

Configurational heads in inflectional morphology: the structure of the inflected forms in Basque¹

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This paper presents evidence for a configurational notion of head in inflectional morphology. Following Marantz (1984) and Baker (1985), it is assumed that inflectional morphology is distinct from derivational morphology and that it is generated in the mapping from D-structure to S-structure. It is then argued that there is no need for language particular and construction specific morphological rules; the shape of inflected forms is claimed to result from syntactic configuration and general properties of head adjunction.

The empirical evidence on which the argumentation is based has been mainly drawn from inflected verbal forms in Basque, although the paper relies on the assumption that the conclusions presented hold cross linguistically in agglutinative and polysynthetic languages.

1. The data: what the inflected form looks like

Basque is an ergative language: subjects of unaccusative verbs and objects of transitive verbs share absolutive case, whereas all other subjects bear ergative case, as illustrated in (1)²:

- (1) a. *Emakumea etorri da*
woman-dt-A arrive aux(3A)
'The woman has arrived'
- b. *Emakumeak emakumea ikusi du*
woman-dt-E woman-dt-A see aux(3A-3E)
'The woman saw the woman'
- c. *Emakumeak hitz egin du*
woman-dt-E word-make aux(3A-3E)
'The woman has spoken'

(1) I want to thank the members of my committee K. Hale, J. Harris and R. Larson, and J. Uriagereka, J. Ormazabal and E. Torrego for their comments and suggestions on this topic. I also want to thank the audience in the VII Summer Courses of the University of the Basque Country (Donostia, July 1988) where I presented this material.

(2) The conventions for the glosses are: E=ergative; D=dative; A=absolutive; dt=determiner. In the inflected auxiliary, only person agreement is glossed in these preliminary examples.

It is well known since Anderson (1976) that most languages morphologically marking ergativity do not display syntactic ergativity, in that syntactic processes or properties that make reference to 'subjects' or their structural correlates apply to the same set of arguments as in accusative languages. Levin (1983), Eguzkitza (1986) and Ortiz de Urbina (1986) have argued convincingly that Basque is not syntactically ergative.

Unlike languages like Warlpiri (Hale (1981), (1983)) where arguments are marked in an ergative pattern but agreement markers follow an accusative system, Basque consistently shows ergative morphology both on overt arguments and the agreement system.

There are three grammatical cases: Ergative, Dative and Absolutive. They are marked on the arguments by the following morphemes: *-k* for the ergative, *-(r)i* for the dative and zero for the absolutive. Inflection shows agreement with all three grammatical cases:

- (2) a. *Zuk ni ikusi n-au-zu*
 you-E me-A see-prf 1A-have-2E
 'You have seen me'
- b. *Zuk niri etxea eman d-i-da-zu*
 You-E I-D house-dt-A give-prf 3A-root-1D-2E
 'You gave me the house'

The verbal-inflectional complex consists of two parts: one is constituted by the lexical verb and the aspect marker; the other is the inflected auxiliary, which encodes agreement, mood and tense³. This two-part pattern is illustrated by the examples in (3):

- (3) a. *ikus-i g-intu-zue-n*
 see-asp 1p1A-root-2p1E-tns
 'You (pl) saw us'
- b. *esan-go d-i-da-n*
 say-asp 3A-root-1D-2fE
 'You (f) will say it to me'
- c. *eska d-aki-gu-ke*
 ask 3A-root-1p 1D-mod
 'it can be asked to us'

There is a small set of verbs, traditionally called synthetics, where this two-word pattern can be substituted by a single inflected unit; i.e. the lexical verb can occur incorporated into the auxiliary. If aspect is punctual, the root of the synthetic verb occurs in the place of the root of the auxiliary, surrounded by agreement, modal and tense markers. Examples in (4) illustrate instances of the synthetic verbs *jakin* 'to know', *eraman* 'to take' and *ekarri* 'to bring':

- (4) a. non-punctual aspect b. punctual aspect
jAKIn d-u-t *d-AKI-t*
 know-prf 3A-root-1E 3A-know-1E
 'I have known it' 'I know it'

(3) It can optionally include agreement with the addressee of the speech situation, but for simplicity I will not consider this type of agreement in the present work.

<i>eRAMAn na-u-n</i>	<i>n-aRAMA-n</i>
take-prf 1A-root-2fE	1A-take-2fE
'You(f) have taken me'	'You(f) are taking me'
<i>eKARri ha-u-t</i>	<i>b-aKAR-t</i>
bring-prf 2A-root-1E	2A-bring-1E
'I have brought you'	'I bring you now'

The examples in column (a) illustrate forms of these verbs where the aspect is not punctual. In this case, the forms are not synthetic; they pattern exactly like the forms in (3). In column (b), aspect being punctual, the root of the verb (highlighted in capital letters) occurs incorporated into the inflection. These facts can be accounted for by assuming that synthetic forms are derived via verb raising to inflection at S-structure, as opposed to the unmarked non-synthetic forms where this raising does not take place⁴.

Synthetic forms are morphologically identical to inflected auxiliaries: agreement, mood and tense morphemes surface in the same manner in both kinds of inflected forms. The only difference between them is the verbal root: in synthetic forms the root happens to be the lexical verb itself; in inflected auxiliaries this root is 'have' or 'be', depending on the selectional properties of the lexical verb⁵. Moreover, some forms can be used either as auxiliaries or as synthetics. This is the case of, say, some forms of the verb *izan* 'to be', which can be used as auxiliaries of unaccusatives and also as synthetic forms aspectually punctual forms of the verb 'to be':

- (5) *naiz*
1A-be
'I am'
- izan naiz*
be-prf 1A-be
'I have been'
- etorri naiz*
arrive-prf 1A-be
'I have arrived'

For the purposes of studying the morphology of the inflected forms, there is no need to distinguish synthetic verbal forms from auxiliaries, since all the issues to be addressed apply equally to all inflected forms, synthetic or auxiliaries. Thus, in what follows, whenever I refer to inflected forms or to inflection, both cases are included.

Let us now focus on the properties of the inflected form. I will first provide a brief description of the classes of inflected forms, before introducing the issues to be discussed in the paper.

The inflected forms fall into two classes on the basis of the agreement markers they show. These are: forms that involve ergative agreement and forms that do not.

(4) Needless to say, the question of what forces or prevents raising of V to I in each case remains open. I will not pursue this question here.

(5) The root of the auxiliary is also sensitive to tense and mood, and it is not always straightforward what verb the root stands for, since some of those verbs do not exist independently in modern Basque. Nevertheless, a two-way selection of the auxiliary root (parallel to the have/be partition in the indicative mood) is consistently maintained in all moods and tenses.

