

# On Why Word Phases cannot Account for Lexical Integrity Effects

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## SUMMARY

This article discusses the possibility that Lexical Integrity effects can be explained by proposing that words are syntactic phases, thus eliminating these effects from the set of phenomena that argue in favour of the autonomy of morphology. The proposal is discussed from both a theoretical and an empirical perspective, and it is shown, in the first place, that the phases proposed to give account of some of these phenomena do not behave like syntactic phases and, secondly, that syntactic phases would be insufficient to cope with the impossibility of pronominal coreference with word internal constituents. It is concluded that, given our present understanding of syntax, Lexical Integrity effects still argue for the autonomy of morphology.

KEY WORDS: Phases, words, pronominal coreference, compounding

## 1. THE AUTONOMY OF MORPHOLOGY

In the debate about whether morphology is an independent domain in the human language capacity or it can be reduced to syntax, a great deal of research has been devoted to the question of whether word formation can be dealt with using the standard syntactic operations and by appealing to the general syntactic concepts of head, complement and specifier. Most of the research done in Distributed Morphology (Halle & Marantz, 1993) and other frameworks where word formation is claimed to take place in syntax have tried to argue that category-changing affixes are heads that, through syntactic merge, take their bases as their complements (Marantz, 1997; Marvin, 2008, among many others), while prefixes have been argued to be in specifier or adjunct positions (DiSciullo, 2005).

This debate has not paid sufficient attention, in our opinion, to the fact that, even if we grant the assumption that word formation might be reducible to the common syntactic operations and relationships, other properties of words can argue just as strongly in favour of the autonomy of morphology. This article concentrates in one of these aspects and argues that, given our present understanding of syntactic operations, there are word phenomena that cannot be successfully reduced to syntax and, thus, there is still empirical evidence that morphology can be an autonomous component of grammar. In other words, this article provides evidence –if only negative evidence- in favour of Lexicalism.

### *1.1. Sources of evidence for the autonomy of morphology*

Let us assume, for the sake of the argument, that there is a way in which the structural relations among morphemes can be explained by syntactic means. This would not mean that syntax and morphology are not distinct. Of course, in this hypothetical situation, the proposal that the only generative component is syntax could be more likely, but at face value the only thing that this discovery would argue for is that word formation uses the same primitive operations and relationships as syntax to generate a new structure. There is no logical contradiction in accepting this and, at the same time, claiming that morphology is a distinct component. Furthermore, the kind of evidence that would preserve the autonomy of morphology in this scenario is very clear to identify. This evidence would come from three different sources:

- a) The existence of pre-syntactic differences in the primitives used by syntax
- b) The existence of units whose distribution cannot be explained by syntactic, phonological or semantic means
- c) The existence of domains where syntax cannot operate and which cannot be explain through syntactic means

In this article, we will argue in favour of the third source of evidence, and we will show that the recent attempts, inside the Minimalist Program, to contradict this evidence on the basis of a purely syntactic account of domains are theoretically problematic and, more importantly, empirically inadequate. But first, we would like to say a few words about the other two kinds of evidence, to suggest that, given our present understanding of the theory of grammar, they are also likely to exist, potentially supporting the autonomy of morphology in an even stronger way.

### *1.1.1. Interpretable and non interpretable features*

Consider the first source of evidence, namely the existence of syntactically-unpredictable differences in the features manipulated by syntax. In the Minimalist Program, there is crucial difference considered to be standard between two kinds of features: interpretable and uninterpretable. The difference between them is that the first are introduced into syntax already with a value, which allows them to be interpreted by the phonological and the semantic interfaces without any further operations (Chomsky, 1995). The second are inserted in syntax without any value. This forces them to enter into an agreement relationship with an interpretable feature before they can be interpreted by the interfaces. The distinction is approached in subsequent work (Chomsky, 2001) in terms of valued and unvalued features, where unvalued substitutes uninterpretable, in order to avoid look forward problems that were also shared by other previous feature distinctions (such the dichotomy between weak and strong features). This change avoids the look forward problem because now syntax does not need to know if something will be read at the interfaces; instead, it will automatically see if a head contains features in need of valuation and in that case it will immediately perform a syntactic operation as soon as it is available. Even in this reformulation (see Chomsky, 2004: 113-116), two crucial aspects of this distinction between kinds of features make it a source of evidence for the autonomy of morphology. The first one is that whether a head contains a valued or an unvalued feature is not decided by the syntax, but by the lexicon that lists the heads available in a language altogether with its lexical properties, including what kinds of features they contain. This sense of lexicon -called ‘narrow lexicon’ in Distributed Morphology, which, as a framework, is generally compatible with Minimalist assumptions- is by necessity previous to syntax, as it provides it with the primitives to build structures, so forcefully it is impossible for syntax to determine or to explain why some features are valued and some are unvalued. The second aspect that makes the distinction a source of evidence in favour of the autonomy of morphology is that the operations that a syntactic structure must undergo are determined by the need to value features which did not come out from the lexicon with a value (and therefore are syntactically active; Chomsky, 2004: 113). Once that a head with a non interpretable feature is introduced in the structure, the syntax cannot change this fact (given the Inclusiveness Condition, Chomsky, 1995 and subsequent work) and is forced to undergo at least an agreement operation, which is subject to structural constraints. This relation between the

(narrow) lexicon and the syntax, by which the first is previous to the second and contains syntactically-unpredictable properties which force the syntax to build its structures in a particular way is not very different from the situation proposed in Lexicalism, by which the pre-syntactic lexicon contains idiosyncratic information that forces the syntax to build the tree in a particular way. The difference relates to how much information is included pre-syntactically; in principle, Minimalism does not include encyclopaedic semantics and phonology in this pre-syntactic lexicon, but syntax is still determined by listed properties.

### 1.1.2. Purely morphological information

The second source of evidence involves the existence of whole grammatical units whose nature is not syntactic, phonological or semantic. This situation is well-known in the study of natural languages, and it is reflected in the existence of nominal desinences (-o in *man-o*, Spanish and Italian for ‘hand’) and verbal theme vowels (-a in *cant-a*, Spanish and Italian for ‘sing’).

These units argue in favour of the autonomy of morphology at least in two ways. The first is that in some languages they must be present in well-formed words, even though they do not seem to be playing any syntactic role in the structure. In Distributed Morphology, these units are considered ‘dissociated morphemes’, that is, morphemes which do not correspond to any position in the syntactic tree and are inserted after all syntactic operations have taken place in positions created for the occasion; as theme vowels are morphologically distinct from tense, aspect and agreement morphemes in a language like Spanish (Arregi and Oltra, 2005), it is not obvious how this formant can be accounted for inside any syntactic decomposition of the sentential middle field, at least if –as Minimalism requires– all syntactic heads have a semantic contribution. In a sense, this technical solution implicitly acknowledges that the information carried by a theme vowel or a desinence is not syntactic in nature.

