

ON MORPHOLOGICAL COMPOSITIONALITY*

Em Compositionality Morfológico

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We argue that so-called indefinite pronouns, such as the quantifiers *something* and *everyone*, are morphological domains (in the sense of DI SCIULLO, 2004, 2005) and are interpreted compositionally (in the sense of FREGE, 1959; MONTAGUE, 1973; 1974). We contrast our analysis with two previous types of analyses, those that view these constructs as syntactically derived phrases (e.g., ABNEY, 1987; KISHIMOTO, 2000; LARSON; MARUŠIÈ, 2004), (1), and those that take their denotations to be stipulated in the lexicon, (2), and thus not derived by rules of semantic composition.¹

- (1) a. $[_{DP} [_D \text{every-thing}] [_{NP} t_i]]$ (ABNEY, 1987)
b. $[_{DP} [_D \text{every}] [_{Nump} \text{thing}] [_{NP} t_i]]$ (KISHIMOTO, 2000)
- (2) a. $[[\text{everything}]] = \check{e}f_{\langle e, t \rangle} \cdot x[\text{thing}(x) \rightarrow f(x)]$
b. $[[\text{something}]] = \check{e}f_{\langle e, t \rangle} \cdot \exists x[\text{thing}(x) \ \& \ f(x)]$
c. $[[\text{nothing}]] = \check{e}f_{\langle e, t \rangle} \cdot \neg \exists x[\text{thing}(x) \ \& \ f(x)]$

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¹ In both Abney (1987) and Kishimoto (2000), the nominal complement moves to a higher position in indefinite pronouns, whereas in Larson and Marušie (2004), no movement takes place. Larson and Marušie, rather, suggest two different analyses. On the first, all APs originate post-nominally, so that indefinite pronouns have a structure like (i). On the second, APs may originate before or after nouns, and indefinite pronouns have a structure like (ii), where they are morphologically complex Ds, with a null or missing N.

- (i) $[_{DP} D \text{ -N AP}]$
(ii) $[_{DP} D [_{NP} \text{ /E }] \text{ AP}]$

Motivation for the compositionality of these expressions comes from data that show that their interpretation is compositional and regular, and that modifiers can modify each part of these expressions independently. At the same time, we show that there are restrictions on the formation of these expressions that can be attributed to properties of morphological domains, restrictions that would be unexpected if these expressions were treated as syntactically phrasal.

Our analysis provides a unitary account for the following properties of indefinite pronouns: i) they generally have a bi-partite structure, ii) their constituents are members of a closed class of items, iii) their parts cannot be extracted, iv) they are immune to syntactic phi-feature agreement, and v) modifiers either precede or follow the constructs, but cannot occur within them.

We distinguish cases where a strong quantifier, such as *every*, is part of an indefinite pronoun, as in (3a), from cases where it is a determiner (D) with an NP complement, as in (3b), based on the placement of adjectives within these expressions. Specifically, in an indefinite pronoun, adjectives that are canonically pre-nominal systematically follow the head noun, as in (3c), and may not precede it, as in (3d). In contrast, when *every* is a determiner with an NP complement, such adjectives precede the head noun, as in (3f), and may not follow it, as in (3e).

- (3) a. [Everybody] came in.
 b. [Every student] came in.
 c. [Everybody] nice came in.
 d. *[Every nice body] came in.
 e. *[Every student] nice came in.
 f. Every [nice student] came in.

Indefinite pronouns also differ from syntactic DPs at the phonological interface, with respect to stress. At the semantic interface, indefinite pronouns have the semantics of DPs, namely they are generalized quantifiers, without having the full DP projection, i.e., [DP [Num [AP [NP]]]]. The fact that modification may apply to each part of an indefinite pronoun, as in (3c) above, where the adjective *nice* modifies *body*, and in (4a), where *almost* modifies *every*, is an interesting puzzle, since on the one hand these constructs are strongly syntactically impenetrable, and on the other hand, they are semantically transparent.

- (4) a. Almost everybody came in.
 b. Almost every nice student came in.

Assuming Asymmetry Theory (DI SCIULLO, 2005), we argue in favour of an analysis according to which an indefinite pronoun is a unit of the

morphological computation (D_M), i.e., it is a morphological domain (phase) with open positions.

