

# Anti-Locality and Covert Movement in Arabic

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**Abstract**—This paper provides a new argument for the specifier-to-specifier anti-locality constraint from covert movement. The argument is based on an observed asymmetry behavior of the Quantifier Raising (QR) of the superlative morpheme in two superlative adjectives modifying relative clauses in Levantine Arabic (LA): the two superlative modifiers give rise to different paradigms of high and low interpretations.<sup>1</sup> The paper shows that a configuration restricted by the specifier-to-specifier anti-locality constraint straightforwardly explains the asymmetry lending further evidence supporting this syntax-economy condition from covert movement.

**Index Terms**—specifier-to-specifier anti-locality, high/low ambiguity, phase impenetrability condition

## I. INTRODUCTION

Erlewine (2020) defined the specifier-to-specifier anti-locality constraint as follows.<sup>2</sup>

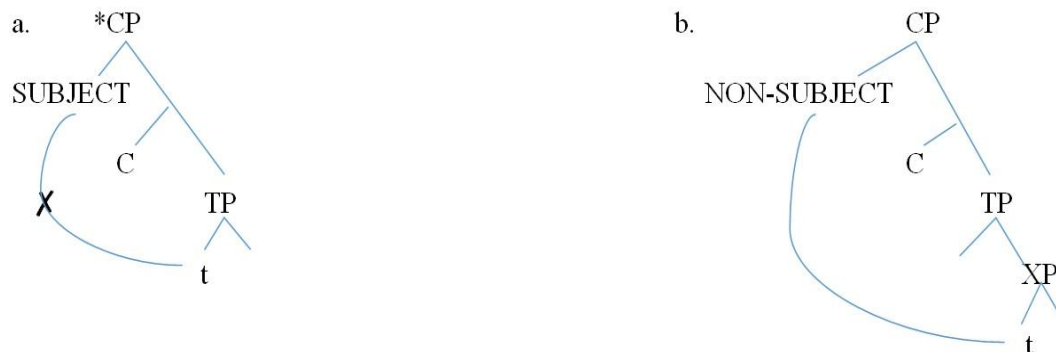
(1) Movement from position  $\alpha$  to  $\beta$  crosses  $\gamma$  iff  $\gamma$  dominates  $\alpha$  but does not dominate  $\beta$ .

(Erlewine, 2020, p. 2)

The anti-locality constraint in (1) explains an asymmetry between the  $\bar{A}$ -extraction of subjects and non-subject arguments: movement from  $\alpha$  to  $\beta$  is too short a movement that is ruled out by the anti-locality constraint in (1).

An example of this ban is the short subject movement from specifier-TP into specifier-CP as schematized in (2.a). With an additional projection  $\gamma$  dominating  $\alpha$ , movement from  $\alpha$  to  $\beta$  is long enough that satisfies the specifier-to-specifier anti-locality constraint (1). This licit movement is exemplified by the movement of the non-subject argument from specifier-XP into specifier-CP in (2.a).

(2)



To discuss a representative example, consider the long-distance subject movement in (3).

(3) a. Who did he say [ CP (\*that) \_ hid the rutabaga ]?

b. What did he say [ CP (that) Laura hid \_ ]?

(Erlewine, 2020, p. 3; as cited in Perlmutter, 1968, p. 214)

Erlewine (2020) explains the complementizer- trace effect in (3) in terms of the anti-locality condition (1). He put forth the following analysis that derives the pattern in (3). In those languages where a head  $T^0$  with PROBE D that triggers phi-agreement, nominative Case assignment, and EPP movement accompanied with a head  $C^0$  with PROBE  $\bar{A}$  that facilitates intermediate movement, the CP and TP compose in two forms: the split  $C^0$ - $T^0$  configuration where the head  $T^0$  and  $C^0$  undergo separate probes in their respective c-command domains and the bundled  $C^0$ - $T^0$  with a composite PROBE  $T^0 + C^0$  that probes into objects with shared D and  $\bar{A}$  features in the same c-command domain.

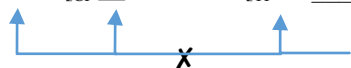
<sup>1</sup> The data discussed in this paper follow from the authors' native speaker intuitions. To replicate the judgements, five native speakers of Jordanian Arabic were consulted: three males and two females who are in their late twenties or late thirties. All consultants, including the author(s), are based in Eastern Amman; an urban area of the capital Amman of the Hashemite Kingdom of Jordan. It is worth mentioning that Jordanian Arabic is a dialect of Southern Levantine Arabic. It is one of the mutually intelligible varieties of Levantine Arabic that is spoken by the people of the Hashemite Kingdom of Jordan. The two dialects are used in daily conversational exchange along with the most official diglossia of Modern Standard Arabic used in official written documentation and mass media (See Ababneh et al., 2017; Fukara, 2022; Zyoud & Zyoud, 2022 and Abu Helal, 2021a) for more information).

