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On the Lexical Integrity Hypothesis and its (In)accurate Predictions[1]

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Abstract: The *Lexical Integrity Hypothesis* (LIH) holds that lexical items are syntactic atoms, which implies that neither their segments nor their semantic components are accessible to syntax. LIH is, thus, a double-faced hypothesis, since its predictions are relevant for both the syntax-lexicon interface and the morphology-syntax distinction, and specifically the controversial issue of whether or not morphology is an independent component of the Grammar. Both sides of LIH are addressed in this paper through a series of syntactic tests (movement, scope, modification, anaphora, ellipsis, coordination), which are shown to often give different results depending on whether the grammatical units targeted are semantic components (and lack phonological features) or morphological segments. LIH is shown to be only partially wrong. Its failures, which cannot be dismissed, are shown not to be random, since, to a large extend, they depend on the grammatical properties of the relevant components of lexical items.

Keywords: *lexical integrity, morphology, morphology-syntax distinction, semantic layers, lexical structure, interfaces.*

Resumen: La hipótesis de la integridad léxica (HIL) sostiene que las palabras son átomos sintácticos, lo que implica que ni sus segmentos ni sus componentes semánticos son accesibles a la sintaxis. La hipótesis posee, en consecuencia, dos caras, ya que sus predicciones son relevantes tanto para la interfaz léxico-sintaxis como para la distinción morfología-sintaxis, y en particular en relación con la controvertida cuestión de si la morfología

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constituye o no un componente independiente de la Gramática. Ambas caras de la hipótesis son abordadas en este trabajo a través de una serie de pruebas sintácticas (movimiento, ámbito, modificación, anáfora, elipsis, coordinación), que dan lugar a resultados diversos en función de si las unidades afectadas son componentes semánticos (y carecen, por tanto, de rasgos fonológicos) o son segmentos morfológicos. Se defiende aquí que la HIL es solo parcialmente falsa. Sus fallos, que no pueden ser desestimados, no son tampoco arbitrarios, ya que en buena medida están en función de las propiedades gramaticales de los componentes de las piezas léxicas afectadas.

Palabras clave: *Integridad léxica, morfología, distinción morfología-sintaxis, niveles semánticos, estructura léxica, interfaces.*

Resumo: A Hipótese da Integridade Lexical (LIH) defende que os itens lexicais são átomos sintáticos, o que implica que nem os seus segmentos nem os seus componentes semânticos são acessíveis à sintaxe. A LIH é, assim, uma hipótese de dupla face, uma vez que as suas previsões são relevantes para a interface sintaxe-léxico e para a distinção morfologia- sintaxe, assim como, mais especificamente, para a questão controversa da existência ou não da morfologia como uma componente independente da Gramática. Ambos os lados da LIH são abordados neste artigo a partir de uma série de testes sintáticos (movimento, escopo, modificação, anáfora, elipse, coordenação), que muitas vezes geram resultados diferentes, dependendo de as unidades gramaticais visadas serem componentes semânticas (e sem traços fonológicos) ou segmentos morfológicos. A LIH é apresentada para ser apenas parcialmente errada. As suas falhas, que não podem ser ignoradas, demonstram não são aleatórias, uma vez que, em grande medida, dependem das propriedades gramaticais dos componentes relevantes dos itens lexicais.

***Palavras-chave*:** *integridade lexical, morfologia, distinção morfologia-sintaxe, níveis semânticos, estrutura lexical, interfaces.*

1. Two ways of approaching the Lexical Integrity Hypothesis

The so-called *Lexical Integrity Hypothesis* (LIH), implicit in traditional conceptions of Grammar, is explicit in most formal theoretical frameworks since the late 70's (Lapointe 1978, Selkirk 1982, Di Sciullo & Williams 1987, Anderson 1992, etc.). The LIH simply holds that words are syntactic atoms, which implies that neither their segments nor their semantic components are accessible to syntax.

As such, the hypothesis is both too strong and too weak. If it were absolutely wrong —as sometimes has been claimed to be—, most morphological treaties and monographs would simply deal with no specific topic at all (and, by extension, possibly most dictionaries and grammars). But, at the same time, we cannot simply take the LIH for granted. Even if we accept some mild version of it, the number of wrong predictions it makes is high enough to cast serious doubts on its feasibility, no matter how widely spread or deeply rooted in traditional grammar it turns out to be.

As it is well-known, failures of the LIH are not expected in lexicalist models of Grammar (Chomsky 1970; Williams 1981; Di Sciullo and Williams 1987; Anderson 1992; Aronoff 1994; Ackema 1999, etc.), since the syntax has no access to the word-formation rules postulated in those theories. On the contrary, theories of Grammar which do not adopt the morphology-syntax distinction are supposed to be better candidates to account for the wrong predictions of the LIH. These frameworks include Distributed Morphology (DM; Halle & Marantz 1993; Harley & Noyer 1999; Marantz 1997, 2001; Embick & Noyer 2007; Siddiqi 2009), Borer's (2003, 2005) exo-skeletal theory, and Nanosyntax (NS, Ramchand 2008; Caha 2009; Starke 2009), among other models which not only lack a morphological component, but —usually— also a lexicon. Although there exist many relevant differences between these theories, structures are generated in most of them by combining primitive grammatical features and providing phonological content to sets of syntactically ordered nodes.

Needless to say, the very existence of non-lexicalist theories of Grammar does not guarantee that the numerous attested exceptions to the LIH will be properly accounted for in these frameworks, anymore than a good scalpel does not tell the surgeon where exactly he or she must cut. But, crucially, most problems posed by LIH are "problems of cutting off", sometimes in areas in which very small distances make big differences.

As it is obvious, anyone who dispenses with the morphology-syntax distinction must account, in some different way, for everything the distinction accomplishes. Take the simple DP *a slow composition*, and consider this natural question: "What specific grammatical principle allows us to explain the fact that this phrase does not refer to some piece of music that has been composed slowly?" The straightforward answer is "LIH", since LIH prevents the adjective *slow* from having access to the nominalization's verbal base (i.e., *compose*). But another, ever simpler, answer to this question might have gone as follows: "This interpretation is ruled out because Morphology exists", that is, because there is a part of Grammar devoted to the organization of word components, and because this internal organization has no effects outside the word.

Morphology deniers (in the sense of "deniers of the independency of morphology as a part of Grammar") would probably question this reasoning. There are several ways to do so. One way is to mark words as opaque domains inside syntactic structures (Lieber 1992). Another way is to extend the notion of *phase* to word structure, as proposed by DM. Fragments of syntactic structure that have evaluated their relevant features cease to be active and may be spelled out. In our example, the suffix *-tion* is a categorized syntactic head taking a verbal complement. Once the relevant grammatical features (such as those forcing V° adjunction to N°, as well as others relative to agreement) have been checked, these syntactic segments would not be active anymore. They become

opaque to syntactic operations (*lexicalized*, in traditional terms) and can be thought of as if they were not there, hence inaccessible to further computations. Since grammatical structures may vary according to the point of the derivation in which they are spelled out, what we call *words with morphological structure* would simply be —from this particular theoretical point of view—, the traditional name for a series of syntactic structures subject to early spell out.

Notice that there are two issues in this controversy that seem to be relevant for LIH. They may be characterized through different sets of questions:

a) What specific alternative formal theory would allow us to account for the predictions that the traditional distinction between morphology and syntax accomplishes?; Are *phases* the appropriate theoretical instrument to account for the variation attested as regards LIH phenomena?

b) LIH has been proved to fail sometimes, but where exactly are LIH failures found?; In which specific grammatical structures are LIH violations detected, as well as not detected?; Would the analysis of these structures shed some light on the basic nature of LIH?

