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For an OT Conception of a 'Parallel' Interface: Evidence from Basque V2

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0.   Introduction

In the derivational 'crash' model of the Minimalist Program (Chomsky, 1995), the syntactic component feeds the phonological component though PF (and LF) convergence is ultimately responsible for overt movement. Strong features are illegitimate PF objects, hence they must be checked by movement in the course of the derivation and eliminated by the time the representation is spelled out. Thus, syntax does not have access to prosodic information.

Serious challenges arise for the derivational model because there are movements that are motivated by true prosodic constraints. According to Zubizarreta (1998) the defocalized phrase in Germanic and Romance focus scrambling is moved to leave the focused phrase in a syntactic position to receive Nuclear Stress. Prosody also frequently constrains the positioning of clitics. For example, Croatian second-position clitics may appear after the first prosodic word, including demonstrative adjectives, names, and parts of PPs (Wilder & Ćavar, 1994; Bosković, 1998). The position of the Bulgarian question particle *li* depends on stress location, which in turn depends on the presence of the particle negation (Hauge, 1976; Legendre 1996,1999; Rudin et al. 1999).

Zubizarreta's solution to prosodically-conditioned movement is to claim that "there is a stretch at the end of the syntactic derivation where the prosody-related rules (Nuclear Stress Rule, Focus Prominence Rule, and p-movement) apply, the output of which feeds both PF and LF" (Zubizarreta, 1998:151). Such efforts to syntacticize prosodically-conditioned aspects of word order are designed to get around the derivational model. No matter the disguise, they do not change the nature of the generalization: Word order is co-determined by syntactic and prosodically-based constraints. The proposal I wish to examine here is that this generalization points instead to a model based on parallel constraint satisfaction whereby

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syntactic constraints compete with PF constraints to determine the optimal word order.

The parallel (rather than serial) approach to constraint interaction in standard Optimality Theory (OT, Prince and Smolensky, 1993) entails that the interface is not the point at which the output of the syntax is handed over to PF (i.e. spelled out). Rather, the interface concerns the interaction of constraints on different parts/modules of the linguistic representation. Syntax (by virtue of encoding important aspects of word order) partially determines the PF representation. However, constraints on syntax only see items that are present in the syntactic representation. In particular, they do not see clitics that are represented as functional features on heads but do not have the status of independent lexical items in the tree (Anderson, 1996; Legendre 1996, 1999, in press a,b,c). Constraints on the PF part of the representation – e.g. alignment constraints (McCarthy and Prince, 1993a,b) – only see the morpho-phonological representation of lexical items. Hence they treat heads, affixes, and clitics alike. By allowing PF-alignment constraints to compete in one single optimization, syntax can be subordinated to PF (under one possible ranking of PF and syntactic constraints).

In this paper, I argue that verb-second (V2) effects in Basque illustrate this type of constraint interaction, providing additional evidence that word order is universally co-determined by syntactic, prosodic, and syntax-prosody interface constraints. Moreover, the partial masking of V2 in Basque follows if constraints are violable, as proposed in OT.

The argument goes as follows: (i) Basque auxiliary clitics are best analyzed as the morphological realization of functional features on syntactic heads at PF because contrary to their non-clitic counterparts, they are syntactically inert (ii) V2 applies indiscriminately to finite lexical verbs and auxiliary clitics. To generalize over the two categories -- a syntactic one and a morphological one –, V2 must be a PF requirement on finiteness features (tense and agreement are subsumed under [F]) (iii) V2, like second-position clitics, results from the interaction of two interface constraints, i.e. NONINITIAL(F) which penalizes realizing [F] at the left edge of a prosodic domain, the intonational phrase, dominating EDGEMOST(F) which favors realizing [F] at the left edge of the smallest syntactic projection containing the head marked with [F]. V2 violates EDGEMOST(F) in order to satisfy NONINITIAL(F) (iv) Syntax is subordinated to PF. That is, V movement occurs to ensure that a finite aux is in second position. When V itself carries [F], Basque resorts to an expletive element (v) Focalized arguments are subject to their own PF alignment constraint. They must be left-adjacent to V. Moreover, any argument that is left-adjacent to V is interpreted as focalized. This causes alignment conflicts which are resolved in favor of focalization, masking V2 in some contexts.