Both classes involve absolutive and can take dative optionally. I will refer to these two types by their traditional names: The inflected forms taking only absolutive are NOR forms; the class involving absolutive and ergative is called NOR-NORK. NOR auxiliary forms take an intransitive root and NOR NORK auxiliaries a transitive one⁶. Both types can include the dative NORI; hence, there are four types of inflected forms: NOR, NOR-NORI, NOR-NORK, and NOR-NORI-NORK. Examples of each class are illustrated in (6)⁷:

- | | |
|-------------------|------------------------|
| (6) a. NOR | b. NOR NORI |
| <i>n-aiz</i> | <i>z-atozki-t</i> |
| 1A-be | 2A-come-1D |
| 'I am' | 'you come to me' |
| <i>n-ago</i> | <i>n-atzai-zu</i> |
| 1A-stand | 1A-be-2D |
| 'I stand' | 'I am to you' |
| c. NOR NORK | d. NOR NORI NORK |
| <i>n-arama-zu</i> | <i>d-i-zu-t</i> |
| 1A-take-2E | 3A-root-2D-1E |
| 'You take me' | 'I (V) it to you' |
| <i>n-au-zu</i> | <i>d-aramaki-da-zu</i> |
| 1A-have-2E | 3A-take-1D-2E |
| 'You have me' | 'You take it to me' |

2. The variation puzzle

One striking fact about the inflected form is that although it is subject to great dialectal variation, certain aspects of it remain nevertheless uniform in all varieties of the language, as noted by Mitxelena (1981). Let us consider this variation puzzle in more detail.

The variation displayed by inflected forms is such that it is acknowledged in the earliest literary and grammatical works, and all dialectological studies have used it as the main criteria for distinguishing dialects and varieties⁸. Consider for instance the following forms, from varieties of Biscayan and Guipuzcoan dialects, respectively:

- | | | | |
|-----------------|---------------|-----------------|----------------------|
| (7) <i>jaku</i> | <i>zaigu</i> | 3A-root-1p1D | 'it (V) to us' |
| <i>eutsan</i> | <i>zion</i> | 3a-root-3D-3E | 'S/he (V) it to her' |
| <i>deustie</i> | <i>didate</i> | 3A-root-1D-3p1E | 'S/he (V) it to me' |

As the examples in (7) illustrate, the same inflected form can vary considerably; as Mitxelena (1981) points out, however, the information encoded by each morpheme

(6) In the indicative, NOR forms take the root of *izan* 'to be' and NOR-NORK forms take the root of *ukan* 'to have'. Recall footnote 5.

(7) NOR is the Basque name for the absolutive case, NORI is the dative and NORK the ergative. Note that the names for the different types of inflected forms list the cases the agreement markers stand for, in the order displayed in the inflection.

(8) The first, most important and thorough dialectologist on Basque, the Prince Louis Lucian Bonaparte, had the inflected forms as the central criteria for distinguishing varieties of the language, and all following works also relied on the inflected forms for the study of variation.

and the relative ordering of the morphemes in the inflected form is identical across all dialects and varieties. Thus, although the surface forms may vary significantly, these two latter aspects do not vary at all.

The uniform linear order in which the morphemes occur in the inflection is illustrated in (8):

(8) Absolutive-root-dative-modal-ergative-tense

All varieties of the language follow this order in their inflected form, whatever the particular phonological matrix of each morpheme. For instance, varieties of Biscayan may have the morpheme *euts* for the root of NOR-NORI-NORK forms in the indicative, where Guipuzcoan varieties have the morpheme *i*; but in all varieties that morpheme marks 'three-way agreement root', and it is placed after the absolutive and before the dative:

- (9) a. *d-euts-o-zu* b. *d-i-o-zu*
 1A-root-3D-2E 1A-root-3D-2E

An inflected form violating the order in (8) is highly ungrammatical, where the only change made with respect to the first form is the fronting of one morpheme. It is relatively easy for a speaker to recognize and understand forms where the morphemes are phonologically different from the ones in her/his inventory, but where the order in (8) is respected. This is the difference between, say (*eman*) *d̄idate* 'They (gave) it to me' from Guipuzcoan varieties and (*emon*) *deustie* from Biscayan varieties. But a form where the morpheme inventory is identical and only the linear order has been altered, like, say, (*eman*) *tedida* is strongly unacceptable. This significant difference indicates that the inflected form could not be just the spelling out of a bundle of features, a 'flat' word where the morphemes are placed. This striking fact is not a particular one about Basque morphology; languages with complex inflectional morphology share this property, in that the morphemes have a canonical order that must be respected. In fact, the strict linear order of the morphemes appears to be more relevant to the well formedness of the form than the phonological shape of the morphemes in it. Strict linear order in language is the surface manifestation of structural relations. Therefore we can assume that well defined structures are always at the core of the inflectional morphology.

As for the particular structure of the inflected form, a specific proposal will be made in the following section. Note however that by addressing the issue of the structure of the inflected forms, we say nothing about why that structure is uniformly maintained across dialects. Claiming that the inflected forms have a structure X does not explain why different varieties of the language do not exhibit different structures, similarly to the way in which they diverge on phonological processes, lists of morphemes and lexical items. However, if the uniformity of the inflectional system is assumed to be related to some other aspect shared by all varieties, and if this relation is made explicit, we will indeed be heading towards explaining the lack of variation.

What could this property shared by all varieties be? As noted also by Mitxelena (1981), another interesting fact about linguistic variation in the Basque speaking area is the virtual non-existence of syntactic divergences. We can make the assumption that the syntax and the inflected forms are related in a way such that the lack of variation in the structures of the inflected form is necessarily derived from the lack of variation in the syntax.

Baker (1985a) argues for a unified view of inflectional morphology and syntax, based on the tight relation between morphological and syntactic effects of grammatical function changing processes. If, as argued by Baker, inflectional morphology is part of syntax, a correlation between syntactic variation and variation in the structure of the inflectional morphology will necessarily hold in a natural languages because they are not independent processes but the same one. On the contrary, without an assumption along this line facts like the one just presented are left unexplained and our linguistic model would be missing a clear generalization about natural languages. Namely, the fact that the inflectional structure correlates with the syntactic structure.

Baker (1985a) bases his argument on morpheme ordering facts relative to syntactic transformations. After presenting the empirical evidence, he concludes that 'Based on these observations, it seems that these two very different sets of facts can be explained and conceptually unified in terms of a theory of whom the morphological and syntactic components are related. Indeed, they are explained by the simple statement that the processes involved (...) simultaneously have morphological effects (such as adding an affix to the verb) and syntactic effects (such as changing GFs). This is not necessary a priori; it is certainly imaginable that UG should allow a dissociation of the two, such that each happens independently and the results must be consistent with one another' (Baker 1985a, pg. 374). The same argument holds for the variation puzzle presented above, where no grammatical function changing process is involved; if morphology and syntax are separate components, UG should allow for linguistic varieties differing in their inflectional structure but having similar syntactic components and vice-versa. If empirical facts always show a strict correlation between morphological and syntactic variation, however, our model of UG will miss an important generalization unless it incorporates syntax and inflectional morphology into a single component.

