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Inflectional Features
and the Morphological Module Hypothesis*

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Introduction

The main purpose of this paper is to explore the idea that inflectional features constitute the morphological expression of features inherent to human language, whose basic characteristics are governed by feature theory. As such, inflectional features are expected to differ from one language to another, depending upon which features are morphologically strong or weak in that language.

Considering features to be attribute-value pairs, inflectional features are distinguished in two categories: interpretable and non-interpretable. It is shown that the first are subject to the law of morphological percolation and thus visible to other grammatical modules, while the latter are checked and deleted within morphology.

Nevertheless, since inflectional features are basically inherent, it may be possible for a given feature to be substantially used in more than one grammatical module. For example, the postulation of a functional category in syntax may be based on a feature that has also been used in morphology. It is predicted, however, that functional categories in syntax should be defined independently from the role that inflectional features might play in morphology.

This work aims to be a contribution to the discussion in recent literature on the status of morphology within the grammatical system. Following Chomsky's (1995)

minimalist views and the elaboration, by Di Sciullo (1996ab), of a morphological framework within the minimalist spirit. it is assumed that, beside syntax, there is a morphological module within the computational space of the language faculty. In addition, a special emphasis is given upon the need to adopt a feature theory, interacting with both modules, whose basic insights have been long in use in phonology. It is also assumed that the computational linguistic system interacts with a lexicon, where entries of different categories (i.e., words, stems, and affixes) are listed under the form of feature bundles. Lexical entries are inserted into morphological structures, subject to satisfying the constraints of selection and subcategorization (lexical constraints) as well as those imposed by the structural requirements of the morphological component. Constituents of morphological configurations pass their features to word nodes via percolation, while an operation of feature checking, that is performed in morphology, renders features non-visible to syntax.

In order to exemplify the proposals put forward in this work, evidence is taken mostly from Greek and Latin, two highly inflectional languages.[1]

The paper is articulated as follows: in the first section, it is observed that the use of inflectional features in generative syntax presents considerable inconsistencies in that there is no perfect match between inflectional features in morphology and their syntactic counterparts. It is argued that several of these inconsistencies disappear if inflection is handled within a morphological module distinct from syntax. In the second section, structural evidence in favor of the existence of this module is given and an interaction with feature theory is proposed. The third section deals with the properties of these features, as provided by feature theory, and the basic claims of the paper concerning the status of inflectional features within the grammar are explicitly stated. A brief description of a morphological module responsible for generating word structures is given in the fourth section and an illustration of the two basic operations, percolation and checking, applying to inflectional structures, follows next. The last section of the paper concerns the relation between inflectional features and functional categories and the paper ends with some conclusive remarks.

1. FEATURES IN GRAMMAR

The use of features started in phonology (cf. Jakobson et al. 1951), but did not remain restricted to phonology for long. Features were also considered for the encoding of morphological, syntactic and semantic properties of words and

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1. Examples are used from both Ancient and Modern Greek. When is needed, specific indications are provided regarding the exact period of the language these examples are taken from.

larger syntactic constituents (cf., among others, Chomsky 1965, Lieber 1980, Gazdar et al. 1985). Within the Minimalist Program (cf. Chomsky 1995), morphological features in particular have been given a prominent role in syntax, and inflection usually constitutes the main source of syntactically used features. Checking certain of these features in specific structural positions, for instance, motivates movement.

Languages differ with respect to inflectional features. There are those with a rich inflectional system (e.g., Latin), where a considerable number of features are spelled-out by specific morphemes, and languages with a poor inflectional system (e.g., English), where very few features are formally realized. Nevertheless, even in inflectionally rich languages, an inflectional feature may not necessarily have an overt morphological content. Take, for instance, the feature of [partitive] that is morphologically present in the inflectional system of Finnish (cf. May 1960), but absent from most inflectionally rich Indo-European languages such as Sanskrit, Latin or Greek. Therefore, the morphological marking of inflectional features belongs to parametric variation across languages. Following Chomsky's distinction of strong and weak features in morphology, we could say that this parameter is related to strength: inflectional features which are morphologically present in one language may be characterized as strong, while those which do not have an overt realization are weak. Notice, however, that this interpretation of strong and weak features does not coincide with what a strong or a weak feature is generally considered to be in syntax where strength is related to movement. Sometimes, a particular feature is proposed on syntactic grounds (e.g., for the licensing of a particular morphological item) without any correspondent morphological relevance, even for languages where this feature is supposed to be strong. For instance, Longobardi (1994) has proposed that a ±R(eferential) feature universally characterizes D positions, and must be checked with at least to one of its values, iff D is interpreted as being in a chain containing object or non-object referring expressions, depending on the case. According to Longobardi, Romance languages, have a strong +R feature for which the morphological realization is missing.

In fact, there is not always a perfect match between features used for syntactic purposes and their morphological counterparts. In some morphologically rich languages, there are inflectional features that are exclusively morphological, that is not visible to syntax: inflection class (ic) may be such a feature.[2] As proposed

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2. The term of "inflection class" refers to the feature that indicates the specific form of endings taken by a stem when it is used in sentences as an inflected word. Traditional terms denoting this form variation of words are "declension" for nominals and "conjugation" for verbs. Different words whose endings are alike are thus considered to bear the same inflection-class value.

by Aronoff (1994) for Latin and Russian, and Ralli (1994, forthcoming) for Greek, this feature is not a simple exponent of other morphosyntactic properties (e.g., gender) but has a life of its own, existing as an independent part of the morphological engine. In Greek and Latin, for example, inflection class does not generally participate in the agreement between adjectives and nouns, as shown in (1) below, but serves as a valid predictor for the right combinations between stems and inflectional affixes:

(1) a. Greek

polemoxar-is
war-loving-NOM-SG-MASC-IC1
"war-loving man"

anthrop-os[3]
man-NOM-SG-MASC-IC1-IC2

dhroser-i
cool-NOM/ACC/VOC-SG-FEM-IC3
"cool night"

nixt-a
night-NOM-SG-FEM-IC4

b. Latin

grand-is
great-NOM-SG-MASC-IC3
"great master"

domin-us
master-NOM-SG-MASC-IC2

acr-e
terrible-NOM//ACC/VOC-SG-NEU-IC3
"terrible torture"

supplici-um
torture-NOM/ACC/VOC-SG-NEU-IC2

It is also the case that in syntactic analyses, inflectional features are usually distributed in sets entirely different from what appears to be an association of features in morphology. If we look at a proposal put forward by Bobaljik (1993), case should be dissociated from phi-features (agreement features). Beside the fact that case participates in the agreement between determiners, adjectives and nouns in Greek and Latin DPs, this dissociation is also meaningless as far as the morphology of these languages is concerned. If we try to apply this proposal to Greek and Latin, we end up by having different organizations of features in morphology and syntax: in these languages, as we see below, gender specifies the stem while a combination of number and case characterizes the nominal inflectional affix.