1.   The Basque V2 Pattern

Basque has two classes of verbs, a large class of periphrastic verbs obligatorily appearing with a clitic auxiliary and a small class of synthetic verbs. Both exhibit V2 effects (Ortiz de Urbina, 1994). Intransitive synthetic verbs require a clause-initial expletive particle *ba-* when the verb is the only element (1a), under verb fronting (1b), and in yes-no questions (1c).

(1) a. *Ba*-dator
     ba-come-3
     '(He) is coming'

   b. *Ba*-dator   Jon   orain.
     ba-come-3 John-abs now
     'John IS coming now'

   c. *Ba*-dator   Peru   etxetik?
     ba-come-3 Peter-abs from home
     'Is Peru coming from home?'

   d. *Dator Jon orain.

In negative contexts, subject focalization, or wh-questions, V2 is enforced without an expletive element.

(2) a. *Ez* dator   Jon.
     neg come-3 John-abs
     'John IS NOT coming'

   b. Jonek   daki   hori.
     John-erg know-3 that-abs
     'John knows that'

   c. Zer   daki   Jonek?
     what-abs know-3 John-erg
     'What does John know?'

   d. *Daki Jonek hori.

Periphrastic verbs display a similar pattern, as shown in (3). In general, Basque allows all six orderings of V(aux), S, O. "Only the V-initial structures are neutral from the pragmatic viewpoint (the verb being interpreted as the most significant piece of information)" (Rebuschi, 1989:87-88).

(3) a. Hil   *da*   aita?
     died aux-3 father-abs
     'Has father died?'

   b. Erosi *du*   Jonek   liburua.
     bought aux-3 John-erg book-abs
     'John HAS bought the book'

   c. *Du* erosi Jonek liburua.

Other word orders are not discourse-neutral (Rebuschi, 1989). Any argument left-adjacent to V is interpreted as focalized, i.e. conveying new information. Note that the V2 effect is masked in positive contexts (aux is last) but not in negative contexts.

(4) a. Jonek   liburua   erosi   *du*.
     John-erg book-abs bought aux-3
     'John has bought the book'

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    b. Ez du Jonek liburua erosi.
        'John hasn't bought the book'

2.   The Syntactic Inertness of Aux

2.1.   Aux Is a Clitic Cluster

Aux cross-references the person and number of the absolutive argument as well as the person of dative and ergative arguments (e.g. *du/da*: *d-* for 3absolutive, *-u* for *ukan* 'have' vs. *-a* for *izan* 'be'). The categories instantiated in Aux are those that are commonly found in clitics. The relative ordering of morphemes within Aux is fixed and uniform across Basque dialects (Laka, 1993): Negative/affirmative- conditional - absolutive - pluralizer - tense - root - dative - potential - ergative – subordinator. Aux cannot be separated from the lexical verb in affirmative contexts, except by other clitics, including functional particles encoding modality *bide* 'apparently', *edo* 'probably', *omen* 'reportedly', etc. (Eguzkitza, 1987).

(5) a. Gizona etorri *omen*   *da.*
       man-abs come reportedly aux-3
       'The man reportedly has come'
    b. *Jonek   irakurri librurua   *da.*
       John-erg read   book-abs aux-3
       'John has read the book'

        Phonological properties of Aux confirm its clitic status. The lexical verb and Aux make up a prosodic word (Hualde and Ortiz de Urbina, 1993:5) In addition, Aux may undergo an assimilatory process of vowel raising that is triggered by the lexical verb vowel (Hualde, 1991).

2.2.   Subject-Aux Inversion

In languages which have both clitic and regular auxiliaries (i.e. Bulgarian, Romanian, etc.), regardless of any positional restrictions on clitics, regular auxiliaries share the syntactic properties of lexical verbs while clitic auxiliaries systematically fail to do so (Legendre 1996, 1999, in press a,b). For example, clitic auxiliaries do not allow English-type Subject-Aux inversion, as shown for Romanian in (6). As shown in (7), Basque behaves like Romanian. The subject follows the V- Aux complex of periphrastic verbs in inversion contexts.

(6) a. Cind vine   Ion?   (Romanian)
       when come-3 John
       'When is John coming?'
    b. Ce   *a*   spus Ion?
       what have-3 said John
       'What has John said?'
    c. *Ce *a* Ion spus?

