A puzzle related to superlative modification in definite relative clauses in Jordanian Arabic

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ABSTRACT

This paper addresses a puzzle involving two modes of superlative modification in definite relatives in Jordanian Arabic: the so-called (A)ttributive and (G)enitive superlatives. We show that under the low interpretation of the definite relative clause, both modes of superlative modification exhibit an asymmetrical behavior: while the A-superlative is ambiguous between the absolute and relative readings, the relative reading is blocked in G-superlatives. To resolve the puzzle, we propose a compositional analysis based on the late merger of the definite relative which generates the absolute/relative ambiguity in A-superlatives and at the same time it blocks the relative reading in G-superlatives.

1. Introduction

1.1. Two forms of superlative construction in Jordanian Arabic

The standard degree-based theory has two main working assumptions about gradable adjectives: first, gradable adjectives (e.g., tall) denote relations of individuals and degrees (Seuren, 1973; Cresswell 1976; von Stechow 1984; Heim, 1985, 2000) as represented in (1).

(1) tall = id.x. HIGHT (x) ≥ d

Second, this relation is downward monotonic with the following property (Romero 2013):

(2) ∀x ∀d. [ HIGHT (d) (x) − 1 ∧ d < d' → HIGHT(d') (x) = 1 ]

Syntactically, the degree argument of gradable adjective is represented as a DegP that is projected as sister to the gradable adjective. This degree argument composes in two ways: first, it can be directly saturated by degree-denoting measure phrases of typed which combines with the gradable adjectives via function application (Heim 1985). Alternatively, it can be quantified over by a degree operator. One of these degree operators is the superlative morpheme –est. A possible lexical entry for the
superlative operator –est is a two-place predicate as defined in (3) (Heim 2000).  

(3) \[ \text{[–est]} = λg_{\text{dcl},λ}, λp_{\text{dcl},λ}, λx. \exists d \{ P(d) \land ∀y \in G \{ y \neq x \rightarrow \neg (P(d) \langle y \rangle) \} \] 

The superlative operator in (3) compares the set of degrees originated in the matrix clause with the sets 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 (Heim 1999). For example, the superlative in (4) has the absolute reading in which the speaker compares articles in terms of their length, picks the longest one among a contextually-determined set of articles and asserts that Ali read that article (Heim 1999).

(4) Absolute Reading: Ali read the longest article.

A.-r. Abu Helal Heliyon 8 (2022) e10115

The superlative construction in (4) has another reading; the so-called relative reading (Ross 1964; von Stechow 1984; Szabolcsi, 1986; Heim 1985, 1999; Rullmann 1995; Romero 2011). On the relative reading, the speaker compares Ali to other article-readers in terms of their reading achievements and asserts that Ali read a longer article than anyone among contextually relevant readers read.

Under the head-external view (Heim 1999, Szabolcsi, 1986), the absolute/relative ambiguity is derived by the construction of two LF structures. That is, the LF position of the superlative operator [–est C] determines the domain of possible comparison classes of C. On the absolute reading, the [–est C] moves minimally within the DP the longest article and it creates a degree abstract over the degree d in its original position. The LF that delivers the truth conditions of the absolute reading has the following representation:

(5) Absolute Reading: Ali read the longest article.

When it comes to Case, the post-modifying superlative adjective agrees with the NP in Case feature. As in (8), the post-modifying superlative adjective inherits the Case feature of the head NP.

When on the other hand, the head NP that is pre-modified by the superlative adjective bears a default genitive Case mark as in (9) (See Abu Helal, 2022 and Elghamry (2003) for evidence from Levantine and Standard Arabic, respectively).

5 Another lexical entry of the superlative operator exists (i). It is represented as a 3-place predicate that applies to three arguments: individual-denoting objects, a predicate of individuals and a gradable adjective. The application of this operator yields the truth conditions in which there is a degree d such that the individual x has a property P to that degree and all the other individuals in the contextually-determined comparison class C don’t have the property to d (See Romero 2011 for an assessment of the superlative as a 2-place and 3-place predicate).

(i) \[ \text{[–est]} = λg_{\text{dcl},λ}, λp_{\text{dcl},λ}, λx. \exists d \{ P(d) \land ∀y \in G \{ y \neq x \rightarrow \neg (P(d) \langle y \rangle) \} \] 

6 On a head-internal analysis (Heim 1985; Sharvit and Stateva 2002), the ambiguity is contextually-determined: the superlative operator involves a contextual variable C that is valued by context in such a way that it denotes a set of contextually-determined articles in the absolute reading and a set of articles read by contextually-determined individuals. The superlative operator undergoes minimal QR within the DP along with its restrictor C that is valued by context to derive the ambiguity.

(ia) Absolute Reading: Ali read the unique x such that \exists d \{ x is an article and x is d-long \land ∀y \in C \{ y \neq x \rightarrow \neg (P(d) \langle y \rangle) \} \}

(ia) Relative Reading: Ali read the unique x such that \exists d \{ x is an article and x is d-long and Ali read x \} \land ∀y \in C \{ Q \neq (λy. Ali read a d-long article) \rightarrow \neg Q(d) \}

meaning that the members of the comparison class C must have the same domain as the denotation of [–est C]’s sister in LF.

(6) Relative Reading: Ali read the longest article.

In Jordanian Arabic, the superlative adjective is formed by replacing the three consonantal root cluster of the positive adjective ‘C1C2C3’ with the template sequence ‘C1C2 aC3’ (Hallman, 2016; Grano & davis 2018). For example, the positive form t’aww’il ‘tall’ with its root cluster t’awl has the superlative form t’awl ‘taller’.

Superlative adjectives (e.g., t’awl ‘taller’) may follow or pre-cede the noun it modifies as in (7). The two forms of superlative structure vary with respect to the morphosyntax of definiteness and Case: when the superlative adjective post-modifies the noun, both the noun and the post-modifying superlative adjective have the overt definite article a as in (7.a). By contrast, the pre-modifying superlative adjective never incorporates definite morphology as shown in (7.b).

