Title: The fine structure of cyclic Agree

Author: Milan Rezac

Affiliation: University of Toronto

Address:

Milan Rezac
Department of Linguistics, University of Toronto
130 St. George street
Toronto, Ontario
M5S 3H1
Canada

Email: mrezac@chass.utoronto.ca
Abstract: This paper argues for an implementation of Cyclicity through a natural economy condition, the Earliness Principle, which requires a feature to be eliminated as early as possible. EP predicts that the search space for feature checking should increase throughout the derivation with the growth of the phrase marker. This prediction is shown to be manifested in "agreement displacement", where agreement morphology under certain conditions cross-references a non-canonical argument. Agreement displacement shows that $\phi$-features of a head may seek a DP outside the complement of that head, after the cycle on which search exhausts the complement, as predicted by EP. A detailed look at Basque Ergative Displacement, which differentially affects person and number, leads to the conclusion that Agreement may happen only once per interpretable feature. The blocking of multiple Agree relationships is implemented as a locality effect, based on the construal of Case as a functional category introduced by Agree.

Keywords: Cyclicity; Search Space; Specifier Agreement; $\phi$-features; A/A interaction; Ergative Displacement.

Word Count: 11200
1 Introduction

This paper is an argument for a fine-grained cyclic approach to syntactic derivation with cycles determined by the application of individual operations. In derivational implementations of the Minimalist Program, Cyclicity governs the structure of syntactic computation. Chomsky (2000), henceforth MI, encodes the principle as (1)a (MI:132, ex. 53; cp. Frampton and Gutmann 1999:3). Other economy conditions implement cyclicity as well; of particular importance for us will be the Earliness Principle of Pesetsky and Torrego (2001:400) in (1)b:

(1)a. Properties of the probe/selector $\alpha$ must be exhausted before new elements of the lexical subarray are accessed to drive further operations.

b. Earliness Principle: An uninterpretable feature must be marked for deletion as early in the derivation as possible.

These formulations combine three Minimalist hypotheses: (a) syntax is a derivation consisting of the application of syntactic operations, (b) these operations are triggered by features of lexical items, (c) computational economy plays a crucial role in their application. The empirical consequences are considerable; for some see Chomsky (1995:190, 204-5, 328). The focus of the present paper is the role of Cyclicity in the determination of the *search space* for syntactic operations, that part of the phrase marker where relations between objects can be established. The effect can be most appreciated immediately in the blocking of lowering derivations.\(^1\)
(2) *_{TP} t_1 \text{ asked } \left[_{CP} \text{ who}_{1} \left[_{TP} \text{ Eider had drunk all the kalimotxo} \right] \right] .

Cyclicity bars lowering because all properties of the embedded C must be satisfied during its CP cycle, before the matrix clause is constructed; but at the CP cycle no material in the matrix clause yet exists in the phrase marker to be moved downwards to [Spec, CP]. Thus, the Cyclicity formulations in (1) account for (2) simply by restricting the search space of a syntactic operation associated with a head $\alpha$ to the phrase marker that has been built at the point at which $\alpha$ enters the computation.

The argument made in this paper is that the formulation of Cyclicity specifically as the Earliness Principle (EP) in (1)b makes exactly the correct predictions about search space. EP is a fine-grained implementation of Cyclicity that defines the cycle at the level of individual operations triggered by a head $\alpha$. As each Merge operation adds material to $\alpha$, first the complement and then the specifiers, the search space for the features of $\alpha$ should expand accordingly. This expansion should manifest itself as a corresponding increase in the possible locations of objects with which features of $\alpha$ can form syntactic relations, going from the complement only at first to include the specifier of $\alpha$ when it is Merged. The present argument will exhibit this cyclic search space expansion in interaction with another major hypothesis of the Minimalist Program: the thesis that morphological features are the triggers of syntactic operations. The interaction manifests itself in the apparent "displacement" of $\phi$-feature agreement morphology, or simply agreement displacement.

Agreement displacement falls under a class of phenomena whereby the $\phi$-feature agreement with an argument is given non-canonical realization; these have been termed eccentric agreement in Hale (2001). I will pursue the general hypothesis put forward in Laka (1993) and Hale (2001)
that eccentric agreement is a syntactic phenomenon, and is to be accounted for by the independent properties of syntax. The agreement displacement phenomena treated in this paper will demonstrate the increasing search space of a head $\alpha$ by showing that as material is added to $\alpha$, the $\phi$-feature agreement on $\alpha$ can look for DPs with which to agree in the added material. The increase happens according to the predictions of Cyclicity under EP: the search space of $\phi$-features on $\alpha$ starts with the complement of $\alpha$, and but grows to include the specifier of $\alpha$ if there is no match within the complement. This extension manifests itself as apparently non-canonical agreement of $\alpha$ with its specifier instead of its complement.

This dynamic approach to search space argues that it grows with the growth of the phrase marker. However, search space has usually been viewed as static domain: the search space for features of $\alpha$ is restricted once and for all in the derivation to the complement of $\alpha$, as in MI:122, quoted in (5) below. This move is a questionable stipulation; complements (sister of $\alpha$ at first Merge) are not privileged in Bare Phrase Structure (BPS). In fact it appears that they cannot be, for under BPS the projection of a head is the head itself; consequently, upon its Merge a specifier will be dominated by the head it has Merged to in its new projected position:

$$(3) \quad \{\alpha, \text{Complement}\} \rightarrow \{\alpha, \{\text{Specifier, } \{\alpha, \text{Complement}\}\}\}$$

From this perspective then, reference to complements requires that the derivation keeps a memory of which XP Merged with $\alpha$ first in order to limit search space to it.

One might suspect that the limitation of search space to complements is empirical, and rests on regular transitive constructions such as English *Gwenola saw Irati* (MI:148, nt. 89; cp. MI:104; Chomsky 1995:311-2, 352; 2001:23-4). The configuration is the following:
We wish to bar the external argument from agreeing with \( v \), because it does in fact agree with T, and because the internal argument gets Case by agreeing with \( v \). However, the EP already does this. EP implements Cyclicity as an economy condition: features must be eliminated as soon as possible in the derivation. Since the Merge of the complement precedes Merge of the specifier, there is a stage in the derivation here where only the complement is the search space of \( v \) because its specifier does not yet exist. EP dictates that at this point, the \( \phi \)-features of \( v \) must Agree, preempting later Agree with the specifier.

What the rest of this paper argues is that there is empirical evidence that a specifier falls into a Probe’s search space precisely when EP predicts, that is when there is no Match in the complement. Some possible earlier examples come to mind, for example \( wh \)-elements like \( why \), \( whether \), \( if \) that have been argued to be base-generated in [Spec, CP] but still to Agree with an interrogative C (Chomsky 1995:311-2). However, we shall see that there is better evidence. This comes from \( \phi \)-feature agreement, because here features of the agreeing DP are explicitly cross-referenced. Under EP, we expect such agreement to potentially split between cross-referencing a DP in the complement and the specifier, depending on the availability of Match in the complement. The difference of the cases we will consider from English (Icelandic, Abkhaz, etc.) is that \( \phi \)-features of the DP object are missing (underspecified), allowing Match to fail.

The examples of \( \phi \)-agreement displacement focused on here come from Georgian and Basque. In section 2, the argument from Georgian is presented, which goes directly towards the demonstration of cyclic search space expansion: it shows that the \( \phi \)-features of an argument in
the specifier of \( \nu \) can be cross-referenced by object agreement on \( \nu \) if the complement does not contain \( \phi \)-features. In section 3, we turn to ergative displacement in Basque, and demonstrate its basic similarity to Georgian. Because of its richer agreement system, Basque allows us to investigate in section 4 the interaction of multiple attempts to cross-reference the same argument by agreement. The interaction leads to an surprising conclusion: a specific \( \phi \)-feature (person, number) can enter into a syntactic relationship only once, a refinement of the MI hypothesis that DPs must be "active" (Case-less) to agree for \( \phi \)-features. Ergative displacement shows that the deactivation can happen separately for person and number. In section 5, deactivation is implemented by the derivational introduction of Case as a functional category above the DP, whose content is determined under identity with the Probe. This lets us view deactivation as a simple locality effect where the uninterpretable \( \phi \)-features of the Case functional head intervene between a higher Probe and a DP's \( \phi \)-features. The intervention is correctly partial if the Probe that assigns Case has had a \( \phi \)-feature deleted on a previous cycle, accounting for the intricate pattern of separate person and number deactivation. Section 6 adduces support for this approach by showing it predicts a hitherto unexplained A/A-interaction.