<sup>2</sup> Antilocality refers to the ban on movement that is too short. For more discussion, see Saito and Murasugi (1999), Ishii (1999), Abels (2003), Grohmann (2003), Ticio (2005), Boeckx (2005), Jeong (2006), and Bošković (2016) and Erlewine (2018).

In the split CP-TP configuration where the complementizer is lexicalized, movement targets the edge of CP phase. As shown in (4), subject movement from specifier-TP into specifier-CP violates the anti-locality condition. Non-subject movement, on the other hand, proceeds from a lower position across the TP projection into specifier-CP. It is then long enough to satisfy (1) as schematized in (4).

(4) Split C-T configuration

- a. \* .... [CP\_\_ C<sup>0</sup> that [TP T<sup>0</sup> \_\_\_\_ ..... (subject extraction)



- b. .... [CP\_\_ C<sup>0</sup> that [TP T<sup>0</sup> \_\_\_\_ ..... (non-subject extraction)



In the bundled CP-TP configuration where C<sup>0</sup> is a null, movement targets the edge of CTP phase. Both subject and non-subject movement satisfy the anti-locality condition as shown in (5).

(5) Bundled C-T configuration

- a. .... [CTP\_\_ C<sup>0</sup>+T<sup>0</sup> \_\_\_\_ ... (subject/ non-subject extraction)



This paper discusses and analyzes an asymmetry behavior of the covert movement of the superlative morpheme involved in the interpretation of two superlative modifiers of relative clauses Jordanian Arabic (JA): *the attributive and genitive superlative modifiers*.<sup>3</sup> In the attributive superlative modifier (henceforth, *Asuperlative*), the superlative adjective post-modifies its associate NP and both agree in Case and definite morphology (See Elghamry, 2004; Abu Helal, 2021). As way of example, consider (6).

- (6) a. *l-kitaab*                      *l-ʔtʕwal*                      *ʕallaf-u*                      *Tolstoy*  
 DEF-book.NOM                      DEF-longest.NOM                      authored-it                      Tolstoy  
 Literal: 'The book the longest, Tolstoy wrote it'.  
 ≈: 'The longest book, Tolstoy wrote it'.  
 b. *Tolstoy*                      *ʕallaf*                      *l-kitaab*                      *l-ʔtʕwal*  
 Tolstoy                      wrote                      DEF-book.ACC                      DEF-longest.ACC  
 Literal: 'Tolstoy authored the book the longest'.  
 ≈: 'Tolstoy authored the longest book'.

In the genitive superlative modifier, the superlative adjective pre-modifies its associate NP which is assigned default genitive Case as in (7).

- (7) a. *ʔtʕwal*                      *kitaab*                      *ʕallaf-u*                      *Tolstoy*  
 longest.NOM                      book.GEN                      authored-it                      Tolstoy  
 Literal: 'Longest book, Tolstoy wrote it'.  
 ≈: 'The longest book, Tolstoy wrote it'.  
 b. *Tolstoy*                      *ʕallaf*                      *ʔtʕwal*                      *kitaab*  
 Tolstoy                      wrote                      longest.ACC                      book.GEN  
 Literal: 'Tolstoy authored the book the longest'.  
 ≈: 'Tolstoy authored the longest book'.

A well-known ambiguity arises when an adjectival modifier (e.g., the superlative –est) modifies relative clauses that dominate a propositional attitudinal verb (Bhatt 2002; Hulsey & Sauerland, 2004; Heycock, 2005). Consider the relative clause in (8).

- (8) the longest book that John said that Tolstoy had written  
*'High Reading:*

<sup>3</sup> The superlative adjective in PA is formed using a process of suppletion that replaces the three consonantal root cluster of the positive adjective 'C1C2C3' with the template sequence 'ʔC1C2 aC3' (Hallman, 2016; Grano & Davis, 2017; Abu Helal, 2021). For instance, the superlative/comparative form *ʔtʕwal* 'taller' is the suppletive form of the root sequence *tʕwl*.

(i) a. Positive form	b. Comparative form	c. Superlative form
<i>Ali tʕaweel</i>	<i>Ali ʔtʕwal min Mary</i>	<i>Ali tʕʕaalib</i> <i>l-ʔtʕwal</i> / <i>ʔtʕwal tʕaalib</i>
Ali tall	Ali taller from Mary	Ali DEF-student.NOM DEF-tallest.NOM / tallest.NOM student.GEN
'Ali is tall.'	'Ali is taller than Mary.'	Ali is the tallest student.'

In a bookcase shelf is a set of three books authored by Leo Tolstoy: *War & Peace*, *Anna Karenina*, and *Resurrection*. The actual length of each book is 1000, 864, and 483 pages, respectively. In this context, the high reading of the relative clause (6) refers to *War & Peace* which is the actual longest book of the set about which John said that Tolstoy wrote.