(7) a. ‘(the-)article (the-)longest Rel Einstein katab-ha
b. ‘(the-)article (the-)longest Rel Einstein katab-ha

When it comes to Case, the post-modifying superlative adjective agrees with the NP in Case feature. As in (8), the post-modifying superlative adjective inherits the Case feature of the NP head.

a. ‘I passed tallest student
b. ‘I passed tallest student

8 This prescriptive rule of superlative formation only applies to a set of adjectives with triple roots (i.e., C1C2C3) which are gradable, affirmative and fully agreeing properties with the exception of those that describe color or physical deficiencies such as aswad ‘black’ and a’najd ‘lame’ (see Hasan, 1986: 796 in Standard Arabic).

9 See Abu Helal (2021a) and Elghamry (2003) for evidence from Levantine and Standard Arabic, respectively.
On a minimalist view to Case (Chomsky, 1995, 1998), structural Case assignment is achieved by a Goal-Probe Agree operation based on c-command relation. Accordingly, the Case-marked expression that enters the derivation with an unvalued Case feature serves as Goal for a c-commanding functional head which serves as Probe that values the Case feature of that expression by virtue of agreement (i.e., in phi-features such as person, number, and gender).10

Given these observations, it should be the case that the two superlative structures in (9.a) and (9.b) have different Case assignment domains: while the nominative and accusative Case is valued at the sentential level via an Agree operation with the c-commanding tensed T0 and transitive v0, respectively, the genitive Case is valued within the DP structure via an Agree operation with an Agree operation based on c-commanding (10)

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For the ease of exposition, we will refer to the first form of superlative structure in (9.a) as A(attritive) superlative and the second form in (9.b) as G(enerative) superlative.

1.2. The puzzle

In Jordanian Arabic, when an adjectival modifier such as the superlative morpheme composes with the yalli relative clause that dominates a propositional attitudinal verb, the so-called high/low ambiguity of the relative clause arises.11 Consider, for example, the superlative structure in (11) which is ambiguous between the high and low readings of the yalli relative clause as the result of the A- and G-superlative modification (See Abu Helal 2022).

However, the two forms of superlative exhibit a set of interpretive asymmetries when modified the yalli relative dominating attitudinal predicate. First, the A-and G-superlatives are ambiguous between the absolute and relative interpretations under the high reading as follows.

Under the low reading, the A-superlative is also ambiguous between the absolute/relative interpretations. But when it comes to the G-superlative the relative reading is blocked as described in (13).

The facts in (12) and (13) present a puzzle: why is the relative low reading of G-superlatives blocked and such a reading is available in A-superlatives?! This paper aims at analyzing the two forms of superlative modification under the low reading of the yalli relative. More specifically, it proposes a unified analysis that explains the semantic puzzle represented by the facts in (12) and (13).

The paper is structured as follows. Section 2 reviews the representative literature on adjectively modified relative clauses. It shows that a raising syntax is required for the presence of the low/high ambiguity (Bhatt 2002; Hulsey and Sauerland 2006). Section 3 motivates the working assumption of our proposal. It argues for the claim that the (yu) illi relative clause modified by the superlative is a matching structure with an amount interpretation that serves as the complement comparison class of the QRing superlative operator by later merger. Section 4 presents the desired unified compositional analysis that resolves the puzzle. The last section concludes the paper.

10 See Abu Helal (2019) for an illustration of how Agree operates in the syntax of Arabic.
11 The reader is referred to Bhatt (2002), Hulsey and Sauerland (2006) for more discussion on adjectival modification in relative clauses.
2. A tale of two ambiguities

2.1. The head external vs. head raising analyses

Recent grammatical investigations into relative clauses have examined their properties with respect to two cases of structural ambiguity. The first case is a syntactic ambiguity in which relative clauses such as the 

\( \text{yalli} \)

relative in (14) may be analyzed relative to two main lines of analysis: the head external and head NP raising structures.

| No. | Language | Structure |
|-----|----------|-----------|
| 14  | Arabic   | 'The paper that Einstein wrote' |

On the head external analysis, the head NP is base-generated outside the relative clause and an internal relative clause operator undergoes A-bar movement as in (15). The operator’s movement creates a predicate of individuals that composes with the NP via predicate modification. In this way, the external NP head has no representation within the relative clause (Chomsky, 1977).

A variant of head external analysis is the matching structure in (16). On the matching analysis, the head NP is base generated in the left periphery of relative clause and an internal representation of the NP gets interpreted within the relative clause through an operation of ellipsis-repair. On the head external analysis, the head NP is base-generated outside the relative clause and an internal representation of the NP gets interpreted in its base-generation position within the relative clause (Chomsky, 1977; Bhatt 2002; Hulsey and Sauerland 2006; Heycock 2005).

The head NP raising analysis, on the other hand, involves a raising syntax where the relativized NP undergoes A-bar movement from a relative-clause internal position into its surface landing site in the left periphery of the relative clause. Given A-bar movement, the head relative-clause internal position into its surface landing site in the left syntax where the relativized NP undergoes A-bar movement from a head (Sauerland, 1998 and subsequent work).

2.2. The high/low ambiguity

The other case of ambiguity arises when an adjectival operator (e.g., the superlative –est) modifies relative clauses that dominate a propositional attitudinal verb as exemplified in (18) (Bhatt 2002; Hulsey and Sauerland 2006; Heycock 2005).

The derivation in (6) proceeds along the following steps: first, the head NP [Op longest book] undergoes successive cyclic movement as in (i).

(i) the [long book] [Op longest book] that John said [Op longest book] that [Tolstoy wrote [Op longest book]]).

Second, the higher copies delete as in (ii):

(ii) the [long book] [that John said that [Tolstoy wrote [Op longest book]]]

Third, the low copy is interpreted via Trace Conversion (Fox 2002).