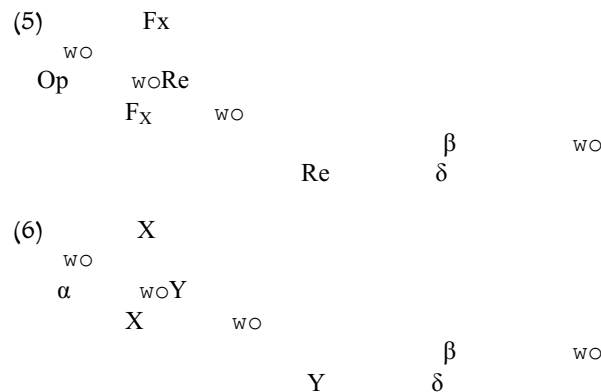
In a fully parallel architecture, where morphological and syntactic derivations are parallel, the grammar allows restricted interactions between the derivations. Only complete units (phases) can be transferred from one plane of the computational space to another, say from D_M to the syntax (D_S), or from D_S to D_M . Whereas Romance compounds are instances of the latter, we claim that indefinite pronouns are instances of the former. Moreover, apart from indefinite pronouns, phases with open positions may also be derived in one plane and transferred to another, as is the case for discontinuous conjunctions, such as [if ... then ...], where the open complement positions are filled in with propositions in the syntactic derivation. Indefinite pronouns also qualify as open morphological units, where the empty specifier positions can be modified in the syntactic derivations, [... every [... thing]].

The outline of this paper is the following. First, we present the main points of the derivation of functional words according to Asymmetry Theory. Second, we describe the derivation and interpretation of indefinite pronouns. The last section summarizes our results.

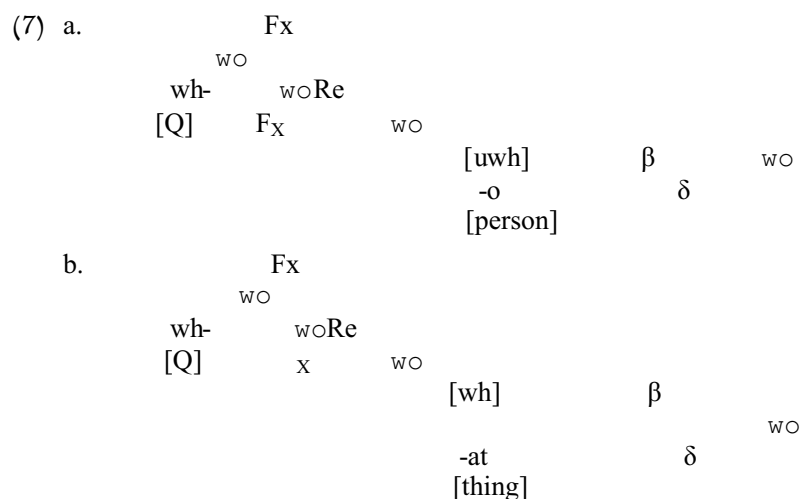
2. MORPHOLOGICAL COMPOSITIONALITY

2.1 BI-PARTITE MORPHOLOGICAL STRUCTURE AND UNINTERPRETABLE FEATURE CHECKING

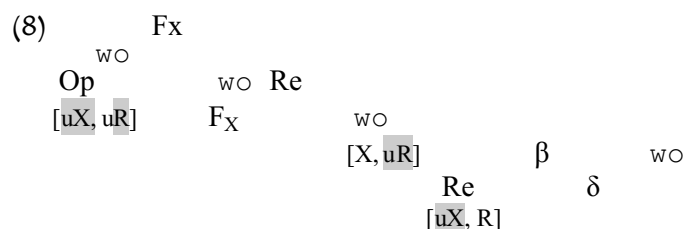
In Asymmetry Theory, functional words have the minimal bi-partite structure of the *Operator-Shell* (Op-Shell), (5). The upper layer of the Op-Shell is the morphological operator-variable (Fx) layer, and the lower layer is the restrictor (Re) layer. The Op-shell is one instance of the Morphological-Shell, (6) which is the minimal form of morphological expressions.



An Op-Shell is derived by the application of the operations of the grammar to Minimal trees, that is, trees with only one specifier and only one complement. Morphological merger applies to two Minimal trees, and Morphological linking relates features in a derived tree. Both merger and linking apply under the asymmetric Agree relation, which leads to uninterpretable feature checking. Complex morphological expressions are derived by the recursive application of the operations of D_M . To illustrate, consider the representations for the *wh*-words *who* and *what* (Q-word), (7). These words have a bi-partite structure: the *wh*- is an operator affix occupies the specifier of the upper layer of the Op-Shell. The operator affix is linked to an affix spelling out the restrictor feature of the variable (Fx) bound by the operator. The restrictor feature occupies the head of the lower layer of the Op-Shell. For example, in (7a) *-o* (/u/) spells out the feature [person], and in (7b) the affix *-at*, spells out the restrictor feature [thing], whereas different affixes spell out different operators.



An Op-Shell is the locus of morphological feature-checking. The checking applies to contra-valued features, and results in the elimination of unvalued morphological features, (8). Consequently, the Op-Shell is left only with interpretable features before it reaches the interfaces, where it satisfies Full Interpretation.