I am afraid I do not have much to say about the questions in (a). The standard, positive, DM answer to the question whether phase spell out is able to pre-empt the traditional morphology-syntax division has been criticized by Lieber & Scalise (2006) and Fábregas (2011), among others. As Lieber & Scalise (2006) put it, from DM accounts of LIH, one should perhaps infer a much larger set of interactions between syntax and morphology than we actually find. Notice that, if all word-formation were accomplished in the syntax, dictionaries would include no derived words at all, just as they contain no phrasal projections, since all the information in those entries would simply be redundant. The fact that dictionaries include morphologically derived words (many thousands, in fact, in those written for Germanic, Romance and Slavic languages) does not seem to reveal that something is wrong with lexicographers, but rather the particular status of words as structured units associated with particular meanings.

Accounts of LIH in Lexical Functional Grammar are discussed in Asudeh *et al*. (2008); those framed in Construction Grammar are explained in Booij (2005, 2009, 2010); on functional solutions to LIH infractions see Haspelmath (2002, 2011). Other options exist. In this paper, I will remain silent about (a) and I will concentrate on some aspects of (b), mostly in relation to the grammar of Spanish.

Notice that the perspective in (a) basically addresses the question of how the architecture of Grammar would be once we have decided whether the hypothesis is right or wrong. On the contrary, the questions in (b) present LIH strengths and weaknesses as empirical problems, since both its correct and

incorrect predictions should be derived in principled grounds. Ackema & Neeleman (2002) are right in pointing out that one has to decide whether LIH is an axiom, a corollary of the structure of Grammar, or an epiphenomenon; but the three answers assume that LIH is correct, a supposition they show to be only partially true. Keeping with the analogy I have introduced, we might say that (a) is about having or not having a good scalpel, whereas (b) is about where and when we must cut off.

I would like to recall that one basic —although not often emphasized— property of LIH is its double-faced nature, as Postal (1969) explicitly pointed out: some of the phenomena that the hypothesis covers are related to the syntax-lexicon interface, whereas some other aspects of LIH are relative to the traditional morphology-syntax distinction. In the former case, we might expect LIH violations in which syntactic processes have access to semantic components of words; in the latter case, we expect violations as those discussed in the literature I have just referred to: phrasal prefixes, compounds, attached particles (particularly in Germanic languages), complex predicate formation (particularly in relation to Japanese causatives and similar phenomena in other languages), complex structures in agglutinating languages, etc.

In any case, violations of both types are expected to be restricted. Both of them question the LIH, but they do so in quite different ways. Since words are acknowledged to be composed by set of features, I suggest that we should carefully examine the grammatical structures targeted in the supposed violations of LIH, distinguish the real violations from the merely apparent ones, and attempt to derive the former from the grammatical properties of the features involved in the relevant structures. Since these tasks are too vast to be accomplished in a short paper, I will restrict myself to sketching the general guidelines that one could follow to pursue those objectives.

2. Three variants of the hypothesis

The double-faced nature of the LIH shows that it contains too much information. Let us then decompose it in three more restricted principles:

(1) a. LIH-1: Syntactic processes do not have access to the semantic components of lexical items.

b. LIH-2: Syntactic processes do not have access to morphological components of (simple) lexical items.

c. LIH-3: Syntactic processes do not have access to the components of complex lexical items.

Postal's (1969) classical "orphan's example", adapted to Spanish in (2), nicely illustrates (1a), since LIH-1 prevents a semantic component of the word *huérfano* 'orphan' (namely, "parents") to become the antecedent of a pronoun:

(2) *Max es huérfano y los echa mucho de menos.
Max is orphan and they-MASC.ACC t hrow-3.PRES much of less
'Max is an orphan and he deeply misses them'

As regards (1b), it can be illustrated by any standard anaphoric island violation:

(3) *La mayor parte de los [europ]eos no [le] ven un futuro
the biggest part of the Europeans not it-DAT see-3.PL.PRES a future
halagüeño.
promising
'The majority of Europeans do not see a promising future in it'

The asterisk in (3) is restricted to the intended interpretation: that in which the antecedent of the pronoun *le* ('it') is the noun *Europa.* The problem with (3) is parallel to the one with (2); the difference lies in the fact that the relevant component that some pronoun cannot target is morphological in (3), but semantic in (2).

LIH-3 cannot be reduced to LIH-2, since the properties of complex particles, locutions and other idioms do not exactly coincide with those of simple words. LIH-3 is illustrated in (4):

(4) A juicio (*unánime) de nuestros abogados, la demanda no
To judgment unanimous of our lawyers the demand not
prosperará.
succeed-3.PL.FUT
'According to the (unanimous) judgment of our lawyers, the demand will not succeed'

That is, *juicio* ('judgment') is a noun, but it cannot receive an adjective in (4), since it is integrated in the complex preposition *a juicio de* ('in x's opinion'). As we see, the relevant components of LIH-1 are semantic features; those relevant for LIH-2 are morphemes, and those targeted by LIH-3 are words.

I will not discuss LIH-3 here for various reasons, besides lack of space. Perhaps the main problem with idioms is the fact that they are commonly taken to be *lexical items*, that is, a certain type of linguistic unit that is said to apply to simple words and some compounds[2]. As it is well-known, idioms seem to reject some defining properties of lexical items, including insertion of lexical material inside their segments[3], a typical syntactic trait. But on the other hand, idioms

[2] I can only mention a few titles on the much-discussed issue of the grammatical properties of idioms: Jackendoff (1977); Nunberg *et al.* (1994); Everaert *et al.* (1995); O'Grady (1998); Mateu & Espinal (2006, 2007) and Espinal & Mateu (2010). On the syntactic aspects of Spanish idioms, I refer to Buenafuentes de la Mata (2007) and Alonso Ramos (2009), as well as the overviews in García-Page (2008) and Mendívil Giró (2009).

[3] Here is a simple example with the transitive VP idiom *tomar el pelo* ('tease'):

are described in dictionaries because they are not phrases freely constructed in the syntax. They are also restricted in the capacity to coordinate their components, allow for passives, modal verbs or variants with wh- phrases, and admit structures in which an external pronoun refers to some of their nominal constituents. The extreme variation that one finds as regards the degrees of compositionality in idiom structures does not lead us to directly exclude LIH-3 from (1), but it certainly suggests that the proper generalizations on the syntactic behaviour of idioms are not clear enough for the time being.

The LIH is generally formulated in negative terms or interpreted as a series of constraints, and so are the three variants in (1). Perhaps a more accurate version of LIH or its variants should be formulated in a positive form, as most generalizations are, given that LIH is not a filter. Applying this methodological principle, we would substitute (1b) for something like "Syntactic processes have access to words and phrases". The very fact that "positive formulations" of the LIH come close to simple definitions of parts of Grammar is, it seems to me, an interesting —as well as welcome— result. As the tradition clearly stated, words are, at the same time, the ground of syntax and the ceiling of morphology, and it is exactly those upward and downward borders that LIH violations put into question. Let us briefly see to what extent they do.