Trace Conversion is a mechanism that converts movement copies into definite descriptions of type e using two derivational steps: first, variable insertion turns [Op longest book] into (Op) [long book \( \lambda y(y = x) \)] where book and the inserted variable \( \lambda y(y = x) \) being predicates of the same type (i.e., type \( <\text{ct}> \)), combines via Predicate Modification (Op) \( \lambda y \) [long book & (y = x)]. Second, a determiner replacement operation applies in such a way that the Op is replaced by a definite description operator to yield the definite description \( \lambda y \) [long book & (y = x)] of type e.

\[ \text{(18) the longest book that John said that Tolstoy had written} \]

\[ \text{‘High’ reading:} \]

\[ x \text{ is the longest book out of the books about which John said that Tolstoy had written.} \]

\[ \text{‘Low’ reading:} \]

\[ \text{What John said can be paraphrased as ‘x is the longest book that Tolstoy wrote.} \]

As argued in Bhatt (2002) and Hulsey and Sauerland (2006), the low readings of the relative clause in (18) provide an argument for the assumption that the head NP has an internal origin within the relative clause. Bhatt (2002) proposed that the low readings of (18) involve the reconstruction of the head NP within the relative clause based on the head raising analysis. For example, the external NP with its adjectival modifier –est in (18.b) is claimed to perform successive cyclic movement which forms a chain of copies that can be interpreted in different left-peripheral positions. On the low reading, the –est operator undergoes QRing within the embedded clause under the scope of the propositional attitude verb as represented in (19). \[ \text{[Op longest book] undergoes successive cyclic movement as in (i).} \]

\[ \text{Second, the higher copies delete as in (ii):} \]

\[ \text{Third, the low copy is interpreted via Trace Conversion (Fox 2002).} \]

\[ \text{Trace Conversion is a mechanism that converts movement copies into definite descriptions of type e using two derivational steps: first, variable insertion turns} \]

\[ \text{[Op longest book] into (Op) [long book \( \lambda y(y = x) \)] where book and the inserted variable \( \lambda y(y = x) \) being predicates of the same type (i.e., type \( <\text{ct}> \)), combines via Predicate Modification (Op) \( \lambda y \) [long book & (y = x)]. Second, a determiner replacement operation applies in such a way that the Op is replaced by a definite description operator to yield the definite description \( \lambda y \) [long book & (y = x)] of type e.} \]

\[ \text{[Op longest book] that John said that [Tolstoy wrote [Op longest book]]].} \]

\[ \\text{The derivation in (6) proceeds along the following steps: first, the head NP [Op longest book] undergoes successive cyclic movement as in (i).} \]

\[ \\text{(19) the longest book that John said that Tolstoy had written} \]

\[ \\text{‘High’ reading:} \]

\[ \\text{x is the longest book out of the books about which John said that Tolstoy had written.} \]

\[ \\text{‘Low’ reading:} \]

\[ \\text{What John said can be paraphrased as ‘x is the longest book that Tolstoy wrote.} \]

\[ \\text{[Bhatt 2002: 57, Heycock 2005: 360]} \]

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In (19), the –est operator compares the predicate of degrees \( \lambda d. \) Tolstoy wrote the d-long book \( x \) with the predicates of degrees denoted by a contextually-determined comparison class \( C \) and it asserts that the relevant book has a length to a degree \( d \) that no other element in the comparison class has as represented in (20).\(^{13}\)

\[
(20) \quad \lambda x.\{\text{[that John said that} \quad \text{–est} \lambda d.\{\text{Tolstoy wrote [the d-long book x]}\}\} [\text{Bhatt 2002: 65}]
\]

The matching analysis of (20) is represented by the following tree (21).

This tree has the following output:

\[
(22) \quad \lambda x.\{\text{[that John said that} \quad \text{–est} \lambda d.\{\text{Tolstoy had written [the d-long book x]}\}\} [\text{Bhatt 2002: 67}]
\]

As shown in (Bhatt 2002), the predicate of individuals \( \lambda x.\{\text{that John said that} \quad \text{–est} \lambda d.\{\text{Tolstoy wrote [the d-long book x]}\}\} \) directly saturates the definite description operator in the raising structure (20). The same predicate of individuals composes with the externally base-generated NP head ‘longest book’ in the matching structure in (22) and the resulting output saturates the definite description operator.

Bhatt (2002) argued that it is the raising structure in (20) that may generate the low reading of the adjectival modifier, rather than the matching structure in (22). In the situation where John said that \( \text{War} \quad \text{and} \quad \text{Peace} \) was the longest book written by Tolstoy, we want the predicate \( \lambda x.\{\text{longest book} \} \lambda x.\{\text{John said that} \quad \text{–est} \lambda d.\{\text{Tolstoy had written [the d-long book x]}\}\} \) to denote the singleton set consisting of \( \text{War} \quad \text{and} \quad \text{Peace} \). Since this set has a unique element in its denotation, it can compose felicitously with the definite description operator.

The composition, however, may wrongly produce unattested readings. Consider the situation where John made several claims about which book of Tolstoy was the longest from time to time (e.g., Last week, John said that the Cossacks was the longest book written by Tolstoy and yesterday he said that War and Peace was the longest). Since the predicate of individuals, \( \lambda x.\{\text{[that John said that} \quad \text{–est} \lambda d.\{\text{Tolstoy wrote [the d-long book x]}\}\} \), which can be taken to refer to the set of books that John claimed to be the longest, may compose directly with the NP ‘longest book’ to yield a uniquely singleton set that can saturate the definite description, it can be judged felicitous in this situation, meaning that the entire DP doesn’t actually have the denotation that the \( x \) such as John said that the longest book written by Tolstoy was \( x \), which expresses the low reading.

The raising structure, on the other hand, correctly rules out this unattested reading. On the assumption that the predicate of individuals \( \lambda x.\{\text{that John said that} \quad \text{–est} \lambda d.\{\text{Tolstoy wrote [the d-long book x]}\}\} \) denotes a set of books that were claimed by John to be Tolstoy’s longest from time to time, such a predicate would induce a presupposition failure when composing with the definite description: it violates the uniqueness presupposition. As such, Bhatt (2002) concluded that the raising structure is required for generating the low reading.