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3. Modern Greek examples are given in a broad phonological transcription. Examples from Ancient Greek are transcribed according to the pronunciation described by Leje-une (1972).

On the other hand, sometimes a functional category (i.e., a category that usually has its source in inflectional morphology) appears to have additional properties in syntax, which do not show up in morphology. Take, for instance, the functional category of T(ense). According to Lasnik (1993), it bears a strong NP feature that triggers movement of T to AgrS and licenses nominative case in Spec-Head position.

Within the Government and Binding framework (Chomsky 1981, 86), a distinction is made between structural case and inherent case. Structural case concerns the values of nominative and accusative, while there is no structural explanation for the presence of other case values which are considered to be inherent, that is lexically (or morphologically) assigned. Notice, however, that even for nominative and accusative there is not always a clear syntactic assignment. For example, in some syntactic analyses, a default case assignment is often invoked to explain the presence of nominative case in constructions like the ones under (2). See works by Philippaki-Warburton 1990 and Catsimali 1990, where the different positions assumed by NPs marked for nominative, in phrases such as the ones in (2), are claimed to be pragmatically justified.[4]

(2) a. i   fitites,   i   kathijites   tus   aghapun
       olus
the-NOM students-NOM the-NOM teachers-NOM them-ACC like
all-ACC
"the teachers like all the students"

b. to   vuno   Olimbos
the-NOM Olympus-NOM
"the mountain Olympus"

Furthermore, there is no structural explanation for the presence of an accusative case marking nouns in certain cases, such as in temporal expressions of Greek and Latin (3ab), as well as in exclamative phrases of Latin (3cd).

(3) a. Greek

ton   Iunio   tha figho   ja tin eksoxi
the-ACC June-ACC   I'll leave for the country
"In June I'll leave for the country"

b. Latin

Annum   vivere

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4. See Joseph (1991) as well as Joseph & Smirniotopoulos (1993) for a well-argumented criticism of these analyses.

for a year-ACC to live
"to live for a year"

c. Paule   te   miserum
   Paul-VOC   you-ACC unfortunate-ACC
   "Oh Paul, you the unfortunate"

d. adeon hominem   esse inuenustum   aut infelicem   quemquam
   so   man-ACC   be   unlucky-ACC   or unfortunate-ACC someone-ACC
   ut   ego sum
   like I   am
   "Is there a man so unlucky and unfortunate like me?"

(cf. Ernout, A & F. Thomas (1964, 2nd ed.), *Syntaxe Latine*. Paris: Klincksieck)

Generally, inconsistencies like the ones above are expected to arise if inflection is handled within syntax. In such an approach, inflectional features are only selectively used for syntactic purposes.

In the recent framework of Distributed Morphology proposed by Halle and Marantz (1993), several of these inconsistencies are accounted for by readjustment rules performing a number of post-syntactic operations. They may fuse into one the features of several nodes, fission those of a given node into a sequence, or add, as well as delete, particular features or feature complexes. Notice, however, that an extensive use of these post-syntactic operations in order to achieve results that the syntax cannot is against the general economy conditions proposed by Chomsky (1995) which have a global character and underlie the generation of all linguistic expressions.[5] On the other hand, since inflectional structures are considered as syntactic derivations, it seems to be no clear morphological motivation for the postulation of functional projections in syntax, in order to account for essentially morphological facts. In Distributed Morphology, what is

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5. According to Chomsky (1995:198), the linguistic system is subject to natural economy conditions which make the derivation of linguistic expressions to try to reach the level of phonetic representation (PF) as fast as possible. As opposed to these conditions, in a morphologically rich language like Greek, the readjustment rules, which are supposed to be introduced after Spell-Out by the Distributed Morphology framework, may become numerous, extrinsically ordered and induce a considerable degree of undesirable complexity to the design of the language. Thus word formation in a language should not be reduced to the application of such rules. It is possible, however, that some language-specific readjustment rules may be needed for specific morpho-phonological purposes: for example, a truncation rule is needed to delete the segment [en] from the first constituent member of the Greek verbal compound *anevokateveno* "come up and down" < aneven-o-kateveno.

claimed to be morphology is reduced to a set of rules and filters (see Noyer 1997 for the postulation of filters in morphology). Morphological structures of specific languages are accounted for as linear representations of morphemes - something which reminds the structuralist tradition - and there is no explanatory power in the way word formation is handled in languages, particularly in morphologically rich languages, on configurational grounds.

A tentative solution to the problem referring to the inconsistencies mentioned above would be to suppose that the use of features in syntax may be defined independently from the use of such features in morphology. Such an approach would require inflection to be treated as a morphological process, handled within a morphological component. I focus on this solution and in the remaining sections of the paper, I try to show the advantages that this approach could offer. Inflected words are considered to be inserted in syntax fully specified for feature values (e.g., case values) and syntactic operations dealing with features (e.g., feature checking in syntax) are seen as feature-matching procedures ensuring the right combinations between words.[6]

2. INFLECTION, FEATURES AND MORPHOLOGY: ASSUMPTIONS AND CLAIMS

This paper elaborates the idea that inflection belongs to a separate grammatical module, i.e., to morphology, and that it is the morphological representation that accounts for featurized information as far as inflectional expressions are concerned. In his work of (1993, 1995), Booij takes a similar position with respect to inflectional features. He examines the distinction between two types of inflection, inherent and contextual. Inherent inflection designates the morphological expression of inherent morpho-syntactic properties and contextual inflection the expression of syntactically relevant morpho-syntactic properties, where properties equal to features. By studying the properties of both inherent and contextual inflection, he points out that it is difficult to trace a separation line between the two types. A basic argument in favor of this view relies on the fact that, sometimes in languages, the same inflectional morpheme may express both inherent and contextual inflection (Booij 1993: 42). Take, for instance, the nominal endings of Greek and Latin inflectional paradigms, where the same ending expresses both number (inherent inflection) and case (contextual inflection):

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6. Notice that this view is not entirely different from Chomsky's (1995) recent views according to which items may be inserted fully inflected in syntax.

(4) a. Greek: polemos "war" < polem os
                                 war   NOM-SG

    b. Latin: bellum "war" < bell um
                          war NOM/ACC/VOC-SG

In this paper, I focus only on features participating in inflection. Nevertheless, in Ralli (1998), evidence is provided that such a strong claim may also be supported on structural grounds, since there are several cases of inflection appearing word internally, that is before the occurrence of other word-formation processes.[7] The following examples taken from Greek may briefly illustrate this position.

