

# Minimalist program and its fundamental improvements in syntactic theory: evidence from agreement asymmetry in standard Arabic

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## MINIMALIST PROGRAM AND ITS FUNDAMENTAL IMPROVEMENTS IN SYNTACTIC THEORY: EVIDENCE FROM AGREEMENT ASYMMETRY IN STANDARD ARABIC

**ABSTRACT:** The Minimalist Program is a major line of inquiry that has been developing inside Generative Grammar since the early nineties, when it was proposed by Chomsky (1993, 1995). At the outset, Chomsky (1998: 5) presented Minimalist Program as a program, not as a theory, but today, the Minimalist Program lays out a very specific view of the basis of syntactic grammar that, when compared to other formalisms, is often taken to look very much like a theory. The prime concern of this paper, however, is to provide a comprehensive and accessible introduction to the art of the minimalist approach to show its fundamental improvements in syntactic theory. And in order to evidence the significance of these fundamental improvements, the current paper provides a minimalist analysis to account for agreement and word-order asymmetry in Standard Arabic. This fresh minimalist account meets the challenges (to the basic tenets of syntactic theory) posed by pre-minimalist analyses.

**KEY WORDS:** Economy Principles; Merge; Agree; EPP features; Feature Inheritance, word-order; Agreement Asymmetry; null subjects.

**SUMMARY:** 1.Introduction. 2. The Innovation of the MP. 3. Syntactic Derivation. 4. The EPP feature. 5. Phases and Feature Inheritance. 6. Minimalism and Agreement Asymmetry in Arabic. 7. A Pre-minimalist analysis: Spec-Head Agreement. 8. An Alternative minimalist analysis. 9. Arabic Agreement in Null Subjects and Agreement Theory. 10. Conclusion

## PROGRAMA MINIMALISTA Y SUS MEJORAS FUNDAMENTALES EN LA TEORÍA SINTÁCTICA: EVIDENCIA DE ASIMETRÍA EN EL ACUERDO ÁRABE ESTÁNDAR

**RESUMEN:** El Programa Minimalista constituye una de las líneas fundamentales de investigación de la Gramática Generativa que ha evolucionado desde que fuera propuesta por Chomsky (1993, 1995). Si bien en su día, Chomsky (1998: 5) lo presentó como programa y no como teoría, en la actualidad el Programa Minimalista representa una visión muy específica de las bases de la sintaxis que con frecuencia se interpreta como teoría cuando se la compara con otros formalismos. Este artículo tiene como objetivo proporcionar una introducción al arte del enfoque minimalista detallada y a su vez accesible, para mostrar las mejoras que ha efectuado en el campo de la teoría sintáctica. Para demostrar la importancia de dichos avances, este artículo presenta un análisis minimalista de la concordancia y de la asimetría en el árabe estándar. Este nuevo análisis proporciona respuestas a las preguntas que, en relación con los pilares de la teoría sintáctica, quedaban sin contestar en análisis previos al enfoque minimalista.

**PALABRAS CLAVES:** Principios de Economía; Ensamble; Concordancia; rasgos PPE; herencia de rasgos; orden de palabras; asimetría de la concordancia; sujetos nulos.

**SUMARIO:** 1.Introducción. 2. El Innovación de la MP. 3. Derivación sintáctica. 4. El EPP característica. 5. Fases y herencia de características. 6. Minimalismo y el Acuerdo Asimetría en árabe. 7. Un análisis pre-minimalista: Spec-Head Acuerdo. 8. Un análisis alternativo minimalista. 9. Acuerdo en árabe Sujetos nulos y Teoría Acuerdo. 10. Conclusión.

## PROGRAMME MINIMALISTE ET SES AMÉLIORATIONS FONDAMENTALES DE LA THÉORIE SYNTAXIQUE: LEÇONS À TIRER ACCORD ASYMMÉTRIE DANS L'ARABE STANDARD

**RÉSUMÉ:** Le programme minimaliste est une ligne de recherche majeure élaborée par Chomsky (1993, 1995), elle s'est développée au sein de la grammaire générative depuis les années 90. N. Chomsky présente le Programme minimaliste comme un programme et non une théorie; mais aujourd'hui, le Programme minimaliste qui jette un regard spécifique sur les fondements de la structure de la grammaire, et comparé à d'autres formalismes, est considéré comme une théorie. Néanmoins le souci primordial de cet article est de présenter une introduction compréhensive et accessible de la littérature minimaliste pour montrer ses apports fondamentaux pour la théorie syntaxique. Et pour faire ressortir la signification de ces apports le présent article présente une approche minimaliste pour rendre compte de l'accord et de l'asymétrie de l'ordre des mots en arabe standard. Cette nouvelle analyse minimaliste embrasse les défis (aux concepts cardinaux de la théorie syntaxique) rencontrés dans les analyses préminimalistes.

**MOTS CLÉS:** Principes d'économie, fusionne, accorde, traits de principes de projection étendue, héritage de traits, ordre des mots, accord asymétrique, sujets nuls.

**SOMMAIRE:** 1.Introduction. 2. L'innovation de la MP. 3. Dérivation syntaxique. 4. Le PPE fonction. 5. Phases et héritage Feature. 6. Minimalisme et Accord asymétrie en arabe. 7. Une analyse pré-minimaliste: Spec-tête accord. 8. Une analyse alternative minimaliste. 9. Accord arabe chez les sujets nuls et théorie Accord. 10. conclusion.

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## **Minimalist program and its fundamental improvements in syntactic theory: evidence from agreement asymmetry in standard Arabic\***

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### **1. INTRODUCTION**

The Minimalist Program (MP, henceforward) explores the hypothesis that the language faculty is optimal realization of interface conditions, and thus, the strongest minimalist thesis is that language L is an optimal solution to interface conditions imposed on FL by performance systems, and the linguistic expressions generated by L must be legible to these external systems if they are usable (Chomsky 2004).

The MP is “a non-redundant and optimal system in the sense that particular phenomena are not over-determined by linguistic principles and that linguistic system is subject to economy restrictions with a least effort flavor” (Hornstein et al 2005: 14). In other words, this new approach strives to create a model of language that eliminates unnecessary steps in the representation of the derivation of a sentence (Brown 1999). Accordingly, the strongest minimalist thesis is that language L is an optimal solution to interface conditions imposed on the Faculty of Language by performance systems, and the linguistic expressions generated by L must be legible to these external systems if they are usable (Chomsky 2001).

The current paper mainly aims to give a clear sketch picture of the key premises of the MP, considering in this regard three topics which will be spread over three sections. (i) Section 2 outlines the most features distinguishing the MP from its predecessors, namely Government and Binding theory (GB), and Principles and Parameters theory (PPT). The reason is to show that the MP is motivated not only by the search for the explanatory adequacy, but also for a certain level of formal simplicity. (ii) Section 3 considers ‘the structure-building computation’ that is viewed as a series of a number of operations which are considered to be the heart and soul of the MP. It consists of a small set of basic operations: Select Merge, Agree, Move and Transfer. (iii) Sections 4 & 5 discuss some new ideas articulated recently by Chomsky such as changing the function of movement and the Extended Projection Principle (EPP) feature, or as proposing new theories such as Phases and Feature Inheritance in order to determine the least “costly” derivation and reduce the computational complexity. The rest of this paper is devoted to analyzing the agreement asymmetry system in Standard Arabic under the minimalist assumptions,

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in order to prove that the MP handles better the problems found with previous generative analyses of agreement in Arabic, and this strongly gives an example of several fundamental improvements in syntactic theory made by the MP since nineties until today.

## 2. THE INNOVATION OF THE MP

### 2.1. ECONOMY PRINCIPLES

The MP is distinguished from its predecessors by its 'derivational concept' which provides principles for how an analysis is constructed, rather than providing filtering conditions that constrain output representations (Weinberg, 1999). The main derivational constraints are the so-called 'Economy Principles, first made explicit in Chomsky (1991), which are considered to be the cornerstone of the MP. As the MP seeks to determine the least "costly" derivation and reduce the computational complexity, it should provide principles for how an analysis is constructed, rather than providing filtering conditions that constrain output representations (Weinberg, 1999). To make this idea clear, Hornstein et al (2005: 8) describe principles of economy as the practice of "placing a premium on least-effort notions as natural sources of grammatical principles". As pointed out by Motut (2010), the hypothesis that Universal Grammar (UG) itself is based on principles that favour more economical operations, derivations, etc. derives from Chomsky (1991: 130):

I think we can also perceive at least the outlines of certain still more general principles, which we might think of as 'guidelines,' in the sense that they are too vaguely formulated to merit the term 'principles of UG.' Some of these guidelines have a kind of 'least effort' flavour to them, in the sense that they legislate against 'superfluous elements' in representations and derivations.

From a minimalist perspective, economy should be evaluated at each step in the derivation. As a result of this, structures that do not pass the Economy conditions are simply not generated (Weinberg 1999).

### 2.2. LEVELS OF REPRESENTATION

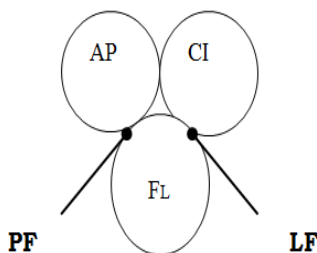
There are two and only two syntactic levels of representation, *Logical Form* (LF) and *Phonological Form* (PF). LF is the level of representation that interfaces with the conceptual intention system. PF is the interface with the articulatory-perceptual system. All conditions on syntactic representations hold at LF and/or PF (Chomsky 1995:219). This new idea, which is considered to be one of the most significant *cornerstones of Chomsky's Minimalist Program*, moves the MP away from the previous syntactic theories of generative grammar. In those theories, a grammar has four distinctive levels: D-Structure (DS), S- Structure (SS), Phonetic Form (PF) and Logical Form (LF), the reason behind proposing that PF and

LF are the only available levels of representation, is that these two levels are conceptually required and also empirically sufficient, and, as argued by Chomsky, many of empirical reasons that led to adopting DS and SS can be addressed without postulating any levels other than PF and LF. To justify this reduction and other new assumptions proposed by this approach, he states that (Chomsky1995: 168):

The language is embedded in performance systems that enable its expressions to be used for articulating, interpreting, referring, inquiring, reflecting, and other actions. We can think of the Structural Description [i.e., linguistic expression] as a complex of instructions for these performance systems, providing information relevant to their functions. While there no clear sense to the idea that language is “designed for use” or “well adapted to its functions,” we do expect to find connections between the properties of the language and the manner of its use.