3. Lexical integrity and the syntax-lexicon interface

3.1. Anaphora

I suggest that syntactic structures may be used as test benches for LIH variants, so that we can find out whether they pass or they fail these series of exams. Proceeding in this way, we can first notice that LIH-1 successfully passes the tests related to ANAPHORIC PHENOMENA. This is exactly what the expected ungrammaticality of (2) shows. More generally, LIH-1 is a rather strong hypothesis as regards reference, but somehow weaker as regards other syntactic phenomena, as I will shortly show. In fact, I have only been able to find a few systematic exceptions to LIH-1 in Spanish in relation to anaphora. They involve some person nouns associated with duals, such as *pareja* ('couple') or *matrimonio* ('married couple'). Here is an example:

(i) a. Tomar el pelo mucho a alguien.
take the hair much to someone
'Tease someone very much'

b. Tomar mucho el pelo a alguien.
take much the hair to someone
'Tease someone very much'

(5) Algunos matrimonios son muy felices aunque ella sea
some married-couple.PL are very happy-Pl though she be-3.PRES.SUBJ
mucho mayor que él.
much older than him
'Some married couples are very happy, even if she is much older than him'

This example constitutes a flagrant LIH-1 violation, since the LIH-1 wrongly predicts that the antecedent of *él* ('he') and *ella* ('she') will be found in the preceding discourse, rather than in the lexical structure of the noun *matrimonio*. Interestingly, the semantic components of these dual nouns may provide syntactic antecedents for other pronouns, as in the example (6), attested in a journal, which was brought to my attention by Á. Gallego:

(6) Esta pareja está casada, pero no el uno con el otro.
this.FEM couple is married-FEM but not the one with the other
'The members of this couple are married, but not with each other'
[ABC, 30-06-2011]

I suggest that this peculiar property is related to the fact that the pronouns in (5) and (6) exhaustively cover the denotation of the dual noun. If this is on the right track, a purely pragmatic analysis involving part-whole relations, as in the typical cases of associative anaphora (Kleiber 2001 and much subsequent work) would not work for (5)-(6). Notice that, whereas a loose pragmatic part-whole relation is enough to licence the presence of the definite article *la* in *la puerta* ('the door') in (7a) —on the encyclopaedic basis that every building has a door—, we cannot call on a pragmatic principle of this sort to account for (7b), since the pronoun *él* cannot stand for *el alcalde* ('the mayor') in this sequence:

(7) a. Me acerqué a la alcaldía, pero la puerta estaba cerrada.
Me approached to the city hall but the door was closed-FEM
'I dropped by the City Hall, but the door was closed'

b #Me acerqué a la alcaldía, pero él no estaba.
Me approached to the city hall but he not be-3.IMP.IND
'I dropped by the City Hall, but he was not there'

As it is obvious, (7b) is intended to be used in a context in which no previous reference to a mayor has been made. Let me remark that the property of dual nouns that allows for (5) or (6) is not to be confused with the capacity of singular collective nouns to trigger plural number features, either in verbal or pronominal inflection. That is, (8a) is a grammatical sentence in the interpretation in which *ellos* ('they') refers to *su familia* (a DP made out of a singular collective noun), but it is not grammatical in the reading in which *ellos* refers to a subset of that family, such as the children or the grandparents:

(8) No ve a su familia desde hace meses, pero
not see-3.SING.PRES to his/her family from make-3.SING.PRES months but
se acuerda mucho de ellos.
remember-3.SING.PRES much of them-MASC
'S/he has not seen his/her family for months, but s/he thinks about them very much'

On some possible LIH-1 anaphora violations in English related to the verbal predicate *bring about*, see Lakoff (1970) and Lakoff & Ross (1972).

3.2. Coordination and movement

Let us now try to use COORDINATION in our test bench for LIH-1. Results are even more neat and straightforward in this case, since LIH-1 clearly passes coordination tests: no semantic component of a word can be coordinated with an overt expression under any circumstance. We may reasonably assume that *sacar* ('take out, pull out') involves a causative component, which the verb *hacer* 'make' might represent, and also an intransitive verb of movement (*salir* 'go out'). The contrasts in (9) are entirely expected according to the LIH-1:

(9) a. Juan {hizo salir / sacó} al caballo.
Juan made go-out took-out to-the horse
'Juan {made the horse go out / took out the horse}'

b. Juan {hizo salir / *sacó} y trotar al caballo.
Juan made go-out took-out and gallop-INF to-the horse
'Juan {made the horse go out and gallop / took out and gallop the horse}'

MOVEMENT tests for LIH-1 are hard to design, since attempts will surely end up as something else, most probably standard cases of the coordination structure constraint. In fact, since components targeted by LIH-1 lack phonological features, no movement and coordination violations of LIH-1 are expected to be found. We may thus conclude that movement and coordination represent no problem for LIH-1.

3.3. Modification

LIH-1 successfully passes COORDINATION and MOVEMENT tests, and also ANAPHORA tests, with a peculiar exception related to dual nouns. But if we move to MODIFICATION tests, we will realize that results are not so neat. Let us first consider some cases for which LIH-1 makes the appropriate predictions, and then turn to violations. LIH-1 correctly predicts that (10a) will be roughly equivalent to (10b), but not to (10c), since only in the former sentence the manner adverb targets the highest verbal predicate:

(10) a. La mató voluntariamente.
her-ACC killed voluntarily
'S/he killed her voluntarily'

b. [Hizo que ella muriera] voluntariamente.
made that she die-3.IMP.SUBJ voluntarily
'S/he [caused her to die] voluntarily'

c. Hizo que ella [muriera voluntariamente].
made that she die-3.IMP.SUBJ voluntarily
'S/he caused her [to die voluntarily]'

But problems arise if we consider other adverbs. Morgan's (1969) old observation that the scope of the adverb *almost* has access to inner semantic components of words holds for Spanish *casi* ('almost'), since (11a) is ambiguous between the interpretations in (11b) and (11c):

(11) a. Juan casi llenó el jarrón.
Juan almost filled the vase
'John almost filled the vase'

b. Juan was about to fill the vase (but he finally did something else).

c. The vase became almost filled as a consequence of Juan's action.

Other manner adverbs contradict the LIH-1 in even more blatant ways. Let us substitute agentive adverbs such as *voluntariamente* ('voluntarily'), *adrede* ('on purpose') or *conscientemente* ('consciously'), whose grammatical behaviour pose no problem to LIH-1, for adverbs related to changes of state, such as *lentamente* ('slowly') or *progresivamente* ('progressively'). If we do this, we will notice that the LIH-1 wrongly predicts that (12a) will be equivalent to (12b), not to (12c). The truth is exactly the opposite:

(12) a. Sacó muy lentamente la aguja.
took-out.3.SING very slowly the needle
'S/he removed the needle very slowly'

b. ?*Hizo muy lentamente que la aguja saliera.
made-3.SING very slowly that the needle go-out-3.SING.IMP.SUBJ
'S/he [made the needle go out] very slowly'

c. Hizo que la aguja saliera muy lentamente.
made-3.SING that the needle go-out-3.SING.IMP.SUBJ very slowly
'S/he made the needle [go out very slowly]'

That is, according to LIH-1, the manner adverb should not target the lower predicate in the verb's lexical structure, but the correct paraphrase (12c) clearly shows that it does. This behaviour strongly recalls a well-known property of strict subcategorization features, namely "inheritance": the PP complement selected by *salir* in (13), headed by the preposition *de* ('from'), is inherited by *sacar* in (13b):