(5) a. Compounding
nyktilampes   <   nykt-i   -lampes
"who shines in the night" night-DAT who shines
nounekhes   <   nou-n   -ekhes
"who has brain" brain-ACC who has-NOM

   b. Derivation
   1. Prefixation
ipegrapsa < ipo-   e-grapsa (e-: augmentation expressing the past
"signed"   under PAST-wrote-PERF-1P-SG tense)[8]

   2. Suffixation
perazma   < pera-s -ma (-s-: aspectual marker denoting a per-
"passing/passage" pass ing/age   fective value)[9]

By accepting inflection to be handled in morphology, I explore the claim that morphology provides the features with a subcategorization in terms of the [+/- interpretable] opposition and illustrates why some of these features are visible to syntax while some other values are not. It is shown that feature percolation and feature checking are the basic procedures applying to featurized information of

most inflected words.[10] After being built within morphology, morphologically complex words are inserted into syntactic constructions, where featurized information resulting from morphological structures may be manipulated by syntactic mechanisms.

According to this proposal, features characterizing a morphological structure are submitted to both universal and language-specific constraints. That is morphological features conform to language-independent principles which belong to both the morphological module and to an independent module of feature theory interacting with grammar (cf. below).[11] Moreover, they are also submitted to language-dependent constraints: see, for example, the feature co-occurrence restrictions, such as the one proposed by Harris (1991) and Farkas (1990) between gender and inflection class in Spanish, or between number and gender in Romanian. Morphological features are also subject to restrictions imposed by the lexicon and some specific lexical entries.[12] For instance, in Greek and Latin, the feature of number is amalgamated under the same bmorpheme with the feature of case in nominal inflection or with the feature of person in verbal inflection. As opposed to this, in the morphological system of a non-Indo-European language like Burushaski (a language spoken in Northern Pakistan) the feature of number is independent from both case and person, and appears closely related to the feature of morphological class (see Tiffou and Pesot 1989 for details). However, I do not enter into considerations concerning the study of language-dependent constraints since it goes beyond the scope of this paper.

In the paper, it is further assumed that morphology has a place of its own within the computational space of the language faculty. As such, morphology interacts with syntax and interfaces with the performance levels (i.e., the acoustic-perceptual level and the conceptual-intentional level).[13] Beside the fact that the

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7. Cases of compound-internal inflection are also observed in Sanskrit (cf. Gillon 1995).

8. See Joseph & Janda (1988) for the analysis of this e- as an inflectional affix.

9. Although the aspectual mark is present within the noun formation, the perfective aspectual value plays no role in determining the meaning and the function of the word (see Booij 1993 for an explanation of similar cases).

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10. It will be clear below that percolation and checking of featurized information apply to structures based on concatenative morphology. Notice, however, that in some cases, inflected words are not built by concatenation but by means of templatic morphology (e.g., instances involving an ablaut phenomenon). An account of these cases would need additional devices to the ones assumed by the system described here.

11. For a similar claim, cf. Rooryck (1994) who proposes the existence of a separate module of feature theory accessible to grammar.

12. The lexicon here is seen as a list of items characterized by idiosyncratic properties, of phonological, morphological, syntactic and semantic nature. Although these properties do not follow from principles of Universal Grammar, it is considered that the lexicon provides an optimal coding to the listed items.

13. Notice that the idea of an interaction between morphology and syntax has been proposed by Borer (1988). The same idea, but within the minimalist spirit, has been reformulated in recent work by Di Sciullo (1996ab).

two components are subject to the basic laws of linguistic expressions (e.g., the law of headedness), there are cases where morphology may influence, or even determine, aspects of syntax and vice-versa: it is morphology; for example, which determines whether there is overt movement in syntax (as Chomsky 1995 claims), and, as is shown below with respect to inflection, it is syntax which renders specific some underspecified features of words.

Let us see in detail these claims.

3. INFLECTIONAL FEATURES AND FEATURE THEORY

It is already an established fact that phonological theory makes a wide use of features. The same holds to be true with respect to syntactic theory. If there is a separate morphological component, any theory attempting to account for morphological phenomena has to make reference to features. Rooryck (1994) has shown that there is a common ground for the organization of features in grammar. He proposes that this common ground constitute strong evidence for a separate module in the language faculty, the module of feature theory, which interacts with the grammar and whose basic categories feed all grammatical components.

Following works by Gazdar et al. (1985), Karttunen (1986) and Steele (1995, 1998), it is assumed that the following are some of the formal properties of features:

• Since features refer to the notions of "type" and "content", they can be represented as pairs containing an attribute and a value part. The attribute represents the type of the feature while the value refers to the content of the feature. A possible representation for attribute-value pairs of features is the following:

(6) [number:plural]
    [case:accusative]
    etc.

This attribute-value representation allows us to further refine the notion of strong/weak features in morphology. I would like to propose that a feature be considered as morphologically strong if at least one of its values is overtly realized. Otherwise, the feature is weak. According to this proposal, a feature can be strong in one language even if one particular value is not concretely realized. The case feature is a good illustrative example. It is strong in Greek or in Latin although values such as the partitive is absent (see Finnish or Basque for a concrete realization of this feature value), while it is weak in languages where no

specific value is related to a particular form (e.g., English).[14] In fact, the distinction between morphologically strong and weak features may have an impact in the syntax of these languages, but this is an issue, which remains to be seen.[15]

• Features can be fully specified if the value part is filled and underspecified if the value part is missing. The latter have a fixed attribute but their value part is filled through an operation. We see below (cf. gender specification in Greek adjectives), cases where the syntax contributes to the resolution of feature underspecification by providing a specific value to an already existing attribute. Notice, however, that the notion of the absence of a feature underspecification does not coincide with the notion of the absence of a feature since the mere absence of a feature cannot result to a feature mismatch and consequently to a feature clash. It is also predicted that if an inflectional feature, that is an attribute-value pair, is absent from morphology, it will not be added through a syntactic operation.

• Features are conceived here as multi-valued attributes. According to Karttunen (1986), a multi-valued attribute has the advantage of imposing a partitioning in more than two subclasses, where a binary attribute imposes a partitioning on the set of entities it is defined for in a positive and a negative extension. As a matter of fact, feature binarity seems to be problematic, not to say insufficient, for the representation of inflectional information in languages with a rich inflectional system-such as Greek and Latin, where most of the features involved have more than two values. For example, see the values of case and mood below in these two languages:

(7) a. Greek
    Case: nominative, accusative, genitive, vocative (and dative for Ancient Greek)
    Mood: indicative, subjunctive, optative, imperative, infinitive

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14. Notice that the I/me contrast, which might be considered as an overt realization of specific case values in English, is not related to particular affixal forms, as is the case of nominal inflection in Greek and Latin. The English pronoun forms expressing possible case values should be considered to represent different word allomorphs (see also Note 18).