In a similar vein, Hulsey and Sauerland (2006) analyzed the high/low ambiguity in terms of the binding of world argument. In (23), the high reading refers to the longest actual book amongst an actual set of books which John believes that Tolstoy wrote. The low reading refers to the book in John’s belief worlds such that John believes that it is Tolstoy’s longest.

\[
(23) \quad \lambda x.\{\text{John believes Tolstoy wrote} \quad \text{the longest book [that John said that} \quad \text{–est} \lambda d.\{\text{Tolstoy wrote [the d-long book x]}\}\]} [\text{Bhatt 2002: 67}]
\]

On Hulsey & Sauerland’s analysis, the matching structure as represented in (24) may not derive the low reading.

\[
(24) \quad \lambda x.\{\text{[the longest book x]} \quad \text{John believes (w)} \quad \text{longest book [that John said that} \quad \text{–est} \lambda d.\{\text{Tolstoy wrote [the d-long book x]}\}\]} [\text{Bhatt 2002: 67}]
\]

This is the case because the definite description that corresponds to the trace of movement deletion ‘\( \text{the longest} \) \( \text{book [w]} \)’ induces a presupposition failure: it presupposes the existence of a unique pair \( (x,d) \) such that the book \( x \) is actually long to the degree \( d \). But since the structure cannot be false for any \( (x,b) \) if \( d \) is longer than \( x \)’s actual length, the definite description results into a presupposition failure and hence it renders the second argument of –est operator (i.e., the predicate of degrees \( \lambda d.\{\text{longest book [w]} \\) and book\( \langle w \rangle \) \) \) undefined for the sake of comparison.\(^{14}\)

Hulsey and Sauerland (2006) claimed that a raising analysis is in order. They propose a raising syntax that makes use of the following steps as represented in (25): first, the head NP undergoes successive cyclic movement. Second, the adjective ‘longest’ is adjoined in the left periphery of the embedded clause ‘\( \text{Tolstoy wrote \text{the long book [w]} \)’). Third, the world lambda operator \( \lambda w.\) of the intensional verb ‘believe’ applies via intensional function application (Heim and Kratzer 1998). Finally, the –est operator undergoes movement into a higher scope position under the scope of the world lambda operator of the intensional verb. In this way, the raising analysis in (25) generates the low reading.

\[^{13}\] Bhatt (2002) assumes a 2-place predicate for the –est operator as represented in (Heim 1999):

\[
(i) \quad \text{–est} = \lambda G.\lambda d.\langle \lambda P.\lambda d.\rangle: \lambda d.\{P(d) \quad \text{and} \quad \forall Q.\{Q \neq P \quad \rightarrow \quad (Q(D))\}\}
\]

\[^{14}\] On the assumption has the superlative operator is lexically represented as the 3-place predicate \( i.\) This operator takes three arguments: an individual-denoting object \( x \) that stands for the contextually determined comparison class complement, a relation of degrees and individuals \( P \) that is represented by a gradable adjective and an individual denoting \( x \). When it applies to its arguments, the superlative delivers the truth conditions that there is a degree \( d \) such that the individual \( x \) has a property \( P \) to that degree and all the other individuals in the contextually determined comparison class \( G \) don’t have the property to \( d \) (See Romero 2011) for an assessment of the superlative as a 2-place and 3-place predicate).
reading: there is a unique book x such that John believes it is Tolstoy’s longest.

The conclusion that can be drawn from this section is that the low reading of relative clause requires a reconstruction-based analysis, meaning that a semantic system based on the head external or matching analyses may not generate the low reading of adjectival modifiers of relative clauses.\(^15\)

3. The proposal

3.1. The yalli relative clause as head external structure

Since the modified relative clause triggers the high/low ambiguity, it should be the case that the yalli relative clause is expected to have a head-NP raising analysis. Ouhalla (2004) and Aoun et al. (2010) extended a head-raising analysis to the yalli relative clause along the lines of (26).\(^16\) They postulate a raising syntax where the head NP raises into the Specifier of the relative head \(D^0\) on the basis of definiteness agreement.\(^17\)

\(^{15}\) Heycock (2005) supported a non-reconstruction-based analysis: she argued that reconstruction fails short of predicting the much more restricted distribution of low readings of adjectival modifiers such as first, last, and only. According to Heycock (2005), the low reading in examples like (18) emerges in contexts where negative entailments license negative polarity items (NPI) and what Horn (1989) referred to as ‘short-circuited implicatures’ which capture the Neg-Raising phenomenon (NR). Interestingly, Heycock (2005) showed that the low reading of adjectival modifiers disappears in contexts that blocks NR such as factives, implicatives and epistemics, meaning that the low reading is derivable as the result of interpreting the negation in the entailment with lower copy (Heycock 2005: 263).

\(^{16}\) The analysis of Ouhalla (2004) and Aoun et al. (2010) is based on Kayne’s (1994) theory of N-initial relatives. Ouhalla (2004), however, proposed a slightly different version of head-raising analysis: he assumed the raising structure of the (ya)lli relative along with the assumption that the relative clause is located in a left-branching Specifier position of N and hence it doesn’t right-adjoin to NP. The N undergoes head movement into D to derive the Det-N-initial order.

\(^{17}\) Recently, the checking theory based on the Spec-head relation has been criticized and refined. The updated version of the theory incorporates notions such as valuation and interpretation which make use of a probe-goal relation with an EPP induced movement (Pesetsky and Torrego 2006). The updated theory also reduces the superfluous local spec-head domain to the c-command domain relation (Chomsky, 2005). For our purpose, the implementation of whatever minimalist version of Agree-Move theory leads to the same conclusion.

As argued in Abu Helal (in press), the (ya)lli relative clause has in addition to the head NP raising analysis (26) a head external structure (e.g., matching). Abu Helal (in press) argued that the yalli relative clause is ungrammatical in contexts where the NP head raising is required.\(^18\) One piece of evidence comes from the interpretation of idiomatic expressions such as (27).

\[(27)\] a. *Ali ate air. All-us concerned on-him.

b. *The problem Ali had made us concerned about him.

c. *The trouble Ali had made us concerned about him.