Reducing the levels of presentation into the interface levels of PF and LF, however, leads the MP to assume that linguistic expressions<sup>1</sup>, during the computation of expression, are generated in the Faculty of Language (FL); the linguistic component of the mind that has interfaces with the articulatory-perceptual (AP) system and LF; the Conceptual-Intentional (CI) system. This means that form and meaning are represented at these two interfaces (Zeijlstra 2004:12). The former is the interface between FL and the AP system and the latter between FL and the CI system. This can be represented in the diagrammatic form below (1).

- (1) *The linguistic component and its interfaces with other components (adopted from Zeijlstra 2004:12).*



### 2.3. FULL INTERPRETATION

Full Interpretation (FI) FI requires all features that pass across the interface to receive an interpretation, and representations be minimal in a certain sense (Chomsky 1995:130). That is, all features and elements have

<sup>1</sup> “The linguistic expressions are the optimal realizations of the interface conditions, where ‘optimality’ is determined by Economy conditions of [Universal Grammar] UG” (Chomsky 1993: 4).

to get an interpretation at, or be deleted before, the interface levels PF and LF (i.e. no superfluous<sup>2</sup> ‘uninterpretable’ at the interfaces) (Chomsky 1995:27). For derivation to be *convergent* and *optimal*, FI must be satisfied by the derivation at both LF and PF by containing no uninterpretable features. Otherwise, the derivation crashes (Chomsky 1995:219-20). Accordingly, FI is relativized to the two interface levels (see Kennedy 2000):

- (i) A syntactic expression is PF-interpretable iff it can be assigned a phonological representation (i.e., iff it can “read” by the phonology).
- (ii) A syntactic expression is LF-interpretable iff it can be assigned a semantic representation (iff it can be read by the semantics).

The principle of Full Interpretation is perhaps the most widely used by Economy Principles mentioned in section 2.1. In this regard, Chomsky and Lasnik (1993: 23) say the following:

The principles [of UG] have further structure [...] There are also certain general ideas that appear to have wide applicability, among them, principles of economy stating that there can be no superfluous symbols in representations (the principle of Full Interpretation, FI) or superfluous steps in derivations.

### 3. SYNTACTIC DERIVATION

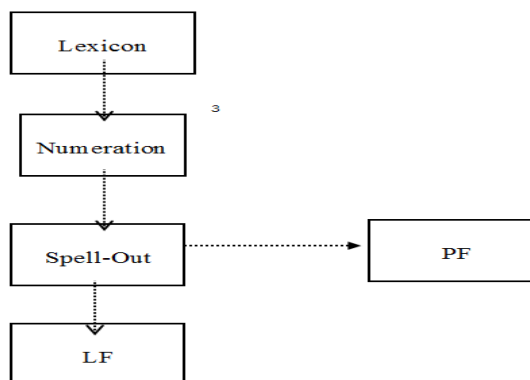
The diagrammatic form in (2) below, shows how the syntactic operations derivate within the minimalist framework. In practice, a set of lexical items enter a numeration *N*, which is a set of pairs (LI, *i*), where LI is an item of lexicon and *i* the number of times that LI is selected from *N* to be included in a given derivation (Chomsky 1995:226). It should be noted that each time an item is taken from the numeration, *i* is reduced by one. At the end of a derivation, the numeration must be empty and every index of every lexical item must be reduced to zero. Otherwise, the derivation crashes (Chomsky 1995:228). At a certain point during the derivation, a derived structure is spelled out. Spell-Out is a technical term meaning that the strictly syntactic, structure-building part of the derivation is completed, at which point the derivation splits and goes off in two directions. On one hand, it is mapped onto the PF-component, to undergo phonological rules (i.e. assimilation, contraction, deletion, etc.), to eventually end up as PF, the representation which is the interface of the grammar with the system controlling articulation and perception. On the other hand, the fully constructed syntactic structure ends up as LF, the interface of the grammar with the cognitive system dealing with meaning (i.e. logical inferences, determining truth etc.). “Ideally, Spell-Out applies freely and without restriction: if it applies at the wrong point or sends the wrong

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<sup>2</sup> That is, every operation must have a purpose.

information to one of the interfaces, the derivation crashes. Spell-Out is not a level of representation that the grammar can refer to” (Kennedy 2000).

## (2) *Model of Grammar* (Chomsky, 1995:219)



In the next subsections, I explain, from a minimalist perspective, what these derivational operations that form the syntactic objects are.

### 3.1. DERIVATIONAL OPERATIONS

In the MP, the derivation, or in more technical terms, “the structure-building computation”, is viewed as a series of a number of operations. It consists of a small set of basic operations: Select Merge, Agree, Move and Transfer, aiming at determining the least “costly” derivation in terms of computation.

#### 3.1.1. SELECT AND MERGE

One of the important concepts or the key elements in the MP is that of Select and Merge. The two operations “are necessary components of any theory of natural language”. Both operations “are ‘costless’; they do not fall within the domain of discussion of convergence and economy” (Chomsky 1995: 226). Merge can be defined as a binary operation that by Select takes per operational step two constituents “from the numeration [N] and turns them into one constituent that carries the same label as that of the dominating item”<sup>3</sup> (Zeijlstra 2004: 14). This definition simply reflects the fact that Merge needs at least two arguments to form them into a constituent. The reason behind this is that Merge must be *recursive* (i.e.

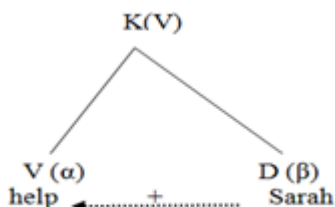
<sup>3</sup> *The Headedness Principle* (Radford 2004: 70): Every syntactic structure is the projection of a head word.

there can be any number of merge operations) and hence merging two objects is the minimum required to get recursivity. Moreover, merging two arguments meets the requirement that all branching must be binary (see Hornstein et al. 2005: 209-10). In technical terms, the operation Merge is defined in (3):

(3) *Merge*:  $K = \{ \alpha / \beta \{ \alpha, \beta \} \}^4$  ( Zeijlstra 2004: 15).

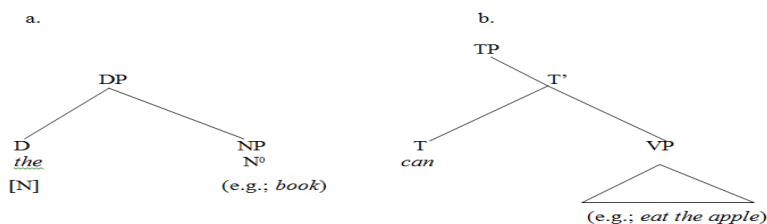
This definition in (3) can be empirically illustrated more by the following example in (4).

(4)



(4) asserts the simplicity of Merge operation, so all what Merge does is taking two elements, say: A and B, and putting them together to create a more complex structure. Accordingly, the MP assumes that it is conceptually necessary that phrases and sentences are built up from words by a series of merger operations. Words have selection features which stipulate which category or categories they can merge with. For instance: *the*, which a head D, has an uninterpretable selectional (N) feature, which signifies that it must combine with a noun or NP to form a DP. the selectional [N] feature of D is deleted upon merger with the NP complement as illustrated in (5a). The modal *can* has a selection feature (V), which must combine with a verb or VP as shown in ( 5b) , and so on (Radford 2004: 58-59).

(5)



<sup>4</sup> K is a newly-formed constituent that is labeled after its head which can be either  $\alpha$  or  $\beta$  as illustrated in (6).

It is important, however, to note that if selectional steps are taken correctly, merged elements converge, if not, they crash, and then, we have ungrammatical structure.

### 3.1.2. AGREE

One of the integral derivational operations in the MP is that of Agree. It is an operation that “establishes a relation between two elements if they share certain grammatical features” (Kremers 2003: 6). This operation consists of two elements: *Probe* and *Goal*. The *probe* in order to be able to enter into an agree-relation must be active. It can be active if and only if it has an unvalued feature so that it can value its features by probing for an active *goal* that has the same matching features but valued.

In order to give this operation more substance, Chomsky (1995) made an obvious distinction for syntactic features. In this regard, he divides Syntactic Features into two sorts: those with a semantic interpretation (e, g., a pronoun with the features [3M.SG] refers to different elements than a pronoun with the features [3F,PL]), and those with a purely syntactic function “formal features” (Chomsky 2001:10). The former features are called interpretable, which enter the computation valued, while the latter are uninterpretable which enter the computation unvalued, but are valued during the computation. Thus, at Spell-Out, All features must be valued. The table in (6) below lists the basic uninterpretable and interpretable features:

(6)

Uninterpretable	Interpretable
$\Phi$ -features on T, $\nu$ , C ... tense features on V case features on DP EPP features (D) on T, C, $\nu$ , Neg...	$\Phi$ -features on DPs tense features on T

The way that uninterpretable features capture syntactic dependencies is that they have the following property: an uninterpretable feature must be checked by a matching feature (whether interpretable or not). This means that every syntactic dependency will be triggered by the presence of an uninterpretable feature. The uninterpretable features cannot be given an interpretation at the interfaces and hence they have to be eliminated before semantic representation. The requirement is triggered, as illustrated in section one, by the interface condition FI in which “there can be no superfluous symbols in representations” (Chomsky 1995:27).