‘x is the longest book out of the books about which Ali said that Tolstoy had written them.’

*‘Low’ Reading:*

John said that *War & Peace* is 800 page long, *Anna Karenina* is 900 page long and *Resurrection* is 1000 page long. The low reading of the relative clause (6) refers to *Resurrection*: the x such that John said that x was the longest paper authored by Tolstoy.

‘What John said can be paraphrased as ‘x is the longest book that Tolstoy wrote’.

Interestingly, *the attributive and genitive superlative modifiers* in (6) and (7) modifiers exhibit an asymmetrical behavior when modifying a relative clause that dominates a propositional predicate like ‘said’: while the relative clause modified by the A-superlative modifier in (9) is ambiguous between a high and low interpretation, the relative clause modified by the G-superlative in (10) is unambiguous and the only interpretation it has is the low reading. Consider the paradigm in (9) and (10).

(9) *l-kitaab l-ʔtʔwal yalli Ali ʔaka innu Tolstoy katab-ha*  
 (DEF-)book (DEF-)longest YALLI Ali said that Tolstoy wrote-it

Literal: ‘the book the longest that Ali said that Tolstoy wrote’.

≈: ‘the longest book that Ali said that Tolstoy wrote’.

*‘High’ Reading:*

x is the longest book out of the books about which Ali said that Tolstoy had written them.

*‘Low’ Reading:*

What Ali said can be paraphrased as ‘x is the longest book that Tolstoy wrote.

(10) *ʔtʔwal kitaab yalli Ali ʔaka innu Tolstoy katab-ha*  
 longest (DEF-) book.GEN YALLI Ali said that Tolstoy wrote-it

Literal: ‘longest book that Ali said that Tolstoy wrote’.

≈: ‘The longest book that Ali said that Tolstoy wrote’.

# *‘High’ Reading:*

x is the longest book out of the books about which Ali said that Tolstoy had written them.

*‘Low’ Reading:*

What Ali said can be paraphrased as ‘x is the longest book that Tolstoy wrote.

The facts in (9) and (10) present a puzzle which can be sharpened by the following two questions: knowing that the high reading of the relative clause is available in the A-superlative structure (9), what blocks the high reading in the G-superlative (10)? Why is the low reading of the relative clause still available in both A- and G-superlative structures? This paper shows that a configuration restricted by specifier-to-specifier anti-locality can straightforwardly resolve the puzzle. Before going into the specifics of the analysis, some independently motivated background assumptions are laid out about the syntax-semantics of the low/high ambiguity and the A- and G-superlative adjectives.

The paper is structured as follows. Sect.1 introduces relevant background assumptions: it first reviews the syntax-semantics of the high/low ambiguity of the relative clause modified by the superlative modifier based on reconstruction in an NP- head raising syntax as originated in Bhatt (2002). It then discusses the syntax of two DP structures of superlative modifiers which have different morphosyntactic properties in both attributive and genitive structures in PA. Sect.2 presents an anti-locality-based analysis that offers a pleasing solution to the asymmetrical behavior in the interpretation of the two superlative modifiers of the head NP of PA relative clauses. The last section concludes the paper.

## II. BACKGROUND ASSUMPTIONS

### A. A Reconstruction Analysis of the High/Low Ambiguity of the Superlative-Modified Relative Clause

Consider again the high/low ambiguity of the superlative adjective that modifies the relative dominating the propositional attitudinal verb ‘said’ in (11), repeated from (6).