The second way in which these units argue for the autonomy of morphology is the existence of distinct classes marked by different desinences or theme vowels. This means that there is more than one desinence and more than one theme vowel, which automatically raises the question of how they are distributed. Given our present understanding of these units, their distribution cannot be explained by syntactic principles. Take Spanish, where there are three conjugations marked with three different theme vowels, as an illustration. In the first, second and third conjugation there are transitive (1a) and intransitive (1b) verbs; in all three conjugations there are unaccusative (1c) and unergative (1d) verbs. To the best of our knowledge, no syntactic difference reflected in the grammatical behaviour of the verbs has been identified that can explain the distribution of the three markers.

- (1) a. *cant-a*, *beb-e*, *part-i*  
sing-ThV, drink-ThV, break-ThV
- b. *sueñ-a*, *corr-e*, *viv-i*  
dream-ThV, run-ThV, live-ThV
- c. *lleg-a*, *ca-e*, *sal-i*  
arrive-ThV, fall-ThV, go.out-ThV
- d. *sangr-a*, *tos-e*, *luc-i*  
bleed-YhV, cough-ThV, glow-ThV

The distribution can also be shown not to be due to phonological properties of the base; this is straightforwardly illustrated by the fact that, given the same phonological form in the root, two different theme vowels can appear (2).

- (2) a. sal-a, sal-i  
salt-ThV, go.out-ThV  
b. cre-a, cre-e  
create-ThV, believe-ThV

Finally, the distribution does not seem semantic either. To the best of my knowledge there are no generalizations with respect to the aspectual information, the kind of event expressed, or the properties of the argument structure of the verb that can explain the distribution of the three theme vowels in Spanish. The same observation can be made equally easily with respect to the desinences that mark the different noun classes.

There is of course no logical impossibility that in the future we will reach a sufficiently fine-grained understanding of the syntax or semantics of grammatical categories which allows us to find a difference which explains the distribution of these markers. It is an empirical matter and, as such, it cannot be ruled out by a theoretical reasoning, but it is at the same time clear that, at this point, this explanation does not exist and thus there are no reasons to reject the idea that the distribution of desinences and theme vowels is determined by purely morphological principles -and thus that they are a clear example of morphemes, in Aronoff's (1994) terminology-.

### 1.1.3. *Lexical Integrity effects*

Despite the inherent interest of these two sources of evidence, in this article we will concentrate on the third source of evidence, the existence of impenetrable domains which cannot be explained by syntactic means. This source of evidence is manifested in the set of phenomena considered Lexical Integrity effects (after the *Lexical Integrity Hypothesis*, LIH; Lapointe, 1978). Among the well-known phenomena that argue in favour of the existence of a domain inside which syntax cannot operate we find, most relevantly for this article, the impossibility of extracting constituents from inside a word (3b) and the impossibility of having coreference between a pronoun and a nominal expression embedded inside a word, even when the grammatical context makes it clear that the pronoun denotes a kind, not an individual (3c). (3d) is a control example, where we see that reference to kinds is possible for bare nouns when they are not part of a word.<sup>1</sup>

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<sup>1</sup> An anonymous reviewer suggests that the reason for the ungrammaticality of (3c) might be the same one as we see in (i), namely that the noun the pronoun attempts to corefer to is purely predicative (giving us a kind of the entity denoted by the head) and thus does not introduce any referent.

- (i) Il gatto di casa<sub>i</sub> la<sub>\*i</sub> rallegra  
The cat of house it rejoices  
Intended: The house cat brightens the house

It is clearly appealing to have a common explanation for these phenomena. We would like to suggest that also in (i) we have a morphological unit and that cat is not an independent syntactic constituent. Notice that the incapacity of the noun to introduce a referent might be a consequence of the syntactic configuration, and more in particular of the possibility that it actually forms a (non orthographically

- (3) a. John is a truck driver.  
 b. \*[What]<sub>i</sub> is John a [<sub>t<sub>i</sub></sub> driver]?  
 c. John is a truck<sub>i</sub> driver. It<sub>i</sub> is a type of vehicle.  
 d. John does not drink wine<sub>i</sub>, because he hates it<sub>i</sub>.

Notice, first of all, that these are empirical facts independent of any theory. Even theories where the limits between morphology and syntax are gradient, like Construction Grammar (Goldberg, 1995) and Construction Morphology (Booij, 2010), acknowledge this difference, which is treated as different levels of cohesion inside a construction (Booij, 2010: 94-108). Modern lexicalism has revised the LIH a number of times (see Lieber & Scalise, 2006), but all researchers still admit that some phenomena show that words (at least some of them) behave like closed domains. At present, several researchers, most significantly working in Distributed Morphology, have treated Lexical Integrity effects as the effect of a syntactic domain, more specifically syntactic Phases. In the next section we will discuss their proposal and its theoretical problems, while in the third section we will show why the proposal is insufficient to explain data such as those in (3c).

## 2. WORDS AS PHASES AND LEXICAL INTEGRITY EFFECTS

The strategy adopted by some researchers to contradict the data in (3) as evidence for the autonomy of morphology involves defining the word as a syntactic domain. In this way, the word would be considered a domain in the same sense as certain kinds of phrases are domains. The same set of syntactic principles would explain why extraction is impossible in (3b) and in (4b); like that, syntax and morphology would be subject to the same principles and the data would not argue for the autonomy of morphology.

- (4) a. John wonders [who wrote the book].  
 b. \*[What]<sub>i</sub> does John wonder [who wrote <sub>t<sub>i</sub></sub>]

### 2.1. Syntactic phases

Minimalism recasts the traditional definition of barriers, which introduce limits to domains, in terms of phases (Chomsky, 2001), that is, chunks of structure that are formally completed and can be transferred to the phonological and semantic interfaces. More specifically, the proposal is that syntactic merge proceeds derivationally, combining in each step two constituents. At particular points in the tree, a part of the structure created by merge has already satisfied all its formal properties -mainly in the form of uninterpretable features that have agreed with interpretable ones-. At that point, syntax does not have any further operations to perform in that chunk of structure, and therefore transfers it so that phonology and semantics can interpret it. The conceptual reason for the existence of Phases in Minimalism is precisely this one: to remove from the working space a chunk of structure which does not need to be manipulated by syntax anymore. The bigger the

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represented) word with the preposition; indeed, the whole PP *di casa* is equivalent to the adjective *domestic* in its meaning, which suggests that the whole PP should be treated as a unit at some level. See also §3.2.2. for arguments that even when the noun introduces a referential index coreference is impossible.

structure contained in the working space, the bigger the computational load that comes with it (for instance, the presence of structure exponentially increases the number of possible operations that can take place at further steps in the derivation). It follows, therefore, that phases have to be transferred as soon as possible, because otherwise their existence would not contribute much to facilitating the syntactic computation.