The ungrammaticality of (27.c) is unexpected if the yalli relative clause is taken to be a raising structure: a head NP raising structure would wrongly rule in (27.c) given that the locality condition of constituency in the idiomatic expressions would be satisfied under reconstruction.

Further, the following binding-theoretic facts present even stronger evidence that argues against head NP raising in the yalli relative clause in PA.

\[(28)\] a. *Ali ate picture of himself in the-office.

b. *Ali put a picture of himself in the-office.

c. *I saw a picture of himself in the-office.

\[(29)\] a. *Which article of Einstein, did he, read?

b. *The article of Einstein, that he, read?

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c. *I saw a picture of himself in the-office.

\[(29)\] a. *Which article of Einstein, did he, read?

b. *The article of Einstein, that he, read?
Again, the ungrammaticality of (28.b) is unexpected if we assume that the yalli relative involves a raising syntax based on A-bar movement with reconstruction effects. A head NP raising structure would wrongly rule in the ungrammatical sentence in (28.b) by inducing a condition A violating effect. Similarly, a head NP raising structure would wrongly rule out the grammatical sentence in (29.b) by inducing a condition C violating effect.

Based on the facts (27–28), we can safely conclude that the yalli relative may have a head external matching structure in addition to the analysis in (26).

3.2. On the amount interpretation of the yalli relative in A-and G-superlatives

This subsection argues for two facts about the yalli relative clause with the low reading in A- and G-superlatives. First, the yalli relative has an amount interpretation (i.e., it denotes a predicate of degrees of type &lt;d>). Second, the superlative morpheme that modifies the yalli relative clause is not internally represented within the yalli relative clause. These two facts suggest that the yalli relative clause with the low reading involves a relation of degree operator-variable dependency that is derived via raising of a null degree operator.\(^\text{19}\)

First, we observe that the emergence of low reading in A-and G superlatives is sensitive to constraints on the degree operator-variable dependency formed by movement. The fact that the low reading is blocked under locality and islandhood conditions of degree movement strongly suggests that the yalli relative involves predication of degrees based on a degree operator movement.

One constraint is what Heim (2000) called Kennedy's Generalization after observations in Kennedy (1999) defined in (30).

\[(30) \text{The Heim-Kennedy Constraint:} \]
\[
\text{If the scope of a quantificalional DP contains the trace of a DegP, it also contains that DegP itself} \quad (\text{Heim 2000:27})
\]

This generalization restricts the scopal behavior of degree operator in such a way that it cannot scope over other quantificalional operators which c-command the degree variable that is quantified over by the degree operator. Consider the A-and G-superlatives in (31) and (32). In the two structures, the low reading is absent: the two structures are unambiguous and the only reading they have is the high reading. Clearly, the presence of the quantificalional NP kuwal waḥad ‘every one’ blocks the low reading in (31) and (32) is. That is, the dependency between the degree operator and its associate scalar term which is expressed by the lower copy of the movement deletion (i.e., d-long article) is interrupted by an intervening QP. By contrast, the degree-operator-variable dependency that gives rise to the high reading has no such intervening effect and hence the high reading obtains in (31) and (32).

\[\]

\[(31) \text{The longest article yalli CP [ that /x [ person (x) → x said that Einstein d-long article]}
\]
\[
\text{The x such that everyone said that x was the longest paper written by Einstein}
\]

\[(32) \text{A. Hallman (2016: 1317–1326) discussed similar facts about the superlative morpheme aktar (sey) in Syrian Arabic. Hallman presented a set of diagnoses (e.g., islandhood conditions) confirming the fact that the dependency between the superlative operator and its scalar term is based on movement. He argued that the superlative operator aktar (sey) is base-generated in its surface position, indicating that the movement relation is derived by a null degree operator.}\]

As such, we predict that syntactic islands such as adjuncts and wh-constituents block the low reading as well. This is indeed the case. In (33), for example, the wh- island blocks the low reading.

\[\]

\[(33) \text{A. Hallman (2016: 1317–1326) discussed similar facts about the superlative morpheme aktar (sey) in Syrian Arabic. Hallman presented a set of diagnoses}
\]
\[
\text{e.g., islandhood conditions) confirming the fact that the dependency between the superlative operator and its scalar term is based on movement. He argued that the superlative operator aktar (sey) is base-generated in its surface position, indicating that the movement relation is derived by a null degree operator.}\]

Similarly, the adjunct island blocks the low reading as in (34).

\[\]

\[(34) \text{A. Hallman (2016: 1317–1326) discussed similar facts about the superlative morpheme aktar (sey) in Syrian Arabic. Hallman presented a set of diagnoses}
\]
\[
\text{e.g., islandhood conditions) confirming the fact that the dependency between the superlative operator and its scalar term is based on movement. He argued that the superlative operator aktar (sey) is base-generated in its surface position, indicating that the movement relation is derived by a null degree operator.}\]

\[\]

\[\]

\[\]

\[\]
These facts show that the low reading in the A-and G-superlative is sensitive to the locality conditions that constrain the formation of degree operator-variable dependencies. We conclude that the (ya)illi relative clause with the low reading has an amount reading based on quantification of degrees and the low reading of the (ya)illi relative involves a dependency that is subject to constraints on degree movement.

Second, the degree operator-variable dependency detected in the (ya)illi relative clause in A-and G-superlatives doesn't involve an internal representation of the external superlative operator. This degree operator is base-generated in the external position of the relativized head NP and it is not interpreted as part of the internal representation of the external NP derived by movement deletion within the (ya)illi relative clause.20 Evidence for this claim comes from the fact that the superlative morpheme never scopes beyond its surface position; it has scope at or above the surface position of the relativized external NP head. Consider the following sentence.

(35) Scenario 1

Robert is teaching an advanced physics seminar. Ali, Ad and Ted are enrolled students into the seminar. Each student expressed an interest in reading a certain number of articles that were authored by Einstein as follows.