The technology we will adopt is that of MI. Derivations start with a Numeration, which is a collection of lexical items. These have interpretable/valued and uninterpretable/unvalued features, \([F+]\) and \([F-]\) resp.; \([F\pm]_\alpha\) is \([F\pm]\) on the \(X^0\) head \(\alpha\). MI discusses three syntactic operations in detail, Merge, Match, and Agree. Match is a prerequisite to Agree; the constraints of Match are as follows (we will call \([F-]_\alpha\) the Probe):

(5) Matching is a relation that holds of a probe \(P\) and a goal \(G\). Not every matching pair
induces Agree. To do so, G must (at least) be in the domain D(P) of P and satisfy locality conditions. The simplest assumptions for the probe-goal system are shown in (40):

(40) a. Matching is feature identity.
    
    b. D(P) is the sister of P.
    
    c. Locality reduces to "closest c-command"
    
Thus, D(P) is the c-command domain of P, and a matching feature G is closest to P if there is no G' in D(P) matching P such that G is in D(G'). (MI:122)

Agree in turn takes the Probe [F-]α and deletes it under valuing by [F+]Goal, creating a modification α' of α: α without the Probe. Agree requires the Goal to be active, which we will call the Active Goal Hypothesis (AGH):

(6) Uninterpretable features render the goal active, able to implement an operation: to select a phrase for Merge (pied-piping) or to delete the probe. The operations Agree and Move require a goal that is both local and active. (MI:123)

Movement is a consequence of Match, which is followed by Merge of the Goal at the Probe if the Probe also has an "EPP feature" (which by itself does not enter into the Probe-Goal system). Merge is thus both a component of movement, and the basic combinatory operation, defined as follows (MI:133):

(7)a. Merge(α, β) → {Label(α), {α, β}}.
    
    b. Label(α) = α, for α a lexical item, or its modification under Agree.
The Probe-Goal asymmetry determines and is encoded as the Label or projection, which is \( \alpha' \) itself: the lexical item \( \alpha \) that hosted the Probe \([F-]_\alpha\), now deleted under Agree (MI:133).

Finally, Cyclicity in MI is implemented by (1)a. However, (1)a defines cycles the size or "grain" of each selection of a lexical item for the computation. The Earliness Principle in (1)b, as we have seen, defines cycles the size of individual applications of syntactic operations, imposing an intrinsic ordering on the applications of Merge and Match/Agree (cp. Chomsky 2001:23-24). This is the implementation of cyclicity we will argue for.

2 Georgian: \( \phi \)-feature agreement and agreement displacement

In this section we will use Georgian to introduce the empirical focus of this paper, the phenomenon of agreement displacement whereby \( v \) under certain conditions agrees with its external argument rather than a DP in its complement. First, however, we will also use Georgian to illustrate two key assumptions for our subsequent analysis of Basque agreement: the separation of \( \phi \)-Probes into person and number, and the role of underspecification in syntax.

The two assumptions are introduced and argued for in the MI framework in Béjar's (2000/In preparation) analysis of Georgian verbal agreement:

(8)a. Split \( \phi \)-Probe (cp. Ritter 1995, Taraldsen 1995): Uninterpretable person \([\pi]\) and number \([\#]\) features enter into Match/Agree separately, each determining its own Probe.

b. Syntactic underspecification (Laka 1993): Underspecified features in a language (3\textsuperscript{rd} person and singular number, the underspecification of which varies parametrically) are
Although both ideas had been proposed before, Béjar is the first to exhibit their interaction with the independent locality constraints on Match. She shows that this interaction succeeds in largely predicting the complexities of Georgian $\phi$-agreement morphology. We will present a fragment of Georgian agreement to illustrate.

The Georgian verb cross-references one person feature and one number feature, either drawn from potentially any argument: subject, object, and indirect object. The relationship between arguments and agreement is complex. First, it is not predictable which argument will agree for either person or number from its theta-role, position, or Case alone. Second, which argument is cross-referenced by the person feature and which by the number feature is independent. Béjar demonstrates that a split $\phi$-Probe and syntactic underspecification let locality shoulder most of the burden for the pattern of Georgian agreement: in the finite clause, there is exactly one person Probe [π-] and one number Probe [#-], each of which cross-references the closest argument with a specified person/number value in its c-command domain, and ignores intervening arguments with underspecified values.

We can see how this works by walking through a partial paradigm: \(^2\) \(^3\)

\[(9) \text{[INSERT TABLE 1]}\]

The exponents of person agreement on Béjar's analysis have been underlined, and those for number put in small capitals. The exponents of relevance are 1\textsuperscript{st} $m-/v-$, 2\textsuperscript{nd} $g-/\emptyset-$, no exponent for the 3\textsuperscript{rd} person, and plural $-t.$\(^4\) The agreement morphology of an intransitive verb, like $ixrce$
'drown', is exactly the same as the transitive morphology for a 3rd person object (shaded).

If we ignore the shaded column with 3rd person objects, we can state the following generalizations about this paradigm: person agreement is always with the internal argument, while number agreement is with the external argument if it is plural (specified for number), but with the internal argument if it is singular (underspecified for number). These generalizations hold systematically of the transitive and ditransitive paradigms (which cross-classify with a nominative-(dative)-accusative and ergative-(dative)-nominative Case morphology), and of the dyadic unaccusative paradigm (dative-nominative). Béjar captures them as follows. First, she places the unique Probe for [π-] in the clause on v, which means that the external argument in [Spec, vP] does not fall into its scope and [π-] will be obligatorily valued from the internal argument. Second, the unique Probe for [#-] is on T, which means that the subject will be the closest argument if it is specified for [#]; but if it is the underspecified singular, it does not intervene for [#] agreement between T and the internal argument. The mechanics are illustrated in the following two contrastive examples, where the symbol ↔ indicates an Agree relationship, and underspecified values are not represented:

(10)a. m-xedav-t
    1-see-PL
    "You(pl.) see me."

b. g-xedav-t
    2-see-PL
    "I see you(pl.)."

a'. T₀ External argument v₀ Internal argument
    [#-] ↔ [#=PL]
    [π=2] [π-] ↔ [π=1]

b'. T₀ External argument v₀ Internal argument
On Béjar's analysis, then, the generalization behind Georgian φ-feature agreement is simply that a particular Probe Agrees with the closest Matching feature in its c-command domain. The interaction of syntactic underspecification and locality derives the apparent unpredictability of which argument is cross-referenced, and the separation of [π-] and [#-] Probes derives their separate agreement. Both proposals are natural in the MI approach and supportable on independent grounds (Béjar and Rezac, Forthcoming); they are here adopted. Two features of the analysis are specific to Georgian. First is the limitation to a unique [π-] and [#-] Probe each per clause, which captures the observation that only one person and number value is expressed by the morphology. Second is the localization of [π-] on v and [#-] on T. This is crucial in correctly differentiating the behavior of number agreement, which cross-references the highest plural argument, from person agreement, which cross-references an internal argument if possible.

This last necessary assumption, however, also leads to a significant gap in the adequacy of Béjar's account, and brings us to agreement displacement. In the part of the transitive paradigm we have looked at, person agreement is always with the internal argument. This is the case when the internal argument is specified for person. If it is the underspecified 3rd person, however, the verb turns out to cross-reference the external argument for person agreement instead: this is the shaded column with 3rd person objects in Table 1 (9). This is also the case when the verb is intransitive (11)a, or when it is ditransitive and neither internal argument is specified for person (11)b (cp. Hewitt 1995:4.1):
The present claim is that this pattern is amenable to a striking generalization: agreement with the external argument takes place if and only if there is no $[\pi+]$ feature in the complement of $v^0$, that is, if all internal arguments bear the underspecified 3rd person feature. This is exactly what Cyclicity as implemented by EP leads us to predict. Given that 3rd person features are literally absent from the syntax, the $[\pi-]$ Probe of $v$ cannot be satisfied by Agree with a DP in its complement when the syntactic object $[vP]$ has been built; this is stage $\alpha$ in (12). The next step in the derivation extends this object by Merging in $[Spec, vP]$; and at this point, without further stipulation, the search space of any unvalued Probe on $v$ should extend to $[Spec, vP]$. Consequently Match and Agree then take place with it, in stage $\beta$ in (12):

$$v-xedav, 1-see, "I see him."$$
\[\begin{align*}
\beta & \quad \text{External argument = 'T} \\
\alpha & \quad v^0 \quad \text{Internal argument= 'he'}
\end{align*}\]

$$[\pi=1] \leftrightarrow [\pi-]$$

A prerequisite for cyclic search space expansion from the complement of $v$ to its specifier is that the relevant feature be underspecified in the language and thus not Matchable, allowing $v$'s Probe to fail to Agree with a DP in its complement. In many languages with at least two-way agreement systems, such as Abkhaz or Yupik, where $v$ Agrees with the absolutive object and $T$ with the ergative subject, Agree takes place with 3.SG objects and subjects and they are cross-
referenced by the morphology. It is not clear to me whether underspecification can be predicted from other features of the language, for default morphology often steps in (cp. the case of Basque, discussed next). However, split agreement with two arguments is robust evidence for acquisition, whichever way the default setting goes.