Once a part of the structure has abandoned syntax, it is gone for good, and any subsequent syntactic operation will not be able to manipulate any of its members, simply because it will not find the chunk of structure in the computational system. In the case of the sentence in (4), the explanation to the impossibility of moving the second interrogative comes from the fact that this interrogative would be embedded inside a phase, that formed by the Complementizer Phrase ( $[_{CP}$ who wrote what]), that has been transferred to the interfaces before the interrogative complementizer of the main clause ( $[_{CP}$  *Wh* does John wonder]) had any chance to attract it<sup>2</sup>. In other words: the subordinate interrogative clause forms a phase (5a). This phase is transferred, including the interrogative *what*, by the time it is combined with the verb *wonder* (5b); thus, when the higher interrogative CP is built (5c), *what* is gone, explaining the ungrammaticality of (4b), repeated as (5d).

- (5) a.  $[_{CP}$  who wrote what]  
 b.  $[_{VP}$  wonder  $[_{CP}$  ~~who wrote what~~]]  
 c.  $[_{CP}$  *Wh* does John  $[_{VP}$  wonder  $[_{CP}$  ~~who wrote what~~]]]  
 d.  $*[_{CP}$  What<sub>i</sub> does John  $[_{VP}$  wonder  $[_{CP}$  ~~who wrote t<sub>i</sub>]]]~~

## 2.2. The hypothesis that words are syntactic phases

Marantz (2001) and, more clearly, Arad (2003: 748 and folls.) propose to extend this notion of phase to the word domain. The reasoning is the following: a root, by hypothesis, does not have a defined grammatical category (6a). As such, it will not be able to be transferred to the interfaces, because the lack of a grammatical category entails that the semantic component will not be able to assign an interpretation to it. However, in a further step, the root combines with a functional head, and at this point it receives a grammatical category (6b). At this point, the root has satisfied its formal requisite of getting a grammatical category, and the interfaces can interpret it. At this point, and only at that point, the structure can be transferred because it has satisfied some properties. The proposal is that roots, isolated, have no meaning whatsoever; meaning is assigned to them in the context of a functional categorizer. In other words: (6a) does not have meaning; (6b) does.

- (6) a.  $[\sqrt{\quad}]$   
 b.  $[xP [\sqrt{\quad}]]$

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<sup>2</sup> Our presentation is oversimplified, as constituents are allowed to escape from inside a phase provided that movement takes place cyclically. In the case of a CP, the interrogative would need to move to the edge –that is, the specifier position- of the head. As only the complement of the head that defines the phase gets transferred, but not the head itself of its edge, the constituent would be at that point in the required position to undergo further steps of movement. The impossibility of movement in (4) implies that the interrogative could not be in the edge of the CP when the phase got completed, presumably because of the presence of the interrogative *who*. The specific technical implementation of this ungrammaticality is orthogonal to the purposes of this paper.

In Arad (2003), this has consequences for the further steps of the derivation. The material contained inside a phase is transferred to the phonology and to the semantics. From here it follows that such material will be processed by these components as a unit, and, thus, that it will be possible to assign a special semantics or phonology to the chunk as a whole. The interest of this step is that it is used to explain the semantic and phonological idiosyncrasies found inside the word domain and pointed out at least since Chomsky (1970) and Halle (1973). Compare the sentences in (7), taken by Arad (2003: 756) from Kiparsky (1982, 1997).

- (7) a. He hammered the nail with a rock.  
 b. \*Screw the fixture to the wall with nails!

In (7a), the verb *to hammer* can describe an action performed by using a rock, instead of a hammer; in (7b), on the other hand, the verb *to screw* cannot describe an action which involves nails: the action must be performed by using screws. Arad proposes that this difference can be explained if the set formed by the root and its categorizer forms a phase. Her proposal is that the interpretation assigned to a root in the context of the first categorizer cannot be changed in further steps of the derivation (Arad, 2003: 747). This follows from the same principles that do not allow extraction of what from the sentence in (4b): once a chunk of structure has left the working space and has been processed by the interfaces, it becomes insensitive to any subsequent structure built in the syntax and to the interpretation associated to it. Let us see an illustration of what this proposal can account for.

In (7a), the verb is constructed over a root  $\sqrt{\text{HAMMER}}$ ; a specific meaning is assigned to the set in (8a). When the root materializes as a noun, the set in (8b) gets another meaning assigned; the meaning of (8a) does not need to be identical to the one in (8b), because the root does not carry any semantics of its own<sup>3</sup>. In (7b), in contrast, the verb is formed over the noun *screw*, not over the root  $\sqrt{\text{SCREW}}$ . The verbal head combines with an already complex object, formed by a zero nominalizer and the root  $\sqrt{\text{SCREW}}$ , as represented in (8c). Meaning is assigned first to the set formed by the root and the nominalizer (8d), which is the first head that assigns a category to the root. By the time the verbalizer is added, the base got a specific meaning assigned that the subsequent steps in the derivation cannot change. Consequently, the verb *to screw* is built on the meaning assigned to the noun *screw*, and thus must refer to an action which involves the objects we call ‘screws’.

- (8) a. [v [ $\sqrt{\text{HAMMER}}$ ]]  
 b. [n [ $\sqrt{\text{HAMMER}}$ ]]  
 c. [v [n [ $\sqrt{\text{SCREW}}$ ]]]  
 d. [n [ $\sqrt{\text{SCREW}}$ ]]

To summarize the argument, Arad’s proposal is that the root and the first categorizer form a phase, and argues that the question of whether a word has an idiosyncratic semantics (or phonology) depends on whether the word itself is a phase

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<sup>3</sup> The attentive reader will probably have noticed already that this procedure of assigning the meaning to roots only to the extent that they belong to a syntactic context is reminiscent of constructions in Construction Morphology. It is not unfair, we believe, to claim that Arad’s proposal treats basic morphological structures –consisting maximally of one root and one categorizer– in the same way as constructions in the sense of Goldberg (1995). By definition, in both cases no compositional meaning can emerge because the units do not have a meaning in isolation.

–in which case idiosyncrasies are possible, as in (7a / 8a)- or whether it contains a phase, in which case the meaning of the word must be constructed on top of whatever meaning was assigned in the previous step of the derivation, forcing the verb to denote an action which involves the particular object interpreted in the base (7b / 8c).