Given Asymmetry Theory, the operations of D_M derive the bi-partite structure of functional words. This structure is uniform cross-linguistically, as shown in Di Sciullo (2005), on the basis of a variety of language families, including Romance, Germanic, Slavic, and Turkic.

2.2 CLOSED CLASS ITEMS AND SINGULAR SPELL-OUT OF INTERPRETABLE FEATURES

Wh-words, like functional words more generally, are closed class items because their constituents are the unique spell-out of a small set of features. This set includes the following: [person], [thing], [place], [time], [part], [proximal] and [reason]. We distinguish core features, i.e., [person], [thing], [place], [time], from peripheral features, i.e., [proximal], [part], [manner] and [reason].² While core features have a morphological spell-out in more than one functional category, this is not generally the case for peripheral features. For example, the morphological spell-out of the [person] restrictor in the wh-series, namely /u/ is the same as the one spelling out the 2nd person (singular or plural) in English pronouns, namely *y-ou*. This brings independent evidence that /u/ is the morphological spell out of the [person] feature in wh-words.³ Furthermore, the [thing], [place] and [time] features have a morphological spell out in both th-series and wh-series, (9), (10). This brings independent evidence that *-at* spells out the [thing] feature, *-ere* spells out the [place] feature and that *-en* spells out the [time] feature in the wh-series.

(9) wh-restrictor core feature specifications

	person	thing	place	time
<i>wh-</i>	<i>-o</i>	<i>-at</i>	<i>-ere</i>	<i>-en</i>

(10) th- restrictor core feature specifications

	person	thing	place	time
<i>th-</i>		<i>-at</i>	<i>-ere</i>	<i>-en</i>

² We assume that [proximal] is a sub-feature of [thing] in the th-series and distinguishes, e.g., *that* from *this*.

³ As discussed in Di Sciullo (2005), the linking of a variable by a restrictor may fail if there is no matching restrictor for the operator. For example, wh-words are specified for the [person] feature, which is spelled out by the affix *-o* in *who*, while *th-* words are not, thus there is no th-word **tho* corresponding to the wh-word *who*. Likewise, the wh-operator is not specified for the [proximal] feature, spelled out as *-is*, and consequently, **whis* is excluded by linking failure. Thus, the Operator-variable-restrictor linking has empirical consequences for the morphological form of wh- and th- words.

However, the [part], [reason] and [manner] features have a morphological spell out in the *wh*-series, but not in the *th*-series, in English, (11). This is also the case in other languages, including Italian, (12).⁴

(11) *wh*- and *th*-restrictor feature specifications (English)

	person	thing	place	time	part	reason	manner
<i>wh</i> -	-o	-at	-ere	-en	-ich	-y	<i>how</i>
<i>th</i> -		-at/-is	-ere	-en			

(12) *wh*-restrictor feature specifications (Italian)

	person	thing	place	time	part	reason	manner
<i>ch</i> -	-i	-e	<i>dove</i>	<i>quando</i>	<i>quale</i>	–	-ome
<i>qu</i> -		-esto/ -ello	-ui	<i>allora</i>			

The fact that [person], [reason], [manner] and [part] features do not have a morphological spell-out in the *th*-paradigm might be seen as following from the fact that *wh*-words, contrary to *th*-words, are at the edge of CPs, and thus their domain includes argument structure, i.e. external and internal arguments, as well as modification, whereas *th*-words are located at the edge of arguments or modifiers, but not at the edge of CPs.

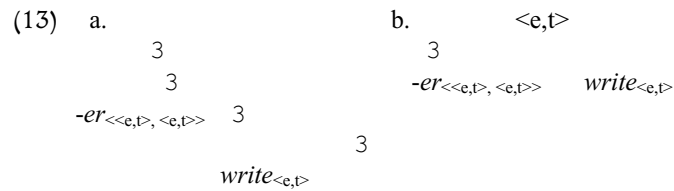
The fact that *wh*- and *th*- words are formed on the basis of the merger of a small set of vocabulary items, each being the singular spell-out of a small set of interpretable features further supports their morphological compositionality.

2.3 SEMANTIC COMPOSITIONALITY

Just as the derivation of Op-Shells is regular, so is the derivation of their semantics. At the semantic interface, an Op-Shell is assigned a compositional interpretation. We assume a compositional, type-driven framework, including, minimally, a rule of Functional Application, and a Non-Branching Node rule, based on the implementation of these rules in Heim and Kratzer (1998). We further assume that nodes that are semantically vacuous are *not* visible to the semantic component, so that the Non-Branching Nodes rule applies in the case that one branch is semantically vacuous.