(7) a. Zer   irakurri *du*   Jonek?
      What-abs read   aux-3 John-erg
      'What has John read?'
  b. *Zer *du* Jonek irakurri?

The pattern in (7) is completely unexpected and unexplained if aux is a syntactic head. Aux cannot move by itself. Rather, it's the lexical verb that moves – and Aux, like an affix, along with it. In fact, the syntactic inertness of aux points to a morphological, phrasal affix analysis (Klavans, 1985; Anderson, 1992). Coordination facts confirm that Aux is affix-like.

2.3. Coordination

Romanian clitic auxiliaries, in contrast to French regular auxiliaries, do not have wide scope over coordination and must be repeated in each conjunct. Basque behaves like Romanian, with a twist.

(8) a. Ion   *va* rämine aici sau *va*   pleca.   (Romanian)
      John fut-3 stay   here or fut-3 leave
      'John will stay here or will leave'
  b. *J' ai*   bu   et   mangé à midi.   (French)
      I have-1 drunk and eaten   at noon
      'I drank and ate at noon'

(9) a. Peiok   sagarrak j aten *ditu* eta ura   edaten *du*.
      Peio-erg apples-abs eating aux-3 and water-abs drinking aux-3
      'Peio eats the apples and drinks the water'
  b. Peiok sagarrak jaten *ditu* eta ura edaten [ ].   (optional, Northern dialects)
  c. Peiok sagarrak jan [ ] eta ura edaten *du* /*ditu*   (optional, Southern dialects)
                                he-it/ he-them

The Auxes cross-referencing the arguments of the two conjuncts appear on both conjuncts (9a). Basque optionally allows one Aux to be deleted, along dialectal lines (Rebuschi, 1989). Note that in (9c), Aux cross-references its closest object only, 'water'. This shows that (9c) is not a case of VP coordination with Aux outside of the two conjuncts but rather a conjunction of two constituents that include Aux, with one optionally deleted. That Aux does not have scope over the coordination remains unexplained if Aux heads a syntactic projection.

The syntactic inertness of Aux argues against many analyses which rely on a derivational model of Aux movement in the syntax followed by 'PF repair' or movement to second position at PF. These include Prosodic Inversion (Halpern, 1995), Morphological Merger (Marantz, 1988), and the filtering analysis of Boskovic (1998). There is no evidence for Aux movement nor evidence for the head status of Aux. Moreover, there is in principle no reason why PF should undo what the syntax does – and do it, using the same mechanism, i.e. movement.

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2.4.   Long Head Movement?

On a syntactic analysis of Aux, the examples in (10) violate the Head Movement Constraint (HMC, Travis, 1994). Yet, they are grammatical.

(10) a. Hil *da*   aita
         died aux-3 father-abs
         'Father HAS died'
     b. Erosi *du*   Jonek   librurua.
         bought aux-3 John-erg book-abs
         'John HAS bought the book'

On the present analysis, clitic auxiliaries do not head syntactic projections – they only surface at PF –, hence there is no violation of the HMC and the Basque pattern is not an instance of Long Head Movement (Rivero, 1994). Verb movement serves to ensure both V2 and a neutral interpretation. That is, it satisfies two interface constraints, one that requires the finite element to be non-initial in the intonational phrase (see below), the other which requires the left-adjacent element to V to be interpreted as focalized. In other words, syntactic movement is subordinated to PF linearization.

2.5.   Other Functional Categories

Aux is not the only functional category which displays affix-like behavior in Basque. In particular, wh- and non-wh subordinators *-(e)n* and *-(e)la*, respectively, appear suffixed to subordinate finite auxiliaries, as in (11).

(11) a. [Noiz etorri *d-en*]   galdetu *dut*.
         when come aux-C ask   aux-3
         'I have asked when he has come'
     b. [Etorri *d-ela*] esan *dut*.
          come aux-C say aux-3
         'I have said that he has come'

In XVIth Century Basque, these subordinators actually co-occurred with clause initial complementizers like *ezen* 'that', an indication that the subordinators are pure inflectional material (Ortiz de Urbina, 1989).