3. An onder-switching phenomenon

Perhaps the question that has drawn the most attention in the study of the inflectional system is a well known phenomenon which alters the order of the agreement morphemes under certain circumstances. This phenomenon has received a number of names, depending on the point of view taken to analyze it; for convenience, I will refer to it as 'Ergative Displacement'.

It is traditionally described as follows: if an inflected form has third person absolutive agreement and a non third person ergative agreement and it is a past tense form, then the person corresponding to the ergative shows up in the canonical place of the absolutive, and the absolutive agreement marker does not show up. Consider the examples in (10)⁹:

(10)	a. present	b. past
	<i>D-U-T</i>	<i>N-U-eN</i>
	1A-root-1E	1E-root-tns
	<i>D-U-ZU</i>	<i>Z-enU-eN</i>
	1A-root-2E	2E-root-tns

(9) For ease of exposition, epenthetic vowels and tense sensitive root parts are represented in lower case letters, whereas the relevant elements are displayed in capital letters. I will not provide translations of the forms, because at this point they become irrelevant.

<i>D-I-DA-ZU</i>	<i>Z-enI-DA-N</i>
3A-root-1D-2E	2E-root-1D-tns
<i>D-I-O-GU</i>	<i>G-enI-O-N</i>
3A-root-3D-1p1E	1p1E-root-tns

The inflected forms in column (a) show the canonical order of morphemes, where the absolutive agreement occurs before the root and the ergative agreement after it. When the past tense morpheme *N* is present, the third person marker is substituted by that marker of the absolutive paradigm corresponding to the person features of the ergative. The ergative marker disappears from its canonical position and so does the third person absolutive marker.

Note that if the absolutive agrees with a non-third person, no morpheme order altering process takes place, as illustrated in (11):

(11) a. present	b. past
<i>N-aU-ZU</i>	<i>N-indU-ZU-N</i>
1A-root-2E	1A-root-2E-tns
<i>Z-aitU-T</i>	<i>Z-indU-DA-N</i>
2A-root-1E	2A-root-1E-tns

There are no syntactic consequences related to this Ergative Displacement process: it does not affect overt arguments, which remain marker for ergative and absolutive independently of what happens inside the inflected form; neither does this morphological process alter the syntactic properties of the arguments at all. This total lack of syntactic consequences is partially illustrated in (12) for case marking and Binding Theory. The same sentences is given in present and past tense. The inflected auxiliary undergoes Ergative Displacement but the arguments and their syntactic properties remain unchanged.

(12) a. <i>Nik neure burua ikusten dut</i>
I-E my-head-A see-impf 3A-root-1E
'I see myself'
b. <i>Nik neure burua ikusten nuen</i>
I-E my-head-A see-impf 1E-root-tns
'I was seeing myself'

Heath (1976) treats Ergative Displacement (ED) as an instance of antipassive, based on the fact that the ergative subject appears marked with an absolutive morpheme, and that the third person marker disappears from the inflected form. However, notice that this process does not share any of the relevant characteristics of standard antipassives: thus, the subject of the sentence remains marked for ergative and the object remains marked for absolutive. Moreover, as Ortiz de Urbina (1986) notes, it is not clear why this antipassive would take place precisely under the conditions it does in Basque. This antipassive would have no functional value as it has in other languages, where it is either intertwined with syntactic processes like Wh-movement or it is discourse oriented. Another property shared by antipassives and lacking in Ergative Displacement is the intransitivization of the verb. In cases of ED, the inflected form does not become a NOR type form (i.e. only absolutive agreement form which typically takes 'be' as a root). These ergative displaced forms are still transitive NOR-NORK forms. Consider the forms in (13):

- | | | | | |
|------|----|------------------|----|---------------|
| (13) | a. | <i>N-aIZ</i> | b. | <i>D-U-T</i> |
| | | 1A-root | | 3A root-1E |
| | c. | <i>N-INTZ-eN</i> | d. | <i>N-U-eN</i> |
| | | 1A-root-tns | | 1E-root-tns |

The forms in (12a) and (12b) are present tense forms of NOR and a NOR-NORK type respectively. Note that (12a) bears the root of the verb *izan* 'to be' whereas (12b) displays the root of *ukan* 'to have'. The forms in (12c) and (12d) are past tense forms. (12d) has undergone ergative displacement; however, it has not become a NOR form like (12c). It keeps the same root as its correlate in the present tense; that is, it is still a transitive form.

Ortiz de Urbina (1986) analyzes the Ergative Displacement as an instance of Split ergativity. In his account, Basque inflection displays a consistently ergative pattern, but it turns to an accusative marking system in the case of Ergative Displacement. Under Ortiz de Urbina's approach, Basque would pattern like Warlpiri in these instances: arguments are marked ergative and absolutive, but inflection would agree only with the subject via an absolutive, as if it were a nominative agreement. As he notes, however, this phenomena differs from other instances of split ergativity in a number of ways. Splits are generally characterized by one of these two factors: grammatical person or aspect/tense. Basque would be unique in displaying a split that takes both person and tense in consideration. Splits conditioned by grammatical person appear to be marked on the overt arguments; in Basque it would be reflected only in the agreement system. Languages with an aspect/tense split usually display the ergative marking on the past/perfective tense, and the accusative marking otherwise. Basque would also be unique in displaying the accusative marking in the past tense and the ergative otherwise.

Under the strong syntactic view of inflectional morphology taken in this paper, a phenomenon like Ergative Displacement is most interesting as a test ground for the hypothesis. It is a morpheme order altering phenomena, but it does not have any syntactic effect. Indeed it looks like a language particular and structure specific morphological transformation. The phenomenon does not seem to correlate in any relevant respect with other cases of inflectional morphology altering processes like antipassive or split ergativity which do have syntactic consequences, and its structural description appears to challenge any generalization of triggering factors.

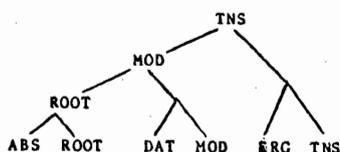
I will discuss Ergative Displacement in section 4, after presenting the proposed structure of the inflected form, and show that the obstacles mentioned disappear when looking at the inflected form as a hierarchically organized complex.

4. The structure of the inflected form

In this section, a specific proposal will be made with respect to the internal structure of the inflected form. It will also be claimed that the placement of inflectional morphemes can be derived from the properties of adjunction. Then it will be argued that the traditional description of the agreement morphemes in Basque is not sufficiently accurate; hence, some modifications will be made in it. The proposed structure and modified description will be shown to provide a better characterization and understanding of the processes taking place in the inflected form and its properties.