15. As claimed by Belletti (1988), the partitive case, overtly manifested in a language like Finnish, is an option universally available even for languages where the morphology does not make any distinction (e.g., Italian). According to her analysis, Italian unaccusative verbs inherently assign partitive case and this explains the ungrammaticality of sentences like (ia) below, compared to the grammatical (ib) where the post-verbal DP is indefinite (Belletti 1988:9).

(1) a. *All'improvviso e entrato l'uomo dalla finestra
    b. All'improvviso e entrato un uomo dalla finestra

b. Latin
  Case: nominative, accusative, genitive, dative, ablative, vocative
  Mood: indicative, subjunctive, imperative, infinitive[16]

The multi-valued representation constitutes an efficient and economical way of representing features in morphologically rich languages.[17] Thus it is assumed that feature specifications are ordered pairs of the form <attribute-value>, where an attribute is an atomic symbol and a value has either an atomic character or a multi-valued one. For instance, the feature of case in Latin has the following general form:

(8) {case: {nominative, accusative, genitive, dative, ablative, vocative}}

Moreover, since one of the major characteristics of inflection is variation of both form and meaning/function with respect to a given word, an advantage of accepting disjunctive values, is that it offers an economical way to capture the fact that the same inflectional affix may participate in more than one paradigms, that is in sets of closely related forms of the same word, and that the same affix may express different functions; see, for example, case syncretism, a phenomenon which is very common in the above mentioned languages.[18]

Let us take a concrete example from both Modern Greek and Latin nominal inflection in order to illustrate these remarks: -a is an inflectional affix added to neuter stems in plural, belonging to three different inflectional paradigms (cf. (9)). It is characterized for one of the three values, nominative, accusative and vocative, disjunctively specified. Therefore, words built on the basis of -a are ambiguous with respect to a particular case value.[19] The disambiguation of case is something that is resolved in syntax, when the word is combined with other syntactic constituents. For example, the value of nominative will prevail over the other values when these words will be inserted in the position of SpecTP (cf. Chomsky 1995 for a nominative feature-checking procedure in this position).

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16. Sometimes in traditional grammars, the participle is also listed under the category of mood.

17. Farkas (1990) has adopted a similar approach in her analysis of Romanian nominal inflection.

18. Notice, however, that the use of disjunctive values does not allow us to predict how syncretism works in languages in general.

19. Words are not ambiguous with respect to paradigms (i.e., inflection classes) though, despite the fact that -a may belong to more than one paradigm. We will see below (section 5) that this is something which is resolved by checking in morphology.

(9)   a. Modern Greek   b. Latin

Paradigm a   spitia < spiti a   dona < don a
              "houses, nom./acc./voc."   "gifts, nom./acc./voc."

Paradigm b   terata < terat a   nomina < nomin a
              "monsters, nom./acc./voc."   "nouns, nom./acc./voc."

Paradigm c   vuna < vun a   cornua < cornu a
              "mountains, nom./acc./voc."   "horns, nom./acc./voc."

Elaborating the idea about the existence of a feature theory module interfering with both morphology and syntax, it is assumed that the primitives of this module are features inherent to human language, in the sense that they represent general linguistic properties. All features, however, are not overtly realized in every single language and each grammatical component chooses the features that are appropriate for its own purposes. For example, the feature of case is not overtly realized in the inflection of Modern Romance languages[20] while it existed in their predecessor, that is in Latin, and in some older stages of these languages (e.g., Ancient French). Moreover, inflection class is present in Greek and Latin morphology while is absent from syntax (cf. (1) above). As argued before (section 1), overt realization of a feature is assumed to be related to the parameter of strength. That is with respect to inflection, morphological variation among languages is expected to result, at least partly, from the fact that inflectional features differ from one language to another, depending upon which features are marked as strong or weak in that language. For example, Greek that contains a strong case feature has an inflectionally different nominal system from French where this feature is supposed to be weak.

Notice now that since inflectional features are seen as the morphological representation of inherent linguistic properties, and it depends on the particular language to pick up the features for its own morphological purposes, we can also predict that a given feature may be used for distinct morphological purposes. For instance, it may be realized either as inflectional or derivational, depending on the language. The feature of number provides a good illustrative example of such a case. It is of a clearly inflectional nature in both Greek and Latin, but seems to bear derivational properties in the verbal inflection of some Eskimo languages (as Mithun 1988 has pointed out), and in Burushaski (cf. Tiffou and Patry 1995).

Nevertheless, certain inflectional features are visible to syntactic mechanisms: see, for example, feature checking in syntax. What I would also like to propose is

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20. Perhaps with the exception of personal pronouns (e.g., *le / moi* in French). However, even in these pronouns, case does not belong to a separate affix. Its values are expressed by the use of different word allomorphs (see also footnote 14).

cusative, while values such as genitive or vocative (e.g., in Greek) are considered to be inherent. This proves that case, the most structurally relevant of all features (as has been defined by Kurylowicz 1964), does not entirely depend on syntactic considerations. Thus, within the spirit of my proposal, the inflectional feature of case should be treated primarily as a morphological feature containing both an attribute and a value part. Only some of the values of this feature are manipulated by syntax.

Let us see now how these claims are technically realized within an analysis, which considers morphology to be a separate module of the grammar interacting with syntax within the computational space of the language faculty.

4. STRUCTURES OF THE MORPHOLOGICAL COMPONENT

As claimed above, in the computational space of the language faculty, there is a component generating morphological expressions, which operates in parallel with a component generating syntactic expressions. We may suppose that Universal Grammar provides options for building morphological expressions which, according to minimalist views, should underlie on internal coherence, conceptual naturalness and simplicity. A selection among these options determines the particular morphological form of a language. For example, there are languages where the morphological expressions are concatenatively derived (e.g., Greek) and languages with non-concatenative morphology (e.g., Semitic languages, McCarthy 1979). Different options of morphological derivations, i.e., configurational and templatic should be available by Universal Grammar, within the morphological component, and it depends on the particular language to choose its own derivation procedures. Therefore, while there is limited lexical variety, the existence of a morphological component may explain why it is possible to generate an unlimited number of morphological expressions (i.e., neologisms). It is also true, however, that compared to syntax, the morphological component is much more affected by parametric variation and language-specific constraints, which strongly determine the final output of morphological derivations. For example, the fact that suffixation is extensively used in most agglutinative languages (e.g., Turkish), while in synthetic languages (e.g., Greek) suffixation co-occurs with prefixation can be subject to parametric variation among languages.[21]

This paper deals only with structures based on concatenative morphology, which provide a principled account of inflection in languages like Greek and Latin. Following a theory based on configurationality, concatenative morphological structures are represented hierarchically. They derive according to the laws

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21. Morphological length, referring to the number of affixes a stem can take in a particular language may also be due to parametric variation (see Goeksel 1998 for more details on this).

of a morphological module, some of which are also shared by the syntactic module (for similar points of view, see, among others, Selkirk 1982, Di Sciullo and Williams 1987, Aronoff 1994, Di Sciullo 1996ab).