(13) a. Hizo [salir del establo] al caballo.
made-3.SING go out-INF from-the stable to-the horse
'S/he made the horse leave the stable'

b. [Sacó del establo] al caballo.
took-out-3.SING from-the stable to-the horse
'S/he took the horse from the stable'

A plausible solution to both selectional inheritance and LIH-1 violations by change of state adverbs might be complex predicate formation. This process, which must take place in both cases, allows us to make the lower modifier dependent on the complex predicate created by head movement. Other adverbs, such as those related to *Aktionsarten* classes, point towards a very similar conclusion. The PP adjunct in (14) modifies the complex predicate *hacer morir* ('make die') and its lexicalized output *matar* ('kill'):

(14) a. El veneno [[hizo morir] en pocos minutos] a Juan.
the poison made-3.SING die in few minutes to Juan
The poison made Juan die in a few minutes'

b. El veneno mató a Juan en pocos minutos.
the poison killed to Juan in few minutes
'The poison killed Juan in a few minutes

But the PP adjunct belongs to the lowest predicate, not the highest. Notice that (15a) and (15b) should, in principle, express two completely different meanings, but —somehow surprisingly—, they are almost synonymous:

(15) a. El veneno hizo que Juan [muriera en pocos minutos].
the poison made.3.SING that Juan die-3.sing.imp.subj in few minutes
'The poison caused Juan to [die in a few minutes]'

b. El veneno [hizo en pocos minutos] que Juan muriera.
the poison made.3.SING in few minutes that Juan die-3.sing.imp.subj
'The poison [caused Juan to die] in a few minutes'

Let us then suppose that lower verbs pass their modifiers to the complex predicates they are integrated in through X° movement (or perhaps an alternative similar syntactic resource). We must be aware that, even granting a solution to adjunct inheritance along these lines, it would be hard to argue that LIH-1 has successfully passed modification tests. Take PP modifiers of resultant states. These adjuncts are appropriate when these states refer to lexical subcomponents of action verbs (Comrie 1976; Dahl 1985; Bertinetto 1986 and many other authors; for Spanish, see Moreno Cabrera 2003 and NGRALE, § 23.3r). Here are some clear examples:

(16) a. Se encerró en su cuarto hasta la hora de cenar.
locked-3.SING in his/her room until the hour of dinner-INF.
'S/he locked himself/herself in his/her room until dinner time'

b. Se fue de la ciudad durante dos meses.
leave-out.3.SING from the city during two months
'S/he left the city four two months'

c. Póngase en el horno hasta que se dore.
Be-it-put in the oven until that get-browned-3.SING.PRES
'Put it in the oven until it gets browned'

That is, the PP *hasta la hora de cenar* ('until dinner time') in (16a) does not modify the action of locking, but its resultant state (*be locked).* The relationship between actions and states is not mediated by morphology in either (16b) or (16c). That is, the PP headed by *durante* ('during') in (16b) does not modify the action denoted by the verb *irse* ('leave'), but the state referred to by its resultant state (*fuera* `out'). A similar relation obtains in (16c) between the transitive verb *poner* ('put') and its lower, resultant state, arguably represented by the English preposition *on.* Consequently, the PP headed by *hasta* modifies the lower predicate in the lexical structure of *poner* in (16c), not the action itself. Notice that, even accepting that head movement and complex predicate formation allow us to account for these phenomena, the facts in (16) clearly challenge LIH-1, since they show that parts or lexical items are undoubtedly involved in syntactic processes.

Only in a few cases do temporal adjuncts not modify resultant states in these systematic LIH-1 violations, but other inner components of main predicates. This might happen in syntactic structures in which a lower PP targets a direct argument of the main verb's inner lexical structure. These configurations are not common, but (17) seems to me to be a good candidate, since —as English glosses indicate— *despedirse* means 'say goodbye':

(17) a. Me despido hasta el lunes.
Say-goodbye-1.SING.PRES until the Monday
'I am saying goodbye until Monday'

b. Adiós hasta el lunes.
goodbye until the Monday'
'Goodbye until Monday'

That is, the PP *hasta el lunes* ('until Monday') in (17a) does not put an end to the interval occupied by the action of saying goodbye (a reading almost impossible to conceive), but to the one which separates that specific moment from Monday. The very fact that (17b) is a possible utterance confirms that this analysis is on the right track. Again, this is bad news for LIH-1 as regards modification tests.

To all this, one might add some independent problems with LIH-1 which are also related to the overt modification of some components of sublexical structure. In Bosque & Masullo (1996) it is argued that the interpretation of degree adjuncts modifying verbs is obtained from the lexical structure of these predicates. The contribution of the adverb *mucho* ('much, very') to the meaning of VPs such as *trabajar mucho* ('work intensely'), *dormir mucho* ('sleep a long time'), *resumir mucho un libro* ('summarize a book too much'), or *leer mucho un libro* ('read a book quite often') is rather different, and correspond to the internal nodes targeted by the degree quantifier in a series of restrictive layered structures. I refer to Bosque & Masullo (1996) for the details.

Needless to say, wrong predictions of LIH in any of its variants must be considered to be failures only if they are correctly analyzed and interpreted. In fact, some apparent LIH-1 violations related to modification structures can easily be proven not to be real. For example, the contrasts in (18)-(19) might at first sight be considered to be LIH-1 failures, since the adverb *mucho* ('much') needs a comparative element, apparently provided by a sublexical component of the adjective *mayor* ('bigger') in (18c), and the adverb *pronto* ('early') in (19c):

(18) a. *Mucho grande.
much big
'Much big'

b. Mucho más grande.
much more big
'Much bigger'

c. Mucho mayor.
Much bigger
'Much bigger'

(19) a. *Mucho pronto.
much early
'Much early'

b. Mucho más pronto.
much more early
'Much earlier'

c. Mucho antes.
much before
'Much earlier'

But this analysis is wrong, since comparative quantifiers head functional projections. Consequently, the adverb *mucho* modifies a QP in all the grammatical phrases in (18)-(19). This implies that it is the higher, rather that the lower, projection that is targeted by the degree modifier, and LIH-1 is respected.

3.4. Scope

Our test bench for LIH-1 has included ANAPHORA, COORDINATION, MOVEMENT and MODIFICATION so far. Let us attempt to add SCOPE to the list. It is no surprise that LIH-1 successfully passes the tests relative to focus interpretation. This means that the implicit alternatives that focus (at least, contrastive focus) gives rise to make sense only if the elements in the domain of focus operators are overt:

(20) a. No la {hizo salir / sacó}.
Not she-ACC made.3.SING go-out-INF took-out-3.SING
'S/he did not make her go out / S/he did not take her out}'

b. No la {hizo salir / *sacó}, sino entrar.
Not she-ACC made.3.SING go-out-INF took out-3.SING but got in-INF
'S/he did not {make her go out / took her out}, but go in'

LIH-1 also correctly predicts that the semantic layer targeted by a scope operator in any hierarchical lexical structure will be the highest, rather than any of the lower ones. The fact that (21a) is equivalent to (21b), not to (21c) is a simple, straightforward consequence of this prediction:

(21) a. Juan no sacó el caballo.
Juan not took-out-3.SING the horse
'Juan did not took out the horse'

b. Juan no hizo salir al caballo.
Juan not made-3.SING go-out-INF to-the horse
'Juan did not make the horse go out'

c. Juan hizo no salir al caballo.
Juan made-3.SING not go-out-INF to-the horse
'Juan made the horse not to go out'