(11) the longest book that John said that Tolstoy had written

*‘High’ Reading*

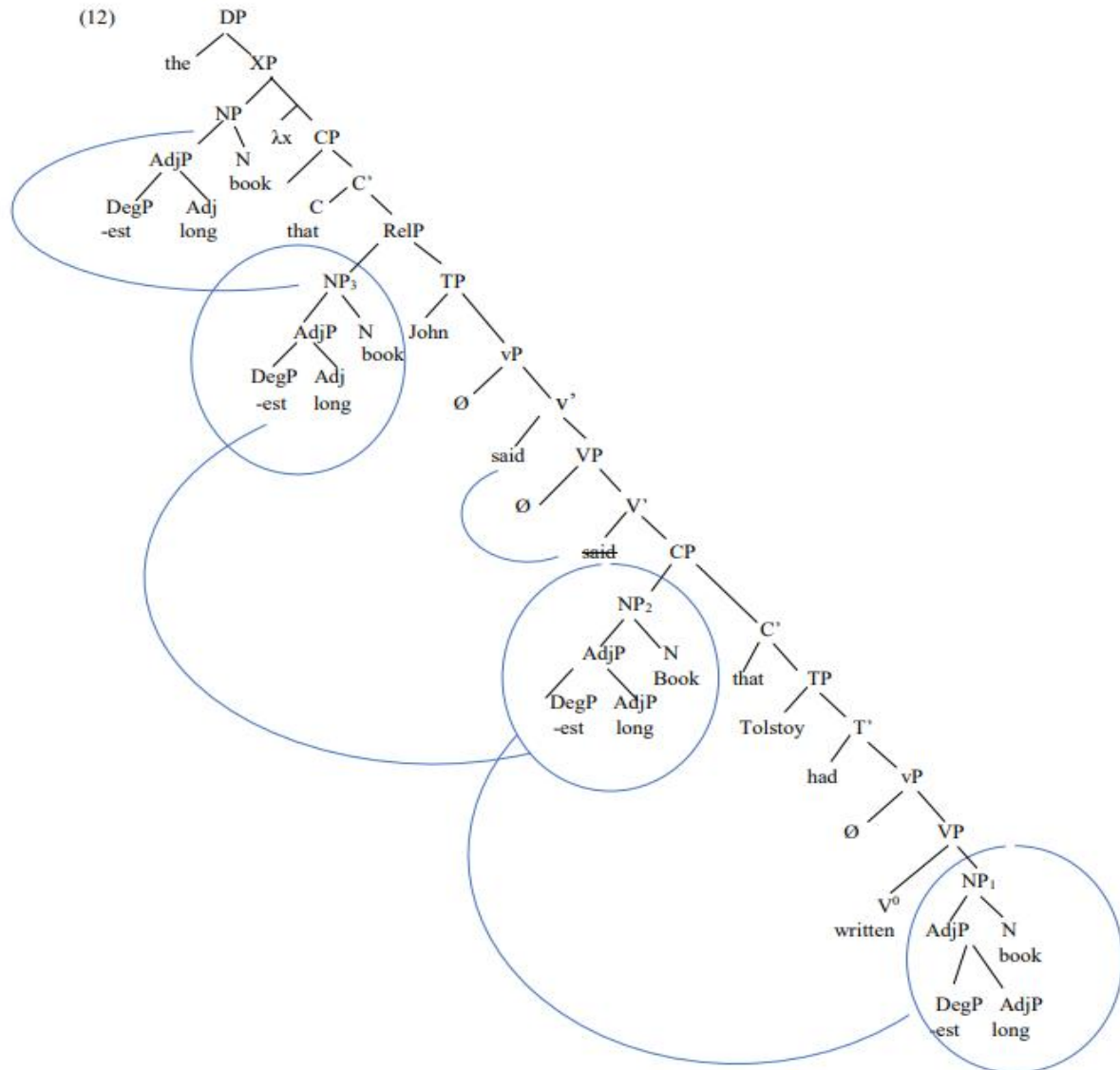
x is the longest book out of the books about which John said that Tolstoy had written them.

*‘Low’ Reading*

'What John said can be paraphrased as 'x is the longest book that Tolstoy wrote' (Bhatt, 2002, p. 57; Heycock, 2005, p. 360).

Bhatt (2002) proposed an analysis for the high/low ambiguity in (11) based on head NP raising syntax.<sup>4</sup>

According to him, the constituent containing the head NP and its superlative modifier *longest book* is reconstructed within the relative clause in the gap position and this constituent undergoes successive-cyclic movement to the left periphery of each clause resulting in a chain of copies as schematized in (12).



With the syntax (2)<sup>5</sup>, Bhatt (2002) claimed that the high/low ambiguity can be derived by interpreting the CP-internal copy of the head NP at different positions of the movement chain NP<sub>3</sub> NP<sub>2</sub> NP<sub>1</sub>. In deriving the low reading, the semantics interprets the lower NP copy 'NP<sub>1</sub>' as in (13).

(13) [<sub>DP</sub> D<sup>0</sup> the [<sub>XP</sub> X<sup>0</sup> λx [<sub>CP</sub> C<sup>0</sup> that [<sub>RelP</sub> [<sub>NP3</sub> ~~est long book~~] Rel<sup>0</sup> [<sub>TP</sub> John [<sub>VP</sub> v<sup>0</sup> [<sub>VP</sub> V<sup>0</sup> said [<sub>CP</sub> [<sub>NP2</sub> ~~est long~~ book] C<sup>0</sup> that [<sub>TP</sub> Tolstoy T<sup>0</sup> had [<sub>VP</sub> v<sup>0</sup> [<sub>VP</sub> V<sup>0</sup> written [<sub>NP1</sub> -est long book]]]]]]]]]]]]]]]]

The interpretation of the NP<sub>1</sub> copy proceeds as follows. First a trace conversion applies to convert NP<sub>1</sub> into an interpretable object (Fox, 2001).<sup>6</sup>

<sup>4</sup> See also Hulsey and Sauerland (2004) for a different version of the reconstruction analysis of the high/low ambiguity in (11). Alternatively, look at Heycock (2005) for a different approach. This paper begins with Bhatt's (2002) original analysis based on reconstruction.