⁴ The fact that in Italian, the operator is not always spelled out by the same element, namely /k/, may be due to the fact that in Romance syntactic phases can be transferred to the morphological derivation for further computation. Thus, the preposition *per* merges with *che* and *chi* to form reason/purpose *wh*-words. Likewise the internal structure of the *wh*-word *dove* 'where' and *th*-word *allora* 'then' can be analyzed as including a PP.

To illustrate this framework, consider (13), from Di Sciullo (2005), which provides the interpretation of the word *writer*. The M-Shell in (13a) reduces to (13b) at the morpho-conceptual interface, where only semantically active elements are legible. In (13b), the root *write*, a predicate of type $\langle e, t \rangle$ combines by functional application with the affix *er*, of type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$, to yield a predicate of individuals, type $\langle e, t \rangle$.



In this model, the semantics of functional words is derived compositionally, as illustrated in (14a) and (15a) with *what* and *that*, as used in expressions such as *what did you see*, and *I saw that*. *Wh-* and *th-* are analyzed as quantificational operators, as in (14b) and (15b): *wh-* is an existential operator, while *th-* is a definite operator.⁵ In each case, the restrictor is provided by features occupying the head of the restrictor (Re) of the morphological phase. For example, *-at* is interpreted, with respect to any situation *s*, as the characteristic function of the set of individuals that are things in *s*, as (14c) and (15c) illustrate. The semantic composition of the operator and restrictor in each case yields a generalized quantifier, as (14d) and (15d) show.

- (14) a.
$$\begin{array}{c} D_{\langle \langle e, t \rangle, t \rangle} \\ qp \\ wh-_{\langle \langle e, t \rangle, \langle \langle e, t \rangle, t \rangle \rangle} \quad -at_{\langle e, t \rangle} \end{array}$$
- b.
$$[[wh-]]^s = \lambda f_{\langle e, t \rangle} . \lambda g_{\langle e, t \rangle} . \exists x[f(x) \ \& \ g(x)]$$
- c.
$$[[-at]]^s = \lambda x . \text{thing}(x)(s)$$
- d.
$$[[wh-at]]^s = \lambda g_{\langle e, t \rangle} . \exists x[g(x) \ \& \ \text{thing}(x)(s)]$$

⁵ Other researchers have analyzed demonstratives, e.g. *that*, semantically like definite determiners (see ROBERTS, 2002; ELBOURNE, 2005;2006; LEU, 2006), among others. Our analysis differs from these accounts in that we derive the semantics of these determiners compositionally and below the word-level.

- (15) a. $D_{\langle\langle e, t \rangle, t \rangle}$
 qp
 $th_{\langle\langle e, t \rangle, \langle\langle e, t \rangle, t \rangle\rangle}$ $-at_{\langle e, t \rangle}$
- b. $[[th-]]^s = \lambda f_{\langle e, t \rangle} . \lambda g_{\langle e, t \rangle} : \exists ! x [f(x) \ \& \ g(x)] . \iota x [f(x) \ \& \ g(x)]$
- c. $[[-at]]^s = \lambda x . \text{thing}(x)(s)$
- d. $[[th-at]]^s = \lambda h_{\langle e, t \rangle} : \exists ! x [\text{thing}(x)(s) \ \& \ g(x)] . \iota x [x \text{ thing}(x)(s) \ \& \ g(x)]$

2.4 SUMMARY

Given Asymmetry Theory, the form and interpretation of functional words is compositional. *Wh-* and *th-* words include a functional element that belongs to a closed set of items: *wh-*, *th-*. This functional element asymmetrically selects a restrictor, which also belongs to a closed set of affixes, including *-at*, *-ere*, and *-en*. Stress falls on the first element of the construct, and they are generalized quantifiers. Their typical bipartite structure as derived by the operations of D_M is interpreted compositionally at the semantic interface.

In the next section, we show that indefinite pronouns are not different from functional words such as *what* and *that*. Indefinite pronouns include a functional element that belongs to a closed set of items: *every*, *some*, *no*, *any*. This functional element asymmetrically selects a restrictor, which also belongs to a closed set of items, bare nouns: *body*, *thing*, *place*, *time*, *part*, *reason*, *manner*. Like *wh-* and *th-* constructs, stress falls on the first element of the construct, and they are generalized quantifiers. Before doing so, we show that indefinite pronouns are morphological domains before being transferred to the syntax.

3. INDEFINITE PRONOUNS AS MORPHOLOGICAL DOMAINS

According to Chomsky (2001) and Uriagereka (1999), syntactic phases are units of the syntactic computation that start with a numeration and end with spell-out. They are domains for cyclic interpretation and spell-out. They are typically F-XP configurations, are subject to the Phase Impenetrability Condition, and are isolable at the interfaces.