Ali wants to read 3 articles that Einstein wrote and no one else reads 3 articles
Ad wants to read 4 articles that Einstein wrote
Ted wants to read 5 articles that Einstein wrote

Robert, gushal l-tぃslib l-Khtar/ Khtar tィslib yalli biyu qara maqalalit la Einstein
Robert met the student the most/most student Bel wanted read article of Einstein
Robert met with the student who wants to read the most articles.

In the context that Robert met with Ali, the superlative in (35) is false. It can only be true if the superlative operator Khtar 'most' is interpreted in the scope of the intensional operator bidu 'want' as represented by the felicitous structure (36).

(36) # Robert met with the unique x such that x is a student and x’sw compatible with x’s desires in w such that 3d [x reads d-many articles of Einstein in w] & ∃Q ∈ C [Q = {∃d. x reads d-many articles of Einstein in w} → ~Q(d)]

Therefore, the superlative structure in (36) only has the logical form in (37) where the superlative operator has scope at or above the surface position of the relativized NP head the student the student the most.21

(37) Robert met with the unique x such that 3d [x is a student and x’sw compatible with x’s desires in w such that {x reads d-many articles of Einstein in w} & ∃Q ∈ C [Q = {∃d. x reads d-many articles of Einstein in w} → ~Q(d)]

These facts suggest that the superlative operator is base-generated in its surface position in the external head NP and it is never represented within the yalli relative clause in A-superlatives. The overall conclusion of this section is that the yalli relative clause with the low reading has amount reading derived by the movement of a null degree operator that creates degree operator-variable dependency.

3.3. Late merger

Under the copy theory of movement (Chomsky 1977, 1995), the grammar interprets copies of movement chain in different positions.22 As a consequence, a reconstruction effect arises in (38) where the lower copy of the A-bar moving element containing the R-expression John, is interpreted within the c-command domain of the R-expression's referential pronoun he, resulting into condition C violation.

(38) *(Which argument that John, is a genius) did he believe? (Fox 1999:164 as cited in Takahashi and Hulsey 2009: 391)

Such a reconstruction effect can be found in A-movement as well. For example, the structure in (39) has a bound-variable reading in which the pronoun that is dominated by the lower copy of the A-moving DP that dominates the pronoun his, is interpreted in the scope of its quantification binder every professor in LF.

(39) [Someone from his class] seems to [every professor], to be a genius [Someone from his class]

Based on the data in (42) and (43), it can be concluded that movement, be it A-or A-bar movement, may leave fully interpretable copies and hence it may trigger reconstruction effects.

Nevertheless, it has been observed that A- and A-bar movement differ with respect to Condition C. Unlike the A-bar movement structure in (40) which has Condition C effect, the A-movement structure in (41) doesn't induce such an effect.

(40) *(Which argument that John, is a genius did he believe?)

The grammaticality of (41) is unexpected under the copy theory of movement. If the A-moving expression may leave an interpretable copy (i.e., as evidenced in (43)), a condition C effect is predicted. Contrary to the fact, the sentences in (41) are grammatical and it appears to be the case A-movement bleeds Condition C.

The standard solution to this asymmetry between A- and A-bar movement is to assume that the expression dominating the R-expression in (41) undergoes Late Merger. Such a limited countercyclic merger removes the DP containing the R-expression John from the c-command domain of the third person singular masculine pronoun. As for (40), independent properties of the grammar may prevent the application of the late merger of the sentential restrictor of the A-moving wh-phrase and hence a reconstruction effect arises (Lebeaux 1988; Fox 2002; Takahashi and Hulsey 2009, Santon, 2016; among many others).

On the LF interpretability approach (Fox 2002), late merger is applicable as long as the output is semantically interpretable. Fox's semantic approach nicely accounts for the fact that adjuncts, unlike complements, may be introduced countercyclically into structure.23

20 Unlike A-bar movement, movement deletion may involve less strict meaning identity for the internal representation of the relativized external NP than that which is encoded by the trace of A-bar movement in the reconstructed position (Sauerland, 2004).

21 Hallman (2016) documented and analyzed similar facts about the superlative aktar in Syrian Arabic, a form of Levantine Arabic. He observed that the superlative operator aktar (say) never reconstructs below its surface position. At the same time, Hallman (2016) presented supporting evidence from pronominalization. Islandhood conditions, Kennedy's Generalization in favor of a movement dependency between such a degree operator and a degree argument that is local to its scalar associate. These observations represent a puzzle: the absence of reconstruction of the degree operator is unexpected under the movement theory of the superlative. To resolve the puzzle, Hallman (2016) proposed that the degree operator is based generated in its surface position and the degree operator-variable dependency is derived via the movement of a null degree operator.

22 See Fox (1999, 2002) and Sportiche (2005, 2006) for an argument about the copy theory of movement.

23 Lebeaux (1988) explains the asymmetry between adjuncts and complements as exemplified in (12) by proposing that adjuncts, but not complements, can merge late. Accordingly, complements must merge prior to movement as required under Projection Principle in which the selectional property of lexical items must be satisfied thoroughout derivation (Chomsky, 1981). Adjuncts, on the other hand, do not need to satisfy subcategorization property and hence they may merge countercyclically.
Accordingly, the reason why (42.a) is grammatical is that the relative clause ‘that John is a genius’ undergoes late merger and such an operation yields a semantically interpretable output. Assume that the relative clause ‘that John is a genius’ denotes a predicate of individuals of type $<$et$. Assume further that the DP ‘which argument’ undergoes QRing. The relative clause, ‘that John is a genius’, can compose with the denotation of argument via predicate modification.

The late merger of the complement ‘that John is a genius’ in (45.b), on the other hand, fails to produce a compositionally interpretable representation and hence late merger should not be an option for cases like (42.b). Let us see how the late merger of the complement ‘that John is a genius’ doesn’t yield a compositionally interpretable output.