A good example to show how Agree operates is the example of subject-verb agreement (see section? for more a practical discussion about how



Agree operate on the agreement phenomenon in Arabic). In this regard, it has been observed that Subject-Verb agreement and nominative case go together. This is captured by assuming that agreement and case are assigned under the same Agree operation, where Agree, as mentioned above, can be defined as the relation between a so called probe (which can be T), searching for a category to value its unvalued phi-features (i.e. an expression it can agree with), a so called goal (which can be a subject DP). The DP which the probe T needs to value T's unvalued  $\phi$ -features<sup>5</sup>, is at the same time the DP that T assigns nominative case to. It should be noted that the DP probed by T is always the closest one which does not already have a valued case-feature. That is usually the subject. Overall, noun and pronoun expressions are case-marked by the closest case-assigner which c-commands them. Accordingly, there is a mutual feature-valuing relation between T and a D/DP: T receive  $\Phi$  -feature values from D/DP, in return D/DP receives a case-feature value. The operation Agree can be formulated in (7), (Chomsky (2000) :

- (7) The relation Agree is established between a probe and goal iff:
- a. the probe has one interpretable and one uninterpretable feature, F and uG, and the goal has the same features but with reversed values for interpretability, uF and G and
  - b. the probe c-commands the goal and
  - c. there is no element closer to the probe than the goal with the relevant feature-values.

Once again, It should be recalled that when Agree relation is successfully established, the uninterpretable features are removed from the narrow syntax “being handed over to morphology/phonology, the derivation,” as they are phonetic effects” (Chomsky 2001: 5). They cannot survive until LF. If, for some reason, they cannot be eliminated in the course of the derivation of LF, the derivation crashes.

### 3.1.2.1. AGREE AND SOME CONSTRAINTS ON COMPUTATION

A pressing issue relates to our discussion about Agree is that if the goal is not active, for instance, by not having unvalued features (i.e., a subject DP with unvalued case feature), the operation agree fails. The probe cannot alternatively go down the derivation and look for another element that can serve as an eligible goal. If the goal tries to do such an operation, this will violate the *Defective Intervention Effect Principle* which prohibits an establishment of an AGREE relation when a closer but inactive goal intervenes between a probe and another goal in the configuration (8):

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<sup>5</sup> We mean by  $\Phi$  -features (or phi-features) the person, number, and gender features of a category.

- (8) \*AGREE ( $\alpha$ ,  $\gamma$ ),  $\alpha$  is a probe and  $\beta$  is a matching goal, and  $\beta$  is inactive due to a prior Agree with some other probe<sup>6</sup> (Hiraiwa 2001: 69).

Moreover, according to ‘Phase Impenetrability Condition’ in (9) (Chomsky 2000: 108, added illustrations from Boeckx and Grohmann, 2004: 4), Agree cannot hold between a (root node) probe and a goal within the domain of a lower phase head. In this connection Chomsky (2005:12) emphasizes that “for minimal computation, the probe should search the smallest domain to find the goal: its c-command domain”. That is, only the phase head and its specifiers are active for Agree.

- (9) In a phase  $\alpha$  with head H, the domain of H [= complement of H] is not accessible to operations outside  $\alpha$  [= HP], only H and its edge [= H plus any/all of its specifiers] are accessible to such operations.

To simplify things, the principle in (9) above states that *every goal has to have a probe in the phase*.

### 3.1.3. MOVE

Move is an operation that is derived from Merge (Chomsky, 1995:348). This is because Move does the following steps: given the syntactic object  $\Sigma$  with the terms K and  $\hat{a}$ , Move targets K, (ii) raises  $\hat{a}$ , and (iii) merges  $\hat{a}$  with K to form the new syntactic object (Chomsky 1995: 250). If merge is not a part of move, it is, then, pure merge.

It should be noted that Move operation is guided by economy principles, discussed in section 2.1 above. These principles being involved economy of derivation and representation always take the shortest route. At each step of derivation the principle of economy allows only a minimum of transformational activity. Hence, Chomsky (1993) introduced the Minimal Link Condition (MLC) (10) as an economy condition on the operation Move to preclude the longer movement to occur if there is a shorter legitimate movement. As shown in (10) below, this condition concerns about a locality restriction on syntactic movement: Movement of  $\alpha$  to a target K is blocked by  $\beta$ , if  $\beta$  is closer to K and could enter the same checking relation.

- (10) *Minimal Link Condition: (MLC)*

K attracts  $\alpha$  only if there is no  $\beta$ ,  $\beta$  closer to K than  $\alpha$ , such that K attracts  $\beta$  (Chomsky 1995:311).

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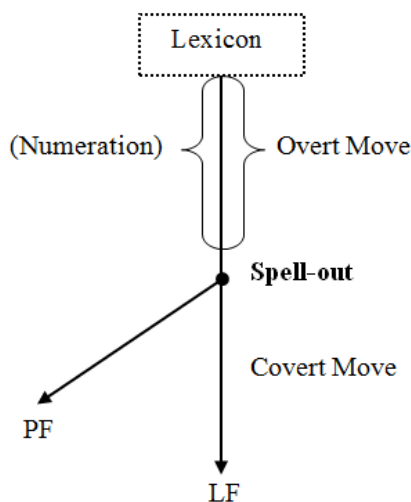
<sup>6</sup> That is, “an element  $\beta$  (c-commanding  $\gamma$  and c-commanded by  $\alpha$ ) blocks the establishment of an Agree-relation between two other elements  $\alpha$  and  $\gamma$  even if  $\beta$  itself could not agree with  $\alpha$ ” (Boeckx 2003: 17).

In an early version of the MP, movement is driven by the need for a morphological requirement to be satisfied, and hence, some element, at certain point, is required to move to check some feature in a syntactic structure, and hence movement is crucial in order to “enable a previously uncheckable feature to get checked” (Chomsky, 1995: 261). The features which need checking include structural Case, phi-feature of T and other agreeing categories, etc as illustrated in (6) above. The checking is accomplished when a category needing a feature value is in construction with some other elements in the sentence that can supply that feature value as explained in more depth by operation Agree earlier. This reflects the fact that one significant role of Move is combining Merge and Agree. It merges Y to XP and Y becomes the specifier of XP after the checking features is accomplished by Agree. It, also, serves to allow an element to transfer a feature necessary to satisfy some constraint” (Weinberg, 1999). In order to give this operation more substance, Chomsky (1993) proposes the two following principles:

- (11) **Greed:** A constituent does not move unless it has to in order to satisfy some requirement that it has.
- (12) **Procrastinate:** Movement occurs as last as possible in the derivation.

An important point of detail to note about the nature of this operation, in early version of the MP, is that movement can be occurred prior to spell-Out or in LF (i.e. after Spell-Out). The former type is called ‘overt movement’ and the head of the chain it creates is pronounced. The latter, however, is called ‘covert movement’ and the tail of the chain it creates is pronounced. Chomsky (1995: 262-5) argues that overt movement is for satisfaction of morphological properties (formal features) such as moving an entire X (head movement) or XP (phrase movement), whereas covert movement would be expected to be restricted to feature raising such as *wh*-movement, expletive replacement, and anaphor raising. Both these two types, however, are maintained in the MP. But since the framework is economy-driven, the overt movement is unwelcome because it is costly in terms of economy conditions. However, the covert movement is preferred since it is cost-free as shown in (13) below (see Culicover, 1997: 350).

- (13) *Overt and Covert Move*



More recently, Chomsky(1998, and subsequent works) dismisses with the previous idea that Move is driven by the feature checking (Chomsky, 1995: 253). In the more recent Agree-based framework discussed earlier, movement occurs only to satisfy the EPP feature, whereas Case/agreement are licensed in the subject's base-position. Accordingly, the EPP is the sole reason for movement (see section 4 below), since Agree enables other relations to be satisfied without displacing anything. This new insight is further underscored in Chomsky's discussion of "phases" (see section 5 below).

### 3.1.3.1. MOVE AND COPY THEORY

In this subsection, I introduce the idea that Move is not a primitive operation, but, rather, the combination of the operations Copy and Merge<sup>7</sup> (Hornstein et al, 2005: 214). The Copy Theory assumes that a trace of a moved constituent is actually a copy of moved element that remerges later with another element at the edges of successive phases. That is, movement leaves behind a copy of the moved element, instead of replacing it by an indexed trace. When the narrow syntactic derivation is completed, language specific PF conditions determine which copy is privileged for pronunciation (Chomsky 2000, 2001). Such an assumption made by this theory indeed indicates that the operation Move is simply the sequence of operations Copy and Merge.

<sup>7</sup> The copy theory of movement indeed involves a form of merger operation by which the moved copy that has been merged in one position is subsequently merged in another position. As a result of this," it has been proposed that "remerge," is simply a notation for the copy theory as originally formulated in the most elementary terms" (Chomsky, 2005:6, note 16).

More significantly, the interesting motivations for treating operation Copy as one of the operation Move components, as well as Merge, had to do with interpretation phenomena. If traces are copies, reconstruction effects may be captured at LF without the need to postulate non-interface levels of representation (Chomsky 1993). Thus, it can be claimed that the copy theory of movement provides strong evidence that PF and LF are the only available levels of representation as illustrated in section 2.2 above. Moreover, Assuming a trace is actually a copy of the moved element and hence it is a syntactic object built based on features of the numeration and not a theoretical prime inserted in the course of the computation- is compatible with the Inclusiveness Condition which requires that the machinery of syntax does not introduce any new features not already contained in the lexical items as explained in section 2.3 above (Hornstein et al. 2005: 213). Accordingly, since we cannot add anything, we know that the copy of moved element must be something that we got from the lexicon.

To sum up, the copy theory provides an option not available in trace theory, namely that the lower rather than the higher member of a non-trivial chain may be phonetically realized. This can be seen by comparing *wh*-movement in English with *wh*-movement in Chinese and Korean, for example. In English the copy in spec CP is pronounced, whereas in Chinese and Korean the copy in the first-merged 'the original' position is pronounced<sup>8</sup> (see Hornstein 2001).

### 3.1.4. TRANSFER

Chomsky (2001) introduces the notion of Transfer as an operation that could be constructed to be different from Spell Out. However, in his late work, in particular of (2004), Chomsky apparently deals with Transfer as another name for Spell Out as indicated by his definition of Transfer (Chomsky 2004: 107, bracketed illustrations are taken from Chomsky's discussion):

- (14) TRANSFER hands D[derivation]-NS[narrow syntax] over to  $\Phi$  [the phonological component] and to  $\Sigma$  [the semantic component].

Grohmann (2006: 8) dissociates the operation Transfer from the operation Spell Out. He proposes that "Transfer takes a sub-part of the derivation and ships it to PF cyclically (where operations like building prosodic domains apply); whereas Spell Out feeds the sensorimotor system

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<sup>8</sup> Another wide assumed idea is that unlike English, *wh*-movement in these two languages applies later in the covert part of the syntax, after the spell-out, thus it does not show in PF (Sabel 2000).