But before we take for granted that focus phenomena entirely respect LIH-1, it is worth recalling some intriguing evidence which suggests that the relation between focus and LIH-1 might be somehow more complex. In (22)-(24) I have put together a series of contrasts noted by different authors in different times and frameworks. The sign # stands for "anomalous sequence due to lack of information":

(22) a. #La besó con los labios.
she-ACC kissed with the lips
'S/he kissed her with the lips'

b. La besó con los labios manchados.
she-ACC kissed with the lips stained
'S/he kissed her with his/her lips stained'
(A contrast adapted from Fillmore 1969)

(23) a. #El cuadro ha sido pintado.
the picture has been painted
'The picture has been painted'

b. El cuadro ha sido pintado por un pintor belga.
the picture has been painted by a painter Belgian
'The picture has been painted by a Belgian painter'

c. El cuadro ha sido pintado al óleo.
the picture has been painted to-the oils.
'The picture has been painted in oils'
(A contrast adapted from Grimshaw & Vikner 1993)

(24) a. El cuadro ha sido {#pintado / robado}.
the picture has been painted-MASC stolen-MASC
'The picture has been {painted / stolen}'

b. Esta acusación ha sido {#lanzada / desmentida}.
this-FEM accusation has been thrown-FEM denied-FEM
'This accusation has been {thrown / denied}'
(A contrast adapted from De Miguel 2009)

It seems natural to suppose that, whatever the original theoretical reasons for highlighting these contrasts might have been, all of them deal with the same phenomena and point towards the same conclusion. We may attempt to formulate it tentatively as in (25):

(25) The informational focus of a sentence must provide information different from the one lexically contained in its thematic constituent, or directly implied by it.

I am afraid I cannot develop (25) here. Perhaps the Qualia structure in Pustejovsky's (1995) Generative Lexicon would be an appropriate framework to do so, since Qualia features contain lexical information that is taken to be part of the speaker lexical knowledge. My interest at this point does not go beyond the suggestion that certain aspects of lexical structure interact with informational focus. If this is correct, LIH-1 will necessarily be affected.

3.5. Balance of tests for LIH-1

Here is a brief recapitulation of our test bench results for LIH-1. The sign "✓" means that LIH-1 passes the test, so that its expectations are met and some ungrammatical structure will most probably be obtained:

- ✓ COORDINATION
- ✓ MOVEMENT
- ✓ ANAPHORA (with the exception of some dual nouns)
- ✓ SCOPE / FOCUS (with the possible exception of informational focus)
- ?? MODIFICATION (many arguments against, mostly related to change of state predicates)

Before we attempt to derive these results, at least partially, let us briefly discuss LIH-2.

4. Syntactic access to morphological units

4.1. Coordination and ellipsis

LIH-2 is the most studied variant of LIH. In fact, the number of papers and monographs devoted to LIH-2 is rather large[4], although one must

[4] Main references on LIH-2 include Siegel (1979), Di Sciullo y Williams (1987), Sproat (1985, 1988), Lieber (1992), Ackema y Neeleman (2002, 2004) and Lieber y Scalise (2006). See also Spencer's (2005) overview. As regards LIH-2 in Spanish

acknowledge that not all the syntactic structures related to this variant of the hypothesis have been studied in similar detail. We may start by putting COORDINATION and ELLIPSIS in our test bench for LIH-2 and see whether or not the hypothesis passes these exams.

Does LIH-2 pass grammatical tests of coordination? The answer to this much debated question is theory-dependent (see Bosque 1987; Rainer &Varela 1992; Felíu & Fábregas 2003; Kornfeld & Saab 2003; Lieber y Scalise 2006, among many others): it is a negative answer if we allow for the coordination of lexical bases and prefixes, as sketched in (26):

(26) a. Leyes [pre y post] constitucionales.
Laws pre and post constitutional.PL
'Pre and postconstitutional laws'

b. [Simple y llana]mente.
Simple and plain-ly
'Clearly and simply'

c. [Lava y seca]rropas. (Rioplatense Spanish)
[wash and dry]clothes
'Washing machine and tumble dryer'

On the contrary, the answer is positive if we claim that the bracketing in (26) is wrong and we adopt the alternative in (27):

(27) a. Leyes [pre-Ø] y postconstitucionales.

b. [Simple-Ø] y llanamente.

c. [Lava-Ø] y secarropas. (Rioplatense Spanish)

Some authors —including Booij (1985), Nespor (1985) and Bosque (1987)— suggest that ellipsis might give more adequate results than coordination in these and other similar structures. See also, on the same issue, Spencer (2005) and Strauss (1982). Needless to say, claiming that coordination does not contravene LIH-2 implies accepting that ellipsis does, since (27) contains null bases in prefixed words and compounds[5]. One strong argument for preferring (27) to (26) relies on the fact that elliptical categories can be forwardly of backwardly recovered. The former option is obtained in (28a, b); the latter corresponds to (28c):

(28) a. [Literatur-[Ø]] und Musik[geschichte] (German)
literature and music history
'History of music and literature'

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grammar, I refer to Varela (1990), Piera (2009), Piera & Varela (1999), Felíu (2002) and Fábregas (2011, to appear). I will add some more references on LIH-2 in the next pages.

[5] Even so, suffixes are not subject to ellipsis. As for *-mente*, Torner (2005) argued that it is a "phrasal affix", whereas Bosque (1987), Zagona (1990) and others argued that it is a compound segment.

b. [Lenta-[Ø]] y penosa[mente] (Spanish)
slow-FEM and painful-ly
'Slowly and painfully'

c. Lenta[ment] i [penosa-[Ø]] (Literary Catalan)
slow-ly and painful
'Slowly and painfully'

Notice that the segmentation in (26) could not be applied to (28c). Backward retrieval is excluded in German compounds (**Literaturgeschichte und Musik-Ø*) and present-day Spanish prefixed forms as well as compounds (**leyes preconstitucionales y post-Ø*; **lentamente y penosa-Ø; *lavarropas y seca-Ø*), but not necessarily in medieval Spanish (NGRALE, § 7.14f-g) or present day literary Catalan. On the other hand, the coordination analysis does not seem to be able to account for A. Bello's (1847: § 1007) old interesting observation on *-mente* ellipsis in comparative structures:

(29) Menos magnífica que elegantemente adornado.
less splendid-FEM than elegantly decorated-MASC
'Less splendidly than elegantly decorated'

He was right when he wrote that (29) is a possible phrase because "en *magnífica* se suprime la terminación *mente* por seguirse otro adverbio que la lleva" ('in *magnifica* the termination *mente* is suppressed because an adverb containing it follows'). As it is obvious, all these contrasts on forward vs. backward retrieval of nominal (or quasi-nominal) heads in morphological structures are possible because recovery is a property of elements capable of bearing a referential index. If this is correct, LIH-2 does not fail coordination tests, but ellipsis does.

As in the case of LIH-1, potential LIH-2 failures must be carefully scrutinized to find out whether or not they provide real counterexamples to the hypothesis. Imagine a sentence containing a morphological segment coordinated with a full DP. If this were possible, LIH-2 would certainly be untenable. The example reproduced in (30), seems to be a good candidate for this pattern:

(30) Me encargaron conversar contigo y Elías Figueroa en Chile.
me entrust-3.PL.PAST talk-INF with-you and E. F. in Chile.
'I was entrusted to talk to you and E.F. in Chile'
[*Época*, 28/07/1997, taken from CREA].