On Fox’s (2002) approach, the trace Conversation mechanism interprets the copies of a movement chain in the semantics. This mechanism converts movement copies into definite descriptions of type $e$ using two derivational steps: (i) variable insertion turns (Det) Pred into (Det) $\lambda y(y = x)$ where the Pred and the inserted variable $\lambda y(y = x)$, being predicates of the same type (i.e., type $<$et$>$), combines via Predicate Modification as represented in (43).

(ii) determiner replacement where the Det is replaced by a definite description operator that applies to the predicate that is introduced by predicate modification to yield (44), which is an expression of type $e$.

Given this assumption, we can see how the complement in (42.b) may not undergo late merger. Assume that the lower copy of the wh-phrase ‘which argument’ in (42.b) is of type $<$t,et$. Then, there would be no way to apply the trace conversation mechanism: the DP ‘which argument’ that stands for Pred, which is of type $<$t,et$>$ and the predicate $\lambda y(y = x)$ which is of type $<$et$>$ cannot compose intersectively via predicate modification. As a result, the lower copy remains non-compositionally interpretable (Takahashi and Hulsey 2009: 396–397).

The LF interpretability approach (Fox 2002) may extend to other environments where late merger produces semantically interpretable representations: wholesale late merger WLA. In this environment, an operator/determiner may undergo QRing and its restrictor saturates its representations: wholesale late merger WLA. In this environment, an operator/determiner may undergo QRing and its restrictor saturates its representations: wholesale late merger WLA. In this environment, an operator/determiner may undergo QRing and its restrictor saturates its representations: wholesale late merger WLA.

To illustrate, Fox and Nissenbaum (2000) observed that adjunct extraposition bleeds Condition C as shown in (45).

They analyzed the fact in (45) as follows. The DP ‘a picture’ undergoes rightward QRing across the adverbial yesterday. The movement forms a chain in which the DP is pronounced in the tail. Then the adjunct merges late to compose with the restrictor of the DP ‘argument’ as represented in (46).

In this way, late merger removes the R-expression dominated by the relative clause from the c-command domain of its co-referential pronoun and Condition C can be circumvented by extraposition of adjuncts. Notice that the tree (46) is a semantically interpretable output. Interestingly, Bhatt & Pancheva (2004) observed that comparative constructions also induce a Condition C bleeding effects by extraposition of comparative complements as in (47).

Bhatt and Pancheva (2004) accounted for Condition C bleeding effect in (48) by postulating a late merger solution: the –er operator undergoes rightward QRing and the comparative complement [than Mary told John] merges late to compose as the restrictor of the degree operator as schematized in (48).

Again, the late merger of the comparative complement removes the R-expression dominated by the comparative complement from the c-command domain of its co-referential pronoun and Condition C can be circumvented by extraposition of comparative complements. The tree in (48) is semantically interpretable as well.

Back to the asymmetry between A- and A-bar movement w.r.t. Condition C. Takahashi and Hulsey (2009) proposed that the reason why Condition C is circumvented in A movement in (49) is that the structure involves the wholesale merger of the clause ‘[that John is a genius]’ as schematized in (50):

| (42) | a. | Which argument [that John made] did he, believe? |
|------|----|---------------------------------------------|
| b.   | *Which argument [that John is a genius] did he, believe? | (Fox 1999; 164) |

| (43) | (Det) $\lambda y(y = x)$ |

| (44) | $\lambda y(y = x)$ |

| (45) | a. | I gave him, a picture from John’s collection yesterday |
|------|----|---------------------------------------------|
| b.   | I gave him, a picture yesterday [from John’s collection]. | (Fox and Nissenbaum, 2000: 139) |

| (46) |

| (47) | a.表 | I will tell him, a sillier rumor about Ann [than Mary told John] |
|------|----|---------------------------------------------|
| b.   | I will tell him, a sillier rumor about Ann tomorrow [than Mary told John] |

| (48) |

24 since it takes as its first argument a sentential element (Takahashi and Hulsey 2006).
As shown in (50), the restrictor dominating the R-expression may undergo wholesale late merger with the QRRed determiner into a position that is higher than the c-command domain of the co-referential pronoun, but still lower that the Case assigning functional head T. In this way, the whole DP including the restrictor can be assigned nominative Case by entering into Goal-Probe Agree with T. In the same time, Condition C effect can be reversed by removing the R-expression out of the c-command domain of its co-referential pronoun.

We saw in the preceding section that the A- and G- superlative structures show a similar asymmetrical behavior as exemplified in (53).

|   | l-ustar | ħakə | l-alar | yəɡudim | l-maqalah | l-ʔawl | */ʔawl | maqalah |
|---|---------|------|--------|---------|-----------|--------|---------|---------|
| yalli | ħa| to-him | present | the-article | the-longest/ | *longest | article |
| Rel | Ali | read-it |

`The teacher told him, to present the longest article that Ali read.'

They proposed that it is Case Filter that prohibits this operation. On the assumption that the accusative Case marking assignment of the wh-phrase ‘which’ along with its sentential complement [argument that John is a genius] is achieved structurally by a Goal-Probe Agree operation based on c-command relation with the Case assigning functional head v (Chomsky, 1998), the restrictor dominating the R-expression cannot undergo wholesale late merger since this operation would locate the restrictor outside the c-command domain of v. To get Case-marked, the whole DP ‘which argument that John is a genius’ needs to be base-generated within the complement of the VP and the R-expression dominated by the restrictor would come within the c-command domain of a co-referential pronoun resulting in a condition C violation as schematized in (52).

The straightforward solution to the asymmetry in (53) is to assume that A-superlative involves the late merger of the relative clause yalli Ali qaraʔ-ha ‘yalli Ali read it’ as high as the VP projection. Such an operation removes the R-expression Alii that is dominated by the yalli relative clause out of the c-command domain of its co-referential pronoun. For an independent reason (i.e., Case filter), the grammar prohibits the application of the late merger of the yalli relative clause in the G-superlative. As a result, the structure is ungrammatical due to Condition C violation.