[articulatory- perceptual] once the PF-branch is complete, uniquely (i.e. once the derivation has assembled all Prolific Domains<sup>9</sup>).

I will hold Chomsky's view that treats both two operations as one operation since this view is compatible with the core assumption of the MP, discussed in the begging of this paper, which requires that syntactic representations formed in the course of a derivation should be as simple as possible, consisting of a minimal number of syntactic operations. Accordingly, I adapt the latest definition of the operation of Transfer, to my knowledge, proposed by Legate (2002: 2) in (15) below:

(15) **TRANSFER**

Once the derivation is complete, the syntactic representation undergoes 'Transfer' "a macro-operation that ultimately sends the derivation to PF and LF [for interpretation], but that contains a number of prior sub-operations whose application is claimed to be simultaneous. One of these sub-operations eliminates features that were valued during the phase from the derivation proceeding to LF; these features are retained in the derivation proceeding to PF.

#### 4. THE EPP FEATURE

The Extended Projection Principle (EPP), which is connected to an uninterpretable feature, has been played a significant role in syntactic theory ever since Chomsky (1981, 1982, 1986) proposed it. The general strategy in this section is to present a brief rundown on the interesting development of the essence of the EPP feature in the literature, showing how this principle has been in the center of theorizing within the MP and with the two of its immediate predecessors, namely (GB) and (PPT) and indicating, at the same time, that the syntactic theory has had a great difficulty in finding a better understanding for this feature. As concluded by Butler (2004: 1) "EPP has a long and chequered history; its universality and indeed existence have been defended and denied with equal vehemence".

##### 4.1. BACKGROUND

Within the frameworks of GB and PPT, the EPP feature started out as a universal requirement for clausal subject, requiring that there be a subject in every clause or perhaps that certain functional heads have a specifier (Chomsky 1986 and elsewhere). More specifically, the EPP engendered a specifier position on IP. However, under Minimalism such a requirement is implausible, since specifiers are not obligatory. Instead, two new understandings for the EPP feature have been proposed. In the earliest

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<sup>9</sup> "A Prolific Domain is a contextually defined part of the computational system,  
i. which provides the interfaces with the information relevant to the context and  
ii. which consists of internal structure, interacting with derivational operations" (Grohmann 2003: 75).

work of the MP, it was assumed that the EPP is implemented as a [D] feature with a matching feature in nominal expressions<sup>10</sup>. For instance, this feature can be located at T which is checked as a result of Merge or subject Move into Spec, TP (Chomsky 1995). This means that the EPP is an independent feature hosted by T as well as Case-feature and phi-features. That is, the EPP is a result of a feature-checking requirement which is checked by the subject of finite clauses.

Recently, Chomsky (1998) argues contra the idea of treating the EPP feature as a [D]. Alternatively, he perceives the EPP as a selectional feature, uninterpretable and nonsemantic, satisfied only as a result of dislocation; specifically, movement and re-merge the NP/DP at the spec of TP to check the [EPP] feature on the T head. The reason behind this approach could be that Chomsky wants to expand the role of EPP to be implicated “in a range of other mysteries beyond the necessity of ‘subject’ (like the apparent need for ‘very’ successive cyclic A-bar movement operations)” (Grohmann et al. 2000: 154).

More recently and surprisingly, several works have brought us back to Chomsky’s original conception of the EPP feature (1981, 1982, 1986) and proposed a restoration of EPP as an original formulation ‘Extended Projection Principle’ (Chomsky 2000, Holmberg 2000, Lasnik 2001). That is, the EPP property should be treated “as a requirement to have an overly filled specifier” (Bošković 2007: 186), or as summed up by Lasnik (2001: 357) “...the EPP has nothing to do with features checking in the sense of Chomsky 1995. Rather, in a return to the earliest view, it is the requirement that certain functional heads must have a specifier”. Based on this approach, Chomsky (2000, 2001) reaches the conviction that movement is only driven by the EPP feature. How this? First, although the EPP feature is uninterpretable like Phi-features and structural Case, it differs from those two features in being a selectional. Thus, unlike the EPP feature, they never induce movement. Second, according to Agree-based framework discussed in section 3.1.2, Case and agreement are licensed in the subject’s base-position. What, actually, checked is only the EPP since it requires “second Merge” (i.e., that something be moved and merged as Spec, TP). “This move has an interesting consequence: the EPP is the sole reason for movement, since Agree enables other relations to be satisfied without displacing anything” (Grohmann et al. 2000: 164). In Chomsky (2000, 2006, 2008), when the notion “phases” has been introduced, the EPP feature has a new name: “Edge feature”, see section 5. In the following subsection, I shall explain how languages vary in the EPP feature type they require.

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<sup>10</sup> Chomsky (1995: 199): “The Extended Projection Principle, which requires that [Spec, IP] be realized (perhaps by an empty category), reduces to a morphological property of T: strong or weak NP-features”. Later, he adds “the Extended Projection Principle (EPP) plausibly reduces to a strong D-feature of I” (p.232).

#### 4.2. THE UNIVERSALITY OF EPP

As proposed by Chomsky (1980, 1982, 1995 and subsequent work by others), the EPP may be a universal feature whose realization is parameterized across languages. Nevertheless, languages seem to vary in terms of the EPP feature type they require. According to Alboiu (2001), the EPP feature can be cross-linguistically divided among languages, into three main EPP feature types: These are [T], [D] and [V]. In T-type EPP languages as in Niuean<sup>11</sup> and probably French (Pollock 1989)<sup>12</sup>, the EPP is satisfied by selecting the predicate and merging it as Spec, TP (when the predicate is realized as XP), or as T (when the predicate is realized as X<sup>0</sup>). In D-type EPP languages, such as English, the EPP feature is erased by selecting an agreeing XP (i.e., the subject) and merging it as Spec, TP. Thus, the EPP feature, in this language, is dependent on the probe-goal relation: the category which is selected by the probe T as its goal is also the category which the EPP feature then attracts (a copy of) to Spec TP. In line with Chomsky (1995)'s idea that movement is driven by the EPP, The [D] feature, however, is satisfied either by a subject in Spec, IP (Radford 2004) or by moving the finite verb with its nominal features to I (i.e., null-subject languages) (Holmberg, 2005; cf. Alexiadou and Anagnostopoulou 1999). In some D-type EPP languages, such as Turkish, this feature is obligatory, otherwise the derivation crashes. That is, in Turkish sentences, Spec TP must be occupied by a moved DP (i.e. specific nominal) to that position, and in the absence of a specific subject, another nominal is required to move to the spec TP to satisfy this feature<sup>13</sup> (for more discussion, see Cagri 2005).

In V-type EPP languages, however, like Romanian, and perhaps Arabic, the EPP feature selects the lexical verb which always undergoes raising to I<sup>0</sup>. Thus, in Romanian, for example, the EPP feature is assumed "to be equivalent to a strong [V] feature on I<sup>0</sup>. This strong [V] feature attracts verb movement to I, thus 'activating' the IP domain" (Alboiu, 2001).

#### 5. PHASES AND FEATURE INHERITANCE

The ultimate concern of this section is to capture the concept of "phases" in the latest version of the MP. Based on his suggestion in (Chomsky 2000), Chomsky (2001: 12, cf. Legate, 2003) defines the notion

<sup>11</sup> The Niuean language or Niue language (Niuean: *ko e vagahau Niuē*) is a Polynesian language, belonging to the Malayo-Polynesian subgroup of the Austronesian languages (Massam and Smallwood 1996).

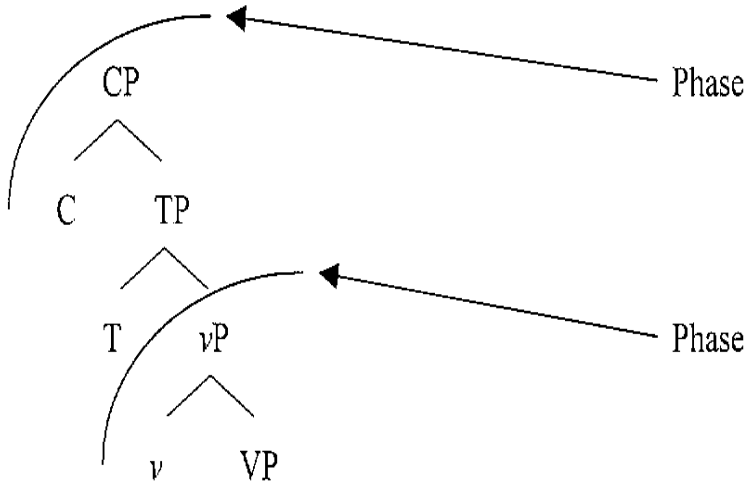
<sup>12</sup> It is worth pointing out that French requires verb raising to I<sup>0</sup>, alongside subjects in Spec, IP and expletives. Presumably, this means that French has a 'mixed' type EPP, namely, both a D-type and a V-type EPP feature (Pollock 1989 and cf. Alboiu 2001).

<sup>13</sup> So Cagri assumes that in Turkish, the EPP feature of T can be satisfied by a DP, but not by an NP.



of ‘phase’ as follows, “the phases are ‘propositional [in nature]<sup>14</sup>’: verbal phrases with full argument structure and CP with force indicators, but not TP alone or ‘weak’ verbal configurations lacking external arguments (passive, unaccusative)” (16). From this definition, he assumes that “substantive categories are selected by functional categories: V by a little verb, T by C. if so, phases are CP [including tense and force] and  $v^*P$ <sup>15</sup> [having all  $\theta$ -roles]<sup>16</sup>”. His justifications for taking CP and  $v^*P$  as phases are that CP behaves as a complete clausal complex containing essential elements of the clause (e.g.; the force markers, topic, focus markers etc, and  $v^*P$  represents a complete thematic (argument structure) complex, including a subject in a specifier position. Moreover, the phases can be fronted, extraposed, and serve as response fragments (Chomsky 1998, 2001).

(16)



However, once the derivation within a given phase has been completed, the phase arguments become impenetrable to further syntactic operations. This results in the Phase-impenetrability Condition (PIC) in (10), repeated here as (17).