<sup>5</sup> We assume with Bošković (2016) that all relative clauses have a relative clause dedicated project RelP dominated by a higher CP projection. We also assume the presence of a functional XP that dominates the relative clause. This projection houses the final head NP raising (See Bhatt, 2002; Bianchi, 2000).

(14) the  $\lambda x$  that John said [<sub>CP</sub> that [<sub>TP</sub> Tolstoy T<sup>0</sup> had [<sub>VP</sub> v<sup>0</sup> [<sub>VP</sub> V<sup>0</sup> written [<sub>NP1</sub> ι -est long book]]]]]

Second, the superlative modifier -est undergoes covert Quantifier Raising<sup>7</sup>. The movement of the -est is semantically motivated by the -est operator's need to associate with a focus which it c-commands. The syntactic position of the sentential scope of the moving -est determines the semantic value of the comparison class C. In deriving the low reading, the -est raises into the specifier of the embedded CP to take scope over the focused NP<sub>1</sub>. The sentential scope created delineates the members of the comparison class C as in (15).

(15) [<sub>CP</sub> -est λd C<sup>0</sup> that [<sub>TP</sub> Tolstoy T<sup>0</sup> had [<sub>VP</sub> v<sup>0</sup> [<sub>VP</sub> V<sup>0</sup> written [<sub>NP1</sub> ι **d-long book**]]]]]

The truth conditions of the low reading of the relative clause in (15) can be derived compositionally as in (16) (My presentation closely follows that of Heim, 1999; Szabolcsi, 1986).

(16) (i) Lexical entries

(a) -est = λG<sub><dt,t></sub>. λP<sub><dt,t></sub>. d [ P(d) Q G [ Q ≠ P → ¬(Q(D)) ]

(b) long = λd.λx. LENGTH (x) ≥ d

(ii) a. LF: the  $\lambda x$  John said [ CP-est λd that Tolstoy had written ι d-long BOOKF ]~ C

C ⊆ [ [ λd'. Tolstoy had written ι d'-long BOOK<sub>F</sub> ] ]<sup>f</sup>

C ⊆ { λd'. Tolstoy had written ι d'-long War & Peace, λd'. Tolstoy had written ι d'-long War & Peace, λd'. Tolstoy had written ι d'-long Anna Karenina, λd'.

Tolstoy had written ι d'-long Resurrection... }

b. Truth conditions: the unique x: John said ∃d [ Tolstoy had written book(x) & long (x,d)

& ∀Q ∈ C [ Q ≠ (λd'. x is a d'-long book) → ¬Q(d) ]

The function in (3) compares the set of degrees initiated in then matrix clause with the predicates of degrees denoted by the contextually determined comparison class C and it asserts that the relevant individual has the scalar relation to a degree d that no other element in the comparison class has.

In deriving the high reading of (11), it is the highest internal NP copy (NP<sub>3</sub>) that gets interpreted by the semantics.

(17) [<sub>DP</sub> D<sup>0</sup> the [<sub>XP</sub> X<sup>0</sup> λx [<sub>CP</sub> C<sup>0</sup> that [<sub>RelP</sub> [<sub>NP3</sub> -est long book] Rel<sup>0</sup> [<sub>TP</sub> John [<sub>VP</sub> v<sup>0</sup> [<sub>VP</sub> V<sup>0</sup> said [<sub>CP</sub> [<sub>NP2</sub> .est long book] C<sup>0</sup> that [<sub>TP</sub> Tolstoy T<sup>0</sup> had [<sub>VP</sub> v<sup>0</sup> [<sub>VP</sub> V<sup>0</sup> written [<sub>NP1</sub> -est long book]]]]]]]]]]]

The -est undergoes QR into the specifier of CP of the matrix 'say-clause'; the scopal sentential domain that determines the comparison class restriction of the -est in deriving the high reading as in (18).

(18) the  $\lambda x$  [<sub>CP</sub> -est λd that [<sub>RelP</sub> [<sub>NP3</sub> **d-long book**] Rel<sup>0</sup> [ John said that had written ]]]]

This movement skips one phasal head C<sup>0</sup> crossing the non-phasal projection NP<sub>3</sub>. The truth conditions of (18) is derived as follows.

(19) (i) Lexical entries

a. [ [ -est ] ] = λG<sub><dt,t></sub>. λP<sub><dt,t></sub>. ∃d [ P(d) ∧ ∀Q ∈ G [ Q ≠ P → ¬(Q(D)) ]

b. [ [ long ] ] = λd.λx. LENGTH (x) ≥ d

(ii) a. LF: the  $\lambda x$  [<sub>CP</sub> -est λd that [<sub>RelP</sub> [<sub>NP1</sub> ι d-long BOOK<sub>F</sub>] Rel<sup>0</sup> John said that Tolstoy had written x ]~ C

C ⊆ [ [ λd'. ι d'-long BOOK<sub>F</sub> John said that Tolstoy had written ] ]<sup>f</sup>

C ⊆ { λd'. ι d'-long War & Peace<sub>x</sub> John said that Tolstoy had written x;

<sup>6</sup> Fox (2001) proposed a conversion mechanism that interprets the copies of movement chains in the LF. This mechanism converts movement copies into definite descriptions of type e using two derivational steps: first, the variable [λy(y=x)] of type is inserted in such a way that the (Det) Pred turns into (Det) [ Pred λy(y=x)] where the Pred and the inserted variable [λy(y=x)] compose intersectively as in (i).