Georgian is not isolated in its behavior. In the next two sections, we will see that Basque shows the same pattern. However, Basque is both perhaps more persuasive, and allows a deeper insight into the interaction of Agree and Cyclicity. First, Basque morphology distinctly cross-references all arguments separately, so we will see the external argument obviously cross-referenced by morphology normally reserved for the internal argument. Second, only person is underspecified, and this lets us contrast the behavior of person and number when a feature is Matched by two consecutive Probes.

3 Ergative Displacement in Basque

Basque is a three-way Case/agreement language, cross-referencing ergatives (E), absolutes (A), and datives (D) each with separate agreement markers on the verb for person and number. Most verbs take periphrastic forms, which separate the verb root plus an aspectual suffix from an inflected auxiliary with agreement, mood, and tense:7

(13) Eman d -i -z -ki -gu -zu
    given DFLT ROOT -PL.A -DAT -1.PL.D -2.PL.E

"You (pl.) have given us to him."
Basque is a morphologically ergative-absolutive language, where the subjects of intransitive verbs and objects of transitive verbs bear the same Case, the absolutive, and trigger the same agreement. Arguments in Basque appear in the following Case/agreement paradigms: transitive E-A, ditransitive E-D-A, unergative E, unaccusative A, and unaccusative (psych-verb) D-A. As Ortiz de Urbina (1989) among others shows, Basque has a nominative-accusative syntax: the c-command relations are unambiguously E > (D >) A for transitive verbs; and the E subject of transitive and A subject of intransitive pattern together against the A object of transitives. Following Levin and Massam's (1985), Laka's (1993), and Bobaljik's (1993) analyses of such morphological ergativity, I will assume that the locus of absolutive Case and agreement is v for both transitives and intransitives, and the locus of ergative agreement and Case is T. In the MI framework, both Case and agreement are a reflex of Agree with φ-features on these categories. To account for the grouping of ergative in transitives and absolutive in intransitives for subjecthood diagnostics, Bobaljik (1993) takes the highest thematic argument to raise to [Spec, TP] to satisfy the EPP; I will further assume this is a movement independent of Case licensing (Schütze 1997). The relevant structure of transitive and intransitive clauses is diagrammed in Figure 1 (14); see Laka (1993) and Elordieta (2001) on other functional categories, verb movement, and non-EPP XP movement, which are here ignored.

(14) [INSERT FIGURE 1]

The names of functional categories vary in these analyses (INFL-Agr_S-T; V-Agr_O-v), but their major theoretical claim is that the locus of absolutive Case/agreement in ergative languages of the Basque type is the same as the locus of accusative Case/agreement in languages of the
English type, rather than that of the nominative. We assume this locus, ν, to be the Merge position of the external argument as well. This analysis of ergativity has the advantage that its Case/agreement relationships respect locality conditions familiar from A-movement in nominative-accusative languages and from A-movement generally, unlike alternatives that assign ergative languages distinct locality conditions (e.g. Murasugi 1992); the computational system thus remains invariant.  

We are now ready to look at the agreement pattern, which by and large is exactly as predicted by this syntactic sketch. The Basque auxiliary or verb in T manifests agreement with absolutive and ergative arguments. Absolutive person agreement is prefixed to the root, ergative person agreement suffixed. The pieces of person agreement morphology are as follows (cp. Arregi 2001):

(15)  [INSERT TABLE 2]

In this system, there is a distinction between 1.SG and 1.PL in person. We will see later that 1.PL also does not trigger ergative plural agreement morphology, which corresponds to semantic plurality. This is a familiar situation cross-linguistically; there is no such thing as literally several 1\textsuperscript{st} persons (e.g. Harley and Ritter 2002). The second person distinguishes a familiar and a polite (R) form, and in the ergative also masculine (M) and feminine (F). The third person is not marked by any morphology for either absolutive or ergative. Laka (1993) argues that 3\textsuperscript{rd} person is underspecified in Basque, and I will adopt this assumption here.

Beside person morphology, both absolutive and ergative are cross-referenced by number morphology, but in a different way. The morphology that cross-references plurality of the
absolutive argument shows great variability in form and position both within the paradigm of any particular dialect, and across the Basque dialects; there are several independent morphemes, e.g. z, zki, tza, it, de (cp. Gómez and Sainz 1995); and there may be conditioning of root allomorphy. The agreement cross-references morphological plurality, i.e. a morphologically specified plural feature such as that which triggers plural agreement with polite vous-forms in many European languages; it is triggered by 1/2/3.PL and 2.SG.R.⁹ Ergative plural agreement, on the other hand, cross-references only the semantically plural 2/3.PL; it is marked simply by (t)e which follows ergative person agreement. As we will see in section 4, both singular and plural are present in syntactic representations and not underspecified.¹⁰

If we consider a regular agreement paradigm with this background, such as that for ergative-absolutive transitive verbs in the past tense, we see that φ-agreement regularly reflects the syntax proposed above for Basque. There is person/number agreement for both ergative and absolutive, the result of Agree for the φ-features of v and T. In the following table, I underline absolutive agreement and put ergative agreement in small capitals; number agreement is distinguished from person agreement by italicizing the former; and 3rd person absolutives have been omitted, as we will return to them.

(16)  [INSERT TABLE 3]

The complexity of the morphology makes it hard to take in the paradigm at a glance. First, therefore, let us ignore the italicized number morphology. Running down the columns of absolutive agreement (underlined) and across the rows of ergative agreement (small caps), we clearly see each argument cross-referenced for person using the morphology in Table 2 (15).
Next, turning to number, the ergative pluralizer *e, te* is also clearly cross-referencing 2/3.PL (cp. nt. 9). Finally, we may observe the complex expression of absolutive number agreement with 1/2/3.PL and 2.SG.R, as the morphemes *z* before *te* if *te* is present, and as *t* in the root *intu* (vs. sg. *indu*).

Person and number agreement with absolutive and ergative, which runs similarly through other paradigms of the language, is exactly what we expect from our syntactic structure; it is a reflex of $\phi$-Agree of $v$ with the absolutive and $T$ with the ergative. This statement holds with one important exception: 3rd person absolutive objects. These have been excluded from the above paradigm. If both absolutive and ergative are 3rd person, there shows up in the absolutive agreement slot a default morphology conditioned by tense and mood (Laka 1993). In the present tense, this morphology shows up any time the absolutive is 3rd person, a phenomenon we exclude from discussion here. However, if the tense is non-present, what we find instead of default morphology is "Ergative Displacement" (ED), a core piece of evidence for cyclic search space extension:

(17) ED: If the absolutive is 3rd person, then absolutive person agreement cross-references a non-3rd person ergative if there is one.

ED, as well as default morphology in the shaded cells, is illustrated in Table 4 (18), where the same conventions have been followed as above: agreement with the absolutive argument is underlined and that with the ergative is in small caps, while plural morphology is italicized to distinguish it from person:
Concentrating on person (we turn to number in the next section), we see clearly that when the absolutive is 3rd person, absolutive agreement cross-references the person of the ergative argument, while no ergative person agreement shows up. Several points are worth noticing. First, when the ergative is 3rd person, the default tense-conditioned morpheme \( z \) shows up in the absolutive slot; as Laka (1993) argues, this shows that there is no 3rd person to "displace", and is syntactically absent. Second, ED does not displace morphemes from their E positions to their A positions. Rather, actual A morphology is used to spell out E agreement under ED, as can be seen by comparing the morphemes here and the preceding table (e.g. 1.E -da- vs. 1.A and displaced 1.E n-), and from the obliteration of the M/F distinction in 2.E under ED, just as there is none in usual 2.A. This suggests ED is not a morphological displacement phenomenon; or rather, because displacement of features rather than morphemes is involved, and because syntactic Agree is a featural relation, it invites an analysis in terms of syntax. Thirdly, however, ED is crucially not due to a change in the syntactic position of ergative and absolutive arguments. As Laka (1993:53-4) shows, ED affects neither Case morphology nor c-command relations between the ergative and absolutive (as diagnosed by anaphora):

(19)a. Ni-k neure buru-a ikus-ten d- u- T (present, no ED)  
1-E my.own head-A seen-IMPF DFLT- have- 1.E

"I see myself."

b. Ni-k neure buru-a ikus-ten N- u- en (past with ED)  
1-E my.own head-A seen-IMPF 1.E- have- PAST
"I saw myself."