(12)   Gu-k *dugu* sinhesten ezen liburu hau-tako hitz-a   Jainko-aganiko-a *d-ela*.
        we-erg aux believe   that   book this-from word-abs god-from-abs   aux-C
        'We believe that the word from these books comes from God'

        To sum up, functional features are realized as clitics or phrasal affixes in periphrastic verb constructions. To generalize over both synthetic and periphrastic verbs, V2 must be a PF phenomenon.

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3. An OT Analysis of Basque V2

3.1. Alignment

My analysis relies on the claim that input functional features are subject to two conflicting alignment principles, one that favors realizing them at the edge of a projection of their host V, the other away from the edge of a prosodic domain (cf. Wackernagel's Law). The conflict is resolved by ranking. The relevant constraints are stated in (13).

(13)   Legendre (1996,1999, in press a,b,c).
        EDGEMOST(X): At PF a feature [X] is left aligned with the edge of the nearest
                      projection of the head [X] is associated with.
        NONINITIAL(X): At PF [X] is not realized in intonational phrase-initial position.

EDGEMOST and NONINITIAL are interface constraints: They map the PF realization of a feature onto syntactic and prosodic domains, respectively. Crosslinguistic evidence of a prosodic domain comes from dislocated constituents and parentheticals (Legendre, 1999, in press a,b). They belong to a separate intonational phrase and do not count as first elements for V2 (Ortiz de Urbina, 1994). Hence, expletive *ba* is required in Basque, as shown in (14b).

(14) a. *Jonek,   daki   hori.
        John-erg know-3 that-abs
        'As for John, he knows that'
     b. Jonek, *ba*daki hori.

Second position results from one of the possible rankings of the two alignment constraints: NONINITIAL (X) >> EDGEMOST(X). V2 and second-position clitics are one and the same phenomenon (Anderson, 1993, in press).

Basque Aux subsumes several functional features, including tense, person, and case of all arguments. Here, Aux is assumed to be subject to a single alignment constraint on [F] rather than to a set of alignment constraints on each feature. This is a simplification but it does not affect the formal nature of constraint interaction.

Functional features are listed in the lexicon. Their language-particular status is derived from a competition between constraints on realizing features as syntactic heads (X/HEAD) and *STRUCTURE, a constraint penalizing syntactic structure. If X/HEAD outranks *STRUCTURE, X is realized as a head. Under the alternative ranking, X is realized as a (phrasal) affix (notwithstanding spelling conventions). See section 3.3 for further discussion.

EDGEMOST and NONINITIAL interact with other constraints, including movement constraints, PF alignment of discourse features, and with input-output faithfulness to interpretation.

(15)   *t: No traces (Legendre et al., 1995, 1998) (= STAY, Grimshaw 1997)
        OBHD: Heads must be filled. (Grimshaw, 1997)

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OPSPEC: Syntactic operators must be in Specifier position. (Grimshaw, 1997)
FULLINTERPRETATION: Lexical items contribute to the interpretation of a structure.
                    (Grimshaw, 1997)
ALIGNFOCUS: Align the right edge of focalized arguments with the left edge of the
            lexical verb.
FAITH: Input features must be recoverable from the output.

A striking feature of Basque synthetic verbs is the occurrence of an expletive particle *ba* to ensure that the finite verb is not clause-initial (see examples in (1)). That is, *ba* exists only to satisfy NONINITIAL(F). In our terms, Basque violates FULLINTERPRETATION in order for the finite verb to satisfy NONINITIAL(F). Note that the second position of [F] is itself the consequence of the ranking NONINITIAL(F) >> EDGEMOST(F). (I am assuming that S is base-generated in SpecVP. Verb-initial structures result from V movement to a higher functional head which I will call I or C. Expletive *ba* is a clitic whose EDGEMOST constraint outranks EDGEMOST(F)). The competition is made explicit in tableau T1.

T1. *ba*VS: '(He) is coming'

Input: V (S); [F]	FAITH	NI(F)	E(F)	FULLINT	*t
a. ☞ [$_I$ ba dator$_i$ [$_{VP}$ J [$_{V'}$ t$_i$]]]			③	④	③
b. [$_I$ dator$_i$ [$_{VP}$ J[$_{V'}$ t$_i$]]]		*!			*
c. [$_{VP}$ J [$_{V'}$ dator]]	*!				