<sup>14</sup> That is, “a phase is the closest syntactic counterpart to a proposition” (Kremers 2003: 9).

<sup>15</sup> To be distinguished from unaccusative  $v$ , Chomsky (2005, 2006) marks transitive little  $v$  with\*.

<sup>16</sup> Legate (2003: 1) provides an interesting definition of Phases according to how they are used in Chomsky’s system: “A phase is a self-contained subsection of the derivation, beginning with a numeration and ending with Spell-Out. At the point of Spell- Out, the complement of the phase-defining head phase is sent to each of the PF and LF components for interpretation”.

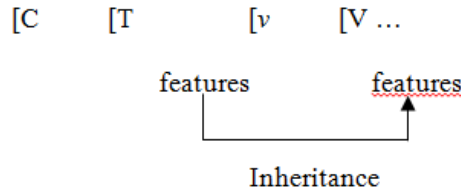
- (17) In a phase  $\alpha$  with head H, the domain of H [= complement of H] is not accessible to operations outside  $\alpha$  [= HP], only H and its edge [= H plus any/all of its specifiers] are accessible to such operations.

As indicated by PIC in (17) above, phases are syntactically independent. “The derivation of a syntactic structure takes place phase by phase” and sends each one separately “to PF to be spelled out. Once it has been spelled out, it can be merged into another syntactic structure, but because it has already been spelled out, it has been stripped of its syntactic information [i.e. no longer accessible to the syntax]” (Kremers 2003: 10). In this way, the edge of a phase is syntactically transparent, while the complement of a phase head is syntactically opaque. To put things differently, the complement of the head of a phase is out of reach for further computations, but its edge is accessible to operations like agreement and movement as the phase heads C and \*v contain two types of features: Agree features ( $\phi$ -features), and the Edge feature. The latter is the current version of the “generalized EPP” of Chomsky (2000, 2005, 2006), and triggers movements to the specifier position of the phase head. It should be, however, noted that phases and PIC are synonyms of ‘bounding nodes/governing categories/barriers’ and ‘subjacency’, respectively, in the pre-minimalist era.

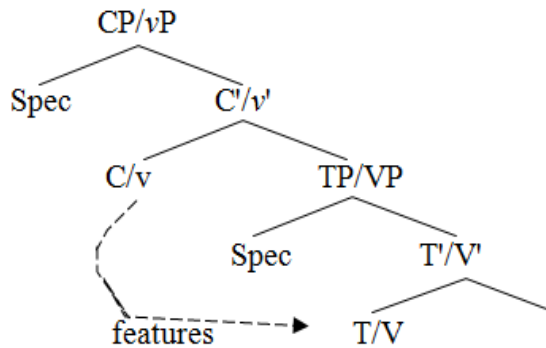
VPs and TPs are excluded to serve as phases<sup>17</sup>, because VP lacks a subject and hence cannot be the syntactic counterpart of a proposition. As for TP, T fails to define a phase boundary along with C, although it seems to be “the locus of the  $\phi$ -features that are involved in the Nominative-agreement system, and raising of the external argument subject or unaccusative/passive object to SPEC-T” (Chomsky 2005: 9). The question, then, becomes, why T cannot be treated as a phase as well as C and *v*. In addition to violating (PIC) in (20) because T is part of a clause, Chomsky (Ibid) notes that there is antecedent reason to sustain that TP is not a phase. The reason is that Tense and  $\phi$ -features, which appear to be determined by T, are, in fact, determined by C. These features are inherited in T from the head of the phase C. The antecedent reason is that “in the lexicon, T lacks these features. T manifests the basic tense features if and only if it is selected by C [...]; if not, it is a raising (or ECM) infinitival, lacking  $\phi$ -features and basic tense. So it makes sense to assume that Agree- and Tense-features are inherited from C, the phase head”. The same can be said about the phase head *v*\* that transmits its Inheritance features (accusative Case and  $\Phi$ -features) to V as illustrated by (18) & (19) below, taken from Al-Horais (forthcoming).

<sup>17</sup> Some scholars argue that unaccusative VPs, passive VPs (Svenonius 2004; Hiraiwa 2005) and DPs (Legate 2003 and Kremers 2003) are phases as well.

(18)



(19)



## 6. MINIMALISM AND AGREEMENT ASYMMETRY IN ARABIC

In this section, I show that the MP assumptions, discussed in the previous sections, can provide a more convincing syntactic analysis for the asymmetry of Subject -verb agreement in Standard Arabic (Arabic, henceforward). The rich and complex agreement system in Arabic has attracted a great deal of attention in pre-minimalist generative analyses from a number of perspectives, chiefly because the asymmetry relation of subject-verb agreement differs in a number of ways from more usual patterns of agreement in the world's languages, and presents some challenges to the basic tenets of syntactic theory. In the rest of this paper, I propose a minimalist analysis that meets these challenges, and gets rid of problems found with the previous analyses. Before doing so, I spend the next sections describing the agreement asymmetry system in Arabic, and then I turn to review the analyses proposed in the literature to provide an explanation for this agreement asymmetry. Having done that, I provide an alternative minimalist analysis that can handles the problems found with the old generative analyses that attempted to account for Arabic agreement.

### 6.1. AGREEMENT ASYMMETRY SYSTEM IN ARABIC

Subject -verb agreement in Arabic is well-known as having agreement asymmetries that are mainly affected by word order. In VSO order, the unmarked word order, the verb agrees with the subject in gender only (partial agreement), if it is a full lexical DP. (20-22) are illustrative examples:

(20) jaʔ-at            T-Taalibaat-u  
       came.3fs     the- students.fp-Nom  
       "The students came."

(21) \*jiʔ-na            T-Taalibaat-u  
       came.3fp        the-students.fp-Nom

(22) ʔakala                    ʔal-walad-u            at-tufaahat-a  
       past- ate.3ms        the-boy-Nom        the-apple-Acc  
       "The boy ate the apple."

The above examples clearly show that the verb in VS orders is impoverished and involves only gender agreement with the postverbal DP but not person and number. This gender agreement can be morphologically realized if the postverbal subject is feminine, by a gender suffix *-t* as in (20) above. In (22), by contrast, such gender agreement is not morphologically manifested since the masculine agreement morpheme is null in this language.

As for full agreement, where full agreement between subject and verb occurs in all  $\phi$ -features (in gender and number mainly), it is always associated with pronominal subjects whether these pronominals are null (which is the unmarked case) or overt, and whether these pronominals precede or follow the verb. Consider the following examples, taken from Soltan (2006: 248):

- (23) a. (hum) qaraʔ-uu d-dars-a.            SV+full agreement  
       (they) read.3mp the-lesson-Acc  
       "They read the lesson."  
       b. qaraʔ-uu (hum) d-dars-a. VS+full agreement<sup>18</sup>  
       read.3mp (they) the-lesson-Acc  
       c. \*qaraʔa hum            d-dars-a.            \*VS+partial agreement  
       read.3ms they the-lesson-Acc

<sup>18</sup> It should be noted that "overtness" of the pronominal subject is a marked option and is always associated with emphasis/contrastive focus effects" (Soltan 2006: 248).

Full agreement can also be triggered by a null pronoun referring to a person or object already introduced as a topic. (24) is an example:

- (24) a. ?al-banaat-u      ?akal-na.  
         the-girls-Nom      ate.3fp  
         “The girls ate.”
- b. \* ?al-banaat-u      ?akal-at.  
         the-girls-Nom      ate.3f

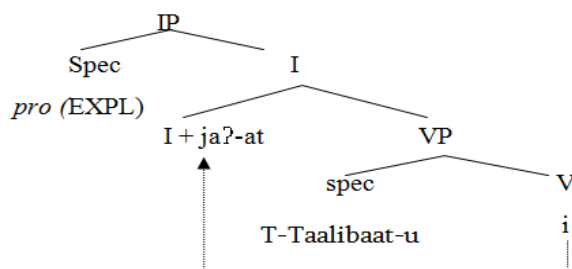
## 7. A PRE-MINIMALIST ANALYSIS: SPEC-HEAD AGREEMENT

Specifier-head agreement (or spec-head agreement) is a notion introduced in Chomsky (1986) to describe the sharing of  $\phi$ -features between the head and the specifier of IP. In Chomsky's (1986) Government-Binding (GB) Theory, subject-verb agreement, and nominative case assignment was assumed to be associated with the head  $I^0$  and a subject in its spec under a local configuration. Later, this idea is influenced by Kayne's (1989) discussion of past participle agreement in Romance, and developed in detail in Pollock's (1989) article on the layered structure of IP (the functional domain associated with tense and agreement). The generalization formulated within this approach to agreement in natural languages is spelled out in (25).

- (25) If Y agrees with XP, XP and Y are or have been in a Spec-head relation in the course of the derivation (see Kayne 1989).

Building on this generalization, Mohammad (1990, 2000) provides an explanation of the agreement asymmetry in Arabic through proposing the so-called 'Null Expletive analysis'. Under this analysis, partial agreement in VS orders is achieved as a result of a Spec-head relation between  $I^0$  and a null expletive in its Spec. Accordingly, the partial agreement in (20), will have a derivation along the lines in (26):

(26)



Assuming the existence of an empty expletive in the spec of IP in Arabic VSO order comes, according to Mohammad (1990: 123), from the observation that the third singular person agreement features of the verb in VSO sentences in Arabic are those displayed by verbs which take non-argument subjects, as shown in examples of verbs like *seem* and impersonal passives shown in (27) and (28) respectively:

- (27) ya-bdu                      ?anna T-Tullab-a                      waSal-uu.  
 seems-3s    that                      the-students-Acc                      arrive-3mp  
 "It seems that the students have arrived."

- (28) niima                      tahta                      Š-Šajarat-i.  
 sleep(Pass)-3s                      under                      the tree-Gen  
 Literally: "it has been slept under the tree." (Mohammad 1990: 123)

In both examples above, the main verb has no role for assigning an external theta-role, which means the subject positions in (27) and (28) are filled with a null expletive *pro* positioned in spec I° and showing agreement with it.