We provide evidence that indefinite pronouns are subject to typical restrictions on morphological domains (phases), but not to typical restrictions on syntactic domains (phases).

Indefinite pronouns qualify as morphological phases as defined in Di Sciullo (2004). They include an F-XP configuration, they are strongly

If indefinite pronouns were syntactically derived phases, such restrictions on their internal combination would not be expected.

3.2 IMPENETRABILITY, THE PARTS CANNOT BE EXTRACTED

If indefinite pronouns were syntactic phases, we would expect Chomsky's (2001) Phase Impenetrability Condition, (18), to hold in this domain, and thus the edge and the head to be accessible for operations from outside the phase.

According to Chomsky (2001), v*P is a strong phase and thus opaque to extraction at the CP level. The only position from which extraction can take place is from the Head and the 'edge' (the specifier and the adjoined positions) of the vP.

(18) *The Phase Impenetrability Condition:*

The domain of H is not accessible to operations outside HP
but only H and its edge (either SPECS or elements adjoined to HP)

$[_{ZP} Z \dots [_{HP} \alpha [H YP]]]$

The complement YP is immune to agreement with something in the next phase up. Only H and its edge are accessible to agreement with some element in ZP.

(CHOMSKY, 2001)

However, the PIC does not apply in the derivation of indefinite pronoun, since extraction out of these expressions is systematically ungrammatical. For example, while quantifier float is possible out of syntactic phases (SPORTICHE, 1988; MIYAGAWA, 1989; SHOLONSKY, 1991), it is not possible out of indefinite pronouns. Consider, for example, (19) and (20): assuming that subjects originate in a position internal to VP (KOOPMAN; SPORTICHE, 1991; CHOMSKY, 1995; 2001), either the whole quantificational phrase — e.g., *all the students* or *each of the students* — may move into subject position, as in (19a) and (20a), or just the DP *the students* may, as in (19b) and (20b). In contrast, indefinite pronouns do not permit such extraction, as (21a-b) illustrate: in this case, *body* may not extract out of the indefinite pronoun *everybody*, as (21b) shows.

- (19) a. [All the students] have __ left early.
b. [The students] have all __ left early.

- (20) a. [Each of the students] has __ left early.
b. [The students] have each __ left early.

- (21) a. [Everybody] has __ left early.
 b. *[Body] has left every __ early.

Likewise, reciprocals such as *each other* are generally assumed to be syntactically derived phrases (HEIM; LASNIK; MAY, 1991). One property of such expressions is that their parts can be separated, as the examples in (22) show. However, this is not a possibility for indefinite pronouns, as illustrated in (23), and (24).

- (22) a. The students saw [each other].
 b. Each student saw [__ the other].
- (23) a. The students saw [everybody].
 b. *Every student saw [__ (the) body].
- (24) a. The students saw [something].
 b. *Some students saw [__ (the) thing].

The facts above show that indefinite pronouns are strongly impenetrable. This is the case more generally for morphological phases, as discussed in Di Sciullo (2004, 2005), and, all things being equal, this is not generally the case for syntactic constituents.

3.3 ISOLABILITY, STRESS PATTERN, AND SEMANTIC INTERPRETATION

Indefinite pronouns are isolable at the phonetic interfaces, much like syntactic phases are. However, they are subject to the Compound Stress Rule, as defined in Chomsky and Halle (1968), and not to phrasal stress rules. It follows from our analysis of indefinite pronouns as morphological phases that they receive a stress pattern different from that of their phrasal counterparts. Specifically, indefinite pronouns are characterized by compound stress, bearing a pitch accent on their first element, e.g., *SOMething*. This is unlike the stress pattern of phrasal expressions, in which a pitch accent may fall on both elements, e.g., *SOME THING*.

At the semantic interface, however, indefinite pronouns have a compositional semantics. These expressions are isolable, as they denote generalized quantifiers, i.e., functions from sets to truth values (BARWISE; COOPER, 1981). We propose that the semantics of these expressions is computed compositionally at the interface between morphological phases and the C-I system, so that the denotation of e.g. *something* is derived from the structure in (25a), as illustrated in (25b-d). *Some* is interpreted as an existential operator, as in (25b). Its restrictor is provided by *thing*, which is interpreted, with respect to any situation *s*, as the characteristic function of

the set of individuals that are things in s , as in (25c). The operator *some* and the restrictor *thing* combine by functional application to yield a generalized quantifier, as in (25d).