For the purposes of this work, I assume that morphological expressions are generated along the general lines of a framework proposed recently by Di Sciullo (1996ab). According to this approach, morphological structures are binary branching. They derive by a general morphological operation, called COMBINE, which relates heads and non-heads, while projections and movement, generally allowed in syntactic derivations, are excluded from the morphological ones. Seen in this way, morphological combinations are distinct from syntactic combinations, although both occur within the same computational space of the language faculty. Following Di Sciullo (1996ab), morphological expressions are interpreted at MF, which constitutes the interface between the morphological component and the two performance systems, the acoustic-perceptual system and the conceptual-intentional system respectively. The principle of Full Interpretation applies at MF and requires that each legitimate category of a non-ambiguous morphological structure, i.e., a binary structure, be a head or a non-head. If a category is a head, it must project its features by COMBINE. Among the laws, which are subsumed by the principle of Full Interpretation for morphological structures, is that of Relativized Head (cf. Di Sciullo and Williams 1987). This law refers to the manipulation of featurized information in legitimate binary branching morphological structures, more particularly to the close relation between feature percolation and headedness. According to this, there is only one head with respect to a feature F within a morphological object and it is the rightmost F-marked category in that expression. We see below that the manipulation of featurized information is based on this law.

4.1. Inflectional structures in Greek and Latin

Following the general framework briefly sketched above, inflectional structures of Greek and Latin are binary branching. They are built by the operation COMBINE that relates two word-internal constituents, the stem and the inflectional affix. Both are considered to be sets of features, listed as entries in the lexicon. For example, inflected words like _anthropos_ "man, person" in Greek and _dominus_ "master" in Latin are generated as follows:

(10) a. anthropos   b. dominus

       / \   / \

  anthrop   os   domin   us

The inflectional affix is directly inserted from the lexicon while the stem can be either morphologically simple, that is a lexical entry (cf. 11ad), or have an in-

ternal morphological structure. The latter can be either a derived morphological object (i.e., a combination of a stem and a derivational affix, cf. (11be)) or a compound one (i.e., a combination of two stems (cf. 11cf)).

(11) Greek

  a. kipos < kip -os "garden"

  b. kipuros < [kip -ur] -os "gardener"

  c. anthokipos < [antho -kip] -os "flower garden"

Latin

  d. manus < manu -s "hand"

  e. manualis < [manu -al] -is "contains in hand"

  f. anguimanus < [angui -manu] -s "snake-handed = elephant"

In accordance with the law of Relativized Head, featurized information characterizing inflectional objects is projected from both the stem and the affix, depending upon which constituent is considered to be the head of the structure with respect to a particular feature.[22]

(12) anthropos [N, masc, nom, sing.][23]

     dominus

anthrop os

domin us

[N, masc.] [nom, sing.]

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22. A slightly different approach with respect to headedness in inflection is adopted by Lieber (1992) who considers inflectional affixes to be non-heads. According to her analysis, their function is to render specific the stems, before percolation of featurized information takes place from heads. A similar position is also taken by Ralli (1994) who adopts a unification-based formalism. Ralli proposes that Greek inflectional structures are headed by stems and that inflectional affixes unifying with stems fill in specific values only to those features that are listed as unspecified in the feature bundles representing stems.

23. For convenience, only the value part of the features is given here.

Since inflectional affixes in Greek and Latin do not change the category of the base to which they are added, the feature of grammatical category is determined by the stem. On the other hand, features such as case and number originate from the affix. Notice that, in nominal inflection of both Greek and Latin, adjectives share the same inflectional affixes with nouns. Therefore, contrary to approaches where inflectional affixes are categorially specified (cf. Di Sciullo 1996ab), I suppose that nominal inflectional affixes are not intrinsically marked by any categorial information: were we to follow an approach where inflectional affixes bear categorial specifications in their lexical entries, we would have to assume that the same inflectional affixes are registered in the lexicon twice, under two different categories, as Ns as well as As.[24]

In cases where more than one inflectional affix follow the stem (cf. (13)), I suppose that affixes are cyclically added to the stem according to their lexically specified selectional restrictions. Since lexical selectional restrictions are partly responsible for the right combinations between stems and affixes – other well-formedness requirements follow from feature-matching/checking operations (see below) - there is no need to postulate in the grammar an a priori feature hierarchy, or a feature organization, as Noyer (1997) has proposed within the framework of Distributed Morphology. In fact, selectional restrictions characterizing the different affixal entries allow us to account for the fact that the structural position of a particular affix carrying inflectional information varies according to the language. For example, number in Greek is always at the extreme right of the inflected word, while the same affix appears word internally in another language like Burushaski (cf. Tiffou and Patry 1995). The lexicon is the right place to handle these language-dependent peculiarities since it is a depository of idiosyncratic information.[25] At each step of the derivation, the intermediate derived categories are also stems, and features percolate from daughters to the mother nodes, according to the law of Relativized Head. For an illustration of this procedure, look at the structure given under (13), which represents the Ancient Greek verbal form *elysas* "you untied, perfective, past, second person, singular".

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24. The absence of categorial information from the feature bundles representing inflectional affixes distinguishes them from derivational affixes which, most of the time, change the category of the base to which they are added. As opposed to inflectional affixes, the lexical entries of derivational affixes must bear a categorial information.

25. Notice that the problem of the same inflectional material appearing in different structural positions may also be resolved by the framework of Distributed Morphology which, however, appeals to the application of a readjustment rule having no other motivation than the rearrangement of the structure, according to the case.

In this structure, the aspectual affix selects a bare stem, while the tense affix follows an aspectually marked stem.

(13)

[V,perfective,past]elys

elysas[V,perfective,past,2p,sing.,active]^{26}

e[past] lys[perfective]

[y[V] s[perfective]

[V,perfective,past,2p,sing.,active]

Having established how inflectional structures may look like within a morphological component, I proceed to an account of how inflectional features are manipulated within this component and how some of these features become syntactically relevant. The account is basically minimalist in its spirit, and examples, taken mainly from Modern Greek, illustrate the claims.

5. FEATURE-PASSING OPERATIONS IN MORPHOLOGY

We have seen before that there are features relevant only to morphology and features that may be used for morphological as well as for syntactic purposes. Elaborating on Chomsky's (1995) distinction of plus/minus interpretable features, we may extend the notion of interpretability and assume that a feature is determined as [+interpretable] within the domain of a grammatical module when it has an impact on the operations of another module. On the contrary, a [-interpretable] feature should not be visible to the operations of another module. For instance, the feature of gender should be characterized as [+interpretable] in morphology, syntax and semantics since it is visible to all three modules. In languages like Greek, gender is expressed overtly, participates into agreement and, in a core system, is determined by sex and animateness distinctions (cf. Corbett 1991, Di Domenico 1997, Ralli forthcoming). Inflection class, on the other hand (see below) should be a [-interpretable] feature since it is relevant only to morphology. Seen like this, interpretability is not a primitive notion, but a derived one, whose specific value is determined by grammatical relevance and visibility.