In particular, candidate a violates FULLINTERPRETATION and *t. Yet, these violations, plus one of EDGEMOST(F), ensure that the dominant interface constraint, NONINITIAL(F), is satisfied. In T1, candidate a is optimal, hence grammatical. This means that constraints on syntactic movement and interpretation are subordinated to PF interface constraints.

Candidate c is the optimal output for a different input, one in which S is focalized (as in the answer to the question 'Who is coming?'). Recall that the position left-adjacent to V is reserved for focalized (i.e. new) arguments. Because the input in T1 does not include a focus feature on S, leaving S in SpecVP and not fronting V makes S adjacent to V and leads to its interpretation as focalized. This constitutes a violation of input recoverability or FAITH. FAITH must dominate all constraints violated by a, otherwise c would be optimal in T1.

The word order displayed by candidate a in declarative T1 is also displayed by yes-no questions. This means that the empty question operator in specifier position commonly assumed to be present in yes/no questions does not allow V2 satisfaction. This provides additional support for the view that linearization of [F] is not a syntactic phenomenon.

3.2.   Masked V2 Effects

Periphrastic verbs lead to a more complex and interesting interaction, because [F] is separated from [V] and focalization involves V, not [F]. So does head movement in wh-questions. As violable constraints predict, V2 is often masked on the surface.

(16) a. Jonek   ikusi *du*   hori.
       John-erg see   aux-3 that-abs
       'John has seen that'
   b. Nork   ikusi *du*   hori?
       who-erg seen   aux-3 that-abs
       'Who has seen that?'

The input feature [focus] on the subject activates ALIGNFOCUS, which requires the right edge of focalized arguments to be aligned with the left edge of the lexical verb.[1]

T2. Periphrastic SVAuxO: 'John has seen that'

Input: V (S[foc], O); [F]	FAITH	ALFOCUS	NI(F)	E(F)	*t
a. ☞ [vp J [v· ikusi du hori]				⊘	
b. [vp J [v· du ikusi hori]		*!			
c. [ı· ikusiᵢ du [vp J [v· tᵢ hori]	*!	*		*	*

Aux must follow (candidate a in tableau T2) rather than precede the past participle (candidate b), hence the ranking: ALIGNFOCUS >> EDGEMOST(F). ALIGNFOCUS overrides the alignment constraints responsible for the basic V2 pattern. V2 is masked by focalization effects.[2]

The common analysis of synthetic and periphrastic verbs makes a prediction. The absence of a focus feature in the input to periphrastic verbs predicts VS patterns very similar to those with synthetic verbs in verb fronting and yes-no questions, except for the fact that an expletive particle becomes unnecessary. The non-finite participle itself can fill *ba*'s role via fronting; the result is that Aux satisfies NONINITIAL(F) and appears in second position. This is illustrated in (17) and the relevant competition is given in tableau T3.

(17) a. Hil *da*   aita.
       died aux-3 father-abs
       'Father HAS died'
   b. Erosi *du*   Jonek   liburua?
       bought aux-3 John-erg book-abs
       'Has John bought the book?'

T3. Periphrastic VAux S: 'Father has died'

Input: V (S) [F]	FAITH	ALFOCUS	NI(F)	E(F)	*t
a. ☞ [ı· hilᵢ da [vp aita [v· tᵢ tⱼ]]				⊘	⊘⊘
b. [vp aita [v· hil da]]	*!				
c. [vp aita [v· da hil]		*!			

---

[1] Alternatively, ALIGNFOCUS could be stated as a purely syntactic constraint (e.g. 'Focalized elements in specVP'). It would force competition with case and theta-based constraints and entail that the hierarchy of PF alignment constraints is broken up by a syntactic constraint

[2] Wh-questions exhibit the same word order pattern as structures containing a focalized argument, i.e. wh/focalized argument - past participle - Aux (21a). This follows if wh-phrases carry a focus feature, as is commonly assumed.

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In Basque, SOV structures are the natural way of answering a wh-question that pertains to the object O (Manandise, 1988). On the present analysis, SOV results from O moving to satisfy ALIGNFOCUS, thereby preventing Focus assignment/interpretation to S and a violation of FAITH. For simplicity's sake I assume that O is adjoined to V', though nothing crucial hinges on this decision.