Instead of reflecting movement of arguments in the syntax or properties of the morphological component, the ED pattern we see here fits exactly the same generalization as our analysis of Georgian person agreement in section 2. Given the clause structure in Figure 1 (14), the generalization is that the $\pi$-Probe of $v$ Agrees with [Spec, $vP$] if and only if it is not possible to Agree with a DP in the complement of $v$ because of syntactic underspecification. Since 3rd person is underspecified in Basque, this means $v$ will Agree in person with the ergative only if the absolutive is 3rd person. The $vP$ stage of the derivation can be seen in the following diagram, with $\leftrightarrow$ for Agree:

\[ n-u-en \text{ 1.A-ROOT-PAST "I had him"} \]

\[
[\beta \text{ External argument } = 1.SG \quad \quad [\alpha \text{ Internal argument } = 3.SG]]
\]

\[
[\pi=1] \quad \leftrightarrow \quad [\pi-]
\]

\[
[#=SG] \quad \quad [\#-] \quad \leftrightarrow \quad [#=SG]
\]

The Earliness Principle requires that Match and Agree for $[\pi-]$ on $v$ be attempted at stage $\alpha$. Since no Match can be found within $\alpha$, the search space of that Probe is extended to $\beta$ after [Spec, $vP$] Merges in, and Match and Agree take place with it.

The ED phenomenon in Basque is of some importance, because except for ED, the assumed Basque clause structure in Figure 1 (14) lets Basque $\phi$-agreement lend empirical support to one of the theses of the Minimalist Program: morphological features are at the core of syntactic computation, and it is their Match/Agree relation over which the crucial syntactic constraints of
locality and search space are stated. Basque agreement shows overtly what the MI framework assumes universally for the ϕ-agreement system. ED as an exception would either weaken this evidence, by giving morphology power to displace features, or cast doubt on the hypothesis in the first place, by showing that ϕ-agreement does not obey syntactic conditions. What we see instead, however, is that a natural economy condition that implements Cyclicity, the Earliness Principle, automatically predicts that agreement displacement should take place. ED is a reflex of growth of a phrase marker in the derivation, which implies a dynamic search space.

ED and the Georgian case study, then, are arguments for a cyclic syntax based on the Earliness Principle. However, we have so far offered only a partial analysis of ED; we have looked at the behavior of person features of v only, which reflects the increasing search space. In Basque, unlike Georgian, both T and v have both [π-] and [#-] Probes, while only 3rd person is underspecified in the syntax; this raises the two question of what happens to [π-] on T under ED, and how number enters the system. In the next section, it is shown that these issues give intriguing insight into the Agree operation itself, and the connection between ϕ-Agree and Case.

4 Split Agree and the Active Goal Hypothesis

So far, we have seen that the EP implementation of Cyclicity predicts exactly the expanding search space of the [π-] Probe on v. In Georgian, where there is one [π-] Probe only per clause, that is all there is to say. In Basque, however, the agreement system clearly shows separate person and number agreement with both ergative and absolutive, leading to the positing of [π-] and [#-] Probes on both T and v. Normally, each [π-] Probe Agrees with its own Goal; but under ED we have seen that the [π-] Probe of v Agrees with the ergative in [Spec, vP]. The natural
question that arises is what happens to the [π-] Probe of T, and how it bears on the analysis.

As can be seen from Table 4 (18), under ED ergative person agreement is suspended. To take the 1.SG.E-3.SG.A as a concrete example, we see that when the absolutive agreement morphology n- cross-references the ergative 1.SG under ED in n-u-en "I have him", the ergative is not further cross-referenced by the expected 1.SG ergative -da (*n-u-DA-n). In terms of our analysis, once [π-] on v has Agreed with the ergative, the normal agreement of [π-] on T with it is blocked. It is some support for the syntactic approach to ED that this is in fact what we independently expect in the MI framework, on the basis of the Active Goal Hypothesis (AGH).

AGH (quoted in (6) in section 1) states that Agree can happen only once per Goal. Empirically, AGH implements the "freezing" of Goals after Agree: for example, wh-words freeze in their scopal position to rule out (21)a, assuming Agree takes place between trace \( t_1' \) of what and the embedded question C; and DPs freeze after \( \phi \)-Agreement to rule out (21)b:

(21) a. *What\( t_1 \) does Azenor wonder \([_{CP} t_1' \text{ Gwenola saw } t_1]\)?

b. *Aritz\( t_1 \) seems (that) \([_{TP} t_1 \text{ ate all the pasta}]\).

For the \( \phi \)-system, Chomsky takes Case to implement AGH: (a) a DP can only Agree for \( \phi \)-features if it has not received structural Case, and (b) structural Case assignment is a reflex of Agree for \( \phi \)-features. This too has empirical support; many nominative-accusative languages have constructions where the sole argument with structural Case receives the accusative, which blocks T from agreeing with it (cp. Schütze 1997, Rezac 2002a).

Our assumptions about Basque clause structure in Figure 1 (14) entail under AGH that \( \phi \)-Agreement of v with its specifier blocks Agree of T with it, through Case assignment. If we first
consider ED in this light without worrying about Case, taking instead the AGH as the statement that Agree can happen once per Goal, we see that ED behaves exactly as AGH predicts. Agreement between $[\pi]$ on $v$ and the ergative in $[\text{Spec}, vP]$ deactivates the ergative Goal for the purposes of any other Agree for $[\pi]$, correctly predicting that under ED no ergative agreement morphology shows up. Since AGH is independently motivated (even independent of its implementation in terms of Case, as we can see in (21)), its correct prediction of the ED pattern bolsters the claim that ED reflects syntactic computation.

As noted, MI implements AGH specifically through Case assignment. This, at first, might seem a serious problem for ED; for although $v$ Agree with its specifier for $[\pi]$, that Goal in fact gets ergative Case (see ex. (19) and discussion), not absolutive from $v$: ED does not affect Case morphology. This fact brings us to a discussion of a second issue under ED that we omitted in the previous section, the behavior of number agreement.

As is discussed in Laka (1993) and other treatments of Ergative Displacement, the phenomenon affects person agreement only. Let us return to Table 4 (18), and consider the italicized number agreement morphology this time. We can see that there consistently appear in the paradigm of the 3.PL the absolutive plural morphemes $i\mathbf{t}$ and $\mathbf{z}$. Interestingly, the appearance of regular absolutive plural agreement under ED follows straightforwardly under the assumption of a split $\phi$-Probe: the $[\pi]$-Probe on $v$ Agree with $[\text{Spec}, vP]$ because it cannot match the underspecified 3rd person on the absolutive argument, but the $[\#]$-Probe on $v$ can and therefore must Match and Agree with the plural number on that argument. A split $\phi$-Probe therefore derives split agreement of $v$ with both the ergative and absolutive (beside $\leftrightarrow$ for Agree, let us introduce $\neq$ for failed Agree (by AGH, as discussed next), and $[F^*]$ for a valued Probe):
The differential displacement of person and number offers evidence for the universality of a split \( \phi \)-Probe, even in languages like Basque that have both on the same category \((T/\nu)\), unlike Georgian (cp. Béjar and Rezac, Forthcoming, for independent evidence).

Still more intriguing (and seldom discussed) is the behavior of ergative plural agreement. There are two related observations here: (a) the number on \( \nu \) can in no case cross-reference the ergative argument, even if the absolutive is singular and the ergative is plural; and (b) although ergative person agreement on T is absent under ED as we saw, ergative number agreement remains, showing that the \([\#-]\) Probe of T is agreeing with the ergative argument. Point (a) can be seen in that ergative plural is never cross-referenced by \( i \tildespace t \) or \( z \) in Table 4 (14); (b) is demonstrated by the appearance of plural \( te \) morphology under ED with 2/3.PL in the same table.