The proposed structure for the inflectional complex is illustrated in (13):

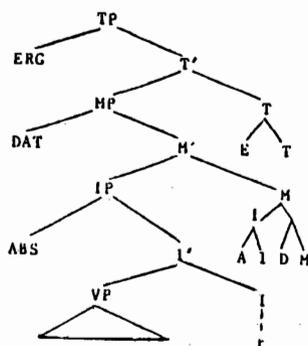
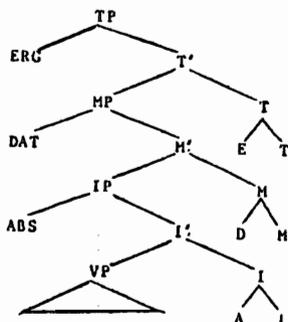
(13)



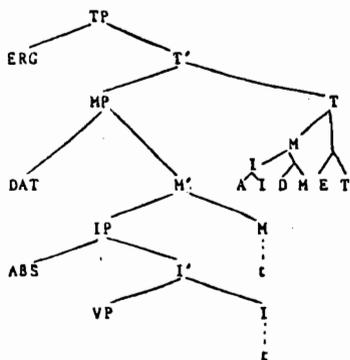
I assume that this structure is derived via head adjunction in the mapping of D-structure to S-structure, as in (14)¹⁰:

(14)

D-structure:



S-structure:



(10) Where TP stands for Tense Phrase, MP stands for Modal Phrase, and the name IP

The derivation is a case of head movement as in Baker (1985b, 1988). For the purposes of the present paper, I will not pursue an argument for the syntactic derivation in (14). Instead, I will argue that there is strong evidence on purely morphological grounds for a structure like (13). Nevertheless, note that in a derivation like (14), the three arguments that agree with inflection each sit in the specifier of the projection where their agreement occurs, and each agreement position is adjoined to the functional head of its projection. Thus, the structure in the (13), which is the output of the S-structure derivation, exhibits the agreement heads alternating with the functional ones. As we will see later, functional (F) heads share morphological properties different from the agreement (Ag) heads.

4.1. *Deriving morpheme placement*

When describing the agreement morphemes in the inflected form, it is said that the absolutive marker is a prefix, dative is an infix and ergative is a suffix. The assumption is that all agreement morphemes are attaching to a single base, which is the root. Similarly, then, the modal marker is taken to be an infix and the tense marker to be a suffix. Notwithstanding this characterization of the facts, Basque is generally agreed to be a suffixal language; case markers, determiners, the equivalent of English prepositions, complementizers and aspectual morphemes, all occur as suffixes. I will now argue that this latter view is in fact descriptively correct; Basque is a suffixal language even in the inflectional system. Nevertheless, I will argue that prefix, infix and suffix are derivative/descriptive notions which do not play any role in the grammar.

Let us consider the three way division of morphemes into prefixes, infixes and suffixes. More specifically, let us consider how the placement of morphemes is dealt with in different conceptions of morphology. Selkirk (1983), in a model of morphology as a separate component including derivational and inflectional morphological processes, proposes the following rule schemata for morphology:

- (15) a. $X^n \rightarrow Z Y^m X^{af} W$
 b. $X^n \rightarrow Z Y^{af} X^m W$
 c. $X^n \rightarrow Z X^m Y^{af} W$
 d. $X^n \rightarrow Z X^{af} Y^m W$

where $0 > n > m$, $n = af$; and Z, W are variables over sequences of category symbols.

Selkirk suggests that languages may choose from this schemata, provided by UG, but that particular languages have particular morphological rules. The position taken is hence that the schemata in (15) are 'a set of universally provided abstract «templates» to which the word structure rule systems of languages will (more or less) conform' (Selkirk (1983), 66). With respect to morpheme placement, Selkirk takes the view that it is determined by construction specific rules, a conclusion that can be challenged if general principles for morpheme placement are indeed found.

Another related issue in which this paper diverges from Selkirk's work is the

has been kept to designate the projection of the root. In the heads, E stands for ergative, T for tense, D for dative, M for modal, A for absolutive and I for the verbal root.

status of inflectional morphology, which is taken here to be part of the syntactic derivation, as opposed to considering it an indistinguishable part within the morphological component. Selkirk argues that deriving inflected forms in the syntax 'makes it impossible for a grammar to express real generalizations about their shape' (Selkirk (1983) 69). This is not necessarily true; it depends on how inflectional morphology is derived in the grammar, and what properties the grammar has that account for the shape of inflected forms.

Sciullo and Williams (1987) agree with Selkirk on the thesis that morphology and syntax are different subtheories of the grammar, with different atoms and rule formation properties. The claim is that the notion 'head' is shared in both components, but that there are a number of exclusively morphological principles. Since no distinction is drawn between inflectional and derivational morphology, those morphological principles are said to apply equally to both. Sciullo and Williams (1987) claim that the notion of 'head' in morphology is contextually determined; it is relativized with respect to particular features. Their examples of the relativized notion of head are mainly drawn by inflectional morphology: take for instance Latin verbal morphology, which the authors use to illustrate this relativized notion of 'head'.

- (16) *ama bi tur*
 + fut + passive

Under Sciullo and Williams proposal, the verbal forms has two heads, where *bi* is the head(future) and *tur* is the head(passive). As a result of the relativized notion of head, each inflectional morpheme happens to be the head relative to all features beared in its matrix, which amounts to say that all inflectional morphemes in an inflected form are equally heads. If that is the case, the relativized notion of head fails to explain why Latin morphology does not generate forms like, say, *turbiamama* or *biamatur*, which, under a relativized notion of head are equal to *amabitur* in all relevant respects. Some extra proviso must be therefore added to the theory that will account for ordering facts. Sciullo and Williams do not discuss this issue.

The issue at stake in this discussion is whether we can derive the formal properties of inflected forms under the assumption that inflectional morphology is generated in the syntax. If this is the case, those formal properties must necessarily be syntactic. Taking a strong view of the spirit in Baker (1985), (1987), I am assuming that inflectional morphology is a by product of head adjunction in the syntax, and that the ordering properties of the morphemes are derived from it. Consider the following condition:

- (17) If X and Y are heads
 a. *[_x[X] Y] if X is final
 b. *[_xY [X]] if X is initial

The condition in (17) states simply that head adjunction respects the head parameter. If this condition is part of the grammar, the shape of inflected forms follows from it under the assumption above. The alternative proposed in Selkirk (1983) appeals to language particular and construction specific rules for the placement of affixes. Work in the recent years of generative grammar have lead us to the conclusion that there are no language particular and construction specific rules in S-structure nor in LF, but rather, the grammar consists of a set of principles and parameters

interacting. If this is a correct view of the human faculty for language, a move towards a principled account of morphology is desirable. In this respect, the condition in (17) is preferable, because it relies on the general principle that adjunction respects the relative position of the head, this latter aspect being a parametrized one.

Let us confront (17) with the data. Basque is a head final language. Under (17), then, heads adjunctions must conform to (17a). The agreement markers are generated adjoined to the functional heads, and all the cases satisfy (17a). In the mapping of D-structure to S-structure, two head adjunctions take place, as shown in (14): [abs-root] adjoins to [dat-mod] and the whole complex adjoins further to [erg-tns]. Both adjunctions satisfy (17a). The conclusion is that all morphemes follow the same ordering condition. Thus, the distinction in terms of pre/in/suffix becomes irrelevant for being too superficial, and the inflected form behaves exactly like determiners, case markers and postpositions: they are all final heads involved in adjunction processes.