- (25) a. $D_{\langle\langle e, t \rangle, t \rangle}$
 qp
 some $_{\langle\langle e, t \rangle, \langle\langle e, t \rangle, t \rangle\rangle}$ thing $_{\langle e, t \rangle}$
- b. $[[some]]^s = \lambda f_{\langle e, t \rangle} . \lambda g_{\langle e, t \rangle} . \exists x[f(x) \ \& \ g(x)]$
- c. $[[thing]]^s = \lambda x . thing(x)(s)$
- d. $[[something]]^s$
 $= [[some]]^s([thing]^s)$ by Functional Application
 $= \lambda g_{\langle e, t \rangle} . \exists x[thing(x)(s) \ \& \ g(x)]$ by »-Conversion

3.4 IMMUNE TO SYNTACTIC PHI-FEATURE AGREEMENT

Further indication that indefinite pronouns behave like M-phases is that they are inflectionally invariant, as (26) illustrates.

- (26) something / *somethings, everything / *everythings, nothing /
 *nothings

We see this as following from the word-level analysis of these constructs, as compounds can be opaque to morphological agreement. This is the case with de-verbal compounds in Italian, where the restrictor must be plural, notwithstanding the gender of the determiner, as in (27) and (28).

- (27) un/dei porta documenti
 a/Ø carry documents
 ‘(a) document holder(s)’

- (28) un/dei taglia matite
 a/Ø cut pencils
 ‘(a) pencil sharpener(s)’

Interestingly, although the restrictor of indefinite pronouns cannot be morphologically plural, these expressions do, unlike their syntactic counterparts, permit group readings, as the contrast in (29) illustrates; this suggests that they have inherent plurality, which is not the case for quantificational DPs (see also AGUERO-BAUTISTA, 2001).

- (29) a. #Every student is working together to improve the research.
 b. Everybody is working together to improve the research.

We take the inherent plurality of indefinite pronouns to be one effect of the generic interpretation of morphological phases, as we assume that generic closure applies to these phases. That indefinite pronouns do not permit morphological plural marking, but do permit group readings, is thus further indication that they behave like M-phases, and not syntactic phases.

The impossibility of plural marking on these words explains another restriction on the formation of these items: indefinite pronouns may only contain certain quantifiers, namely, the first-order quantifiers *some*, *any*, *no*, and *every*. It is just this set of quantifiers that may combine with a singular common noun; second-order quantifiers such as *most* and *many* must combine with plural common nouns, e.g., *most students* vs. **most student*. As a result, *most* and *many* may not occur in indefinite pronouns, e.g., **mostbodies*, **manythings*, since indefinite pronouns do not permit plural marking.

To summarize, the analysis of indefinite pronouns as morphological phases accounts for restrictions on their internal composition and integrity, restrictions for which a syntactic derivation of these expressions would provide no explanation. Specifically, these expressions include an F-XP configuration, they are strongly impenetrable, and they are isolable at the interfaces, but they are subject to different rules at the phonetic interface. In addition, they do not permit plural marking, although they allow for group readings, which has the consequence that they only permit certain quantifiers.

3.5 MODIFICATION

Another argument for the bi-partite structure of indefinite pronouns comes from modification. Although the formation of an indefinite pronoun is clearly subject to restrictions, strikingly, modification internal to these expressions is productive and regular. For example, the restrictor of an indefinite pronoun may be modified by an AP, PP, or CP:

- (30) nothing [_{AP} very strange], something [_{PP} from home], anything [_{CP} that you heard]

Similarly, modification of the quantifier is possible with adverbials such as *almost*, *hardly*, and *nearly*:

- (31) almost everyone, hardly anyone, nearly no one

With respect to modification, then, indefinite pronouns behave much like regular quantificational phrases.⁷ In particular, modifiers productively combine semantically with the *internal* parts of indefinite pronouns (that is, with the restrictor, as in (30), or with the quantifier, as in (31)). The fact that modification is able to target the internal parts of indefinite pronouns supports an analysis of these expressions as productively derived and compositionally interpreted, and not, e.g., simply listed in the lexicon, as in (2). If these expressions were listed in the lexicon, an infinite number of indefinite pronouns would need to be listed, corresponding to every possible modification structure internal to these words.

To account for modification internal to an indefinite pronoun, e.g., *everything nice*, we propose that the morphological structure of indefinite pronouns consists of two open adjunct positions, modifying the upper layer (Operator-variable) as well as the lower layer (Restrictor) of the phrase:

$$\begin{array}{rcl}
 (33) & & 3 \text{ Fx} \\
 & \text{Adjunct} & 3 \\
 & & \text{some} \quad 3 \text{ Re} \\
 & & \text{Adjunct} \quad 3 \\
 & & \text{thing}
 \end{array}$$