T4. SOVaux: 'John has read the book'

Input: V(S, O); O[foc], [F]	FAITH	ALFOCUS	NI(F)	E(F)	*t
a. ☞[vP J [v· liburua₁ [v· irakurri *du* tⱼ]]]]				①	②
b. [vP J [v· liburua₁ [v· *du* irakurri tⱼ]]]]		*⎮			*
c. [vP J [v· irakurri *du* liburua]]]]	*⎮	*		*	

Note that the standard assumption that SOV word order is the basic or underlying word order of Basque (e.g. Ortiz de Urbina, 1987, 1994, 1995; Eguzkitza, 1987; Laka, 1994) does not take the discourse status of O into consideration. On the present analysis, Basque is underlyingly SVO, a proposal independently made by Ormazabal et.al. (1994) in the context of an analysis compatible with antisymmetry (Kayne, 1994).

Contrastive focus on O is achieved by fronting the object and postposing the subject, resulting in OVS word order (Ortiz de Urbina, 1995). Thus, particular discourse interpretations are linked to an interaction of constraints rather than a single, isolated one.

(18)   LIBURUA irakurri *du* Jonek.
        book-A   read   aux John-erg
        'It is the book, not something else, that John read'.

Without violable constraints, the issue of underlying word order in Basque is a thorny one. Basque displays properties of both head-initial and head-final languages. Relative clauses and genitives are right-headed (19a). Yet, like in head-initial languages, wh-operators occur to the left of the clause with concomitant residual V2 effects similar to English. In addition, some overt independent complementizers are found to the left of their complement, 'that'-complements follow the main verb, and adjectives follow the head noun.

(19) a. Illegoria   *d-en*   neska.
        red-haired aux-comp girl
        'The girl who is red-haired'
     b. Zer   irakurri *du* Jonek?
        what-abs read   aux-3 John-erg
        'What has John read?'
     c. Baldin *bada*   gizona   etorri mintzatuko natzaio.
        if   if-aux-3 man-abs come talk-fut   aux-1
        'If the man comes I will talk to him'
     d. Peruk   *dio* Jon   etorriko *dela*.
        Peter-erg say-3 John-abs come-fut aux-comp
        'Peter says that John will come'

On a GB analysis like Ortiz de Urbina (1994), these facts require parametrization within a language (i.e. Basque phrases are in general right-headed but CP is left-headed) as well as lowering of C: "Unless a verbal head moves to C due to independent reasons and attaches to the complementizer affix there, the latter [C] will have to undergo lowering by affix-hopping to Infl" (Ortiz de Urbina, 1994:147). The present proposal eliminates these two problematic moves. All phrases are left-headed, SOV word order is derived via O movement, and the inflectional complementizer is linearized on the inflected verbal form..

3.3.   Basque Negation

As is common cross-linguistically (Legendre, 1996, in press a) the negative particle *ez* can ensure second position despite its clitic status (20a,b). Note the effect of Neg on the position of the finite auxiliary: Aux appears adjacent to the negative particle; yet, the lexical verb remains in situ in (20b). (20b) contrasts with its positive counterpart in (20c).

(20) a. *Ez* dator   Jon.
         neg come-3 John-abs
         'John isn't coming'
     b. Ez du   Jonek   liburua   irakurri.
         neg aux-3 John-erg book-abs read
         'John hasn't read the book'
     c.   Jonek   liburua   irakurri *du*.
         John-erg book-abs read   aux-3
         'John has read a book'

In (20a), the synthetic V precedes S, suggesting that V has moved to a higher projection. The sequence neg - finite V indicates that EDGEMOST(NEG) outranks EDGEMOST(F).

T5. Basque neg VS: 'John isn't coming'

Input: V(S); [F] [neg]	FAITH	E(NEG)	NI(F)	NI(NEG)	E(F)	*t
a. ☞ [v· ez dator$_i$ [vp J [v t$_i$]]				⊛	⊛	⊛
b. [vp J [v· ez dator]]	*!				*	

Periphrastic verbs and the adjacency of neg and aux in (20b) raise two questions: (i) Why is *du* in second position in negative sentences with focalized O and topicalized S (20b) but not in their positive counterpart (20c)? (ii) What is the structural description of (20b)?