That is, we may think that, if the bracketing in (31) is correct, LIH-2 simply collapses, since a part of a word cannot be coordinated with a DP:

(31) Me encargaron conversar [con[tigo y Elías Figueroa]] en Chile.

But the question whether or not (30) contravenes LIH-2 crucially depends of the morphological status of the segment *-tigo*. We may suppose that *contigo* ('with you') or *conmigo* ('with me') are phonological, rather than

morphological, words (see Nespor 1985, Di Sciullo & Williams 1987, Bresnan & Mchombo 1995 on the distinction), besides being orthographical words. It would certainly be a mistake to argue that *-tigo* is a suffix. In fact, affixes do not allow for adjectives in any possible context, but the adjective *misma* ('self') modifies the pronoun *-tigo* in (32a) —and not the whole PP *contigo*—, just as it modifies *ella* in (32b):

(32) a. Contigo misma.
With-you self-FEM
'with yourself'

b. Con ella misma.
With she self-FEM
'with herself'

Since LIH-2 does not restrict the grammatical behaviour of phonological words, we can safely conclude that (30) does not violate this hypothesis.

Can it them be concluded that LIH-2 neatly passes all coordination tests? It certainly passes most of them, but it systematically fails, at least, at two grammatical structures. The first one is represented by words containing prefixes which involve information related to the verb arguments. Felíu (2001) has studied these structures in detail. We may assume, for example, that the prefix *co-* in (33) incorporates a meaning close to that of the adverb *mutually:*

(33) Juan y María se corresponsabilizaron.
'Juan and María assumed mutual responsibility'

Just as the presence of this adverb makes the predicate select for a plural or coordinated external argument, so does the prefix *co-*. Both the prefix and the adverb change the predicate's argument structure (as it generally happens in symmetric and reciprocal configurations), but the prefix is a bound morpheme, which violates LIH-2. I refer to Felíu (2001) for many other similar cases.

The second systematic exception I have in mind is provided by the structures I studied in Bosque (2006). In that paper I show that so-called relational (sometimes also "ethnic") denominal adjectives may provide the cardinality value of referential expressions in coordinated structures. That is, (34a), involving two singular coordinated adjectives, is about two literatures. On the contrary, two or more singular qualifying adjectives or participles cannot be coordinated to sum up the plural feature needed by the noun they modify, and provide the cardinality value of the DP, as (34b) witnesses:

(34) a. Las literaturas española y francesa.
the-FEM.PL literature.PL Spanish-FEM.SING and French-FEM.SING
'The French and Spanish literatures'

b. *Las películas divertida y aburrida (respectivamente).
the-FEM.PL movies funny-FEM.SING and boring-FEM.SING respectively

This means that the nominal bases or relational adjectives display syntactic properties incompatible with their morphological status according to LIH-2. I refer to Bosque (2006) for further details and I conclude that, with the exception of the structures in (33) and (34), LIH-2 passes COORDINATION tests, but it does not pass those related to ELLIPSIS.

4.2. Modification

Let us now put MODIFICATION structures in our test bench for LIH-2. This is a rather strong hypothesis as regards these patterns. Here are some standard examples of the unavailability of compound segments to accept modifiers:

(35) a. *Lava[platos grandes]
wash dishes bigs
'Washer of big dishes'

b. [Lavaplatos] grandes
dishwashers bigs
'Big dishwashers'

(36) a. *Seguro multi-[riesgo asumible]
Insurance policy multi risk assumable
'An insurance policy for many assumable risks'

b. [Seguro multirriesgo] asumible
Insurance policy multi-risk assumable
'An assumable multi-risk insurance policy'

It is worth remembering, however, that English compounds are known to contravene this pattern. From a strict point of view, LIH-2 is safe in (37a), but not so in (37b), where an adjective targets a non-head noun in a nominal compound:

(37) a. Good [truck driver].

b. [Long truck] driver.

The strong contrast between English and Romance nominal compounds is traditionally attributed to the fact the former are head final structures made up out of bare nouns, rather than bounded roots. This gives raise to grammatical projections which only to a certain extent can properly be considered "morphological". As it is well-known, compound formatives may be even sentences, as in Ackema & Neeleman (2002)'s example *A don't tell me what to do look.* Recent discussions on the much-debated syntactic nature of English compounds can be found in Lieber & Stekauer (2009) and Arcodia *et al.* (2010).

The fact that the contrasts in (35)-(36) do not constitute a problem for LIH-2 does not imply that this hypothesis successfully passes modification tests. In fact, bracketing paradoxes provide strong arguments against LIH-2. The segmentation of quantified *-mente* adverbials is a straightforward example:

(38) Muy tranquilamente.
'Rather calmly'

(39) a. [Muy] [tranquilamente]
b. [Muy tranquila] [mente]

The bracketing in (39a) is correct on syntactic (and also orthographic) grounds, given that *muy* ('very') is not a morpheme, but it is not correct on semantic grounds, since (39a) provides a wrong paraphrase ('rather in a calm way') for (38). On the contrary, the bracketing in (39b), in which *-mente* targets a full syntactic AP, presents problems with for both syntax and orthography, but it provides the correct meaning of (38): 'in a rather calm way'.

Some other bracketing paradoxes also contravene LIH-2, but not all of them do. In fact, the potential argument against LIH-2 provided by adjectives interpreted as modifiers of inner nouns or verbs, as in the *molecular biologist* or the *beautiful dancer* classical cases, might not be as sound as it looks like (see Larson 1999; Spencer 1988; Beard 1991, 1995 for discussion). The main reason is that the relevant factors to explain some of these patterns can be thought of as being lexical, rather than strictly morphological. Notice that we should not be forced to sustain that the adjective *bad* in *a bad dancer* is interpreted in a different way to that in which the same adjective is interpreted in *a bad musician*. But this is exactly what one must deduce from the fact that the former, but not the latter, has access to a verbal base (i.e. *dance*). A similar conclusion may be obtained from contrasts in (40) in Spanish, and some others similar to these attested in NGRALE, § 13.8i:

(40) a. El {actual / actualmente} director del museo.
the current currently director of-the museum
'The current director of the museum'

b. El {posterior / posteriormente} ganador del campeonato de España.
the later (adj.) later (adv.) winner of-the championship of Spain
'The later winner of Spain's championship'

Although one might be tempted to argue that the adverb, but not the adjective, has access to the verbal base of the nouns *director* ('director') or *ganador* ('winner'), I believe that the problem is not morphological, since *director* can be replaced by *jefe* ('chief') in (40a), and *ganador* may be safely substituted by *campeón* ('champion') in (40b), another non-derived noun. The contrasts in (40) are most probably related to Stowell's (1991) idea that some nouns may denote titles as well as properties of kinds of individuals. Whatever specific implementation of this suggestion we chose, it will not question the main point: these phenomena do not constitute a failure of LIH-2 as regards modification structures.

VPs and IPs converted into head nouns do not infringe LIH-2 in structures of modification either, since these phrases cease to be syntactic

projections when they become lexical heads. These include neologisms such as *nomeimportismo* 'gross negligence' (attested in NGRALE, § 6.4b), from *No me importa* 'I don't care', or *frenteamplista* 'supporter of *Frente Amplio* (*Wide Front*), a coalition of Uruguayan political parties'.