### 2.2.1. How this proposal could explain the absence of extractions

Imagine that a word is a phase, as proposed by this author. In that proposal we can explain the absence of extraction of word constituents just as the failure to extract the interrogative in (4) is explained. (9) reproduces the structure of *truck driver* following Harley’s (2009) analysis in the Distributed Morphology framework. Notice that the word contains two phases in Arad’s sense: one formed by the constituent *truck* and the first nP, which turns it into a noun, and a second one that dominates the first and contains *drive* and the second nP.

$$(9) \quad [_{nP} \quad \text{-er}_n \quad [_{vP} \quad \text{DRIVE} \quad [_{nP} \quad \emptyset_n \quad [_{vP} \quad \text{TRUCK}]]]]$$

If we assume this construction, the fact that *truck*, or an interrogative occupying its position, cannot be extracted from inside the compound by movement can be explained by the notion of phase, in the sense used by Arad. The constituent *truck* is contained inside the phase defined by a null categorizer  $-\emptyset$ , which in turn is contained inside the higher phase defined by  $-er$ . Chunks which are word phases (containing a root and a categorizer) are in bold.

This means that once the compound is constructed, the non-head will not be able to be extracted simply because it is part of a word phase, and as such it will have abandoned the computational system before the syntax can build an interrogative sentence. Any constituent occupying the position of *truck* or, for that matter, any constituent below the head  $-er$  responsible for categorizing the compound would be equally unextractable because of the same reasons. On these assumptions, the reason that explains that the interrogative *what* cannot be extracted from inside the compound in (3b) is the same that explains that *who* cannot be extracted from inside the subordinate clause in (4b): they are constituents embedded on a phase, and they are transferred out of the computational system before movement can take place.

### 2.3. Against syntactic phases inside words: theoretical problems

The notion of phase is understood in the Minimalist program as a way to minimize the information load that the computational system has to cope with. Intuitively, the idea is very simple: if there is a chunk of structure which has satisfied all its formal requisites, syntax can remove it from the space where the derivation is performed because that chunk does not need anything else. ‘Removing it’ implies transferring it to further levels, where the semantics and the phonology are performed. It is crucial that the chunk of structure which has all its formal properties satisfied is transferred as soon as possible; otherwise the whole intuition that underlies the proposal of phases would be contradicted, as there will be at least one step in which an operation is performed on a structure which contains an unnecessary work load. In consequence, every phase is defined by a specific head, which is assumed to have all the formal characteristics required to satisfy the formal conditions of the chunk of structure which is embedded under it. Consider, for example, the head little  $v$ , assumed in standard minimalism to be a head that defines a phase (10).



$$(10) \quad [{}_{VP} \quad [DP_1] \quad v^0 \quad [{}_{VP} \quad V^0 \quad [DP_2]]]$$

Little  $v$  is assumed to carry a set of formal features which, by a form of agreement, can check the case needed by  $DP_2$  in (10), which corresponds to the direct object of a transitive verb. Before little  $v$  is introduced in the syntactic tree,  $DP_2$  has still a formal property in need of satisfaction, its case. As soon as little  $v$  is introduced in the tree, it automatically uses its formal features to satisfy the case of the direct object, and the structure is defined as a phase. But which chunk of structure is transferred to the interfaces, therefore making its constituents unavailable for movement? It is standardly accepted that the chunk is the complement of  $v^0$ , but not  $v^0$  itself or its specifier; the head and its specifier(s) –known as the ‘edge’ of the phase–remain in the derivation as the former is necessary for further selection by higher heads and the latter are hierarchically higher than the head. In other words, the part that abandons syntax is VP, not vP. How do we know this? Because if vP was transferred, the  $DP_1$  contained in vP would also be eliminated from the syntax.  $DP_1$  corresponds to the agent of a transitive verb, and by assumption, it must check its case, for the same reasons that  $DP_2$  had to check it. However, it cannot check it with  $v^0$ , because this head has already checked the case of  $DP_2$ . In other words,  $DP_1$  will have to wait to further steps of the syntactic derivation in order to get its formal properties licensed, and because of that it follows that it cannot be part of the chunk of structure transferred to the interfaces. Of course, if  $DP_1$ , the specifier of vP, cannot be transferred, it also follows that  $v^0$ , the head of vP, cannot be transferred either, because it is not possible to transfer a head and leave the phrase that it heads behind. The standard minimalist assumptions about phases is that the complement of a phase, but not its head or its specifier, is transferred.

At this point, we need to address the question of whether Arad’s system is using exactly this technical notion of phase. The answer seems to us to be negative. Arad’s claim that the set formed by the root and its categorizer is technically incompatible with the way in which she assigns the semantic interpretation to the root, if by phase the author means what is standardly assumed to be a syntactic phase. Why? Given the structure in (11), we expect the complement of the head that defines the phase to be transferred to semantics, where it gets an interpretation. That complement is the root.

$$(11) \quad [v \quad [\sqrt{HAMMER}]]$$

However, the author is very clear (Arad, 2003: 747) that roots are assigned an interpretation in the environment of the first category-assigning head. This is crucial to explain the difference in meaning between *a hammer* and *to hammer*. The root does not have a stable semantics, that is, the root does not have any semantics of its own (see also Acquaviva, 2008). It is rather the structure in (12a) and the structure in (12b) that get a semantics assigned.

- (12) a.  $[n \quad [\sqrt{HAMMER}]]$  = ‘tool consisting of a solid head set crosswise on a handle’  
 b.  $[v \quad [\sqrt{HAMMER}]]$  = ‘to beat something using a blunt instrument’

However, the proposal that (11) constitutes a phase entails that the constituent transferred to the semantics will only be the root, and therefore it would be the root,

alone, that would get a meaning assigned. Notice that, as far as the interfaces are concerned, the object that arrives to them is only a root, without any sign of it having been combined with a categorizer in the syntax<sup>4</sup>. This is difficult to reconcile with the fact that the semantics does not assign any semantics directly to the root, but rather to the complex structures in (11). If only the root was transferred, the semantics will not be able to know if the root appears in a verbal or a nominal context, as a phase-defining head such as little *v* is not transferred as part of the phase. This, of course, does not mean that Arad's analysis is not a possible explanation of the empirical contrasts that she discusses, but rather that the domain that she is describing does not behave like a standard syntactic phase such as the one discussed in (10).

Notice, however, that in order to account for the contrast in (7), the proposal needs either that the root is not transferred when the phase is completed or that the assignment of a semantic interpretation is delayed in the interfaces until the following phase is completed and its domain, including the categorizer, transferred. In the first case, useless material remains in the syntax –unnecessarily loading the computational system-; in the second case, material stays in the interfaces without getting any interpretation, and on top of it we need to motivate in a non arbitrary way how many transferences the interfaces are willing to wait before they decide to get their work done. Either way, we go against economy conditions.

From this perspective, it seems that, even if Arad's proposal was right and it could be extended to explain the impossibility of extracting constituents from inside words, that explanation would not constitute evidence that Lexical Integrity effects can be explained by the syntactic notion of phase. This is due, quite simply, to the fact that the phase used in the analysis does not display the expected behaviour of a syntactic phase. Assuming that her analysis is right, it provides evidence for a different kind of domain. It is still to be determined whether this domain is morphological in nature, in which case the proposal would actually provide us with evidence in favour of the autonomy of morphology.