The prediction made by (17) is that, if there is an initial head in Basque, the adjunction will satisfy (17b). Negation in Basque is an initial head, to which the inflected form adjoins (see Laka (1988)). This adjunction satisfies (17b), as shown in the following examples:

- (18) a. *ez-didazu*
neg-3a-root-1D-2E
b. **didazu-ez*
3A-root-1D-2E-neg

Assuming some version of (17) to be true, we predict that head initial languages and head final languages will display mirror morphological images. Although it is far beyond the realm of this paper to consider a cross linguistic analysis to explore the prediction, I want to point out one case which displays the mirror image of the data we are mainly considering in the paper. The Oceanic language Nieuuan is ergative like Basque, but it is head initial. Compare the way in which plural and case are marked in these languages:

- (19) a. Basque: *haur-ag-ek* → *haurrek*
child-pl-E
'The children (E)'
b. Nieuuan: *he tau fanau*
E pl child
'The children (E)'

Nieuuan is a noun incorporating language. Under the analysis of noun incorporation proposed in Baker (1985b), the noun adjoins to the verb in the mapping from D-structure to S-structure. Nieuuan being a head initial language, and under (17), this adjunction must attach the noun to the right of the verb. The examples in Baker (1988) (taken from Seiter (1980)) show that this is indeed the case:

- (20) a. *Volu nakal he tau fanau e fua niu?*
grate Q erg-pl-children abs-fruit-coconut
'Are the children grating (the fruit of the) coconut?'
b. *Volu niu nakal e tau fanau?*
grate-coconut Q abs-pl-children?
'Are the children grating coconut?'

On the other hand, Greenlandic Eskimo, which has suffixes (and is therefore at least mainly head final under our assumptions), displays a mirror image of incorporation. Examples are again taken from Baker (1985b):

- (21) a. *Sapannga-mik kusanartu-mik pi-si-voq*
 bead-instr beautiful-instr 0-get-indic/3sS
 'He bought a beautiful bead'
 b. *Kusanartu-mik sapangar-si-voq*
 beautiful-instr bead-get-indic/3sS
 'He bought a beautiful bead'

Whether (17) holds indeed of natural languages or not is a straightforward empirical question once the data it is confronted with have been analyzed in detail and their structural properties are clear. Thus, for instance, even the facts of Basque inflection run contrary to it at a first glance, and it is only when a detailed analysis of its structure is worked out that it can be confronted with the adjunction condition.

If true, a condition like (17) states strong constraints on possible morphological forms, without resorting to an independent morphological subtheory as in Baker (1985b) which would impose well-formedness conditions on the forms independently from their syntactic derivation. However, note that (17) has a stipulative part to it, which ought to be disposed of if possible. That is the reference to 'head'. It is an issue to be explored whether the condition on adjunctions stated in (17) applies indeed only to heads. If this is the case, the fact should be derived from some other independent property of heads not shared by maximal projections. Alternatively, it may be the case that the condition holds generally in adjunction structures, not only for heads but also for maximal projections¹¹. These are questions I will not pursue here.

4.2. *Absolutive third-person marking in the inflected form*

Before discussing further empirical consequences derived from the structure in (13), let me consider first the traditional description of the absolutive agreement morpheme paradigm, which I will argue can be simplified significantly by assuming that the third person markers are null. The absolutive agreement morphemes are customarily described as in (22):

(22)	Sing.	1----- n-	Pl.	1----- g-
		2----- h-		2----- z-
		d-		d-
		3----- z-		3----- z-
		l-		l-
		b-		b-

Where the third person has different markers depending on the tense and mood of the inflected form. As (22) illustrates, third person agreement displays a very marked pattern with respect to the rest of the agreement morphemes, which do not change depending on tense and mood. My claim is that third person agreement is in fact null, and that those markers customarily described as third person agreement are assigned to the empty position by tense and modal morphemes. Marking of third person with zero is a widely attested fact in natural languages; even within

(11) See Laka (1988) for some evidence suggestive for this later view.

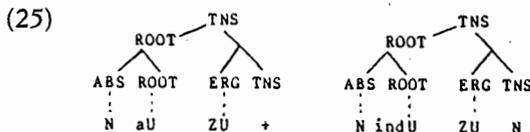
Basque, ergative agreement markers are null for third person¹². Thus, the paradigm proposed is as in (23):

(23)	Sg.	1	-----	N		Pl.	1	-----	G
		2	-----	H			2	-----	Z
		3	-----	---			3	-----	---

The markers that occur in the absolutive position when it is marked for third person are four, as shown in (22). Their distribution is the following:

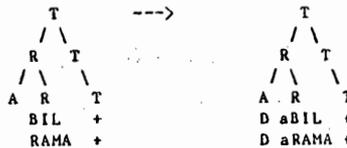
- (24) 1-Morpheme D occurs in present tense forms.
 2-Morpheme Z occurs in past tense forms.
 3-Morpheme L occurs in hypothetical forms.
 4-Morpheme B occurs in imperative forms.

There are two tense markers: present, which is zero, and past, which is marked by the morpheme N. Forms of present and past are illustrated in (25)¹³.

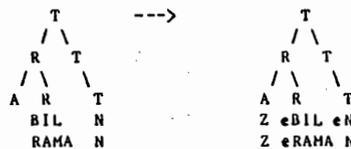


My claim is that in the case of an inflected form where absolutive is third person, TNS, the head of the inflected form, assigns a marker to the empty position. Present tense assigns D and past tense assigns Z:

- (26) a. Present tense:



- b. Past tense:



Let us now consider the markers L and B. We have stated that L occurs in third person absolutive position in hypothetical forms, but we have not been explicit about

(12) This generalized different treatment of third person across languages extends also to the pronominal system, and it is not clear what the motive behind it could be, but some non-trivial reason must be at stake, since so many languages go along with it.

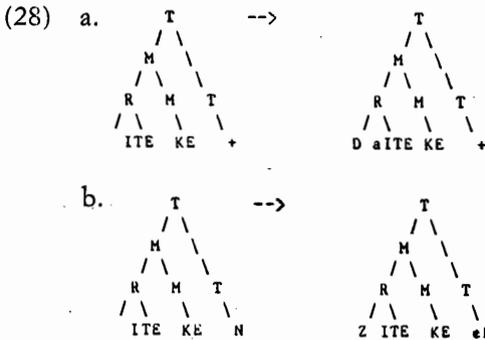
(13) The symbol (+) represents a phonologically empty morpheme that has a non-empty matrix. Absolutive and ergative third persons are not represented in the structures, the assumption being that their matrixes are completely empty. As it is shown later, these morphemes act as if they were not there at all, unlike zero morphemes like present tense, which trigger morphological processes.

what a hypothetical inflected form is. In order to do that, it is necessary to consider modals.