As opposed to all this, the conclusion that some isolable prefixes defy LIH-2 is hard to avoid. These include *pro-*, *ex-*, *anti-* and some others. They become close to adjectives and target full DPs, but, even so, they maintain some of their morphological properties as prefixes (fixed initial position, non-concurrence with other adjectives, etc.). Example (41c) was found in the Internet:

(41) a. ex [jugador de primera división]
ex player of first-FEM division
'ex 1st division football player'

b. medidas pro [derechos humanos]
measures pro rights human-MASC.PL
'Pro-human rights measures'

c. manifestación anti [decretazo 22 de enero]
demonstration anti strong-decree 22 of January
'Demonstration anti the strong decree of January, 22nd'

Although each of these structures presents its own peculiarities, they clearly show that modification patterns pose a number of problems to LIH-2 in a much more consistent way than they do as regards LIH-1.

4.3. Scope

SCOPE is more severely restricted than MODIFICATION as a test for LIH-2. The contrast in (42) clearly supports this hypothesis. It shows that the prefix *des-* is not a negative operator with scope outside the word. Consequently, it is not able to license the contrastive expression *pero sí* ('but it does'):

(42) a. No obedece a sus padres, pero sí a sus profesores.
not obey-3.PRES.IND to his/her parents but does to his/her teachers
'S/he does not obey his/her parents, but his/her teachers'

b. *Desobedece a sus padres, pero sí a sus profesores.
disobey-3.PRES.IND to his/her parents but does to his/her teachers
'S/he disobeys his/her parents, but his/her teachers'

As we can see, this is fully consistent with LIH-2. I am aware of only one true exception to this generalization (that is, "LIH-2 passes scope tests") in the Spanish Grammar, although one might think of some others, merely apparent. The true exception I think of is provided by the scope of the negative prefix *des-* with a few verbs, notably *desconocer* ('not know'). If LIH-2 passed scope tests in all cases, the sentence (43) would refer to some "exact lack of knowledge", but the truth is that it speaks about not knowing something with certainty or accuracy, quite a different meaning:

(43) Desconozco con exactitud las causas del accidente.
Not-know-1st.PRES.IND with exactness the-FEM.PL causes of-the accident
'I do not know the causes of the accident accurately'

Thus, the problem with (43) is the fact that the prefix *des-* has scope outside the verb, hence flagrantly violating LIH-2. Some other examples of this pattern are attested in NGRALE, § 48.2l. I know of no existing solution to this unexpected result, according to LIH-2, but one might speculate with the idea that perhaps *desconocer* displays two different structures, so that in one of them the prefix is phonologically bound to the verbal base, but interpreted as an independent operator. In this particular structure, *des-* is not exactly a prefix, just like *-migo* and *-tigo* were shown not to be suffixes in (30)-(32). I will not be able to develop this line of explanation here.

As opposed to these real LIH-2 failures as regards scope tests, some other potential arguments are merely apparent. I suggest that they are just direct consequences of the confusion of lexical and morphological factors that I mentioned in the previous sections. A glance at (44) might suggest that a negative prefix triggers a negative polarity item in (44c), thus implying that the prefix has a syntactic effect outside the adjective *imposible* ('impossible'):

(44) a. *Es posible que venga nadie.
is possible that come-3.PRES.SUBJ anyone
'It is possible that anybody comes'

b. No es posible que venga nadie.
not is possible that come-3.PRES.SUBJ anyone
'It is not possible that anybody comes'

c. Es imposible que venga nadie.
is impossible that come-3.PRES.SUBJ anyone
'It is impossible that anybody comes'

But this is a wrong conclusion, similar to the one we dismissed in other similar cases, such as (18)-(19) or (40): the triggering of the negative polarity item is not a morphological property of the prefix, but a lexical characteristic of the adjective *imposible*, shared by other similar adjectives lacking negative prefixes:

(45) Es {absurdo / temerario / ridículo} que venga nadie.
is absurd reckless ridiculous that come-3.PRES.SUBJ anyone
'It is {absurd / reckless/ ridiculous that anybody comes'

I then conclude that LIH-2 safely passes scope tests, with the possible exception of some negative prefixes in a very restrictive context.

4.4. Anaphora

The possible ways in which anaphoric relations confirm o contradict LIH-2 (i.e., the question of whether or not words are *anaphoric islands*) has worried grammarians for more that forty years, beginning with Postal (1969).

To my knowledge, the first LIH-2 failures attested in theoretical grammar as regards anaphora were mentioned in this paper, although somehow strangely interpreted in favour of Generative Semantics. More empirical counterarguments to LIH-2 based on anaphora were discussed in Lakoff and Ross (1972), Grinder and Postal (1971), Barone (1972), Watt (1973, 1978), Corum (1973), Browne (1974), Kaplan (1976), Sampson (1979) and many other studies. The debate was retaken vigorously in the 80's and 90's by Lieber (1984, 1992), Sproat (1985), Sproat and Ward (1987), Ward *et al*. (1991), Harris (2006), Ziv (1996) and others, since frameworks of theoretical morphology where articulated in much more explicitly ways in those days.

One of the most remarkable peculiarities of anaphoric structures in relation to LIH-2 is the very fact that crucial data are unstable. The unquestionable ungrammaticality of (46a), an example provided by Postal (1969: 230), sharply contrast with the grammaticality of (46b), extracted by Ward *et al.* (1991) from a U.S. newspaper. However, both sentences basically display the same phenomenon: the access of a pronoun to the morphological structure of a nominal compound:

(46) a. *Animal hunters tend to like them.

b. Millions of Oprah Winfrey fans were thoroughly confused last week when, during her show…

Many other similar contrasts can be found in the literature. The experiments described in Garnham & Oakhill (1988) on the acceptance of English structures with nominal morphological bases as pronoun antecedents showed a similar instability, but also a certain tendency of informants to admit those constructions in a large number of cases. Crucial data is also unstable in Spanish, both in V+N compounds, nominalizations and other derived nominals. Even so, native speakers accept most of these constructions in the appropriate contexts:

(47) a. ?No todos los aparcacoches los tratan con cuidado.
Not all the.MASC.PL car-parkers them treat.3.PL.PRES.IND with care
'Not all parking attendants treat cars carefully'

b. Tengo que comprarme un lavaplatos porque estoy
have-1.sing.pres.ind. to buy-for-me a dishwasher because be.1sing.pres.,ind
cansado de lavarlos a mano. (Taken from NGRALE, § 11.2t).
tired-masc of wash-them by hand
'I have to buy myself a dishwasher because I am tired to wash them by hand'

c. En mi pueblo no necesitamos pararrayos porque
in my village not need-1.PL.PRES.IND lighting-conductor because
no ha caído ninguno desde hace un par de siglos.
not has fallen none.MASC from make-3.SING.IND a pair of centuries
'We don't need any lighting-conductor where I come from, since not one has fallen in about two centuries'

d. Tú serás una madrileña de pura cepa, pero yo no podría nunca
You might-well-be a-FEM. Madridean authentic but I no could ever
viví allí.
live there
'You might well be a pure, authentic Madridean, but I could never live there'

e. A finales de 1980, ni siquiera los más fervientes
By-the-end of 1980, not even the.masc.pl more fervent-PL.MASC Suárez-
suaristas confiaban ya en él.
supporters trust-3.pl.IMP.IND already in him
'By the end of 1980, not even the most passionate supporters of Suárez would trust him anymore'

These sentences are intended to be used in an out of the blue context. As it is obvious, (47e) would not infringe LIH-2 if the pronoun's antecedent was the noun *Suárez*, introduced in the previous discourse, but it would question this hypothesis if used at the beginning of an essay or a newspaper article.