An illustration with a larger paradigm is in order. As discussed under Table 2 (15), the various absolutive pluralizers cross-reference 1/2/3.PL and the polite 2.SG.R, while the ergative pluralizer \((t)e\) cross-references 2/3.PL only. We can see this clearly from the following two paradigms in an current colloquial variety of the language, Ondárroa Basque.\(^\text{12}\) Table 5 (23) compares the ED morphology in the past ergative-absolutive paradigm with the present ergative-absolutive paradigm which lacks ED. Absolutive agreement is underlined, ergative is in small caps, and number agreement morphology is italicized (the morpheme \( e \) appearing with absolutive 2.PL is ignored; cp. ft. 9):

\[
\begin{array}{c}
\text{ERG} \quad \nu \quad \text{ABS} = 3.PL \\
\pi^+ \leftrightarrow \pi^- \\
#^+ \neq \#^* \leftrightarrow #^+
\end{array}
\]
As can be seen from the table, in the present paradigm $s$ and the root allomorph *itu* express absolute plural agreement for 1/2/3.PL and 2.SG (originally 2.SG.R); while *e* is the regular exponent of 2/3.PL ergative. Crucially, as in Table 4 (18), we can see that under ED, 2/3.PL ergatives remain marked by the plural morpheme *e*, although ergative person is expressed by absolutive morphology (shaded cells). ED, then, is a partial $\phi$-feature displacement, of person.

This partial displacement under ED is in fact already correctly predicted for us by two assumptions (a, b) that have already been justified, and one stipulation (c): (a) the $\phi$-Probe is split into person and number; (b) the Active Goal Hypothesis holds; (c) singular number is not underspecified in Basque (cp. the discussion in nt. 10). We have already seen the effect of a split $\phi$-Probe dissociating person and number under ED with 3.PL absolutive, when $v$ Agrees with the absolutive in number but with the ergative in person. If we assume that singular is also syntactically represented, then the behavior of the ergative plural in our analysis is quite simple: since [#-] on $v$ will always Agree with the absolutive Goal, [#-] on T is not blocked by AGH from Agree with the ergative Goal, and no displacement of number features or blocking of ergative number agreement takes place. The situation can be diagrammed as follows:

(24) \[
\begin{array}{cccc}
T & \text{ERG} & v & \text{ABS} = 3.SG/PL \\
\pi^- & \neq & \pi^+ & \leftrightarrow \pi^- \\
#* & \leftrightarrow & #+ & \leftrightarrow & #*
\end{array}
\]

As we can see from this diagram, the burden of predicting the correct pattern of partial ED is
born by the Active Goal Hypothesis. The first generalization of ED is that \([\pi]\) on \(v\) Agrees with the ergative if the absolutive is 3rd person, and \([\pi]\) on \(T\) is then blocked from Agreement by AGH. The second generalization is that since singular number is by assumption represented, \([\#]\) on \(v\) will always Agree with the absolutive argument regardless of whether it is singular or plural, and thus \([\#]\) on \(T\) will always Agree with the ergative argument. The interaction of underspecification, a split \(\phi\)-Probe, AGH, and cyclic search space extension correctly predict this pattern of partial \(\phi\)-feature displacement under ED.

Up to this point, we have put Case aside. Now we can see that there is always an Agree relation between \(T\) and \([\text{Spec, } vP]\) (for number); if we take ergative assignment to reflect Agree with \(T\) as in section 3, \([\text{Spec, } vP]\) is always assigned ergative regardless of an earlier Agree with \(v\) for person. As can be seen from this analysis, this is due to the partial underspecification of \(\phi\)-features in Basque: since number is not underspecified, the relation between \([\#]\) on \(v\) and a DP in its complement always occurs, and therefore so does the relation between \([\#]\) on \(T\) and \([\text{Spec, } vP]\) which results in ergative assignment. It is an interesting side-effect of cyclic search space expansion that the absence of a DP in the complement of \(v\) always entails full agreement of \(v\) with \([\text{Spec, } vP]\), the only available goal; and full agreement entails that \([\text{Spec, } vP]\) is deactivated for any \(\phi\)-relation with \(T\) and assigned absolutive. This means that in languages where Bobaljik's (1993) Obligatory Case Parameter requires \(\phi\)-features on \(v\), intransitives either (a) assign absolutive or (b) require a dummy object to Agree with \(v\) to allow \(T\) to Agree with and assign ergative to \([\text{Spec, } vP]\). These predictions seem borne out (Bobaljik 1993).

However, Case also raises a different issue, in its guise as the (well motivated) implementation of AGH. We have seen AGH predict the pattern of partial Agree by differentially applying to the ergative for person (blocking \(T\) from Agree) and number (not
blocking T). Intuitively, this situation is quite simple: Agree for a particular $\phi$-feature, whether $[\pi]$ or $[\#]$, deactivates that feature alone on a Goal. It seems opaque, though, how this is implemented by using Case assignment for AGH, since Case is a property of DPs, not of individual features. In the next section, we will argue that deactivation comes about because Case is a category that reflects the $\phi$-specification of a $\phi$-Probe, which correctly derives partial goal deactivation and has some interesting consequences.

5 Derivational Case assignment and partial deactivation

We have seen that the spirit of the Active Goal Hypothesis – $\alpha$ is deactivated after being the Goal of an Agree relation – perfectly describes the split agreement displacement of Basque. MI takes $\alpha$ here to be a DP, and deactivation to be Case assignment; yet for us $\alpha$ must be a feature. In this section I will make a proposal that continues to implement deactivation under AGH as structural Case assignment. It departs from much of the Minimalist framework by taking Case not to be a formal feature, but as a functional category above the DP, the $K$ of Travis and Lamontagne (1992). The content of this category is derivationally determined by the Probe that Agrees with the DP, recalling Bittner and Hale's (1996) Case-binding. This content, a copy of the Probe itself, implements AGH by serving as an intervener for Match.

Let us first define the proposal. DPs enter the derivation as such, with their $\phi$-features visible to Match/Agree. Let Agree introduce a functional category $K$ that takes the DP term of its input as a complement, adding a functional KP layer above the DP. $K$ is determined under identity with the Probe, the other term of Agree: it is a copy of the Probe as it is at the point where it enters as a term into the Agree relation, with its features unvalued and undeleted:
(25)  Agree (Probe, Goal):  Goal $\to \{\text{Probe}', \{\text{Probe}', \text{Goal}\}\}$

Probe', the occurrence of Probe introduced above the DP, we will henceforth call K. K is spelled out as Case morphology on the DP. Apart from (25), Agree works as in MI: unvalued features of the original occurrence of the Probe are valued from the DP and deleted.

The occurrence of the Probe that is K has the same $\phi$-features as the Probe at the point at which the Probe enters into Agree. Whatever $\phi$-features had been valued on previous cycles have been deleted; but those for which the current Match and Agree relationship are being established with the DP remain unvalued and visible. It is these features on K that are crucial for AGH: unvalued $\phi$-features on K will by locality serve to block Match between a higher $\phi$-Probe and the $\phi$-features on the DP that K now c-commands. Since under the split-\(\phi\) assumption some of the Probe's $\phi$-features may have been deleted on a previous cycle, it may not have a full set of blocking uninterpretable $\phi$-features when it becomes K; this derives the partial AGH of ED.

Let us see how this works in detail at partial Ergative Displacement (cp. diagram (24)):

(26)  

During the first stage of the derivation, $\alpha, \nu$ Merges with its complement VP, which contains a
3rd person absolutive. Match and Agree for [#] on ν takes place, and [#-] is valued to [#*] and then deleted. For the Goal DP, the consequence of Agree is that the copy of ν with both [π-] and [#-] features unvalued becomes the K head of the absolutive DP, spelled out as absolutive Case. Because of the presence of [π-] and [#-] on this K, no further Match for any φ-features on this DP will be possible to a higher φ-Probe; this is the AGH. At the next stage, β, the external argument is added to [Spec, DP], resulting in cyclic extension of the search space of the still unvalued [π-] on ν. Match and Agree takes place, valuing and deleting [π], and adding a KP above the DP of the external argument. The K head of KP is a copy of ν at the point where it Agrees for [π] with the external argument: it has an unvalued [π-] feature, but its [#-] feature had been valued and deleted during α. Consequently, at stage γ of the cycle, T’s [π-] Probe is blocked by locality; but its [#-] Probe Matches and Agrees with the [#] feature on the external argument. The γ Agree cycle further results in the addition of a new KP layer to the external argument, with K = T, spelled out as ergative morphology (not shown).