The idea of the spec IP being occupied by an empty expletive *pro* in VSO sentences can be further supported by the overt appearance of a third singular pronominal when these sentences are embedded under the complementizer *inna* or *?anna*, which both force the expletive to be lexicalized (Mohammad 1990), as shown in (29) and (30) respectively:

- (29) a. hum                      saafar-uu.  
           they-3mp-Nom    left.3mp  
           "They left."  
       b. ?al-?awlaad-u    qaal-uu    inna-hum                      saafar-uu.  
           the-boys-Nom    said.3mp    that-they-Acc                      left.3mp  
           "The boys said that they left."

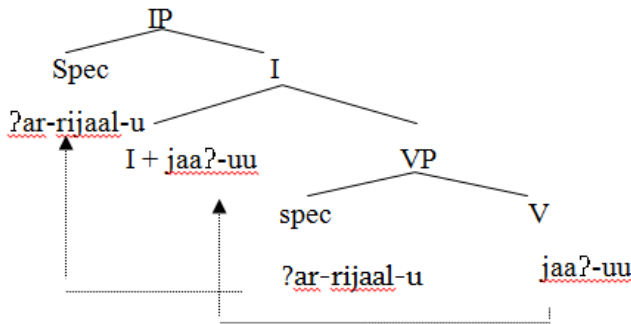
- (30) a. jaa?a                      r-rijaal-u.  
           came.3ms    the-men-Nom  
           "The men came."  
       b. idda?a                      ahmad-u                      ?anna-hu    jaa?a                      r-rijaal-u.  
           claimed.3ms    Ahmad-Nom                      that-it    came.3ms                      the-men-Nom  
           "Ahmad claimed that the men came."

What the contrast in (29) and (30) indicates is that the expletive pronoun is null in the spec of IP in matrix sentences but it is overt in embedded sentences by being cliticized onto *inna* and *?anna* from the spec IP. From this, it follows that the verb and the null expletive are in a Spec-head relation and the agreement is always with the expletive specified for 3<sup>rd</sup> person singular, not with the postverbal DP.

As for full agreement with SVO sentences as in (31) below, this analysis assumes that the verb and the subject are also in a Spec-head relation, resulting from movement of the subject from its VP-internal position to the spec of IP and hence full agreement is obtained. The structure which emerges in (31) is a representation along the lines in (32):

- (31) *?ar-rijaal-u jaa?-uu.*  
the-men-Nom came.3mp  
‘The men came.’

(32)



According to the above derivation in (32), the preverbal subject *?ar-rijaal-u* is in a Spec-head relation with the verb in INFL, and hence full agreement between the verb and the preverbal DP should be obtained.

One strong argument can be put forward against this analysis. On a theoretical level, the Null Expletive analysis fails to handle the problem of nominative Case assignment and to reflect the properties of overt expletives in Arabic. With respect to the former, the assumption of the existence of an empty expletive in the spec of IP coindexed with the postverbal subject in the VS order implies the existence of two subject positions, namely spec IP and spec VP. In this regard, one may suggest that the empty expletive obviously receives its nominative case by agreement with INFL exactly as the preverbal full DP does in the SV order. The problem that arises is then to explain how the postverbal subject receives nominative Case in the position inside VP.

In an attempt to resolve this problem, Ouhalla (1994), adopting the idea that the nominative case on expletive constructions in English is transmitted from the expletive to the postverbal subject via co-indexing (Chomsky1981, Safir 1985), extends this proposal to Arabic and suggests that the nominative Case that the null expletive receives by the agreement in spec IP is transmitted to the postverbal subject. But this suggestion, as noted by Coopmans (1994), is implausible since the preverbal expletive can be assigned accusative Case by the complementizer *?anna* as in (30b) above. What that example shows is that there is no case transmission. The

null expletive subject is in accusative, whereas the postverbal subject *r-rijaal-u* is nominative. If the idea of the case transmission were correct, *r-rijaal-u* would be expected to be accusative.

Having explained the problems of the previous attempts to account for the agreement asymmetry in Arabic, in following section, I provide, adopting Holmberg's (2008) theory of null subjects and agreement, an alternative minimalist analysis to see how the MP assumptions deals successfully with this type of complex agreement.

## 8. AN ALTERNATIVE MINIMALIST ANALYSIS

Starting from the observation that there is an interaction between the richness of verbal agreement and the licensing of consistent null subjects in Arabic, I adopt Holmberg's (2008) minimalist analysis of null subjects and agreement to provide an alternative analysis to account for the agreement asymmetry in Arabic.

Under this promising theory, two types of null subject languages (NSLs) are distinguished: (i) consistent NSLs such as Arabic, Greek, Spanish, Turkish, Italian, etc., where the subject pronoun has to be null and (ii) a partial NSL, such as Brazilian Portuguese, Finnish, or Marathi, where the pronominal subject can optionally be null. The crucial property that makes the null subject pronoun used more in consistent NSLs than in partial NSLs, as argued in Rizzi (1982), Alexiadou & Anagnostopoulou (1998) and more precisely in Holmberg (2005, 2008), is the presence of a D(efinite)-feature as part of the  $\bar{\kappa}$ -feature make-up of finite T in consistent NSLs. In partial NSLs, by contrast, T does not have a D-feature. The D-feature being present in T of consistent NSLs and absent in partial NSLs, makes the null subject properties in both types of NSLs syntactically different. Holmberg (2008) outlines the following properties characterising the two types of NSLs:

### (33) a. *Consistent NSLs:*

Null definite subject pronouns (null *he/she*);

No null indefinite pronoun (null 'one').

b. Verrà. (Italian)

come-FUT-3SG

"He will come."

### (34) a. *Partial NSLs:*

Null definite pronouns only if locally c-commanded by an antecedent;

Null indefinite subject pronoun.

b. Juha<sub>1</sub>ei ole sanonut mitään, mutta Pauli<sub>2</sub> sanoo että Ø<sub>2</sub>  
 /\*<sub>1</sub>haluaa ostaa



Juha not has said anything, but Pauli says that  
wants buy  
uuden auton. (Finnish)  
new car  
“Juha<sub>1</sub> hasn’t said anything, but Pauli<sub>2</sub> says that he<sub>2</sub>/<sub>\*1</sub> wants to  
buy a new car.”

- c. Hya khurchi-war aaramani bushushakto. (Marathi)  
this chair -on comfort-with sit-PRS.3SG  
“One can sit comfortably in this chair.”

The question that needs to be addressed at this point is how the null pronoun in NSLs is derived. Since Arabic is considered a consistent NSL, I will limit the answer to the derivation of null subjects in consistent NSLs, leaving partial NSLs aside.

### 8.1. NULL SUBJECTS AND AGREEMENT IN CONSISTENT NSLS

Following Chomsky’s recent work (2000, 2001) in assuming that agreement in natural language grammar is induced within a local search domain through the application of an operation *Agree*, not via a Spec-head configuration (see section 3.1.2 above), and following the incorporation analysis of null subjects articulated by Fassi Fehri (1993), Platzack (2004), and in part following Roberts’ (2007) theory of clitics and incorporation, Holmberg (2008) proposes that null subjects in consistent NSLs are derived by means of incorporation of a subject pronoun in T as a direct result of AGREE. This operates as follows: Finite T has a uD-feature, a set of unvalued  $\phi$ -features and perhaps an EPP-feature, and therefore probes for a category with matching valued features. A defective subject pronoun is an eligible goal since it has the required valued  $\phi$ -features, and therefore values T’s u $\phi$ -features by having its own values copied by T. In return, T values the subject’s unvalued case feature.

Once the copying and valuation of features are successfully established, the features of the goal are properly included in the features of the probe, forming one chain, as proposed by Roberts (2007)<sup>19</sup>. This chain is defined by the union of the valued features of T and its probed goal. Therefore, it is subject to the principal rules of chain reduction in (35) below.

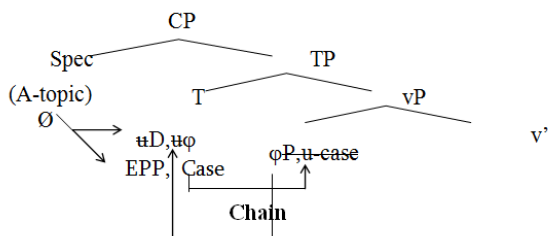
- (35) a. PRONOUNCE THE HIGHEST CHAIN COPY.  
b. PRONOUNCE ONLY ONE CHAIN COPY. (see Nunes 2004)

Consequently the subject pronoun positioned in spec vP is not pronounced since it is not the highest chain copy. What must be

<sup>19</sup> In this sense the subject pronoun is incorporated in T.

pronounced is only the highest chain copy appearing as an affix (i.e., agreement markers) on the finite verb or auxiliary<sup>20</sup>.

The remaining issue now is the interpretation of the null subject pronoun. According to this theory, the interpretation depends on the antecedent of the null pronoun which the feature [D] in T must be valued by. If the feature [D] is valued by a topic (or according to Frascarelli (2007), a particular type of topic: an Aboutness-shift topic (A-topic))<sup>21</sup> – then the result is a definite 3<sup>rd</sup> person null subject construction, with a binding or control relation with the A-topic. But if the feature [D] is valued by a speaker/addressee feature in the sense of Sigurðsson's (2004) hypothesis that every clause has features representing the speaker and the addressee in the C-domain, then the result is a definite 1<sup>st</sup> or 2<sup>nd</sup> person null subject construction<sup>22</sup>. Schematically, this analysis will have the derivation in (36) below.



In the following section, I shall show that this theory can be translated straightforwardly to account for the agreement asymmetry in Arabic.

## 9. ARABIC AGREEMENT IN NULL SUBJECTS AND AGREEMENT THEORY

### 9.1. FULL AGREEMENT

As explained in section 6, Arabic SV orders show full agreement between subject and verb in all  $\phi$ -features, and it is always required when

<sup>20</sup> This is to say, the subject in spec vP is null because it is a deleted copy in a chain headed by T. But the subject chain is not null since it is headed by the incorporated pronoun which is spelled out as an affix on the verb.

<sup>21</sup> This A-topic is merged covertly in spec CP (or TopP, if an articulated CP-structure is assumed as advocated by Rizzi 1997 and Frascarelli 2007). In the next section, I argue that the A-topic can be merged overtly as what looks like a preverbal subject in SV sentences is actually a base-generated A-topic.