Further, we propose that these positions are interpreted semantically as variables ranging over adjunct-denoting expressions, and that these variables are bound by a lambda operator. For example, *something from Brazil* has the following structure, in which a lambda operator binds a predicative variable — type $\langle e, t \rangle$ — in the open Adjunct position of the indefinite pronoun, *something*:

$$\begin{array}{rcl}
 (34) & \text{qp} & \\
 & [\lambda f_{\langle e, t \rangle} \cdot [[\text{some}]]^s ([[\text{thing}]])^s \circ f_{\langle e, t \rangle}] & \text{PP} \\
 & 3 \text{ Fx} & 6 \\
 & \lambda f_{\langle e, t \rangle} \quad 3 & \text{from Brazil} \\
 & \text{some} \quad 3 \text{Re} & \\
 & f_{\langle e, t \rangle} \quad 3 & \\
 & \text{thing} &
 \end{array}$$

⁷ This excepts the position of adjective within these two types of expressions: in a regular quantificational phrase, adjectives precede the head noun, e.g., *no bad things*, while in an indefinite pronoun, adjectives follow the head noun, e.g., *nothing bad*. In addition, Larson and Marušič (2004) have observed that indefinite pronouns only permit modification by modifiers that have the distributional and semantic characteristics of *post-nominal* modifiers, e.g., they only permit stage-level interpretations (BOLINGER, 1967) and they do not stack.

Given the structure in (34), the derivation of the interpretation of *someone from Brazil* proceeds as in (35a-d). Spelling each step out, *something* combines with *from Brazil* via Functional Application (FA), as in (35a) (note that $\circ$ is used to represent a rule of Predicate Modification (PM), which combines any two predicates of individuals A, B to form a new predicate of individuals, C, which is true of all individuals that satisfy A, B). In (35b), the restrictor, *thing* and modifier *from Brazil* combine by Predicate Modification, yielding, for any situation s , a predicate of individuals that are both things in s and from Brazil in s . This derived restriction serves as the restrictor for *some*, as in (35c). *Some* and this restrictor combine by Functional Application to produce the generalized quantifier in (35d), namely, that function that maps, for any situation s , a predicate g to true iff there is some individual x such that x is a thing in s , x is from Brazil in s and x satisfies the predicate g .

- (35) For any situation s , $[[(34)]]^s =$
- a. $[\lambda f_{\langle e, t \rangle} . [[\text{some}]]^s([\text{thing}]^s \circ f_{\langle e, t \rangle})]([\text{from Brazil}]^s)$ by FA
 - b. $[[\text{some}]]^{g,s}([\text{thing}]^s \circ [\text{from Brazil}]^s)$ by PM
 - c. $[[\text{some}]]^{g,s}([\lambda f_{\langle e, t \rangle} . [\text{thing}]^s(x) \& [\text{from Brazil}]^s(x)])$ by FA
 - d. $\text{eg}_{\langle e, t \rangle} . \exists x[[\text{thing}]^s(x) \& [\text{from Brazil}]^s(x) \& g(x)]$

Examples like *almost everyone* would be interpreted similarly, with the open Adjunct position in this case interpreted as a bound variable over quantifier-modifying adverbials.

This analysis accounts for two facts, which might at first be thought to be contradictory. First, it accounts for the fact that modifiers *syntactically* either precede or follow indefinite pronouns, but cannot occur within them. This is expected on our analysis, as it is the result of treating these expressions as morphological domains, whose internal structure is impenetrable to syntactic operations. In other words, assuming modification is a syntactic operation, it may not target the internal structure of an indefinite pronoun, which is a morphological domain. Second, the analysis accounts for the fact that modification *is* productive and semantically compositional *within* an indefinite pronoun, by semantically binding two adjunct positions within these structures; this has the effect that a modifier that is *syntactically* external to an indefinite pronoun is nevertheless interpreted *semantically* as if it occurred internal to these structures.

The open adjunct structure of indefinite pronouns is akin to functional elements with open complement positions, e.g., *if... then...*, and *(n)either ... (n)or ...* structures, as the examples in (36) and (37) illustrate.

- (36) a. If a feature is uninterpretable, then it must be deleted.
 b. If a feature is interpretable, then it must not be deleted.
- (37) a. Either a feature is interpretable, or it is not.
 b. There is no feature that is neither interpretable, nor uninterpretable.

Conditional constructs have the basic bi-partite structure of the M-Shell, (6), however, and include open positions to be filled in the syntactic derivation. We take indefinite pronouns including adjuncts to be another case of the open position morphological shells.

With this analysis, we account not only for the occurrence of modifiers with indefinite pronouns, but also for certain limitations on modification. For example, the fact that only a limited set of nouns may occur in indefinite pronouns has consequences for what kinds of modifiers may occur within these expressions. Adjectives that are obligatorily pre-nominal, such as *former*, *veteran*, *rightful*, and *main*, as illustrated in (38), are ungrammatical in indefinite pronouns, as the examples in (39) illustrate (see also LARSON; MARUŠIČ, 2004).