(i) (Det) [λy [ Pred (y) & (y=x) ]

Second, a determiner replacement operation applies in which the Det is replaced by a definite description operator which applies to the predicate of individuals in (36) yielding an object of type e as in (ii).

(ii) ιy [ Pred (y) & (y=x) ]

<sup>7</sup> We assume with Heim (1999, 2000) and Szabolcsi (1986) that the -est quantifier is a two-place function from implicit context variables of type that characterize the comparison class restriction of the superlative quantifier to predicates of degrees of type as represented in the lexical entry (3).

(iii) [ [ -est ] ] = λG<sub><dt,t></sub>. λP<sub><dt,t></sub>. ∃d [ P(d) ∧ ∀Q ∈ G [ Q ≠ P → ¬(Q(D)) ]

(Heim, 1999, p. 20)

$\lambda d'$ ,  $\iota d'$ -long *Anna Karenina*<sub>x</sub> John said that Tolstoy had written x;  
 $\lambda d'$ ,  $\iota d'$ -long *Resurrection*<sub>x</sub> John said that Tolstoy had written Tolstoy had written x }

- b. Truth conditions: the unique x:  $\exists d$  [ John said Tolstoy had written book(x) & long (x,d)  
 &  $\forall Q \in C$  [  $Q \neq (\lambda d'. x \text{ is a } d' \text{-long book}) \rightarrow \neg Q(d)$  ]

Under this reconstruction analysis, the ambiguity between the high and low interpretations of the relative arises due to interpreting copies of the CP-internal head NP; both at the high and low level, respectively. In each case, the-est operator performs long distance movement that takes a CP-structure as its scope sentential domain: while the sentential domain involved in deriving the low reading is the embedded write-clause CP, that of the high reading is the matrix tell-clause CP.

### B. Syntax of A- and G-Superlative Adjectives

Let us now turn to the syntax of the two superlative modifiers in question. PA and other varieties of Semitic languages have two forms of superlative modifiers: (A)tributive and (G-)superlative exemplified in (20).

- (20) a. *l-kitaab*                      *l-?t<sup>6</sup>wal*  
 DEF-book.NOM              DEF-longest.NOM  
 Literal: 'The book the longest'  
 ≈: 'the longest book'
- b. *?t<sup>6</sup>wal*                      *kitaab*  
 longest.NOM              book.GEN  
 Literal: longest of book  
 ≈: 'The longest book, Tolstoy wrote it'.

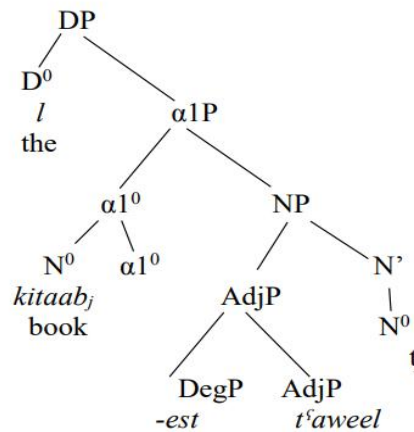
For the superlative adjective in the A-superlative (20.a), we assume a version of head movement theory based on Pereltsvaig (2008) (See also Borer, 1996; Fassi-Fehri, 1989, 1993; Hazout, 1995; Ritter, 1991; Shlonsky, 2004; Siloni, 1996).<sup>8</sup> This theory derives the syntax of the attributive superlative adjective as follows.

Assume the projection  $\alpha 1P$  is located between the DP and NP complement, deriving the Semitic DP with attributive adjectives like (10.a) proceeds as follows. First, the lexical head N *kitaab* 'book' head-moves into the head of a functional head  $\alpha 1^0$ . Then the heavy superlative adjective *l-?t<sup>6</sup>wal* 'the tallest' is basegenerated in the specifier of NP as schematized (21).