This proposal amounts to a derivational introduction of KP shells, where Bittner and Hale's (1996) Case-binding of K by a functional category F is replaced by the introduction of an occurrence of F as K. Such introduction of a KP shell may seem to violate Cyclicity, because syntactic material is added within a tree below the root node. Specifically, Chomsky's (1993) Extension Condition is violated. However, Cyclicity is a matter of formalization that gets the result we want of it. This paper crucially implements it by the Earliness Principle, under which the localization of structural change at the root of the tree is a partial derivative consequence with no independent status. Instead, the EP restricts the evaluation of features which trigger operations to the root, for they must be evaluated as soon as possible after the root is introduced into the derivation.13 There is no limitation on the structural change an operation implements.14
In this proposal, a DP enters the derivation without any structural Case property, and its Case is assigned by adding to it functional architecture. This derives an interesting difference in MI between features which trigger operations, such as φ-features, and features which only serve to mark a goal as "(in)active" for Agree, such as Case. The latter here are not given the status of features. There is no feature rendering a Goal "active"; its features are always visible to a Probe, except in so far as independent principles such as locality hide them. A Goal becomes inactive because Agree adds above it a functional layer which contains intervening features. We thus expect Case not to trigger operations itself; specifically, in a system with where the downward dependencies of Attract replace Greed, we do not expect Case to allow a dependency between a DP and a Case assigner that it c-commands, which seems correct. The construal of K as an occurrence of a φ-Probe captures the observation that the identity of the Case on a DP is determined by the identity of the functional category to which the DP relates, e.g. T assigns (is) nominative and v accusative (Pesetsky and Torrego 2001). Finally, construing Case as a category is attractive in light of the empirical observation that relate the behavior of Case to C (Travis and Lamontagne 1992) and to P (for example, the identical expression of a dative PPs and the a-accusative in Spanish).

Although questions about the need for Case and its link to Agree remain, the proposal made above is both a reduction of the apparatus of MI used to implement the role of Case in Agree, and has the correct empirical consequences for the behavior of Case in general, and in deriving the pattern of partial Ergative Displacement in particular. However, MI uses Case as merely one of an array of features that render Goals active. A parallel feature, independent of Case, must render A goals active for A Probes and inactive after Agree, as we noted in the discussion of AGH above (ex. (21)a). The present proposal can be straightforwardly extended to these cases;
Agree for [Q] with C, for example, introduces a functional layer headed by a [Q-] C above the DP/KP, and this [Q-] then creates intervention effects. This extension has an interesting consequence: if a functional layer is added above a KP with its intervening φ-features, the KP becomes embedded and ceases to c-command into the rest of the tree; this should then suspend its φ-intervention effects. In the next section, we will see that this prediction is correct and derives a problematic case in the theory of A/A-interaction.

6 A-opacity

A-positions are known to be unable to enter into the φ-system for φ-Agree or Move; this is the improper movement generalization, which in the following examples blocks a topic or wh-word from satisfying the EPP and φ-agreement of the matrix clause (Chomsky 1981:195ff.):

(27)a. The books₁ seem [CP t₁' [TP Bill would read t₁]].

b. Which books₁ [TP t₁" seem [CP t₁' [TP Aritz counted t₁]]]?  

Cases like these fall under the AGH: since the wh-word or topic has already received Case in the embedded clause, the AGH blocks further φ-Agree with the matrix clause. However, A-positions show still a further lack of interaction with the φ-system which cannot be attributed to AGH: they are invisible as φ-interveners for a φ-Probe. 

The relevant cases involve vP-peripheral A-movement, such as that which fronts negative and quantified objects in Icelandic (see Svenonius 2000 and references there):
This movement shows A-properties like parasitic gap licensing and weak cross-over violations. However, although the derived position of *engu grjóti* is between T and the in-situ position of the subject *strákarnir* (t₂), it is completely invisible as an intervener to T-subject φ-Agreement, nominative assignment, and A-movement relations (Rezac 2002b). I will call this phenomenon A-opacity. The cases of A-opacity seem numerous; several analogous to (28) are given in Jayaseelan (2001), and a landing site for *wh*-movement in English between [Spec, TP] and [Spec, vP] is argued for by Fox (1999).

The implementation of Goal deactivation in the previous section derives A-opacity. Extended to the A-system, where AGH also holds (cp. example (21)a), Agree for an A feature such as interrogative [Q-] on C implies the addition of a functional layer above the KP headed by a copy of the A-Probe. The KP thus becomes embedded inside a functional layer, which is arguably spelled out as *wh*-morphology (as the KP layer is responsible for Case morphology):

(29) Agree(C_{[Q-]}; KP): KP → [C_{[Q-]} KP]

Interestingly, this embedding of KP means that the c-command relationships which obtained before the Agree in (29) are destroyed; the KP no longer c-commands outside the new phrase whose head is C_{[Q-]}. With the KP, the φ-features of the K head (and of course the φ-features of the DP) also become embedded, and do not c-command into the rest of the clause.
The fact of embedding connects A-opacity with a much better understood obviation of intervention effects: embedded potential interveners. Locality constraints on syntactic dependencies are crucially sensitive to c-command relations, and potential interveners between a Target and a Goal do not count for locality if they do not c-command the Goal. The following *wh*-dependencies exemplify the role of embedding in obviating locality:

(30) Tell me what \(\ast\) who/v[the girl who came the party] asked Lynn to bring \(t_1\).

A *wh*-word in \(\alpha\) does not intervene in relations outside of \(\alpha\).

This observation gives an immediate account of A-opacity. Once the highest projection of N that has any \(\phi\)-features (e.g. the KP) becomes embedded as the result of Agree, it is no longer an intervener in the \(\phi\)-system. The Icelandic case in (28), for example, comes out as follows at the point where T Agrees with the nominative in [Spec, vP]; we take a category Q to be the relevant category that forces negative object movement and has the Probe [A-]:

(31) [INSERT FIGURE 2]

After Agree with Q and movement to [Spec, QP], any \(\phi\)-features contained in the KP *engu grjóti* are now embedded inside a new functional layer headed by a copy of the [A-] \(q\) Probe, and are no longer in any c-command relationship with the \(\phi\)-features of *strákarnir*. The latter now Agrees with T across *engu grjóti* to give a convergent derivation with \(\phi\)-Agree and Case assignment.

The role of the present proposal for AGH is that by adding a functional A-layer above a KP, successful Agree for \(\phi\)-features across it becomes possible, deriving A-opacity. This is
independent support for a categorial treatment of the "activation" features of the MI framework, used in the previous section in the derivational introduction of Case. As this extension of the KP implementation in the previous section makes clear, the present proposal predicts a specific parallelism in the functional architecture of the clause and Agreeing DPs, since each Agreeing functional category (Probe) in a clause will add its occurrence as a functional head to its Goal.

7 Conclusion

This paper has argued for a specific implementation of Cyclicity on the basis of agreement displacement, which show that the search space for φ-Probes expands during the derivation, as we expect from an EP-cyclic application of Agree. The further treatment of partial agreement displacement in sections 4 and 5 gives us a window of some detail on the structural change Agree implements, which derives the role Case assignment plays in the Active Goal Hypothesis.

The main thrust of this paper has been that the Earliness Principle yields an empirically correct statement of Cyclicity, and should not be supplemented by further limitations on the search space of a Probe in a cyclically built-up phrase marker. The Earliness Principle is a natural economy condition that defines an intrinsic partial order of syntactic operations, Merge and Match/Agree. The choice of EP in this paper to implement Cyclicity rests in a very specific reason: it gives a very fine-grained view of the cycle, where the dynamic change in search space (the domain of potential Match) is defined over individual applications of Merge/Move. It is this extension of the cycle to individual operations that enables the search space to change during the derivation for a single feature on a single head. There are other proposals for the size of a cycle in the literature which do not have this consequence: head-sized cycles which have nothing to
say about cyclicity while operations target a single head (Frampton and Gutmann 1999, and the MI definition given here in (1)a), and cycles that are the size of designated categories such as the phase approach initiated in MI. These do not necessarily compete with EP-cyclicity; MI implements two versions of Cyclicity for different purposes, phases being used for intermediate A-movement. Agreement displacement does show, however, that Cyclicity cannot be reduced to these large-scale cycles. A similar conclusion can be reached about the "downward" extension of the search space, although it is not discussed in this paper. The operations that a head triggers in the course of eliminating its features can dynamically open up search space in its complement by removing interveners from there to its specifiers (cp. MI:131, Anagnostopoulou 2003, on the role that movement plays in eliminating interveners). This leads to the conclusion that the edge of the next lower phase is insufficient as the static downward boundary of a search space, which must change dynamically with applications of Move.

These points serve to reinforce the fact that in a derivational framework, the phrase marker is dynamic. Occurrences of a syntactic object $\alpha$ must be defined for each derivational step. As the derivation proceeds, the search space relation of $\alpha$ with other syntactic objects changes. In this paper it changes as a consequence of Merge, but potentially also as a consequence of Move which adds material to $\alpha$ or eliminates interveners (Béjar and Rezac, Forthcoming), and of head movement which relocates the Probes on $\alpha$ (Rezac 2002b). The dynamics of this change are dictated by the principles that govern a cyclic derivation.