Since recoverability of pronoun antecedents allows for several discourse options, not all apparent LIH-2 failures related to anaphora are to be interpreted properly as such (see Sampson 1979, Harris 2006 and Ward *et al.* 1991 on this issue). I have already mentioned associative anaphora patterns as false candidates to LIH-1 violations. Interestingly, these structures reappear as potential proofs against LIH-2 in anaphora tests, as (48) suggests:

(48) Si al entrar en un lavacoches no cierras bien las ventanillas,
if when entering in a car wash not close-2.PRES.IN well the windows
puedes recibir una ducha inesperada.
may-2.IND.PRES receive a shower unexpected
'If you do not close the windows properly when you go through a car wash, you might get an unexpected shower'

From this point of view, the content of the null complement of *ventanillas* ('windows') in (48) would be recovered from inside the V-N compound *lavacoches* ('car wash'): it would be the noun *coches* ('cars'). However, at least two arguments point towards a different conclusion: first, the required complement would contain a singular DP, but the noun in the V-N compound in (48) has plural features; second, another Spanish noun for *car wash*, besides *lavacoches*, is *lavadero*. It contains no potential nominal antecedent for a pronoun, but it gives rise to the same effect:

(49) Si vas a un lavadero, acuérdate de cerrar bien las ventanillas.
If go-2.PRES.IND to a car wash remember-IMP of close-INF well the windows
'If you go to a carwash, remember to properly close the windows'

I then conclude that associative anaphora patterns do no challenge LIH-2.

Another factor that seems to be relevant, when evaluating the result of testing LIH-2 with anaphoric structures, is the compound's degree of

transparency. A speaker of Spanish who accuses someone of being *aguafiestas* ('killjoy', literally 'water down parties') may not be thinking of some particular party, or even have that noun in mind at all. It then comes as no surprise the fact that it is almost impossible to recover this nominal component of the V-N compound through a pronoun:

(50) *Juan es un aguafiestas en todas Ø.
J. is a killjoy in all-FEM.PL
'Juan is a killjoy at all parties'

Considerable crosslinguistic variation has been observed as regards infractions of anaphoric islands. Coulmas (1988) shows that these violations are found in Japanese and Chinese compounds; Hagège (1988) describes similar patters in Eskimo, Tagalog and Dakota; Harris (2006) finds them in Georgian, whereas Bresnan and Mchombo (1995) argue that possible candidates in some Bantu languages are only apparent.

Potential LIH-2 violations related to anaphora extend to other patterns. LIH-2 does not comply with the very existence of reflexive prefixes, in a parallel way to the behaviour of other prefixes in coordinated structures (remember (33)):

(51) La autocensura de María
the self-censorship of María
'Mary's self-censorship'

Whatever morphological recourse is adopted to make reflexive prefixes absorb the internal predicate's argument, reference to the external DP argument will still have to be possible from that inner constituent, hence violating LIH-2. See again Felíu (2001) on this pattern.

As we have seen, we cannot simply conclude that LIH-2 safely passes anaphora tests, since the evidence shows that a number of violations are real, not merely apparent. Even so, the possibilities of discourse retrieval of the information provided by nominal roots and bases are numerous, varied and complex enough as to cast serious doubts on the idea that LIH-2 fatally fails at the anaphora test bench.

4.5. Balance of tests for LIH-2

We may add MOVEMENT to the tests for LIH-2 that we have proposed in the previous sections. No exception is known to the fact that LIH-2 successfully passes this test:

(52) a. Juan arregla lavaplatos.
Juan fixes dishwashers
'Juan fixes dishwashers'

b. ¿Cuántos arregló Juan [lava *t*]?
how-many fixed Juan wash-
'How many did Juan fix -washers?'

We have verified that LIH-2 is not as strong as LIH-1. We have also been able to observe that it passes and fails different tests with various degrees of accuracy. Here is a short summary:

- ✓ MOVEMENT
- ✓ COORDINATION (with some exceptions associated to relational adjectives)
- ✓ SCOPE / FOCUS (with minor exceptions relative to some negative prefixes)
- ?? ELLIPSIS (many counterarguments in prefixation and compounding)
- ?? MODIFICATION (many arguments against, mostly related to bracketing paradoxes and phrasal prefixes)
- ?? ANAPHORA (many exceptions to anaphoric islands, but unstable data)

5. An evaluation of the test bench results

I have attempted to do two things in the previous sections: one is to tell apart the real violations of LIH from the false or merely apparent infractions of this hypothesis. Provided that some real violations persist, the second task has been to present the syntactic environments that provide some of the crucial tests to identify them.

One natural question now emerges: Why these violations and not others? As I put forward at the outset, rejection of the LIH makes as many predictions as its acceptation does. Since LIH is just a measure for the compartimentalization of Grammar, dispensing with LIH implies dispensing with the traditional grammatical partitions as a whole. Certainly, there is nothing intrinsically wrong with that move, but LIH deniers are not excused from the task of accounting for the many correct predictions that the hypothesis makes. This means that both hits and failures of LIH are relevant regardless of whether or not one wants morphology to be a specific component of Grammar.

Why is it that LIH-1 does not fail at coordination, scope or movement, whereas it does so at modification? I think the natural answer lays in one grammatical property of the components that LIH-1 targets: they lack phonological features. In fact some well-known contradictory properties of coordination as regards constituent structure seem to be a consequence of its status at the so-called "syntax-phonology interface". Features targeted by scope operators or movement process have to be overt as well (and, thus, they represent no problem for LIH-1), perhaps because full interpretation could not be reached otherwise.

But what about modification? Interestingly, LIH-1 only fails at modification at a number of restricted patterns, specifically those related to adjuncts targeting resultant states and a few other low layers of lexical structures. Other syntactic arguments for event decomposition have been introduced in recent years (see Levin and Rappaport 1995, 2005; Hale & Keyser 2002 or Ramchand 2008, among many others). I find it interesting that few other LIH-1 violations as regards modification patterns are found. This might suggest that perhaps event structure is a privileged domain in lexical decomposition, so that other possible structured fragmentations of concepts might be interesting for lexicology, but not so much for syntax. Some unexpected failures of LIH-1 as regards this point, such at those associated with dual nouns, require further research.

As for LIH-2, it is interesting, first of all, the very fact that it passes movement test more easily than the other candidates. To put in Lieber's (1992) terms, words are barriers for movement. This might well be a consequence of the pronominal nature of wh- words, together with the fact that pronouns are not part of compounds. The very fact that wh- words have to take scope, besides being pronominal items, might explain why the discourse oriented strategies which account for some anaphoric island violations do not apply to wh- words, so that movement test for LIH-2 produce the expected straightforward ungrammatical results.

LIH-2's failures at modification and ellipsis patterns are more open, since these tests aim at the core of the syntax-morphology distinction. I have tried to show that LIH-2 fails at ellipsis more clearly that it does at coordination, but crosslinguistic differences in compounding are expected at this point. As regards modification, LIH-2 is firm enough, especially so if its failures at these tests can be proved to be restricted to bracketing paradoxes and phrasal affixes.

Other tests for both LIH-1 and LIH-2 are possible. In fact, the strategy adopted here may be pursued in several ways. It is based on acknowledging that LIH is partially right and partially wrong, and supposing, at the same time, that these results are not accidental, nor their distribution random. Hopefully, the picture obtained will matter for both supporters and deniers of the independency of morphology.

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