<sup>8</sup> The main advantage of Pereltsvaig's (2008) approach is that it provides a unified syntactic analysis that differentiates between heavy and light adjectives. A heavy adjective like the superlative adjective *l-?t<sup>6</sup>wal* 'the longest' is distinguished from other light adjectives such *l-hilu* 'the beautiful' in that the latter occurs in the mirror order compared to English and the former never respects this order. Consider the pattern in (i) and (ii). While in light adjectives the evaluative adjective follows the size adjective in the post-nominal position

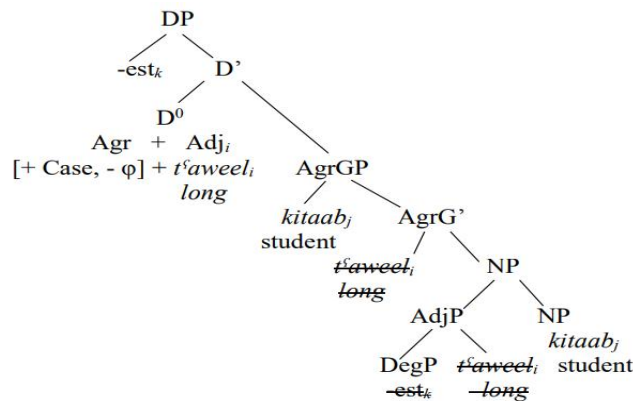
- (i) a. the long beautiful book / #the beautiful long book (English)              Evaluative adjective > Size adjective > Noun  
 (ii) *l-kitaab*    *l- t<sup>6</sup>aweel*    *l-hilu*              (PA)              Noun > light size adjective > evaluative adjective  
       the-book    the-long    the-beautiful  
       'the beautiful long book'
- b. *??l-kitaab*    *l-?t<sup>6</sup>wal*    *l- hilu*              # Noun > heavy size adjective > evaluative adjective  
       the-book    the-longest    the-beautiful  
       intended: ' the beautiful longest book'
- b. *l-kitaab*    *l- hilu*              *l-?t<sup>6</sup>wal*              Noun > evaluative adjective > heavy Size adjective  
       the-book    the-beautiful    the-longest  
       intended: 'the longest beautiful book'

(21)



The genitive superlative structure in (20.b) has a different syntax similar to that of construct state genitive structures (See Longobardi, 1996; Ritter, 1988, 1991, pp. 39–40; Siloni, 1991, 1994, 1997; Elghamry, 2004; Abu Helal, 2021b). In this structure, the NP is assigned structural Case akin to nominative and accusative Case assigned in the IP/vP domains: it makes use of a functional head (i.e., D<sup>0</sup>) that enters into Agreement and Case assignment relation (i.e., genitive) with an internal NP (Abney, 1987; Siloni, 1997). In addition, the DP contains a functional category AgrGP that is located between DP and NP (Ritter, 1991) as schematized in (22).

(22)



Following Siloni (1997), the Adj<sup>0</sup> head-moves into D<sup>0</sup> bundling with Agr<sup>0</sup> head. On a minimalist view to Case (Chomsky, 2000), the bundled head Agr + Adj<sup>0</sup> enters the derivation with a valued genitive Case feature and uninterpretable phi-features. It probes into its c-commanding domain to value the genitive Case feature on the NP goal. The Agr<sup>0</sup> then gets its phi-features interpreted by virtue of Agree with its associate NP.

### III. THE ANALYSIS

The assumptions discussed in Sect. II provide a guiding light for my explanation of the high/low asymmetry based on anti-locality constraint. First, deriving the ambiguity involves the long-distance movement of the -est quantifier as part of interpreting CP-internal copies at a high or low level in the structure. As a standard minimalist practice, the long-distance movement is regulated by locality conditions of grammar which is discussed in Subsect. 4. A in terms of the phase theory of Chomsky (2000).

Second, the paper shows that the syntactic configuration of the G-superlative triggers an anti-locality effect on the economy-constrained movement of the -est quantifier which results into the blocking of the high reading in G-superlatives. Such configuration in A-superlatives neutralizes the anti-locality effect by virtue of having an additional projection intervening between the source and landing sites of movement which renders movement long enough to obviate the anti-locality effect. A similar obviation of anti-locality arises in the movement deriving the low reading in both A- and G- superlatives. Because the low CP- internal copy under interpretation is uniquely low in the clause (i.e., being the object argument position of the embedded clause), the -est quantifier has now more room for long movement that satisfies the specifier-to-specifier anti-locality.

#### A. Phases, Case, and Movement of -est

Quantifier Raising (QR) is often shown to be a local operation whose domain is the clause where the quantifier is base-generated (Szabolcsi, 1997; Johnson, 2000; Cecchetto, 2004; Wurmbrand, 2018).<sup>9</sup> Consider the following example in which the universal quantifier takes low or wide scope relative to the existential quantifier when both quantifiers occur in the same clause.

- (23) Someone loves everyone.
- Universal low reading:  $\exists y(\text{PERSON}(y) \ \& \ \forall x(\text{PERSON}(x) \rightarrow (x \text{ loves } y)))$
- Universal wide reading:  $\forall x(\text{PERSON}(x) \rightarrow \exists y(\text{PERSON}(y) \ \& \ (x \text{ loves } y)))$

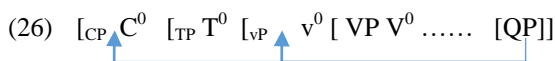
In (24), the wide scopal reading of the universal quantifier is blocked: the QRing of the universal is clause-bounded so that the quantifier may not take scope over the matrix existential clause across the embedded clause.