* I would like to thank Itziar Laka, Diane Massam, and Javier Ormazabal for very helpful discussion and comments on earlier draft of this paper; and also the audience of LEHIA 2002, particularly Pablo Albizu and Myriam Uribe-Etxebarria. Comments by two anonymous reviewers have greatly improved the presentation. This paper was
written during a research visit at the University of the Basque Country in Vitoria-Gasteiz; I am grateful for all who
made that stay possible, productive, and fun, especially Susana Huidobro and Aritz Irurtzun. The biggest thanks go
to Susana Béjar for years of shared discussion and enthusiasm in exploring these topics. All inadequacies remain
mine. This work was partially funded by SSHRC grant #752-2000-1545.

1 For a discussion of why a single-level single level application of the Proper Binding Condition is inadequate, see
Müller (1998). The demonstration turns on the existence of remnant movement cases like (i), which show an
unbound trace at S-structure that had crucially been bound by its antecedent at some point in the derivation:

(i) [How likely t₁ to win] does Azenor₁ seem t₂?

Cyclicity correctly predicts that t₁ will be bound at the point where Azenor extracts, and no more. Huang (1993) and
Abels (2002) discuss (i) and other remnant movement cases in English in detail, and demonstrate that contrary to
earlier arguments t₁ here cannot be PRO.

2 The abbreviations in the glosses and tables indicate 1/2/3 person, SG and PL number, R for the polite (vous) 2.SG
of Basque; DFLT for default agreement; E, A, D for ergative, absolutive, dative; DAT for a morpheme indicating
the verb governs a dative; and INDicative, AORist, PRESent, PAST, IMPerfect. X is used to gloss morphology that
is either unclear, or that is irrelevant and would require lengthy explanation, such as the theme suffixes of Georgian.

3 1.PL has been systematically excluded, because it introduces irrelevant complications: it does not trigger plural
morphology. The same issue is discussed for Basque 1.PL in section 3. The suffixes -s, -en, which unlike other
agreement morphology vary with tense and have a different position, are outside the system we are considering.

4 The variation between m/v and g/Æ is beyond the present scope; Béjar (2000/In preparation) has an extensive
discussion which demonstrates it is oblique to the principles we wish to illustrate. The distinction between the 2nd
person Æ- morpheme and absence of morphology in the third person is justifiable independently of Béjar’s analysis,
because only the 2nd person Æ- has an allomorph x-, e.g. mi-x-vals-Æ ‘you (pl.) will go’ (Hewitt 1995:507, nt. 10).

5 The latter generalization is somewhat skewed in the surface data. First, the suffix -en is incompatible with pl. -t.
Second, unlike 1/2.PL, 3.PL objects are exceptional in that prescriptively they do not trigger plural agreement even
if the subject is singular (a cross-linguistically common situation); Hewitt (1995:130-1) notes that they may do so.

6 Locating the [π-] Probe on v means that in the transitive paradigm, only one argument is in its c-command domain
and agreement is always with it if it is specified for person. It is worth pointing out, however, that the interaction of
locality and syntactic underspecification can be shown for the \([\mathfrak{f}]-\) Probe of \(v\) as well, using the two internal arguments of dative-nominative unaccusatives: a 3rd person dative allows agreement with a 1st/2nd person nominative. (It should be noted that the Georgian "dative" is a structural Case marked by accusative morphology.)

A small number of verbs are capable of forming the synthetic inflection, where the verbal root raises to T (Laka 1993); allomorphy aside, there is no difference in the agreement morphology. There are various auxiliary roots in Basque, only in part reflecting the familiar *have/be* alteration; they will all be glossed root. A full discussion of finite verb morphology of the standard language is found in Hualde and Ortiz de Urbina (Forthcoming: section 3.5.2); a partial description of the agreement morphology of the spoken vernaculars is found in Pedro de Yrizar's ten volumes, of which Yrizar (1992) is one, and references there.

The agreement facts reported here are true in the standard language and the majority of the dialects (e.g. Biscayan Ondárroa, Gipuzkoan Tolosa). However, the range of dialectal variation is vast and cannot be taken into account here. Some of it bears on agreement displacement, and is being prepared as Rezac (In preparation).

The dative has been ignored. Elordieta (2001) shows that in transitive clauses, it is base-generated above the absolutive. Although it is cross-referenced by agreement morphology, there are reasons to believe this morphology is not a reflex of Agree. It differs from ergative and absolutive agreement: (a) there is an overt 3rd person marker (o), whereas as we will see 3rd person is otherwise absent; (b) morphology also cross-references dative Case (ki in (13)), which is not true of simple agreement; (c) the dative never participates in the "agreement displacement" which we will presently discuss. I will assume the following: whereas absolutive and ergative morphology reflects the Agree valuation of \(\phi\)-features on T and \(v\), the dative morphology is a clitic double of the dative argument with no Agree taking place between it and any \(\phi\)-set. This distinction and the mechanics of the displacement are discussed in Anagnostopoulou (2003) and Béjar and Rezac (Forthcoming): the dative has inherent Case that blocks Agree, and the \(X^0\) head of the dative cliticizes to \(T/v\) as a consequence of Match without Agree between \(T/v\)'s \(\phi\)-Probe and the dative. The cliticization is required to allow the more distant Match with Agree between \(T/v\) and the absolutive across the vacated dative position. Cliticization explains properties (a)-(c) above. This analysis receives support from the fact that it can be shown that the appearance of dative agreement morphology is contingent on the presence of absolutive agreement and thus on displacement by absolutive \(v\)'s \(f\)-Probe in Basque (Rezac, In preparation; cp. Artiagoitia 2001a, 2001b for a thorough discussion of the behavior of these verbs).
Historically 2.SG.R is just the old 2.PL; a new 2.PL was subsequently created by adding the ergative plural morpheme (t)e already used for 3.PL. This creates the present system where there is an ergative plural morpheme (t)e corresponding to semantic number. There is one complication beyond the present scope: the ergative plural (t)e was recruited to distinguish 2.PL both in the ergative, where (t)e also marks 3.PL, and in the absolutive, where it does not because the absolutive always had its own pluralizer. I will leave this quirk, which I assume is morphological, aside; intuitively, the absolutive plural morpheme already marks the semantic plurality of 3.PL and blocks (t)e, but not of 2.PL because it is also used for 2.SG.R.

The evidence for representing singular number will come from Ergative Displacement, which by contrasting behavior diagnoses 3rd person as underspecified. Ideally, we would like to find independent evidence that singular is specified. Such evidence may exist in the conditioning of allomorphy within auxiliary roots (Itziar Laka, personal communication), but is too complicated to present here. To give an indication, however, in the next table we will see a past transitive paradigm, where we will segment out the unanalyzed root morphemes indu and intu; u is historically the auxiliary root. The d/t variation is conditioned by absolutive agreement, d for singular and t for plural. The underspecified and morphologically unmarked 3rd person does not play this role in allomorphy.

The failure of ED in the present is the major exception to the Cyclicity-based analysis in this paper. ED seems to be conditioned specifically by the present/non-present split (Gómez and Sainz 1995:265), not the overt realization of a tense/mood head (cp. Laka 1993, who used this to govern the trace of the ergative agreement when it lowered to the absolutive slot). It is beyond the scope of the present paper to discuss how the restriction of ED to non-present is achieved, but I would like to at least give the glimpse of a consistent solution. If (a) we consider present marked and non-present unmarked in Basque, (b) consider present tense, as a deictic element, to qualify as a Match with a [\(\pi\)-] Probe, and (c) arrange the relative positions of the tense feature and the ergative subject in such a way that cyclic search space extension will reach the tense first: then Match of the deictic present tense will block v's [\(\pi\)-] Probe from reaching the ergative. It is of relevance that Basque absolutive agreement morphology is often conditioned by tense morphology (an example being the default 3rd absolutive morphology, e.g. present d(a)- vs. past z/\(\emptyset\)-), sometimes appearing to double the tense morpheme (e.g. present 1.PL g-, past g-en/-g-in-, recalling the past suffix -(e)n); this would indicate v doubles the tense features of T. I would like to thank Myriam Uribe-Etxebarria for starting me on this line of thought; a fuller presentation must await the completion of Rezac (In preparation).
A variety of the Biscayan dialect; cp. Yrizar (1992). The morphology of the standard language is a somewhat artificial creation in some respects.

This in fact allows head movement as an escape hatch if a feature cannot be deleted at all; cp. Rezac (2002b).