### 3. EMPIRICAL EVIDENCE AGAINST ANALYZING WORDS AS PHASES: ANAPHORIC ISLANDS

In the previous section we have discussed the possibility that words can be defined as syntactic domains with the aim of eliminating the impossibility of movement from the set of phenomena that argue for the autonomy of morphology. We have seen that the proposal has theoretical problems and that it is not clear that the notion of domain used there is the one proposed in minimalist syntax. However, all these considerations would not be necessary if we find an empirical phenomenon that could not be explained by syntactic principles even if we assumed that words constitute phases. This section is devoted to presenting these well-known data, and our contribution to the debate is that we will show that, given our present understanding of syntax, they still argue in favour of the autonomy of morphology.

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<sup>4</sup> To the best of my understanding, any procedure that wants to enforce that, when the root arrives alone to the interfaces, it carries the memory that it has been combined with a specific categorizer require some form of feature checking between the root and the functional head it combined with. However, this would mean that roots, in the lexicon, would already been provided with features that state which categorizers can combine or cannot combine with them, which is a form of denying in practice one of the basic assumptions of DM, namely that roots are not paired with any categorial information whatsoever in the lexicon. Thus I consider this procedure inconsequent with the other assumptions in the system and I will not consider it here.

The source of data comes from anaphoric islands (Postal 1969), namely situations where it is impossible to have a pronoun corefering with a word-internal constituent. Consider the sentences in (13), taken from Spanish (13a), Norwegian (13b) and English (13c).

- (13) a. Juan es [limpia[ventanas<sub>i</sub>]]. Siempre pro<sub>\*i</sub> están sucias.  
 Juan is clean-window. Always pro are dirty.  
 ‘Juan is window<sub>i</sub>-cleaner. They<sub>\*i</sub> are always dirty’  
 b. Jan [[hånd<sub>i</sub>] hilste] på Ole. Den<sub>\*i</sub> var våt.  
 Jan hand-greeted on Ole. It was wet.  
 ‘Jan shook Ole’s hand. It was wet’  
 c. John is a [[truck<sub>i</sub>]driver]. It<sub>\*i</sub> is parked outside.

In all these cases, a pronoun cannot corefer to a noun contained inside a compound, independently of the grammatical category of the compound (noun in 13a, 13c; verb in 13b). The general explanation of this fact is the Lexical Integrity Hypothesis: internal constituents of a word are not accessible for syntactic processes. Compounds are words, and coreference is a syntactic process dependent on notions such as c-command, agreement and syntactic constituency (Lebeaux, 2009 and references therein). Consequently, pronouns cannot corefer with internal constituents of a word. They can, on the other hand, corefer with whole words, as words are heads in syntax.

### 3.1. Is the generalization accurate?

It has been proposed (Lieber, 1992) that the data in (13) are misleading, and that there are instances of word-internal constituents which can be taken as antecedents by pronouns. Most famously, (14) illustrates one of these examples.<sup>5</sup>

- (14) [Reagan]<sub>i</sub>ites no longer agree with him<sub>i</sub>.

The sentence in (14) allows, at least for some speakers, for an interpretation in which the supporters of Reagan no longer agree with Reagan. The question is whether this interpretation is enough to determine that the formal antecedent of the pronoun is the word-internal constituent *Reagan-*, used as a base to form the derivative *Reaganite*. An alternative would be to propose that the antecedent of the pronoun is a discourse-introduced referent which happens to refer to the entity introduced by *Reagan*, but is not the constituent *Reagan-* contained in *Reaganites*. Notice that this is independently true of pronouns: pronouns can be coreferential with objects not represented in the linguistic utterance, provided that their referents were known in the context of discourse (15).

- (15) a. She<sub>i</sub> has claimed that Mary<sub>j</sub> is sick.  
 b. President Obama<sub>i</sub> has always tried to oppose them<sub>j</sub>.

<sup>5</sup> As an anonymous reviewer reminds us, since Postal (1969) it has been noted that sentences like those in (i), where the pronoun is the direct object of the verbs, are generally worse than those where the pronoun is introduced by a preposition. The ultimate reasons is not clear to us.

(i) Chomsky<sub>i</sub>-ans admire him<sub>\*i</sub> a lot

Both sentences in (15) can be uttered at any point in the discourse, and by necessity their reference must be disjoint from the other nominal expression in the linguistic context. In (15a), *Mary* cannot be coreferential with *she* because that would constitute a Principle C infraction, that is, a violation of the principle that states that an expression that is by itself referential cannot have a c-commanding coreferential constituent. The pronoun *she* c-commands *Mary* and, thus, coreference is out. As for (15b), coreference is impossible because the features contained in the pronoun are different from those contained in the referring expression *President Obama*; namely, the pronoun is plural and the referring expression, singular. The fact is, in any case, that the sentences in (15) can be uttered by a speaker at any point in a conversation, provided that at that point the referent of the pronouns is discursively clear.

Authors like Montermini (2006) have argued that the coreference in (14) is pragmatically motivated, among other things because it is improved when the noun is actually a proper name, which is strongly referential and involves a salient object in the discourse. We will present two grammatical tests that show that Montermini is right (and with him, proponents of the pragmatic analysis, like Sproat, 1988). First of all, notice the sentence in (16). This sentence can be interpreted as ‘Reagan does not believe in the Reagan-ists’.

(16) He does not believe in the Reaganites.

If the pronoun was coreferring with the word-constituent *Reagan-*, this sentence should constitute a Principle C infraction, for the same reason that (15a) is incompatible with coreference: the pronoun c-commands the word constituent *Reagan-*. However, if *Reagan-* is not the antecedent of the pronoun, no Principle C effects would arise: the pronoun gets its reference from the discourse, and *Reagan-* is not acting as an antecedent.

We believe that another piece of evidence against the coreference between the pronoun and the word constituent is provided by the sentence in (17).

(17) Monarchists around the world no longer believe in them.

Here, a possible interpretation is ‘Monarchists no longer believe in monarchs’. The pronoun is plural, but there is no reason at all to propose that the word-constituent *monarch-*, contained inside the word *monarchist*, is formally plural. There are no signs of plural morphology in the base, and neither there is in the semantics, as indeed the same constituent is compatible with a necessarily singular reading:

(18) The last attempt to restore a monarchist system was a failure.

Two last comments are in order. First of all, it has to be noticed that the availability of these anaphoras is unstable and different speakers report different judgements, which often are not clear; Postal (1969) finds ungrammatical examples equivalent to those that Lieber (1992) judge acceptable. Secondly, as noticed by Montermini (2006), there are morphological factors, involving the semantic and formal opacity of the base and the productivity of the process that forms the complex word, that can make these anaphoras more acceptable. Despite these interesting nuances, which we will not have the space to develop, the crucial fact for our

purposes is that in any case there are some complex words which behave as anaphoric islands, which is a lexical integrity effect.