<sup>22</sup> If T is valued with the EPP feature, then this feature is also checked by the A-topic or the speaker/addressee feature in the case where T has a uD-feature. If not, as in partial NSLs, the EPP must be satisfied by movement of a category to spec TP. This means that spec TP in consistent NSLs is not projected, whereas in partial NSLs, the situation is reversed (see Holmberg (2008) and references therein for more discussion about how is the EPP checked in NSLs).

the subject is a null pronominal in spec vP controlled by a higher definite DP, whether it is an overt pronominal DP (37) or a full lexical DP (38):

- (36) a. (hum) qaraʔ-uu d-dars-a  
           they read.3mp the-lesson-Acc  
           ‘‘They read the lesson.”  
       b. \*hum qaraʔa d-dars-a  
           they read.3ms the-lesson-Acc

- (37) a. ʔaT-Taalibaat-u ʔakal-na.  
           the-students.fp-Nom ate.3fp  
           ‘‘The students (F) ate.”  
       b. \*ʔaT-Taalibaat-u ʔakalat  
           the-students.fp-Nom ate.3fs

Full agreement is also triggered when there is no local overt antecedent as shown in (39):

- (38) ʔakal-uu.  
       ate.3mp  
       ‘‘They ate.”

When the spec vP is occupied by a full lexical DP, full agreement cannot be obtained. The only available option is partial agreement, typically in gender features as in (21), reproduced here once again in (40).

- (39) a. jaʔ-at l-banaat-u  
           came.3fs the-girls-Nom  
           ‘‘The girls came.”  
       b. \*jiʔ-na l-banaat-u  
           came.3fp the-girls-Nom

Based on this fact given by the above data, it can be concluded that full agreement in Arabic, a consistent null subject language, is always associated with pronominal null subjects. This being the case, full agreement in Arabic, under Holmberg’s theory of null subjects and agreement, is straightforwardly explained, and it proceeds as follows. T in finite Arabic clauses with null subjects has the following inventory of unvalued features  $u\phi$ -features, a D-feature, but it is valued with a case feature. T, after its D-feature is valued by the preverbal DP (which is an A-topic, in the sense of this theory), probes for a category with matching valued features. A  $\phi$ P subject positioned in the spec vP has the required  $u\phi$ -features. Accordingly, the probe-goal relation between T and a  $\phi$ P subject immediately takes place, resulting in a union of the valued features between the probe and its goal: the  $\phi$ P’s valued features value T’s  $u\phi$ -

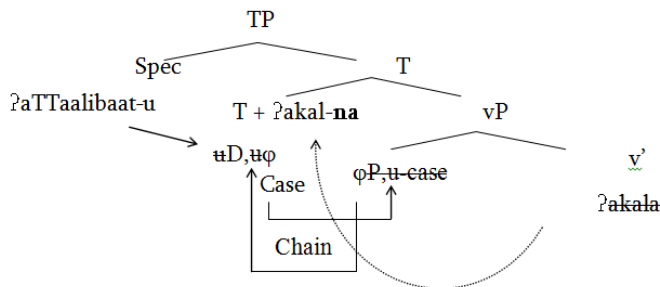
features and at the same time T values the subject's unvalued case feature. With respect to the EPP feature, although A-topic values T's D-feature, it does not do the same for the T's EPP feature since Arabic does not have this feature, as shown by the fact that VSO is the unmarked word order, while SVO order is always marked. The 'S' in SVO sentences is merged in its surface position for a semantic reason because it is a topic. What is interesting about this theory is the proposal that this union of the valued features, which works via the incorporation of a  $\phi$ P in T by making the  $\phi$ -feature values of the subject pronoun copied by T, forms a chain. Therefore, the principal rules of chain reduction given in (35) must apply, and therefore the subject  $\phi$ P in the spec vP is obligatorily not pronounced. What must be pronounced of the subject chain is an affix on the finite verb appearing as a reflex of the deleted subject.

Before I draw an illustrative derivation of full agreement in Arabic, I shall argue contra Holmberg's theory that the antecedent (A-topic), which null subjects in consistent NSLs are dependent on, is not necessarily base-generated in spec of CP. Arabic provides evidence that the A-topic must be first merged in a position lower than CP, perhaps spec TP or a low TopP, since the clause can be headed by the complementizer *ʔinna* which always occupies the head C. This is shown by the example in (41).

- (40) *ʔinna l-ʔawlaad-a qaraʔ-uu d-dars-a.*  
indeed the-boys-Acc read.3mp the-lesson-Acc  
“(I affirm that) The boys read the lesson.”

Now, with modifying the position of A-topic, a derivational structure of full agreement in Arabic as in (38a), will have the derivation along the lines of (42).

(41)



## 9.2. PARTIAL AGREEMENT

The discussion about agreement in Arabic cannot be, however, deemed complete before the explanation of partial agreement is considered. As

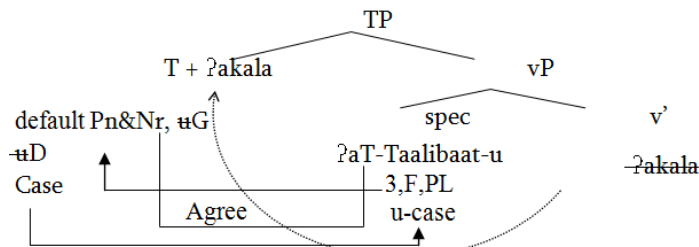
shown by the example in (20), partial agreement, typically in *gender features*, is gained when the subject is a full lexical DP positing in spec vP. Under Holmberg's theory, the operation AGREE, which takes a place between the finite T and its full lexical DP, works as follows. T's uD-feature will be valued by the subject's D as either definite or indefinite. What this means is that there is no need to have a referential index to T by a null or an overt A-topic in a higher clause, since the subject can immediately value T's uD-feature.

It should be, however, noted that the lexical DP cannot be incorporated in T, because it has a root. Thus, it cannot be copied by T under Agree. Another reason for why the incorporation of a full lexical DP in T cannot be established is the fact that T's uPerson (uPn) feature in all languages can only be valued by a pronoun as this feature is "an inherent feature of the pronoun" (Corbett 2006: 131), and therefore only pronouns have a person feature. So when the subject in Spec vP is a lexical DP, T's [uPn] feature gets the default value third person. As proposed by Al-Horais (2009: 146) "in Standard Arabic, T's uNumber (uNr) feature is 'bundled together' with [uPn]. They are either valued together, or they both get default value (which is singular for [uNr]). This implies that  $\varphi$ -features in T of partial agreement are of two types. (i) Default number and person features and (ii) gender feature".

The question might be asked here is that since the lexical DP cannot be incorporated in T, how T and the lexical subject DP in spec vP can share  $\varphi$ -feature values through Agree? The AGREE works as follows: the subject values T's uD-feature and its  $\varphi$ -features 'gender only', in return the subject gets its case valued) as in (43) below. What is crucial here, in contrast with the full agreement, is that T and the lexical DP do not form a chain, and hence the lexical subject, unlike the null subject, is not derived by virtue of incorporation with chain reduction. Therefore, it must be spelled out.

Finally, it should be noted that in Arabic, unlike other consistent NSLs, the lexical subject DP cannot be moved to spec TP since T in this language lacks an EPP feature, and thus Spec TP remains unfilled, except when a topic is merged there.

(42)



## 10. CONCLUSION

This paper has aimed at showing that the MP has new significant moves that were not found in the previous syntactic theories. It is animated by certain kinds of methodological and substantive regulative ideals. This has been reflected in more concrete principles which are in turn used in minimalist models to analyze specific empirical phenomena. These ideas also make this new theory, as stated by Chomsky (1998: 5-6) "focus attention on such issues, and perhaps to address them by showing that elimination of descriptive technology yields empirical results that are as good, possibly better, than before". Being better than before was evidenced by providing a minimalist analysis for how the agreement asymmetries in Arabic work. By this, it has been indicated that the new analysis of such a complex agreement system meets the MP requirement that the derivation *convergent* and *optimal*, and reduce the computational complexity found with pre-minimalist analyses of the same phenomenon.

## REFERENCES

- ALEXIADOU, A. & E. ANAGNOSTOPOULOU (1998): Parametrizing Agr: word order, verb- movement and EPP-checking. *Natural Language and Linguistic Theory* 16, 491-539.
- ADGER, D. (2003): *Core Syntax: A Minimalist Approach*. Oxford University Press, New York.
- ADGER, D & J. SMITH. (2005): "Variation and the minimalist program". In *Syntax and Variation*, Cornips, Leonie and Karen P. Corrigan (eds.), 149-178.
- ALBOIU, G. (2000): *The features of movement in Romanian*. Ph.D Thesis, University of Manitoba, Winnipeg.
- ALEXIADOU, A. & E. ANAGNOSTOPOULOU. (1999): "EPP without Spec, IP", In David Adger, Susan Pintzuk, Bernadette Plunkett, George Tsoulas (eds.), *Specifiers: Minimalist Approaches*, 93-110, Oxford University Press.
- AL-HORAI, N. (forthcoming): "The Categorical Status of the Small Clause Node: An old problem and a new Approach". Ms, Qassim University.
- BOECKX, C. (2003): Intricacies of Icelandic Agreement. ms. University of Maryland/Harvard University.
- BOECKX, C AND K. GROHMANN . (2004): "Putting Phases into Perspective". [Word file]. Retrieved 10<sup>th</sup> Dec, 2006, from: [http://www.punksinscience.org/kleanthes/papers/bg\\_ppp.pdf](http://www.punksinscience.org/kleanthes/papers/bg_ppp.pdf).
- BOŠKOVIC, Ž. (2007): "From 'A-Movement and the EPP". In Boskovic, Z. and H. Lasnik (eds) *Minimalist Syntax: the Essential Readings*. Blackwell Publishing Ltd.
- BRODY, M. (1998): "The Minimalist Program and a perfect syntax: a critical notice of Noam Chomsky's the Minimalist Program". In: *Mind & Language* vol.13:205-214.
- BROWN, S. (1999): *The Syntax of Negation in Russian: A Minimalist Approach*. Stanford: CSLI Publications.
- BUTLER, J. (2004): "On having arguments and agreeing: Semantic EPP".