My answer to (i) is the following. There is simply no way to satisfy both high-ranked ALIGNFOCUS and EDGEMOST(NEG) if the word order is [SOV neg aux]. See candidates b and c in T6: b violates EDGEMOST(NEG) to satisfy ALIGNFOCUS while c does the reverse. Given the low ranking of *t, there is a clear alternative, a structure with an I' on top of VP, as in candidate a. Such a structure has the advantage of allowing the three higher-ranked EDGEMOST(NEG), ALIGNFOCUS, AND NONINITIAL(F) to be satisfied.

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T6. neg aux SOV: 'John hasn't read the book'

Input: V(S, O); O [foc] [T] [neg]	ALFOCUS	E(NEG)	NI(F)	NI(NEG)	E(F)	*t
a. ☞ [₁·ez du [ᵥₚJ [ᵥ· libur₁ [ᵥ· irakurri t₁]]]]				⊙	⊗	⊙
b. [ᵥₚJ [ᵥ· libur₁ [ᵥ· irakurri ez du t₁]]]]		*!			**	*
c. [ᵥₚJ [ᵥ· libur₁ [ᵥ· ez du irakurri t₁]]]]	*!				*	*
d. [ᵥₚ ez J [ᵥ· libur₁ [ᵥ· irakurri du t₁]]]]		*!		*	*	*
e. [₁· ez du irakurri₁ [ᵥₚJ [ᵥ· libur₁ [ᵥ·t₁ t₁]]]]	*!			*	*	**

My answer to question (ii) is that the status of the combination *ez du* is different from that of *ez* and *du* in isolation; *ez du* is a negative auxiliary with the status of head, notwithstanding the modern spelling conventions.[3] Independent evidence comes from wh-questions. In (21b), *ez dio* is separated from the participle *bidali*, in contrast to (21a).

(21) a. Nori   bidali *dio*   gizonak liburua?
        Who-dat sent have-3 man-erg book-abs
        'Who has the man sent the book to?'
     b. Nori   ez dio   eskutitza bidali?
        who-dat neg have-2 letter-abs sent
        'Who haven't you sent the letter to?'

One question remains: How does the change in status follow from the present analysis? Recall that functional features are listed in the lexicon. Their language-particular status is derived from a competition among constraints on realizing features as syntactic heads (X/HEAD) and a constraint against building (syntactic) structure, *STRUCTURE. Note that the ranking *STRUCTURE >> NEG/HEAD, F/HEAD: yields a clitic status for [Neg] and [F].

When [neg] and [F] occur together, however, their strengths are combined and this suffices to override *STRUCTURE. Formally, this is an instance of *local conjunction* (Smolensky 1993, 1995, 1997, Legendre et al, 1995, 1998). The result is a constraint that pertains to two dimensions simultaneously. The ranking NEG/HEAD&F/HEAD >> *STRUCTURE yields head status for [Neg/F]. The difference in status follows here from optimization, i.e. follows from the grammar (Legendre et al. 1995, 1998; Grimshaw, 1997).

Additional evidence for the negative auxiliary head analysis of *ez du* includes (22) in which the focalized subject intervenes between *ez da* and V. When the subject is not focalized, it precedes *ez da* (22c).

(22) a. Ez da etxea   erori.
        neg aux-3 house-abs fall
        'The house didn't fall down'
     b. *Etxea erori ez da.
     c. Etxea ez da erori.

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[3] Eguzkitza (1987:77) comments on the old spelling of forms consisting of *ez*, conditional *ba*, and *da*: *ezpada* vs. modern *ez bada*. Assimilation in voicing results in [espada] (/z/ = [s]).

4. Conclusion

The general picture which emerges from the present analysis is the following. The Basque finite verbal element must appear in second position — satisfy NONINITIAL(F) and minimally violate EDGEMOST(F) — except when this conflicts with argument focalization. Then and only then does the finite element adjust and satisfy itself with a third position.

The present analysis crucially relies on violable constraints and interactions between syntactic and PF alignment constraints on functional and discourse features. Interface constraints dominate in Basque, with the consequence that syntax is subordinated to PF. Note that the need for interface conditions is independent of OT. But it finds a natural implementation in standard OT because, by their very nature, candidate structures are global structures. Optimization proceeds in parallel rather than serially.

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