### 3.2. *Why Phases are not enough to explain this restriction*

The fact is, then, that in a variety of languages, the fact that a noun is contained inside a word is enough to preclude coreference with a pronoun. At this point, the question that we must ask ourselves is whether this empirical phenomenon is enough to accept that there is a special domain, called ‘word’, whose constituents are invisible for (some) syntactic operations or it is still possible to explain these facts through some notion of syntactic domain, called Phase in the minimalist framework. We believe that these data show, indeed, that words must be taken as special domains and the theory of syntactic phases cannot explain this pattern without stipulations equivalent to accepting that words are special domains different from syntactic phases.

Let us consider the interaction between phases and the coreference of pronouns. Consider the data in (19).

- (19) a. John<sub>i</sub> saw him<sub>j/\*i</sub>  
 b. John<sub>i</sub> says that Peter<sub>i</sub> saw him<sub>j/\*i</sub>.

These data show that a pronoun, as opposed to an anaphor, needs its antecedent –if it is present in the linguistic context- to be in a phase different from the one in which it is included. At the level of the transitive vP, which is a phase, (19a) has the structure in (20).

- (20) [<sub>vP</sub> [John]<sub>i</sub> v<sup>0</sup> him...]

That is, the antecedent of him is in the same Phase as him, and therefore the sentence is ungrammatical. The structure of (19b), where coreference is possible, corresponds to (21), ignoring unnecessary details:

- (21) ... [<sub>vP</sub> [John]<sub>j</sub> v<sup>0</sup> [CP that ... [<sub>vP</sub> [Peter]<sub>i</sub> v<sup>0</sup> him]]]]

Here the pronoun can be coreferential with the referential expression outside its vP phase, and cannot be coreferential with the one inside it. The neat generalization that follows from here is that a pronoun needs its antecedent to be in a different phase.

The distance and the level of embedding of the antecedent are irrelevant, as illustrated in (22). (22a) contains an antecedent inside a vP phase contained inside a CP relative clause phase inside a DP phase. Coreference is still possible. In (22b) the antecedent is embedded in a vP phase inside a CP phase inside a CP relative clause, inside a DP in subject position, inside a conditional CP, and this does not preclude coreference either. Coreference is possible whenever the antecedent is in another phase.

- (22) a. [<sub>DP</sub> The person [<sub>CP</sub> that Mary introduced<sub>v</sub> [<sub>vP</sub> t<sub>v</sub> to John<sub>i</sub>]]] already knew him<sub>i</sub>.  
 b. [<sub>CP</sub> If [<sub>DP</sub> the person [<sub>CP</sub> that said [<sub>CP</sub> that saw<sub>v</sub> [<sub>vP</sub> t<sub>v</sub> the documents<sub>i</sub>]]]]] was here], he could describe them<sub>i</sub>.

It is easy to see now why the theory of phases cannot explain the impossibility of coreference to a word-internal constituent. Let us assume for one second that a word is a phase (represented XP in 23). In that case, a pronoun external to the word should be able to corefer to the word-internal constituent, as this will be in a phase different than the phase that contains the pronoun, as shown in (23), whose structure would be similar to (22a).

(23) [<sub>DP</sub> The [<sub>XP</sub> truck driver]] left it parked outside.

However, *it* cannot corefer with *truck*. This is unexpected under the light of the data that we have just considered. Provided that the antecedent is in a different phase than the pronoun, whatever makes (22) grammatical should make *it* possible that it picks *truck* as the antecedent in (23). Empirically, this is clearly not so.

Consequently, a syntactic analysis of words as phases -even if it overcomes the problems discussed in the previous sections- would not be able to give account of these data. The alternative would be to accept that words are phases with some special property that somehow makes them completely opaque to coreference. However, once that we forget about the terminology used, this ‘phase with special properties’ is nothing more than a domain opaque for some syntactic operations, which is precisely the description of what Lexicalism calls a ‘word’. Ignore the terminology for one moment: the fact is that this pattern provides evidence for a non-syntactic autonomous domain.

There are other potential alternatives to explain the impossibility of pronominal coreference with a word-internal noun in a syntactic framework. One possibility would be to say that, in order to be part of a word, the noun must lack some functional layers which are independently necessary for being the antecedent of a pronoun; these layers can be those that provide a noun with reference or those that provide it with an index of identity. Another possibility would be that the noun is too embedded inside a structure that can itself be a potential antecedent; this would be a standard relativized minimality effect (Rizzi, 1990). In the remainder of this section, I will address each one of these alternatives and show why they cannot be adopted.

### 3.2.1. *Why other alternatives do not work: determiners and coreference*

One possibility would be to say that the domain created by the word is irrelevant, and that coreference is impossible simply because a constituent internal to the word is going to lack the relevant syntactic projections that make coreference with a pronoun possible. An obvious possibility would be that this domain is the DP.<sup>6</sup> This was suggested in Fábregas (2005). The reasoning is the following: in order to combine two or more heads inside a ‘word’, syntactic incorporation must take place (Baker, 1988). However, incorporation is syntactically restricted to lexical categories, and as such is blocked by the presence of any functional projection, such as DP or TP.

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<sup>6</sup> It is worth mentioning that the DP has been suggested to be also a syntactic phase (Chomsky 2000) and that perhaps one would want to say that DPs are necessary to allow something be the antecedent for pronouns; for instance, the edge of the DP phase could remain and the transferred constituent (NumP or NP) would be transferred to the interfaces, where the antecedent-pronoun relation would be computed. However, this section shows that it is not necessary that DPs are built to allow coreference, so in the remainder of the section we will not discuss whether DPs are phases, as it is orthogonal to our reasoning.

- (24) a. [VP V [NP N]]  
 b. [VP V [DP D [NP N]]]

In (24a) the N can incorporate to the V, as they are both lexical categories. In (24b), in contrast, N will never incorporate to V because between the two heads there is a functional projection, D, which blocks incorporation. The argument goes that if D will always block incorporation, only nouns without determiner features will be able to be part of a word. On the assumption that a pronoun corefers with a DP and not with a noun, it follows that coreference will never be able to pick a constituent of a word: if the word could be formed in the first place, that is because there is no DP inside it.

This explanation depends on two assumptions: that words are constructed in the syntax via head-movement and that there is a neat distinction between functional and lexical heads. Both assumptions are problematic, but we will not discuss their problems here, mainly because, on closer inspection, the theory proposed by Fábregas (2005) is obviously unable to explain the data independently of these problems. The reason is simple: pronouns do not need to corefer with the DPs; they can look inside them and corefer with smaller units contained in them (perhaps NP or NumP). Consider (25).

- (25) Many linguists believe that they are not taken seriously.