- CAGRI, I. M. (2005). *Minimality and Turkish Relative Clauses*. 2005. Ph.D Dissertation, University of Maryland College Park
- CANN, R. (1999). "Specifiers as Secondary Heads". In David Adger, Susan Pintzuk, Bernadette Plunkett, George Tsoulas (eds.), *Specifiers: Minimalist Approaches*, 93-110, Oxford University Press.
- CARSTENS, V. (2000): "Concord in Minimalist Theory. In *Linguistic Inquiry*, 31(2), 319-355.
- CHOMSKY, N. (1981): *Lectures on Government and Binding*. Dordrecht: Foris.
- CHOMSKY, N. (1982): *Concepts and consequents of the theory of government and Binding*. Cambridge, MA: MIT Press.
- CHOMSKY, N. (1986): *Barriers*. Cambridge, MA: MIT Press.
- CHOMSKY, N. (1993): "A minimalist program for linguistic theory". In: *The view from Building 20*. K. Hale & S. Keyser (eds.). The MIT Press, Cambridge, Mass, pp.1-52.
- CHOMSKY, N. (1995): 'A Minimalist Program for Linguistic Theory'. In: *The Minimalist Program*. The MIT Press, Cambridge, Mass, pp.167-217.
- CHOMSKY, N. (1995): 'Categories and Transformations'. In *The Minimalist Program*. The MIT Press, Cambridge, Mass, pp.219-394.
- CHOMSKY, N. (1998): "Minimalist Inquiries: The Framework". MIT Occasional Papers in Linguistics 15.
- CHOMSKY, N. (2000): 'Minimalist inquiries'. In: *Step by step: Essays on minimalism in honor of Howard. Roger Martin, Daniel Michaels & Juan Uriagereka* (eds.), Lasnik. The MIT Press, Cambridge, Mass, pp. 83-155.
- CHOMSKY, N. (2001): "Derivation by Phase". In: M. Kenstowicz, ed., *Ken Hale: a life in language*, Cambridge: MIT Press.
- CHOMSKY, N. (2004): Beyond explanatory adequacy. In Adriana Belletti, (ed). *Structures and beyond*, 104-131. Oxford: Oxford University Press.
- CHOMSKY, N. (2005): On Phases. Ms., MIT. [Reprinted in Freidin, Robert., Carlos Peregrín , Otero & Maria Luisa Zubizarreta (eds.) *Foundational issues in linguistic theory*. Cambridge, MA: MIT Press].
- CHOMSKY, N. (2006): Approaching UG from below. Ms., MIT, Cambridge, Mass.
- CHOMSKY, N & H. LASNIK. (1993): The theory of Principles and Parameters. In Jacobs, Joachim; Von Stechow, Arnim; Sternefeld, Wolfgang, (eds.), *Syntax: An International Handbook of Contemporary Research*, pp. 506-69. Berlin: Walter de Gruyter. Reprinted in Chomsky, Noam. 1995. *The Minimalist Program*, pp. 13-127. Cambridge, Mass.: MIT Press.
- CHRISTENSEN, K. (2005): *Interfaces. Negation – Syntax – Brain*. PhD thesis, University of Aarhus.
- COOPMANS, P. (1994): Comments on the paper by Ouhalla. In Lightfoot, D. & N. Hornstein (eds.), *Verb movement*, 73-85. Cambridge: Cambridge University Press.
- CORBETT, G. G. (2006): *Agreement*. Cambridge, UK; New York: Cambridge University Press.
- FASSI FEHRI, A. (1993): *Issues in the Structure of Arabic Clauses and Words*. Kluwer: Dordrecht.
- FRASCARELLI, M. (2007): Subjects, topics and the interpretation of referential pro. An interface

- approach to the linking of (null) pronouns. *Natural Language & Linguistic Theory* 25, 691-734.
- GROHMANN, K., J. DRURY, & J. C. CASTILLO. (2000): "No More EPP". In Roger Billerey & Brook Danielle Lillehaugen (eds.), *WCCFL 19 Proceedings*, 153-166.
- GROHMANN, K. (2003): *Prolific Domains. On the Anti- Locality of Movement Dependencies*. Amsterdam: John Benjamins.
- GROHMANN, K. (2006): "The Road to PF." In Eleni Agathopoulou, Maria Dimitrikapoulkou & Despina Papadopoulou, eds. *Proceedings of the 17th International Symposium on Theoretical and Applied Linguistics*. Thessaloniki: Aristotle University of Thessaloniki, School of English.
- GUEVARA, E. (2006): "*Binary Branching: Evidence from Morphology*". Paper presented at the XXXII *International Generative Grammar Meeting*, Firenze, March 2006.
- HIGGINBOTHAM, J. (1998): "Visions and Revisions: A Critical Notice of Noam Chomsky's The Minimalist Program". In: *Mind & Language*, vol.13:215-224.
- HIRAIWA, K. (2001): "Multiple Agree and the Defective Intervention Constraint in Japanese". In: *MIT Working Papers in Linguistics* 40, pp. 67-80.
- HIRAIWA, K. (2005): *Dimensions of Symmetry in Syntax: Agreement and Clausal Architecture*. MIT PhD dissertation.
- HOLMBERG, A. (2000): "Scandinavian stylistic fronting: how any category can become an expletive". *Linguistic Inquiry* 31, 445-483.
- HOLMBERG, A. (2003): "Null subjects and uninterpretable features: evidence from Finnish". In: Marcela Cazzoli-Goeta, Heather Marsden and Stéphanie Pourcel (Eds.), *Durham Working Papers in Linguistics*, Vol.9.
- HOLMBERG, A. (2005): 'Is there a little pro? Evidence from Finnish.' *Linguistic Inquiry* 36:44, 533-564.
- HOLMBERG, A. (2008): *Null Subject Parameters*. Ms., Newcastle University. [To appear in Biberauer, T., A. Holmberg, I. Roberts, and M. Sheehan. *Parametric Variation: Null Subjects in Minimalist Theory*. Cambridge: Cambridge University Press].
- HORNSTEIN, N. (2001): *Move: a minimalist theory of construal*. Malden, Mass:Blackwell.
- HORNSTEIN, N., J. NUNES & K. GROHMANN (2005): *Understanding Minimalism*. Cambridge: Cambridge University Press.
- JOHNSON, D & S. LAPPIN. (1997): "A Critique of the Minimalist Program". In: *Linguistics and Philosophy*, vol. 20: 272-333.
- KAYNE, R. S. (1989): *Notes on English agreement*. Ms., CUNY Graduate Center, New York. [Reprinted in *Parameters and Universals*, Oxford University Press, 2000].
- KENNEDY, C. (2000): "Topics in Minimalist Syntax". [PDF file]. Retrieved 10<sup>th</sup> Nov, 2011, from: <http://www.ling.nwu.edu/~ken-nedy/Handouts/intro-handout.pdf>.
- KREMERS, J. (2003): *The noun phrase in Arabic: a minimalist approach*, PhD thesis, University of Nijmegen.
- LEGATE, J. A. (2002): "Phases in 'Beyond Explanatory Adequacy'". [PDF file]. Retrieved 16<sup>th</sup> Jan, 2010, from: <http://www.ling.udel.edu/jlegat-e/beyond.pdf>



- LEGATE, J. A. (2003): "Some Interface Properties of the Phase". In *Linguistic inquiry* 34:33, 506-516, MIT Press.
- LASNIK, H. (2001): "A note on the EPP". *Linguistic Inquiry* 32, 356-362.
- MASSAM, D AND C. SMALLWOOD. (1996): "Essential Features of Predication in English and Niuean". in: *Proceedings of NELS 27*, GLSA, UMass, Amherst.
- MOTUT, A. (2010): Merge over Move and the empirical force of economy in Minimalism. *Toronto Working Papers in Linguistics (TWPL)* 33, 1-54.
- NUNES, J. (2004). *Linearization of chains and sideward movement*. Cambridge: MIT Press.
- OUHALLA, J. (1994): Verb Movement and Word Order in Arabic. In Lightfoot, D. & N. Hornstein (eds.), *Verb Movement*, 41-72. Cambridge: Cambridge University Press.
- POLLOCK, J-Y. (1989). "Verb movement, Universal Grammar, and the structure of IP". *Linguistic Inquiry* 20, 365-424.
- PLATZACK, C. (2004): Agreement and the person phrase hypothesis. *Working Papers in Scandinavian Syntax* 73, 83-112.
- RIZZI, L. (1997): The Fine Structure of the Left Periphery. In Haegeman, L. (ed.), *Elements of Grammar*, 281-337. Dordrecht: Kluwer.
- RADFORD, A. (2004): *Minimalist Syntax: Exploring the Structure of English*, Cambridge University Press, Cambridge UK.
- ROBERTS, I. (Forthcoming): Clitics, head movement and incorporation. MIT Press. To appear with (*Linguistic Inquiry Monograph*).
- SABEL, J. (2000): "Partial Wh-Movement and the Typology of Wh-Questions". In *Wh-Scope Marking*. Lutz, U, G. Müller and A. Stechow. pp,409-446. Amsterdam: John Benjamins.
- SAFIR, K. (1985): *Syntactic Chains*. Cambridge: Cambridge University Press.
- SIGURÐSSON, H. Á. (2004): The syntax of person, tense, and speech features. *Italian Journal of Linguistics* 16, 219-51.
- SOLTAN, U. (2006): Standard Arabic subject-verb agreement asymmetry revisited in an Agree-based minimalist syntax. In Boeckx, C. (ed.), *Agreement Systems*, 239-56. Amsterdam: John Benjamins.
- SVENONIUS, P. (2004): On the Edge. In David. Adger, Cecile De Cat, George Tsoulas (eds.), *Peripheries: Syntactic Edges and their Effects*. Dordrecht: Kluwer.
- NDAYIRAGIJE, J. (1999): "Checking Economy". In *Linguistic Inquiry* 30: 399-444.
- WEINBERG, A. (1999): "Minimalist Theory of Human Sentence Processing". Retrieved 10<sup>th</sup> June, 2009, from: <http://www.umiacs.umd.edu/users/weinberg/lamp-024.html>
- ZEIJLSTRA, H. (2004): *Sentential negation and negative concord*. PhD dissertation, University of Amsterdam.