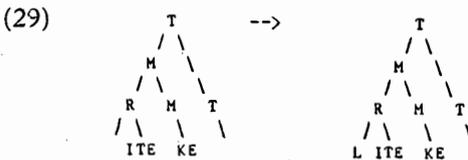
There are two classes of modals in Basque: conditionals and potentials. These forms have the modal marker KE. Both conditionals and potential have a three way distinction with respect to tense: they can be present, past, or hypothetical:

- (27) a. *Patxi joan daiteke*
 Patxi-A leave 3A-root-MOD
 'Patxi can leave'
- b. *Patxi joan zitekeen*
 Patxi-A leave 3A-root-MOD-tns
 'Patxi could (have) leave (left)'
- c. *Patxi joan liteke*
 Patxi-A leave 3A-root-MOD
 'Patxi (hypothetically) could leave'

As illustrated by the examples in (27), modal forms in the present take the morpheme D in the absolutive position; modal in the past tense take the morpheme Z. Only hypothetical modals, which are neither present nor past, take the morpheme L. Thus, (27a) and (27b) have the same derivation as the forms in (25), where tense assigns a marker to the empty absolutive position:

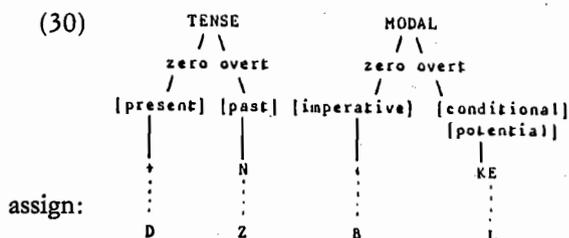


The hypothetical forms like (27c) are those that lack present or past tense; thus it is the modal itself which assigns the marker to the absolutive position in these cases.

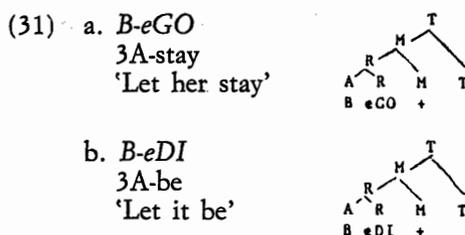


The derivation of the form follows crucially from the structure of the inflected form; it is always the highest head which assigns the marker to the empty absolutive position. Hence, the presence of the modal does not affect the ability of the tense to assign the marker (as shown in (28)), but the presence of the tense does prevent the modal from assigning the marker L.

Consider now the imperative forms, which assign B to the absolutive position if empty. Imperative forms are not specified for tense, and I will assume that they have a zero modal morpheme. This assumption provides us a parallel characterization of both and modal heads: tense can have a zero morpheme (present) or an overt morpheme (N=past), and modal can have a zero morpheme (imperative) or an overt morpheme (KE=conditional and potential):



Thus, an imperative form will be derived similarly to the forms above: the head is now the zero modal morpheme, and it assigns the marker B. Consider the following forms:



We can now qualify the description given in (24), and substitute it by (32):

- (32) A functional head assigns a marker to an empty absolutive position iff it is the head of the form.

The distribution of what are traditionally considered third person absolutive markers is a process by which a functional head marks an empty position. It is crucial for this account of the data that the head of the form be defined configurationally and not contextually as in Sciollo and Williams (1987). Therefore, it is shown on empirical basis that inflectional morphology shares the very same concept of head as syntax does.

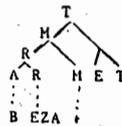
I will now show that not only is (32) a more principled way to describe the facts than (24), but it is also more accurate. In fact, as we will now see, (32) makes correct predictions that (24) fails to capture. More interestingly, these correct predictions rely again on the configurational notion of morphological head.

In accounting for how the tense and modal markers that occur in the absolutive position are assigned, I have avoid forms with ergative agreement. This has mainly been done for ease of exposition; however, under a description like (32), ergative agreement becomes a crucial test ground, because in the structure proposed the ergative marker is structurally higher than the modal, since it belongs in a higher projection (recall (13)).

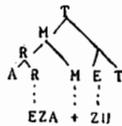
When a tense morpheme is present, the presence of the ergative marker, adjoined to tense, does not affect the hierarchical relation of tense with respect to the inflected form. But when the tense morpheme is not present, and thus it is the modal marker that assigns the marker to the empty absolutive, the presence of the ergative should prevent the assignment under (32), since the modal would no longer be the head of the structure.

Let us consider the imperative first. There are two descriptive claims that are commonly found in the literature on Basque: the first and most widely accepted one is that inflected forms must have an absolutive marker; the second one is that third person absolutive is always marked B in imperative. Neither of the claims is accurate, however. Consider NOR-NORK (abs-erg) imperative forms with third person absolutive. If the ergative agrees also with third person, the marker B occurs in the inflected form, but if the ergative is not third person, no marker occurs in the absolutive position, as shown in (33):

- (33) a. *egin beza*
'let him do it'



- b. *egin ezazu*
'You do it'



The third person ergative is a null morpheme, and it does not prevent the modal from being the head of the structure. Hence, the marker B can be assigned to the absolutive position. On the contrary, a non-null ergative morpheme does prevent this assignment, because it belongs in the projection of tense, structurally higher. The ergative, however, is not a functional head, and thus, by (32), cannot assign a marker to the position. Therefore, the absolutive position remains empty. The graphic used to represent the structural relations might be somewhat confusing in this point, but note that the adjunctions at play have a hierarchical order, which is more easily seen in a graphic like (34) that maintains exactly the same relations although it makes them more straightforward:



In (34), the head is the first element from right to left; ergative is adjoined closer to the head TNS, and thus prevents the modal from heading the structure.

The facts discussed confirm that the notion of head is central to the interaction between elements in a complex form; furthermore, the notion of head at play is a strictly configurational one, not relative or contextual. Furthermore, the different types of features borne by each morpheme do not affect at all the structural relations. Thus, it could be claimed that modal and tense are both functional heads as opposed to the agreement heads, and this would explain why the tense prevents the modal from assigning its marker. The fact that a higher agreement head can also prevent the modal from assigning its marker could not be explained along these lines, however. Under a feature percolation theory as in (Lieber (1980)), it would be problematic

to explain why in these cases the features of the modal cannot percolate up in the structure, thus allowing the assignment of the marker L to the empty position.

Note on the other hand, that the facts above also argue in favor of a distinction between what I call zero morphemes and empty morphemes. Zero morphemes are those which have a non-empty feature matrix but are phonologically empty; the present tense morpheme and the imperative marker are instances of zero morphemes. These elements play a role in morphological processes similarly to overt morphemes. Empty morphemes have empty matrixes; third person absolutive and ergative are instances of this class. They do not play any role in morphological processes; their positions do not have any hierarchical effect and can be filled by other elements.