- (38) a. the former senator, a veteran soldier, its rightful owner,
 the main idea
 b. *the senator former, *a soldier veteran, *its owner rightful,
 *the idea main

- (39) *everything former, *everyone veteran, *something main

Similar facts obtain in Italian, where these non-intersective adjectives are post-nominal, and not pre-nominal, as is the case in English, see (40). Nevertheless, the facts in (39) from English are also observed in Italian, (41), (42), which indicates that linear order properties do not coincide with semantic properties, as it is the case in the framework we are assuming.

- (40) a. Il senatore precedente, un soldato veterano, l'idea principale
 b. *Il precedente senatore, *un veterano soldato, *la principale idea

- (41) *tutto precedente, *ogniuno veterano, *qualcosa principale

- (42) a. il/*tutto precedente senatore
 'the/* all preceding senator'

- b. un /*ogniuno soldato veterano
'a/*everyone veteran soldier'
- c. una/*qualcosa idea principale
'a/*something main idea'

We see this pattern as a result of the inability of these adjectives to combine with the limited set of bare nouns that occur in indefinite pronouns (and not due to, e.g., restrictions on adjectival position). For example, **every former thing*, **every veteran one*, and **some main thing* are all ill-formed because these adjectives may not combine semantically with these bare nouns. An adjective like *former* requires a noun that bears a time index, a requirement that *thing* arguably does not satisfy. Similarly, the adjective *main* must combine with a noun that denotes a singleton set, so that the output of functional application yields a unique referent.

Thus, although semantically indefinite pronouns are derived in a manner parallel to that of their phrasal counterparts, e.g., *every student*, treating indefinite pronouns as morphological phrases provides an account of the ways in which these expressions behave *unlike* their phrasal counterparts.

4. SUMMARY AND CLOSING REMARKS

We have focused here on the derivation and interpretation of indefinite pronouns. We have proposed that the meanings of these functional words are derived from a bi-partite morphological structure, specifically, the semantic composition of a functional element and its complement, where the complement is construed as the morphological spell-out of a closed set of word-internal restrictor features, such as [thing].

We attribute the fact that the interpretation of functional elements is derived compositionally to the basic compositionality of morphological phases. Further, we see the semantic similarities among *wh*- and *th*-words and indefinite pronouns as following from our analysis of functional words, as a natural class, as sharing a minimal bi-partite structure.

We have proposed that indefinite pronouns such as *everybody* and *something* are morphological units of the computation. While the morphological derivation eliminates their uninterpretable features, only the parts of the morphological phase with interpretable features are legible to the semantic system, thus reducing the (morphological) derivational complexity at the semantic interface.

We showed that a morphological derivation obviates the shortcomings of a syntactic derivation. A syntactic analysis does not account for the restrictions on the internal composition and integrity of indefinite

pronouns, which are typical of the derivation of morphological phases, and not of syntactic phases.

ABSTRACT

We argue that the properties of indefinite pronouns such as the quantifiers *someone* and *everything*, are derived by the operations of the grammar and are interpreted compositionally at the semantic interface. This is not what is generally assumed in current practice, as indefinite pronouns are often semantically taken to be unanalyzed expressions (KARTTUNNEN, 1976; MONTAGUE, 1974; GROENENDIJK; STOKHOF, 1990). We bring further evidence that semantic compositionality holds for *wh*-words in English, e.g., *what* and *where*, and in other languages, as proposed in Di Sciullo (2005). We attribute the fact that the interpretation of these elements is derived compositionally to the core compositionality of morphological domains (DI SCIULLO, 2004). We draw consequences of our analysis for the properties of the interface between morphological structure and semantics.

Keywords: *Morphology; Semantics; Indefinite Pronouns.*

RESUMO

Neste artigo, argumentamos que as propriedades dos pronomes indefinidos como os quantificadores, *someone* e *everything*, por exemplo, são derivadas pelas operações da gramática e são interpretadas composicionalmente na interface semântica. Não é essa a visão assumida geralmente na prática corrente, já que nela os pronomes indefinidos são frequentemente tomados como expressões semanticamente não decomponíveis (KARTTUNNEN, 1976; MONTAGUE, 1974; GOENENDIJK; STOKHOF, 1990). Apresentamos ainda outras evidências de que a composicionalidade semântica está presente em palavras *wh* do inglês, por exemplo, *what* e *where*, e de outras línguas, como proposto em Di Sciullo (2005). Atribuímos o fato de que a interpretação desses elementos seja derivada composicionalmente à centralidade da composicionalidade nos domínios morfológicos (DI SCIULLO, 2004). Mostramos as consequências de nossa análise para as propriedades da interface entre estrutura morfológica e semântica.

Palavras-chave: *Morfologia; Semântica; Pronomes Indefinidos.*

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