This sentence allows for a reading –indeed, the most natural reading– in which the referent of *they* is not *many linguists*, but the noun *linguists* contained in that phrase. The most natural interpretation of (25) is that many linguists have the belief that linguists –in general– are not taken seriously. This shows, in the first place, that the pronoun does not need to take the higher functional projections that dominate the noun as its antecedent. What is being taken as the antecedent? One possibility would be to claim that the quantifier escapes from the nominal construction (as one anonymous reviewer suggests) and leaves behind a structure which is interpreted as generic. However, English has a null determiner with generic meaning, and it could be this what forces the generic reading. Notice that English can have plural bare nouns in a generic interpretation, as in (26).

- (26) Linguists are people who like to play with ideas.

This would mean that pronouns, after all, need some DP structure to take a noun as their antecedents. However, this way of interpreting the data does not seem to be right for Spanish, because in this language the generic reading requires an overt determiner in subject position (27a). Independently, the determiner can appear with the quantifier (27b). Importantly, the combination of the determiner with the quantifier blocks the generic reading

- (27) a. \*(Los) lingüistas son personas que juegan con las ideas.  
 The linguists are people who play with the ideas  
 ‘Linguists are people who play with ideas’  
 b. los muchos lingüistas del mundo  
 the many linguists of-the world

Keeping these two pieces of data in mind, consider the example (28). This is the Spanish translation of (25), and has the same interpretation as the English example.

- (28) Muchos lingüistas creen que *pro* no son tomados en serio.  
Many linguists believe that *pro* not are taken in seriously.  
'Many linguists believe that they are not taken seriously'

The example (27b) has shown us that the quantifier, combined with the determiner, blocks a generic reading. This means that the antecedent of *pro* in (28) cannot be the DP/QP layer of the subject, as this layer does not have a generic reading in the antecedent. (27b) also showed us that quantifiers are morphologically compatible with determiners; this shows us that there are no independent reasons to believe that in (28) the quantifier is actually a portmanteau morpheme that spells out both the determiner features and the quantifier features.

How can we explain, then, that the pronoun in (25) and (28) gets a generic reading without referring to a DP which in (28) will not have a generic reading? One possibility, which we would like to treat as a suggestion, is that the generic reading is obtained by referring to the whole class denoted by the noun, and not to any of its individuals. It can be proposed that this generic reading is obtained when the pronoun refers directly to the NP, which denotes in itself a kind (Chierchia, 1984). There are syntactic conditions which may vary from language to language (see Delfitto, 2006 for a recent state of the art on the topic) that dictate the formal marking that a noun with a generic reading has to adopt in different contexts to denote a kind (Chierchia 1998), but it is generally accepted that nouns -or at least a functional projection of the noun phrase which does not include the quantifiers and the determiners (Zamparelli 2001)- can denote kinds both in Romance and Germanic languages. The simplest explanation of (25) and (28) is that, abstracting away from the morphophonological marking, in both cases the DP layer of the subject is unable to denote a generic, but the NP layer is. In order to explain that the pronoun takes a generic reading, then it seems to make sense that it takes as its antecedent a constituent which does not include the DP layer.

These examples show, then, that Fábregas (2005) explanation of the pattern in a purely syntactic framework was wrong. If the data are as in (25) and (28), showing that a plural bare noun can be taken as an antecedent of a pronoun, we should expect that the same kind of noun, contained in a compound, would also be a possible antecedent for a pronoun, unless the compound is some special kind of domain different from a syntactic phase.

Importantly, even if our explanation of the generic reading is wrong, the fact remains that pronouns do not need to look for their antecedents in whole DPs. Additional evidence that this is true comes from other constructions in Spanish and Norwegian. In both languages, it is possible to have bare objects when the verbal predicate expresses a property that, pragmatically, classifies the subject in a predefined group of entities (in 29, the people that own a car as opposed to those that don't drive or use public transport). However, it is possible that a pronoun corefers with this bare object. Notice that in Norwegian the noun does not even have the suffixal determiner *-en*, which has been analyzed as a low determiner functional projection (Andersen, 2006), which provides additional evidence that the pronoun can corefer directly to the noun.



- (29) a. Juan tiene coche<sub>i</sub>. pro<sub>i</sub> Está en el garaje.  
 Juan has car. pro Is in the garage.  
 ‘Juan has a car. It is in the garage’  
 b. Jan har bil<sub>i</sub>. Den<sub>i</sub> står i garasj-en.  
 Jan has car. It stands in garage-the  
 ‘Juan has a car. It is in the garage’

The data in (30) show that the pronoun must be identical in features to their antecedents, showing that in (29) the pronoun does not take a discourse antecedent (in contrast with what happened in 17).

- (30) Juan y María tienen coche<sub>i</sub>. \*pro<sub>i</sub> Están en el garaje.  
 Juan and María have car. pro Are.plural in the garage.  
 ‘Juan has a car. They are in the garage’

Thus, we conclude that there is evidence that a pronoun can corefer with an NP, and, therefore, that the lack of functional projections inside a word does not explain the data.

### 3.2.2. *Why other alternatives do not work: lack of index of identity and conditions on phrases*

What if the noun inside a word is not defective because some DP structure is lacking, but rather because it does not have its grammatical category defined? Baker (2002) argues that the category known as noun is defined by the presence of a head called little *n*, whose semantic contribution is to provide the noun with an index of identity. This index of identity is used to determine when two or more linguistic occurrences refer to the same entity. Assume for one moment that little *n* is a functional head necessary to introduce this index of identity. It is clear that, when it is absent, no pronoun would be able to corefer with the noun, because the noun would lack an index of identity and therefore coreference would be meaningless, because the identity of the object is undefined. If, inside a word, a noun lacks the projection of little *n*, then we could explain the unavailability of coreference like that.

The additional plausibility of this approach could be strengthened by Patel-Grosz & Grosz (2010), which argue that the minimal size of the antecedent of a pronoun has to be a noun phrase. Thus, we could argue, if inside a complex word the antecedent is not defined as an NP, coreference will be impossible.

Is this position tenable? We believe that it is not. In the framework where a head like little *n* is proposed -Distributed Morphology-, this is the head responsible for categorizing a root (or a more complex structure) as a noun. As such, this head corresponds to the nominalizing affixes, like *-ation*, *-er* or *-ness* in English (31). This is not a proposal which Distributed Morphology can eliminate easily; notice that, in order to explain why words ending in these suffixes cannot be used as adjectives or verbs (32), it is necessary to assume that the suffixes categorize the word as a noun. As these suffixes are in a one-to-one relation with a particular grammatical category, they cannot be roots –syntactic objects without category information-, but categorizers themselves. By this reasoning nominalizers must belong to the little *n* category.