In this section, it is argued that inflectional features manipulated by both morphology and syntax, that is [+interpretable] features following the above

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26. The feature of mood is also morphologically realized in the verbal system of Ancient Greek. Since, however, there is a Ø morpheme denoting the indicative value, it is ignored for convenience reasons.

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considerations, are those which percolate from word-internal constituents to the topmost word nodes, while purely morphological features, that is [-interpretable] features, are not affected by percolation. It is thus shown that interpretability is also related to feature percolation since only [+interpretable] features percolating to the topmost word nodes are involved in syntactic manipulations.^{27} The percolation (or the non-percolation of [+/-interpretable] features) provides further justification to the atomicity principle (restated in Di Sciullo 1996ab) according to which, word-internal information is not visible to syntax. Let us take an example of a [-interpretable] feature in order to prove these claims. As shown in Ralli (1994), the feature of inflection class (ic) in a highly inflectional language like Greek is an indicator of the form of the inflectional paradigm. It is a purely morphological marker with no semantic interpretation, whose function is to fulfill an intrinsic linguistic need for classification and ensure that the stem is combined with an appropriate set of inflectional affixes. Inflection class does not participate in syntactic agreement since, as illustrated in (14), adjectives and nouns agreeing in gender, number and case, do not agree as far as the inflection class is concerned:

(14) a. polemoxaris   anthropos
war-loving-NOM-SG-MASC-IC1 man-NOM-SG-MASC-IC2
"war-loving man"

b. kalos   jitonas
kal-NOM-SG-MASC-IC2   neighbour-NOM-SG-MASC-IC1
"good neighbor";

where, -is, -os and -as are the inflectional affixes of *polemoxaris, anthropos/kalos* and *jitonas* respectively.

Moreover, contrary to what has been proposed by Harris (1991) for Spanish, there is no close relation between gender and inflection class in Greek, since nouns of different gender values may be inflected in the same manner, i.e., with the same inflectional affixes, as shown in (15).^{28}

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27. The term "feature movement" could be used instead of "feature percolation" since within the spirit of this work, morphological features move/percolate to the topmost word nodes in order to be checked in syntax. I prefer, however, keeping the term of percolation since it sounds more "morphologically correct".

28. The absence of a systematic relationship between the inflectional endings and the gender value has also been observed in Portuguese by Villalva (1994).

(15) a. anthropos < anthrop -os "man, nominative, singular, masculine"

    b. proodhos < proodh -os "progress, nominative, singular, feminine"

    c. kratos < krat -os "state, nominative, singular, neuter"

Since the presence of the inflection-class feature ensures the matching between the two word constituents, that is the stem and the inflectional affix, we further suppose that both the stem and the inflectional affix are marked for this feature. As opposed to the affix, however, which may bear different class values disjunctively specified (cf. section 3), the stem is lexically marked for only one class value: the same affix may appear in more than one inflectional paradigms, while a stem is inflected according to one particular paradigm.

I would like to propose now that in an inflectional configuration, that is in a binary structure involving the combination of a stem and an inflectional affix (cf. (16) below), the two constituents enter in a checking relation, where the stem checks its inflection-class value among the different values borne by the affix. If the value of the stem is mapped onto one one of the values of the affix, this mapping licenses the creation of an inflected word. If the values conflict, the construction crashes. It should be noticed that this checking procedure occurs in situ and does not presuppose any movement. It succeeds under feature identity, that is in a situation where both constituents contain identical features, but not under strict identity, where strict identity would presuppose equal number of values borne by the same features. Following Chomsky's (1995) views on feature checking it is further supposed that the successful checking of the inflection-class feature triggers deletion of this feature. As expected, a deleted feature does not participate into any percolation mechanism of the word structure. Since it does not belong to the features of the topmost word node, it cannot be visible to syntax and trigger movement of syntactic constituents. As said before, inflection class is a [–interpretable] feature for grammatical components other than morphology: it is interpreted only in morphology because it has no function other than ensuring the matching between a stem and an inflectional affix. An illustration of percolation of featurized inflectional information in the Greek nominal structure of *terata* "monsters" is provided below:

(16)   terata [cat: N, gender: neuter, number: plural, -case: nom./acc./voc.]

           terat   a

     cat: N   case: nominative/accusative/vocative

     gender: neuter   number: plural

     ic: 7   ic: 5,6,7[29]

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29. For the range of Greek inflection classes, cf. Ralli (1994).

In (16), the inflection-class feature is checked in situ and then deleted.[30] On the contrary, the other features, that is the [+interpretable] features of category, gender, case and number, percolate to the topmost word node. Following the Relativized Head Principle, category and gender percolate from the stem while case and number percolate from the affix. From there, these features are visible to syntactic mechanisms.

Let us examine now a situation where there is more than one inflectional affix added to a stem, like in the structure given under (13) above. The question is what happens when the inflectional affixes bear different inflection-class values: are there instances of non-checking or instances of feature mismatch? Examples, typical of this situation, are provided by the Ancient Greek verb conjugation, where verbs such as *dido:mi* "give" display their aorist singular forms with endings in -*ka*, -*kas*, -*ke* (*edo:ka*, *edo:kas*, *edo:ke*)[31], depending on the values of person and number, instead of those in -*sa*, -*sas*, -*se* which are the endings of another category containing the vast majority of verbs (e.g., verb *lyo:* "untie" and its aorist forms *elysa*, *elysas*, *elyse*).[32] Let us suppose that the stems of the first verbal category bear the inflectional-class feature ic:1 (*do:-* [ic:1]), while the stems of the second are marked for [ic:1] and [ic:2] respectively, while the person/number affixes[33] -*a*, -*as*, etc. are all marked for [ic:1] since they are common

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30. Another example of a purely morphological feature ([–interpretable] in Chomsky's terms) is the feature of voice in verbal inflection. For example, in deponent verbs such as *erxome* "come", there is no reason why the stem *erx*- should be combined with affixes marked for passive voice (e.g., *(o)-me* [1st person, singular, present, imperfective, passive]). For this reason, Ralli (1988) has proposed a distinction between the features of voice and diathesis in Modern Greek. According to this analysis, the diathesis feature has an impact on both syntax and semantics, but not the voice feature which is nothing but a form marker. For instance, verbs like *erxome* "come" or *kimame* "sleep" bearing endings, which are traditionally analyzed as passive endings are far from behaving as true passive verbs in passive constructions. In the same vein, see also Smirniotopoulos (1992) who simply labels active vs. passive as sets of endings which are selected by different stems marked for the appropriate features. Within the spirit of the analysis proposed here, the feature of voice must be checked and deleted within the morphological structure, while the diathesis feature percolates to the topmost verbal forms and is further manipulated by syntax.