4.3. On Ergative Displacement

Let us consider now the overt modal KE in combination with ergative agreement. Like in the case of the imperative (Cf. (33)), if the ergative is a third person, the marker L is assigned by the modal:

- (35) *egin L-EZA-KE*
 make 3A-root-mod-3E
 'S/he could (hypothetically) do it'



The case of non-third ergative agreement is different, however. As the examples in (36) illustrate, all these forms undergo Ergative Displacement, the phenomena discussed in section 3.:

- (36) a. *Nik Patxi ikus dezaket*
 I-E Patxi-A see 3A-root-mod-1E
 'I can see Patxi'
 b. *Nik Patxi ikus nezakeen*
 I-E Patxi see 1E-root-mod-tns
 'I could see Patxi'
 c. *Nik Patxi ikus nezake*
 I-E Patxi-A see 1E-root-mod
 'I could (hypothetically) see Patxi'

The examples above are exactly parallel to the paradigm displayed in (27), the only difference being that now there is ergative marking in the forms. The example in (36a) is a present form of potential, thus it marks the empty absolutive position with D, and the ergative marker occurs in its place. (36b) is an instance of Ergative Displacement as the ones considered in section 3., example (10). Nothing needs to be said about it, because it satisfies the conditions stated in section 3.: absolutive is third person, ergative is non-third, and the form is in past tense.

Now consider (36c). It does not meet the conditions for Ergative Displacement as stated in 3., since there is no past tense morpheme in it. Nevertheless, Ergative

Displacement takes place. This is indeed the case for all inflected forms that show the overt modal morpheme without past tense, as the paradigms in (37) illustrate:

		present — ED	hypothetical + ED	past + ED
(37)	3A-1E	DEZAKET	NEZAKE	NEZAKEEN
	3A-2E	DEZAKEK	HEZAKE	HEZAKEEN
	3A-1p 1E	DEZAKEGU	GENEZAKE	GENEZAKEEN
	3A-2p 1E	DEZAKEZU	ZENEZAKE	ZENEZAKEEN

Therefore, it is not accurate to say that Ergative Displacement takes place when the inflected form is in the past tense. The conditions under which ED takes place are instead as in (38):

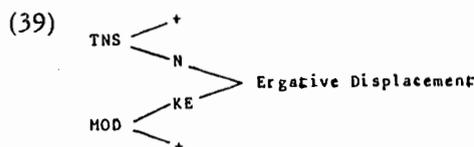
(38) Ergative Displacement:

If an inflected form has:

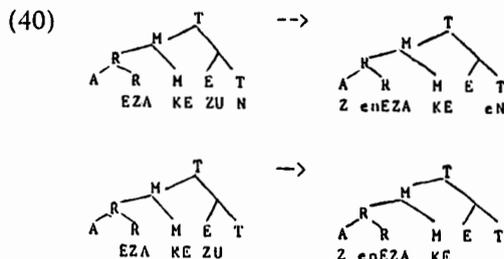
1. An empty absolutive
2. An overt ergative
3. An overt functional head

The ergative agreement surfaces in the absolutive position.

Among the four functional morphemes, two of them are zero and two are overt; Both overt functional morphemes satisfy the conditions for Ergative Displacement, and no zero functional morpheme does:



The characterization of Ergative Displacement given now is more general than the one in section 3., because it involves empty versus overt agreement positions, and zero versus overt functional heads. I want to propose that Ergative Displacement is an instance of morpheme movement. The proposal is the following: when the conditions in (38) are met, the ergative feature matrix moves to absolutive position as in (40):



Under this view, Ergative Displacement is movement of a morpheme to an empty position, and the movement is licensed by an overt functional element. The movement proposed involves two structural agreement positions. Making use of the

distinction drawn before between functional heads and agreement heads, the movement proposed can be thought of as being structure preserving in the sense of Emonds (1970), in that it involves movement of agreement to agreement position. Another property it has is that it seems to be sanctioned by an overt functional head, but not by a phonologically empty one.

This movement approach to Ergative Displacement departs from the general view taken by previous analysis in the literature, which have attempted to relate Ergative Displacement to grammatical function changing processes. Under the view taken here, ED is not motivated by a change in the nature of agreement marking forced by past tense, but rather, it is purely a head internal process. Following the assumptions made in the paper on the generation of the inflected form, both the assignment of functional markers to the empty absolutive and Ergative Movement must take place after the successive head adjunctions in (14) have taken place. This means that the phenomenon considered take place either in the latest stage of S-structure or in the mapping from S-structure to PF. Let us consider this issue in more detail.

There are some properties of the phenomena considered in this paper that resemble syntactic conditions, but some others look peculiar with respect to S-structure phenomena. The most clear property which pervades the overall analysis of the inflected form is the concept of head. It has been shown to be crucial in the behavior of the morphological processes at play, and it does not differ from the syntactic one. On the other hand, however, the marking of the empty absolutive position by functional heads appears to lack a syntactic correlate. It is not clear what forces that marking, but, considering the data, it would appear that there is a preference for filling up the initial position of the inflected form; or alternatively, that there is a strong tendency to 'cover' the verbal root with some phonologically overt element. This is of course very speculative and vague a motivation, but it is interesting to note that it seems phonologically conditioned.

Consider now the Ergative Movement. The structure preserving character of this movement makes it look similar to syntactic movement; more specifically, it resembles NP movement. However, the licensing condition is sensible to phonological content in a way that does not seem to have a parallel in syntax: the movement only takes place if the position to be occupied is empty, and if there is a overt functional head in the structure. I will suggest that this syntactic and phonological sensitivity of the morphological phenomena studied is due to the fact that these head internal processes take place in the mapping of S-structure to PF. Mapping of S-structure to LF is sensible to semantic interpretation; in the same manner, it is to be expected that mapping of S-structure to PF be sensible to phonological content.

I will not attempt in this occasion to pursue further the possible motivations and/or constraints at play in both the marking of the empty absolutive position and the Ergative Movement. Note, though, that the two are in one sense identical: both phenomena involve filling the initial position of the inflected form, either by 'dummy' marker or by another agreement marker. This filling is nevertheless non-arbitrary, and it has to meet certain structural conditions.

The evidence brought up in the paper sheds some light about the level at which the phonological matrixes of the morphemes are inserted in the derivation. In the case of marking of the empty absolutive position by a functional head, and under a strict view of successive mappings from levels of representation to levels of representation, the marking can only take place at the end of S-structure, as argued

above. We can assume that the marking process is such that it provides the absolutive position with a phonological matrix. Thus, the marking takes place in the mapping from S-structure to PF, and the assignment of the phonological matrix to the feature assigned by the functional head is done in PF.