An anonymous reviewer, commenting on an earlier version of this paper where the Probe was "adjoined" to the Goal as K, observes that the Goal should project. Here it is stipulated that the Probe "projects", as K. The explanatory question of why this is the option chosen out of possible ways of combining the Probe and Goal (K and DP) remains. I suspect, however, that this is the same question as why DPs need Case (a KP layer) in the first place, the Case Filter (a requirement that has not gone away, however it is implemented; cp. the need for default Case, Schütze 1997): a derivation which yields \{D, \{DP, K\}\} instead of \{K, \{K, DP\}\} would violate this requirement. A plausible alternative would be to argue that DP cannot project its head at this point; cp. Uriagereka (1999).

The reviewer also observes that the proposal in this section is not compatible with a derivational definition of c-command. This is a necessary concomitant of a "strongly derivational" approach with no representations (Epstein 1999). However, I do not adopt the elimination of syntactic objects; the present argument is that a cyclic computation correctly determines which are constructible (legitimate). Under the MI "weakly derivational" view that the computation does in fact construct Bare Phrase Structure representations, the c-command relation relevant for locality is obtained from the partial order given by the subset relation (MI).

The most troublesome aspect of the present proposal may seem to be the status at LF of the unvalued features on the copy of the Probe which becomes K, and which play the crucial role of "deactivation" due to the locality effect they induce. However, there is reason to believe that default values for uninterpretable features are generally available in such situations (Rezac 2002a); cp. also Chomsky (2001:6, nt. 19) who suggests that the unvalued Case feature of nominative objects, spelled out at the vP phase before T deletes it, is "understood to be, in effect, a morphological convention rather than an actual feature, so that there is no crash at PHON."

Béjar and Rezac (Forthcoming) argue on independent grounds that inherent Case DPs are always PPs where P crucially has a \(\phi\)-Probe that Agrees with the DP. The present system then predicts that such a DP cannot enter into Agree with any category outside the PP, because a copy of the P with unvalued \(\phi\)-features becomes introduced as the K above the DP.
References


Rezac, M. 2002b. NP-movement in Icelandic, cyclicity, and multiple specifier constructions. Generals paper, University of Toronto.


TABLE 1

TITLE: Georgian φ-agreement for transitive *xedav 'see' in the present.

<table>
<thead>
<tr>
<th>Subject</th>
<th>1.SG</th>
<th>2.SG</th>
<th>2.PL</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.SG</td>
<td>–</td>
<td>g-xedav</td>
<td>g-xedav-T</td>
<td>v-xedav</td>
</tr>
<tr>
<td>2.SG</td>
<td>m-xedav</td>
<td>–</td>
<td>–</td>
<td>Ø-xedav</td>
</tr>
<tr>
<td>2.PL</td>
<td>m-xedav-T</td>
<td>–</td>
<td>–</td>
<td>Ø-xedav-T</td>
</tr>
<tr>
<td>3.SG</td>
<td>m-xedav-s</td>
<td>g-xedav-s</td>
<td>g-xedav-T</td>
<td>xedav-s</td>
</tr>
<tr>
<td>3.PL</td>
<td>m-xedav-en</td>
<td>g-xedav-en</td>
<td>g-xedav-en</td>
<td>xedav-en</td>
</tr>
</tbody>
</table>
TABLE 2

TITLE: Basque person agreement morphemes

<table>
<thead>
<tr>
<th></th>
<th>1.SG</th>
<th>1.PL</th>
<th>2.SG.M</th>
<th>2.SG.F</th>
<th>2.S.R/P</th>
<th>3.S/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolutive</td>
<td>n-</td>
<td>g-</td>
<td>h-</td>
<td>h-</td>
<td>z-</td>
<td>⌀-</td>
</tr>
<tr>
<td>Ergative</td>
<td>-da-, -t</td>
<td>-gu</td>
<td>-a-, -k</td>
<td>-na-, -n</td>
<td>-zu</td>
<td>⌀</td>
</tr>
</tbody>
</table>
TABLE 3

TITLE: 1\textsuperscript{st}/2\textsuperscript{nd} person combinations in the E-A past indicative paradigm

<table>
<thead>
<tr>
<th>Erg.</th>
<th>1SG</th>
<th>1PL</th>
<th>2SG M, F</th>
<th>2SG R</th>
<th>2PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>–</td>
<td>–</td>
<td>h-indu-DA-n</td>
<td>z-in\textsubscript{2}u-DA-n</td>
<td>z-in\textsubscript{2}u-z-te-DA-n</td>
</tr>
<tr>
<td>1PL</td>
<td>–</td>
<td>–</td>
<td>h-indu-GU-n</td>
<td>z-in\textsubscript{2}u-GU-n</td>
<td>z-in\textsubscript{2}u-z-te-GU-n</td>
</tr>
<tr>
<td>2SGM</td>
<td>n-indu-A-n</td>
<td>g-in\textsubscript{2}u-A-n</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2SGF</td>
<td>n-indu-NA-n</td>
<td>g-in\textsubscript{2}u-NA-n</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2SGR</td>
<td>n-indu-ZU-n</td>
<td>g-in\textsubscript{2}u-ZU-n</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2PL</td>
<td>n-indu-ZU-E-n</td>
<td>g-in\textsubscript{2}u-ZU-E-n</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>3SG</td>
<td>n-indu-en</td>
<td>g-in\textsubscript{2}u-en</td>
<td>h-indu-en</td>
<td>z-in\textsubscript{2}u-en</td>
<td>z-in\textsubscript{2}u-z-te-n</td>
</tr>
<tr>
<td>3PL</td>
<td>n-indu-TE-n</td>
<td>g-in\textsubscript{2}u-z-TE-n</td>
<td>h-indu-TE-n</td>
<td>z-in\textsubscript{2}u-z-TE-en</td>
<td>z-in\textsubscript{2}u-z-te-TE-n</td>
</tr>
</tbody>
</table>
TABLE 4

TITLE: Ergative Displacement in E-A past indicative paradigm

<table>
<thead>
<tr>
<th>Ergative</th>
<th>3.SG</th>
<th>3.PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.SG</td>
<td>N-u-en</td>
<td>N-it-u-en</td>
</tr>
<tr>
<td>2.SG.M,F</td>
<td>H-u-en</td>
<td>H-it-u-en</td>
</tr>
<tr>
<td>2.PL</td>
<td>Z-en-u-TE-n</td>
<td>Z-en-it-u-Z-TE-n</td>
</tr>
<tr>
<td>3.SG</td>
<td>z-u-en</td>
<td>z-it-u-en</td>
</tr>
<tr>
<td>3.PL</td>
<td>z-u-TE-n</td>
<td>z-it-u-Z-TE-n</td>
</tr>
</tbody>
</table>
TABLE 5

TITLE: Number agreement in Ondárroa Basque (E PL in bold; A horizontal, E vertical)

<table>
<thead>
<tr>
<th>ED:</th>
<th>No ED:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E-A Past</strong></td>
<td><strong>E-A Present</strong></td>
</tr>
<tr>
<td>3.SG</td>
<td>1SG</td>
</tr>
<tr>
<td>1S</td>
<td>n-eb-an</td>
</tr>
<tr>
<td>2S</td>
<td>s-\textit{andu}-n</td>
</tr>
<tr>
<td>3S</td>
<td>eb-an</td>
</tr>
<tr>
<td>1P</td>
<td>g-\textit{andu}-n</td>
</tr>
<tr>
<td>2P</td>
<td>s-\textit{andu}-\textit{E}-n</td>
</tr>
<tr>
<td>3P</td>
<td>eb-\textit{E}-n</td>
</tr>
</tbody>
</table>
FIGURE 1

TITLE: Case, agreement, and EPP in Basque transitive and intransitive clauses.

Transitive:          Intransitive:

TP             TP
3          3
ERG 3 vP        ABS 3 vP
T_{EPP} 3     T_{EPP} 3
φ t_{ERG} 3 VP   φ V 3 VP
Agree       Agree
EPP Move   EPP Move
φ V ABS     t_{ABS}
Agree
FIGURE 2

TITLE: A-opacity

\[ \begin{array}{c}
\text{TP} \\
3 \\
T \\
QP \\
\phi^3 \\
\phi^2 \\
Q'P \\
\phi^2 \\
Q' \\
\phi \\
Q \\
vP \\
Q \\
vP \\
v' \\
\phi^- \\
\phi^+ \\
\end{array} \]

\[ \begin{array}{c}
\text{VP} \\
\phi^2 \\
\phi^2 \\
\phi^2 \\
\phi^- \\
\phi^+ \\
\phi^- \\
\phi^+ \\
\phi^+ \\
\end{array} \]