31. Notice that, for the particular verbal forms, there is an allomorphic variation *dho-* in plural.

32. Cf. (13) above.

33. In Greek, the feature of number is represented by portmanteau morphemes. In nominal inflection, number is amalgamated with case and inflection class, while in verbal inflection it is amalgamated with person, inflection class and sometimes with voice (cf. Ralli 1988 for more details).

to both categories.[34] When the stems are combined with the appropriate aspectual affixes, stems marked for [ic:1] ask for the form -k- while stems belonging to the second verbal category combine with -s- (cf. (17ab) below). A checking relation under feature identity deletes the [ic:1] or the [ic:2] features from the bottom nodes of (17a) and (17b) respectively, and the resulting forms are further combined with the tense prefix e- as well as with the person/number affix.

Notice that the tense prefix is common to all verbal forms, so there is no need for it to bear an intrinsic mark denoting a particular inflection-class value. The person/number affix, however, bears an *ic* feature (cf. note 33), which is assumed to be the [ic:1] for the two verbal categories mentioned here. Since this affix is the only constituent in the upper binary structure to have an *ic* feature, what prevents it from percolating to the topmost word node and, from there, being visible to further syntactic manipulation? I would like to propose that the non-percolation of this feature be prevented by a default convention which allows word-internal constituents to acquire the same inflection-class value with their sister nodes only when they do not have this specification. This convention makes possible for the constituents *edok-* and *elys-* to enter in a checking relation with the person/number affixes and check the *ic* feature that is subsequently deleted.

