syntactic analysis of the realizational interaction is rendered possible.
- The advantage of this analysis is that it does not require a computational mechanism where Agree relation may be both downward and upward.
- In the absence of compelling evidence for Cyclic Agree, it would not be unwise to delimit the search space of a Probe to its c-command domain so as to reduce the computational complexity.

Appendix – Evidence for the Adjacency of the Probes

- Assuming the AGREE mechanism in Chomsky (2000, 2001), we need to postulate Probes that correspond to the two agreement nodes in Laz and Georgian, i.e. suffixal and prefixal agreement nodes.
- It is fairly easy to identify which Probe is responsible for the suffixal agreement. Consider (20) below.

(20) a.   içaliş-am-s   b.   içaliş-u
           work-IMPF-3.PRS   work-3.PST
           'He works / is working.'   'He worked.'

- The contrast in (20) informs us that the suffixal agreement is sensitive to tense information. Notice also that the specifications for the suffixal exponents given in (18) include the tense feature. Hence, we may assume that the tense dependent agreement is the realization of the Probe on T^o.
- The hierarchical position of the prefixal node is not that straightforward. If we free ourselves from the existing theories of agreement, there are three basic options available given in (21). Probes are underlined and boldface in each structure.

(21) a.   b.   c.

        T^o T^o $\underline{\mathbf{P}}^o$

                $\underline{\mathbf{v}}^o$ $\underline{\mathbf{P}}^o$ T^o

                                            v^o v^o

- (21a) is the canonical position for the object agreement Probe proposed in Chomsky (1995). However, there is hardly any evidence for such a low locus for the object agreement Probe.
- As I have argued in section 1.2, DAT subjects are accessible to the object agreement Probe. If we restrict φ-valuation to c-command, then (21a) simply does not help us. DAT external arguments are generated higher than v. If the Probe is really on v, then there is no way for v to access the person value of the DAT external argument.

- As we want the object agreement Probe to see the DAT external argument, the Probe must be higher than v, which leaves us (21b) and (21c) as viable configurations.
- Thus, we need to find out if the Probe is higher than T or not. The decision must be based on empirical evidence.
- The valuation pattern in unaccusatives might help us here. In Laz, we find that that ERG and NOM subjects are indexed by T^o to the exclusion of NOM objects.
- Thus, we need T^o to access ERG when it is in the structure and NOM when ERG is not generated (i.e. in unaccusative structures). This is simple locality if there is one Probe in the configuration. Yet, we seem to have two Probes in the structure.
- But we also need P^o to access the NOM object, but crucially not the NOM subject. To correctly capture the attested patterns in (22a) and (22b) and filter out the ungrammatical (22c), we need P to be higher than T.
- If we assume (21c), T would be able to see ERG subject and NOM subject but not the NOM object (due to simple locality) while P would be able to see the NOM object[5].

(22)   a.   Si   ma   **m**-dzir-i
              2.ERG 1.NOM $1_{disjoint}$-see-2.PST
              'You saw me.'
        b.   Ma   **b**-ğur-i
              1.NOM 1_{joint}-die-1.PST
              'I died.'
        c.   *Ma   m-ğur-i
              1.NOM   1-die-1.PST
              'I died.'

- It is a fact that there is a realizational competition between the joint and disjoint markers for the prefixal agreement. It is also a fact that in both unaccusative and transitive structures, the prefixal agreement *must* surface.
- Thus, to make the morphological realization competition structurally viable, I will claim that the prefixal and suffixal agreement Probes are in a local configuration.
- Specifically, to correctly capture the impossibility of the disjoint-marker with the NOM subjects, we need to make sure that T^o is the first Probe that sees the NOM argument and not the P.

Bejar, S. and M. Rezac. (2009). Cyclic Agree. *Linguistic Inquiry* 40(1) **Chomsky, N.** (2000). Minimalist Inquiries: the Framework. In R. Martin, D. Michaels & J. Uriagereka (Eds), *Step by step*. Cambridge, MA: MIT Press. **Chomsky, N.** (2001). Derivation by Phase. In M. Kenstowicz (Ed), *Ken Hale: A Life in Language*. MIT Press, Cambridge, Mass. **Öztürk, B. and M. Pöchtrager**. (2011). *Pazar Laz*. LINCOM: Languages of the World Materials, Münich. **Starke, M. (2009)**. Nanosyntax: A short primer to a new approach to language. *Nordlyd* 36(1) **Svenonius, P.** (2012). Spanning.

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[5] Notice that T and ERG would intervene between P and NOM, i.e. we have nested structure as in (iii).
        (iii)   [P [T [ERG [NOM…
In Demirok (2013), I argue that ERG is invisible to P while DAT is invisible to T. For further discussion on the visibility of the DPs, see Demirok (2013).