Evidence for this hypothesis can be more clearly drawn from the Ergative Movement. The ergative morpheme paradigm is as in (41), where the morphemes in the paradigm are underlying forms, and some surface forms are displayed at the right of the paradigm:

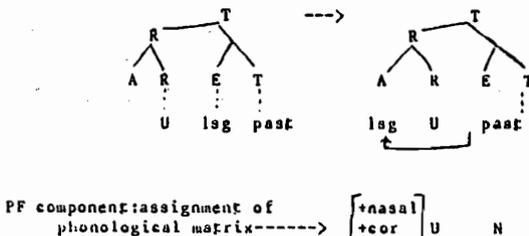
(41)	Sg.	1	D	duT/zintuDan
		2m	G	duK/ninduOan (del.)
		2f	N	duN/ninduNan
		3	—	
	Pl.	1	GU	duGU
		2	ZU	duZU
		3	—	

However, once Ergative Displacement has taken place, the morphemes marking for the moved ergative look like absolutive morphemes (Cf. (23)), and not like the forms in (41).

The assumptions are that phonological matrixes are assigned to each position at PF, and that that Ergative Movement takes place prior to it, in the mapping from S-structure to PF. Now, let us consider in detail what an agreement morpheme has in its non-phonological feature matrix. One main conclusion that follows from the different points made in the paper is that each agreement case (ergative, dative and absolutive) has a canonical position in the structure of the inflected form. Therefore, what case an Agr morpheme has is derived from its position. Therefore, encoding the case of the morpheme in the matrix, say, as [1 sg., ergative] is redundant. A first person ergative morpheme is ergative because it has been generated in the ergative position. Since it is redundant to specify the feature [ergative] in the matrix of the morpheme, the only information we are left with is grammatical person, because that is the only feature not derived from the structure.

Hence, each agreement morpheme has just the grammatical person specified in it. When the inflected form reaches PF, the phonological matrixes will be assigned depending on: a) The position the morpheme occupies in the structure, and b) The feature it bears in its non-phonological matrix, as in (42):

(42) Mapping of S-structure to PF:



PF assigns the corresponding phonological matrix to the [1sg] morpheme moved to the absolutive position, which happens to be [+nasal, +cor]: N. In the level of S-structure, however, that morpheme is in Ergative position, and that is why it agrees with the ergative argument in the sentence. A parallel to this process can be made with objects of unaccusative verbs: for what matters to D-structure processes, they are objects. For what matters to S-structure, they are subjects. Similarly, for what matters to S-structure, the moved morpheme is ergative; for what matters to PF, though, it is an absolutive. Under the approach outlined here, then, the fact that Ergative Movement does not have syntactic consequences follows directly, as it does the fact that the moved morpheme does not carry its phonological matrix with it. This view has as a natural result what was a paradoxical situation in previous analyses: namely, the fact that the ergative marker occurs in absolutive position and with absolutive form, whereas it is still an ergative agreement in the syntax.

5. Conclusions

This paper has given an account of inflected forms in Basque, by assuming they have a certain hierarchical structure derived in the syntax. It has been shown that certain puzzling facts about the inflected form can be explained straightforwardly through the structure proposed. This is the case of the deviant third person absolutive marking system, which, under the traditional description displays four different markers sensitive to tense and mood in an apparently ungeneralizable manner. By assuming that third markers are empty, and under the structure proposed, it has been shown that the markers surfacing on the absolutive position can be accounted for without stipulations. The account makes crucial use of the notion head in a configurational sense, thus providing evidence against the relativized notion of head proposed by Scullo and Williams (1987) for morphology.

The conditions on inflected morphological forms have also been considered. Specifically, it has been argued that notions like prefix, infix and suffix can be derived from the properties of head adjunction. Essentially, the proposal is that head adjunction must respect the head parameter, so that an head adjoining to a final head must do so by adjoining to the left of the head, and a head adjoining to an initial head must do so by adjoining to its right.

The paper also explores a morpheme order altering process, Ergative Displacement. After a description and a brief discussion of previous analysis in the literature in section 3., an analysis in terms of morpheme movement is proposed in section 4. The properties of this movement and the other processes studied in the paper are considered, with respect to the level of representation in which they take place. Based on syntactic like properties and the phonological sensitivity exhibited by the phenomena, it is argued that they take place in the mapping of S-structure to PF, prior to the assignment of phonological matrixes. This explains without stipulations why the moved ergative morpheme behaves syntactically as ergative marker, whereas the phonological form it surfaces in is identical to the absolutive marker.

REFERENCES

- Anderson, S. R., 1976, «On the Notion of Subject in Ergative Languages», C. N. Li (ed.), *Subject and Topic*, NY.
- Azkue, R. M., 1923 [²1969], *Morfología Vasca*, Bilbao.
- Baker, M., 1985a, «The Mirror Principle and Morphosyntactic Explanation», *LI* 16, 373-416.
- , 1985b, *Incorporation: A Theory of Grammatical Function Changing*, PhD Dissertation, MIT, Cambridge.
- , 1988, *Incorporation: A Theory of Grammatical Function Changing*, The University of Chicago Press, Chicago.
- Bonaparte, L. L., 1869, *Le Verbe basque en tableaux*, London.
- Emonds, J., 1970, *Root and Structure Preserving Transformations*, PhD dissertation, MIT, Cambridge.
- Eguzkitza, A., 1986, *Topics in the Syntax of Basque and Romance*, UCLA PhD Dissertation.
- Hale, K., 1981, «On the position of Walbiri in a Typology of the base» IULC (Bloomington, IA).
- , 1983, «Warlpiri and the Grammar of Non-configurational Languages», *NLLT* 1, 5-47.
- Heath, J., 1976, «Antipassivization: A Functional Typology», *Berkeley Linguistic Society* 2, 202-211.
- Lafitte, P., 1979, *Grammaire Basque (Navarro-labourdin litteraire). Edition revue et corrigée*, Elkar, Donostia.
- Lafon, R., 1980 [1943], *Le Système du Verbe Basque au XVI^e siècle²*, Elkar, Zarautz.
- Laka, I., 1988, «Sentence Negation in Basque» ms MIT. [To appear in K. Mitxelena *Omenaldia*, Seminario de Filología Vasca «Julio de Urquijo», Donostia].
- Levin, B., 1983, *On the Nature of Ergativity*, PhD Dissertation, MIT, Cambridge.
- Lieber, 1980, *On the Organization of the Lexicon*, PhD Dissertation, MIT, Cambridge.
- Marantz, A., 1984, *On the Nature of Grammatical Relations*, MIT Press, Cambridge.
- Mitxelena, K., 1981, «Lengua común y dialectos vascos», *ASJU* XV, 289-313 [reprint in *Palabras y textos*, EHU/UPV, Bilbao, pg. 35-55].
- Ortiz de Urbina, J., 1986, *Some Parameters in the Grammar of Basque*, PhD Dissertation, University of Illinois, Urbana.
- de Rijk, R., 1981, «Euskal morfologiaren zenbait gorabehera» in *Euskal Linguistika eta literatura: Bide berriak*, Publications of the University of Deusto, Bilbo.
- Selkirk, E., 1983, *The Syntax of Words*, MIT Press, Cambridge.
- di Sciullo, A. M., and Williams, E., 1987, *On the Definition of Word*, MIT Press, Cambridge.