- (31) Some English little *ns*, according to Distributed Morphology

- ity (*acidity*), -ment (*government*), -ation (*christianization*), -er (*driver*)
- (32) a. the acidity vs. \*to acidity vs. \*very acidity  
 b. the government vs. \*to government vs. \*very government  
 c. the christianization vs. \*to christianization vs. \*very christianization  
 d. the driver vs. \*to driver vs. \*very driver

If a head like little *n* exists, the units in (31) must spell it out. We have now a way of testing the proposal that nouns inside words lack a little *n* head (and, therefore, would lack an index of identity). The proposal makes a straightforward prediction: if little *n* is absent, nouns inside compounds and derived words will never contain the morphemes in (31).

This prediction is automatically falsified by the data. There is no constraint banning these affixes from appearing inside compounds (33), and their presence does not make pronominal coreference any easier (34).

- (33) a. govern-ment supporter  
 b. air canaliz-ation adapter  
 c. humid-ity measurer  
 d. taxi driv-er attacker
- (34) a. He is a [government<sub>i</sub> supporter], so he thinks that it<sub>\*i</sub> is efficient.  
 b. I bought some [air canalization<sub>i</sub> adapters] because it<sub>\*i</sub> was not working.  
 c. When we used the [humidity<sub>i</sub> measurer] we saw that it<sub>\*i</sub> was too high.  
 d. The [taxi driver<sub>i</sub> attacker] had to confront him<sub>\*i</sub> during the trial.

We conclude that there is no reason to think that nouns contained inside words lack a little *n* and, thus, that this explanation is not a viable alternative.

Notice at the same time that examples like (34) argue against another potential analysis of anaphoric islands, namely that the antecedent of the pronoun must always be a phrase and not a single head. In a syntactic framework of word formation such as Distributed Morphology, a word like *government* is a phrase, as it involves at least two heads merged together in the syntax. Thus, given this framework and this set of assumptions, coreference to this word in (33a) is impossible, as shown in (34a). Either the assumption that words are phrases is wrong or the assumption that antecedents must be phrases is wrong. Either way, morphology scores one point.

### 3.2.3. Why other alternatives do not work: a minimality-based explanation

At this point we have eliminated the possibility that the absence of coreference is due to some deficiency on the noun contained inside a word. However, before conceding that words are domains different from phrases, we could try to explore another alternative. What if coreference to a word constituent is blocked by the presence of another potential coreferent, higher than the constituent? Consider the compound *truck driver*. It is a noun, and as such it can corefer with a pronoun (35); maybe the fact that the whole word can be an antecedent makes it impossible that a constituent of the word is taken as an antecedent. This would be a minimality violation: given two potential targets for the same operation, the closest one must be used. The fact

that the whole word is a noun blocks coreference with a noun embedded inside the word.

- (35) The [truck driver]<sub>i</sub> said that he<sub>i</sub> had been robbed.

This explanation is also flawed. The minimality proposal would only work for the cases in which the word is a noun. Only in these cases could we have a situation in which there are two equal targets for coreference, one embedded inside the other. We would expect that, when the word is not a potential target for coreference because it is an adjective or a verb, coreference with the noun embedded under it should be possible. This prediction is falsified (cf. 36a, repeating the Norwegian example in 13b; 36b)

- (36) a. Jan [[hånd]<sub>i</sub>] hilste]<sub>v</sub> på Ole. Den<sub>\*i</sub> var våt.  
Jan hand-greeted on Ole. It was wet.  
'Jan shook Ole's hand. It was wet'  
b. That experience was [life<sub>i</sub> threatening]. I saw it<sub>\*i</sub> pass before my eyes.

Moreover, this kind of minimality effects otherwise never takes place with pronouns. Notice the sentence in (37), from Spanish. Here, the pronoun *pro* can be coreferent with any of the three DPs, even though each one of them is embedded under the previous one. The sentence, indeed, allows for three relevant readings: the pronoun refers to Juan, his stepfather or the stepfather's brother. There are no minimality effects in these case, so the question is why one would expect to find them when the antecedent is inside a word.

- (37) [El hermano<sub>i</sub> de [el padrastro<sub>j</sub> de [Juan<sub>k</sub>]]] contó que pro<sub>i/j/k</sub> estaba...  
The brother of-the stepfather of Juan told that pro was...  
'Juan's stepfather's brother told that he was...'

We conclude, then, that the minimality explanation is not a viable alternative either. At this point we have excluded the three analysis that, to the best of our knowledge, had a best chance to explain the restriction from a syntactic perspective: the absence of determiner features, the absence of an index of identity and a minimality violation. The inescapable conclusion at this point is that words form a domain distinct from syntactic phases.

#### 4. CONCLUSION

This article has presented theoretical arguments and empirical evidence against the proposals that analyze words as syntactic phases, and has shown that there exists at least one Lexical Integrity effect that cannot be explained by syntactic means. To the extent that words seem, under the light of these data, seem to form a domain inside which pronouns cannot find their antecedents, this article has shown that our present understanding of syntax does not allow us to reduce Lexical Integrity to a syntactic phenomenon and that, despite the radical changes experienced in the field during the last 20 years, there is still sufficient empirical evidence to argue for the autonomy of morphology. Crucially, the evidence that has been discussed in this paper is independent from the operations used for word formation. These operations could be

taken from the same set of (perhaps universal) relationships and units that syntax operates with, and morphology would still be distinct from syntax because the resulting structures constitute different domains. In this sense, we believe that the results obtained by this article are compatible with a proposal such as the one in Ackema & Neeleman (2004), in which morphology is an independent module inside the general computational system which combines units in structures.

It is perhaps illuminating that, after more than thirty years, at least some of the phenomena covered by the Lexical Integrity Hypothesis remain impervious to syntactic analysis. We have now a much better understanding of the operations allowed by syntax and of the nature of syntactic structures and processes. This makes it possible to state these questions in a more precise way than it was possible some thirty years ago, and as such it is now easier to spot the differences between syntactic and morphological structures. We are now in a better position to argue that phenomena such as the absence of coreference with word constituents were not thought to constitute evidence for the autonomy of morphology on the basis of a poor understanding of syntax, but still constitute strong evidence that is very difficult to deal with, despite the recent developments in the field.

This article has tried to adopt the strategy of conceding as many assumptions as possible to a framework where word formation is syntactic, Distributed Morphology, in order to show in the fairest possible way that, even if these assumptions are allowed, Lexical Integrity effects still argue in favour of the autonomy of morphology. Due to this reason, we have assumed a morphemic analysis of words and, more precisely, that words have an internal structure, although we are aware of a number of alternative proposals to cope with Lexical Integrity (cf. Anderson, 1992). As the reader will have noticed, this article does not provide any kind of evidence in favour of none of these two approaches, and our arguments would stay also if words were assumed not to have an internal structure. The only contribution that we hope to have made to the debate is that words cannot be reduced to syntactic phases.

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