(17) a. edokas "you gave"   b. elysas "you untied"

```
     edo:k                          elys
     /  \                           /  \
 edo:k   as[ic:1]              elys    as[ic:1]
[ic:1]<---!                   [ic:1]<---!
  / \                           / \
 e   do:k                      e   lys
      / \                           / \
 do:[ic:1] k[ic:1]            ly[ic:2]  s[ic:2]
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We move now to an instance of syntax-morphology interaction where it is shown that syntax renders specific an underspecified feature of a morphologically created object. Needless to say that this feature specification refers only to features characterizing the topmost word nodes since features that are not subject to percolation are ignored by syntax.

Gender specification in Greek adjectives provides a typical example of a syntax-morphology interaction, where there is also support in favor of the proposal

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34. Note that different person/number affixes are requested in other verbal structures (e.g., -*on*, -*es*, -*e* in *elyon*, *elyes*, *elye* "I/you/he was/were/was untying"), but this is not relevant for our purposes here.

put forward in this paper, according to which the syntactic relevance of some features refers to their value part. As shown in Ralli (1994), gender in Greek nouns should be considered as a feature characterizing stems and not inflectional affixes because nouns of different gender values are inflected in the same manner, i.e., with the same set of inflectional affixes. Examples such as the ones given under (15) illustrate this claim.[35] Gender is thus distributed differently from other inflectional features such as number or case.

Since in Greek nouns there is no direct relation between the feature of gender and the feature of inflection class, which is responsible for the form of the inflectional affixes, a fully specified gender feature (i.e., an attribute with a specific value) must be part of the feature bundle representing the stem, while it is absent from the feature bundle representing the affix. Specific gender values though should *not* characterize adjectival stems, since adjectives are generally inflected for three gender values, masculine, feminine, and neuter.

(18) kalos   kali   kalo   "good, nominative, singular"
     masculine   feminine   neuter

Adjectives thus must acquire their gender specification in syntax. Notice, however, that an approach, which treats differently nouns from adjectives, with respect to gender, does not take into consideration the fact that both categories belong to nominals and share common properties. In order to provide a unified account for both categories with respect to gender specification, I propose the following: firstly, I suppose that a gender feature characterizes all nominal stems, that is both nouns and adjectives. As opposed to nouns, however, where the gender attribute bears a specific value (cf. (19a)), adjectival stems are underspecified for specific gender values (cf. (19b)), where feature underspecification for a stem means that it bears an attribute with no specific value part.

(19) a. anthrop-[gender:masculine] "man"
     b. kal-[gender:X] "good"

It is thus the role of syntax to resolve such an underspecification through agreement between nouns and adjectives. For example, gender underspecification may be resolved in a Spec-Head configuration, where nouns in head position agree with adjectives placed in spec position as far as number and case are concerned. In such a configuration, an agreement with respect to gender would

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35. Linguists who have traditionally dealt with gender (see Hockett 1958, Greenberg 1978 and Corbett 1991) have defined the feature of gender as a fixed property of nouns.

mean that the head renders specific the underspecified gender feature of the adjective.[36]

Evidence that syntax contributes to the specification of an underspecified feature of an inflected word is also provided by verbal inflection. Consider, for instance, the periphrastic future tense forms in Greek:

(20) a. tha aghapiso
"I will love"

b. tha aghapitho
"I will be loved"

The forms of aghapiso and aghapitho are morphologically specified for person (first), number (singular), aspect (perfective) and voice (active or passive according to the case, but not for a specific tense value. As Ralli (1988) has shown, the tense value is acquired after these forms are syntactically combined with the particle tha. That is underspecification of forms like the ones listed above is resolved in syntax. Within the framework of Chomsky's (1995) checking theory, tha may be treated as the functional head of a T(ense) P(hrase) marked for future, which triggers verb movement (V raising) in order to accomplish feature specification.[37]

To sum up, in this section of the paper, I have examined features used for inflectional purposes. The basic claim is that these features are morphological

36. This Spec-head configuration may involve the projection FP of a functional category F whose strong nominal features trigger movement of nouns. The head F is the landing site for nouns, while SpecFP accepts the underspecified for gender adjectives. See Cinque (1995) for a detailed study on adjectives treated as SPECs of functional heads in DPs. Since there is no elaborated study on the issue of functional categories in Greek DPs this matter remains open for future research.

(i) FP
    Spec F'
    (A) / \
     N   NP
    (N) / \
    ....

37. That tha is a future marker as well as the head of TP, is also proposed by Philippaki-Warburton (1996) and Krapova (1996). In particular, Krapova suggests that a raising of the verb take place because of a weak feature V, borne by tha, which results to a cliticisation of the verb to the particle. Note, however, that in other approaches (e.g., Rivero 1994), tha is seen as the head of a M(ood)P(hrase).

since they are accounted for in a principled way within the morphological component of the grammar, in that it is morphology that computes them. In examining inflectional features, a distinction was made between [+interpretable] and [-interpretable] features. The former percolate to word nodes and, from there, are accessible to syntactic mechanisms. The latter are manipulated by morphology and disappear after being checked in situ.

6. INFLECTIONAL FEATURES AND FUNCTIONAL CATEGORIES

Since inflectional features are considered here to be morphological, in the sense that they are visible and manipulated within a morphological component, questions would arise with respect to the status of functional categories in syntax and their relation to inflectional features in morphology. Notice that a simple repetition of the same inflectional features under the form of functional categories in syntax would be redundant and against the spirit of natural conditions of economy as proposed by Chomsky (1995). If a word is already explicitly marked for some features in morphology, there is no need to repeat this marking configurationally in syntax.

According to the minimalist framework, syntax provides the bare essentials to the representation of the language faculty. Since functional categories are primarily syntactic, they have to be as language-independent as possible and their existence should be motivated independently from strictly morphological considerations. I suppose that functional categories are carriers of features inherent to human language which are crucial for syntax and LF: the presence of a functional category in syntax is justified by the fact that a syntactic constituent appears in a particular position in order to express a particular function overtly or covertly (e.g., following Chomsky 1995, constituents in Spec of T are subjects and this is the only position where DPs can verify their nominative case). I also believe, however, that it may be possible for some features characterizing functional categories to have a morphological/inflectional counterpart, but not necessarily though, since all inflectional marks do not correspond to particular structural positions. In fact, the occurrence of inflectional features is closely related to word structure and is very much constrained by language-dependent characteristics (cf. above considerations on strong/weak features). As such, strong inflectional features do "exist", while possible correspondent functional categories are rather theoretical constructs and their existence may "perish" depending on the theoretical approach one takes.[38]

38. In fact, there is much discussion on the status of Agr as a functional category. Following Warburton (1996) and Iatridou (1990), Mitchell (1994) proposes that Agr has relational properties and should not be listed among functional categories. Agr is also expelled from the group of functional categories in recent work by Chomsky (1995).

Since inherent features represent general linguistic properties, it is perfectly legitimate to suppose that each grammatical component would choose the features that seem to be appropriate for its own purposes. Thus, some features are shared by both components, morphology and syntax (e.g., tense), while some other features are active in only one component. For example, we have seen that the general linguistic tendency (i.e., the human desire in Aronoff's 1994 terms) for classification is morphologically realized under the feature of inflection class, in languages with rich inflectional systems such as Greek and Latin. This feature, however, is not visible to the syntactic system of these languages. On the other hand, [referentiality], is a syntactically relevant feature (movement trigger, according to Longobardi 1994), but morphologically absent in languages where this feature is supposed to be strong (e.g., Romance languages). Thus, this feature should characterize only syntactically motivated categories (i.e., the functional category of D).

An approach which keeps separate the representation of functional categories in syntax from the representation of inflectional features in morphology displays several advantages over an approach which would rather mix the two together. Firstly, it allows functional categories to bear properties that do not show up in morphology (see the inconsistencies described in the first section of the paper with respect to this issue). Secondly, specific sets of features in syntax do not have to be dismantled, and rearranged by readjustment rules in order to account for the morphological facts (see the approach proposed by Bonet 1991 and subsequently by the Distributed Morphology framework in order to explain different groupings among features in syntax and their counterparts in morphology). Thirdly, syntax does not appeal to movements that seem to be counterintuitive and unnecessary in order to accommodate morpheme orderings within morphologically complex words (see, for example, the lowering movement supposed by Speas (1991a) in order to explain the morpheme ordering in Navaho morphologically complex words)[39]. Fourthly, it removes the burden from syntax to invoke parametric variation in order to explain differences among languages with respect to scope of functional categories, which are supposed to represent specific morphemes. For instance, Ouhalla (1990) has proposed that in Arabic syntax a functional category representing Aspect c-commands a functional category representing Tense while the opposite usually occurs in Indo-European languages.

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39. Strong criticism and rejection of the idea of lowering come from Speas (1991b) who is in favor of a more lexical approach, according to which, morphologically complex words are formed in the lexicon and syntactic mechanisms are used to check their features.

Thus, functional categories in syntax must be independently defined of the inflectional status of any correspondent features in morphology, where the latter may be differently associated to other inflectional features and organized in sets which are not what appears to be associations of features in syntax. The proposal that inflectional features represent information that characterizes lexical entries and is manipulated in morphology, removes any motivation for supposing a priori that each inflectional morpheme must correspond to a functional head in syntax.[40] As a matter of fact, the number of functional heads as well as their content should entirely depend on the number of projections needed for scope and for checking in syntax.

7. CONCLUSIONS

In this paper, I have been concerned with features involved in inflectional processes. I tried to show that these features are well accounted for within an independent morphological component, interacting with syntax on several aspects, within the computational space of the language faculty. Three main ideas have underlain my claims:

a) Each language chooses its own inflectional features among the range of possible inherent features. This choice is submitted to language-independent as well as to language-dependent constraints. The former derive from the requirements of both the morphological component and feature theory (see above). The latter are subject to lexical requirements as well as to requirements specific to languages. That is I predict that morphological variation can be due to the specific ways in which inflectional features are organized in sets in the lexicon and also in the way that features are handled in structures manipulated by the morphological component of specific languages. For example, Past Tense is overtly suffixed to verb stems in Latin, but realized as a prefix in Ancient Greek (cf. the verbal augmentation e- in forms like e-phygon "I left"). Moreover, feature bundles representing verbal inflectional morphemes of Greek and Latin, where person

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40. It is clear that such a position is against the claim that syntax mirror images morphology (see Baker 1988). Joseph (1991) has shown that this claim is very problematic in attempts to apply it to Greek. Although the entire issue of Morphology-Syntax interaction does not really depend on it, it may be the case that a limited version of the Mirror Principle accommodates some syntactic facts related to morphology. For example, the Mirror Principle can be used as a useful tool for determining the order with which morphological features can be checked in syntax. This is only a suggestion, however, and needs further elaboration, which goes beyond the scope of this paper.

and number are grouped together under the same morpheme, may differ from feature bundles representing verbal inflectional morphemes in another language, for example (Burushaski), where the mark for number is distinct from the mark of person (cf. Tiffou and Pesot 1989).

b) Morphology provides an internal organization to inflectional features. Beside the basic distinction into strong and weak features, it has been proposed that interpretable features percolate to word nodes and thus are visible to syntactic mechanisms, while non-interpretable features are checked in situ and consequently are not visible to further manipulations in the syntactic component.

c) The syntactic manipulation of some of the inflectional features is reduced to either the checking of specific feature values or to the resolution of feature underspecification in specific syntactic positions (e.g., Spec-Head positions).

A major question remains open however: how morphological variation among languages, especially variation related to rich or to poor inflection, provides a parameterization to the syntax of different languages. This question is far beyond the scope of this paper and is open for future research.

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