- (24) Someone thinks that John loves everyone.
- Universal low reading:  $\exists y(\text{PERSON}(y) \ \& \ \text{thinks}(y) \ \& \ \forall x(\text{PERSON}(x) \rightarrow (\text{John loves } y)))$
- #Universal wide reading:  $\forall x(\text{PERSON}(x) \rightarrow \exists y(\text{PERSON}(y) \ \& \ \text{thinks}(y) \ \& \ (\text{John loves } y)))$

One syntactic theory that regulates the clause-boundedness of QR is the phase theory of Chomsky (2001, 2008). It establishes that QR is a syntactic movement that is subject to *phase impenetrability condition (PIC)*. It is then phase-bounded (Cecchetto, 2004; Takahashi, 2010; Miyagawa, 2011). Chomsky (2000) defines PIC as follows.

- (25) In phase  $\alpha$  with head H, the domain of H is not accessible to operations outside  $\alpha$ , only H and its edge are accessible to such operations (Chomsky, 2000, p. 108).

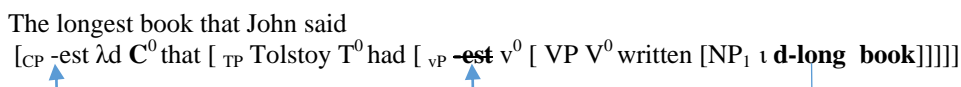
If CP, vP, and DP are phases, the following syntactic representation depicts how PIC works.



In phase-theoretic terms, for the object QP to undergo long distance QR from the embedded clause into the matrix clause, it should meet the following two requirements: first, it proceeds successively so that only one phase head (C, v, or D) is crossed in a single leap of movement in compliance with the PIC. Second, each successive step of movement must be semantically motivated: the requirement that the quantifier take scope over other respective structures to yield a new interpretation or/and raise to resolve type mismatch. Let us discuss these economy requirements in the context of the covert movement of the superlative operator-est which derive the high/low ambiguity. Consider the low reading of (27) repeated from (11).

- (27) the longest book that John said that Tolstoy had written

**Syntax of low reading**



**Semantics of low reading**

the unique x: John said  $\exists d [ \text{Tolstoy had written book}(x) \ \& \ \text{long}(x,d) \ \& \ \forall Q \in C [ Q \neq (\lambda d'. x \text{ is a } d'\text{-long book}) \rightarrow \neg Q(d)]$

To derive the low reading of (27), the -est operator undergoes QR from its base-generated in NP<sub>1</sub> into the specifier-CP of the embedded clause. This movement is semantically motivated by the -est need to take scope over the embedded CP to determine the -est comparison class restriction. The -est operator also needs to repair type mismatch with the gradable adjective: it raises to create a degree abstract over degree the degreedenoting trace that directly saturates the degree argument of the adjective long.<sup>10</sup> This long movement, being phase-bounded, satisfies the PIC: it proceeds successively through each phase edge towards the landing site in specifier-CP of the embedded clause so that it first moves into specifier-vP . It then moves into the specifier of the embedded CP.

Consider, now, the high reading of (28).

<sup>9</sup> One exception is indefinite Quantifier Raising which seems to apply non-locally across finite clauses (See for example Ebert, 2009).  
<sup>10</sup> Cecchetto (2004) defines semantic motivation in QR successive movement as: (i) interacting scopally with another quantificational NPs, (ii) repairing type mismatch in semantic composition, and (iii) solving an infinite regress in an antecedent-contained ellipsis.







covert movement of the superlative quantifier which derives different high/low interpretive possibilities available to two forms of superlative modifiers which occur with the external head of relative clauses in PA: the so-called attributive and genitive superlative modifiers. The observed asymmetry arises due to a specifier-to-specifier anti-locality restriction on the covert movement of the superlative morpheme which blocks the high interpretation in the genitive superlative modification. This restriction is obviated in the attributive superlative modification owing the presence of additional intervening material that renders movement long enough to satisfy the anti-locality condition in (1).

Second, the anti-locality effect on the covert movement of superlative quantifier appears to support a model of grammar where covert and overt operations occur within single cycles in derivation making the two kinds of operations equally subject to general economy conditions such as PIC, Last Resort, and anti-locality (Bobaljik, 1995; Saito, 2005; and Takahashi, 2010). This model assumes no arbitrary point of Spell-out between syntactic and LF operations: while the semantics decides on which copy of the chain to be interpreted, the phonology decides which part of a moving chain to pronounce. Simply put, covert movements such as the -est QR are no different from overt movements except which copy of the chain is to be pronounced by the phonology chooses to pronounce (Pesetsky, 1998; Fox & Nissibaum, 1999).

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