We will address this question by making one more assumption made in Bhatt and Pancheva (2004, 19): a high-attachment site in A-superlative in (53) becomes accessible whenever the structure has a new scopal reading resulting from having the est-scoping over the VP haka ʔaw, ‘told to him’. The fact that the A-superlative structure in (53) has a new scopal reading where the comparative operator –est takes scope over the VP haka, ‘told to him,’ makes available a high-attachment site for the yalli relative clause. Such reading holds true if the teacher told Ali to read the article x to a degree d and there is no other article among the ones that Ali read which is as long or longer than d. This reading corresponds to the structure in which the –est operator takes scope over the VP with its comparison class being expressed by the yalli relative clause.

|   | –est > tell: The teacher told him: present the d-article where there is no other d-long article that Ali read such that d’ > d’ |
|---|---|
| (54) | |

A reading where the VP haka ʔaw ‘told to him’ scopes over the superlative –est is not available. Such a reading says that the teacher told Ali ‘read the d-long article that is longer than all other articles in the comparison set’.

|   | tell > -est: the teacher told him: present d-long article; there is no other d’-long article that Ali read such that d’ > d’ |
|---|---|
| (55) | |

As expected, the A- and G-superlative structures differ with respect to Condition C. Consider, again (56). Unlike the A-superlative, the G-
superlative induces a Condition C effect since the yalli clause contains an R-expression that sends in a co-referential relation with a c-commanding pronoun.

| (56) | l-ustuz | haka | l-u | yigaulm | l-maqlah | l-ʔwal/ | ʔwal/ | maqlah |
|------|--------|------|-----|--------|----------|--------|-------|--------|
| Rel  | Ali    | read | to-him | present | the-article | the-longest/ | longest | article |

The standard view of Grosu and Landman (1998), among many others, is that degree relative clauses involve a raising syntax where the DegP raises along with the head NP into the left periphery of the CP and then the head noun raises out of the CP, as schematized in (58).

Again, the condition C bleeding effect in the A-superlative suggests that there should be a high attachment site for the merger of the yalli relative clause outside the c-command domain of the pronoun in the A-superlative. This site is not available in the G-superlative structure. As a result, the G-superlative structure is ruled out due to condition C violation.

In principle, the superlative constructions in (56) are structurally ambiguous between a high-attachment structure that is located outside the c-command domain of the co-referential pronoun and the low-attachment structure that falls within the pronoun's c-command domain. Both structures are superficially identical. We will assume, following Fox (2002) and Bhatt and Pancheva (2004) that the high attachment structure is blocked due to a parsing preference in which the low attachment structure is favored over the high attachment one. Given this parsing preference condition, a high attachment site for the yalli relative clause is excluded in the G-superlative in (56.b) and hence a condition C violation arises.

For some reason, this parsing preference condition doesn’t obtain in A-superlative so that we get a superlative with a Condition C bleeding effect. A question then arises: why such a preference condition doesn’t extend to the G-superlative structure in (56) where a high-attachment site is inaccessible resulting in a Condition C violating effect. Put it differently, what licenses the higher attachment site in A-superlative so that we get a superlative with a Condition C bleeding effect?

The answer to this question is as follows. Because the –est quantifier is allowed to QR followed by the wholesale late merger of the yalli relative in A-superlatives, a new scopal reading arises and such a reading licenses a high attachment site besides a low attachment one. Therefore, the parsing preference condition does not obtain in A-superlatives. When it comes to G-superlatives, the wholesale late merger of the yalli relative is blocked by the Case requirement, resulting in the absence of a higher scopal reading that may license a higher attachment site. This makes G-superlatives subject to the parsing preference condition.

4. The analysis

4.1. Syntax-semantics of (ya)illi relative clause in A-superlatives

So far, we argued for two facts about the yalli relative clause in (57): (i) the yalli relative clause has a head external structure (i.e., matching) and (ii) the yalli relative clause with the low reading is an amount relative clause derived by degree operator movement.

| (57) | ʕali | maqlah | ʔwal/ | maqlah |
|------|------|--------|-------|--------|
| Rel  | Ali  | read   | the-article | the-longest/ | longest | article |

Since evidence points to the fact that the yalli relative clause has a head external structure and such a structure has an amount reading based on the movement of an internal null degree operator, our analysis makes use of a matching structure along the lines of Szczegielniak (2012). Accordingly, the degree reading of the relative clause can be derived under matching using the following steps: first, the head NP is base-generated in its surface structure outside the relative clause with the degree phrase being located in its specifier position. Second, the internal representation of the head NP undergoes movement deletion into an internal Spec-Topic position where it deletes under ellipsis of the sort of Topic drop (Huang, 1984). Finally, the DegP raises outside the relative clause with the consequence of creating a degree abstract that creates a predicate of degrees which corresponds to the amount reading of structure.

We will extend a matching analysis to the degree yalli relative clauses in A-and G-superlatives with the low reading along the lines of Szczegielniak (2012). Since evidence speaks against the reconstruction of the –est operator within the yalli relative clause, we will assume that the degree operator-variable dependency is achieved by the raising of a null degree operator from its base generated position in the internal Spec-NP head into the external Spec-DP of the yalli relative. On this analysis, the yalli relative clause in (57) will have the following syntax-semantics as schematized in the syntactic and semantic trees in (59) and (60), respectively.

26 with the low reading.
The syntax-semantics of the *ylli* relative involves three major sequential steps: first, the internal NP head along with its null degree operator, which is base generated in the Spec-AP of the internal NP, raises into an internal Spec-Topic position. It then creates two copies of the internal NP of type e. Second, the null degree operator undergoes movement into the external Spec-DP of the relative clause leaving behind a trace of typed that saturates the degree argument of the scalar adjective of the two copies of the internal NP. Third, the internal NP deletes under identity via an ellipsis-based movement deletion.

### 4.2. The low reading derived

Recall that A- and G-superlative structures in (61) are ambiguous between the low/high readings (Bhatt 2002; Hulsey and Sauerland 2006).

In what follows, we propose an analysis based on the late merger of the *ylli* relative clause that derives a semantically interpretable output for the low reading of the *ylli* relative in (61). Recall that under the low reading, the A-superlative is ambiguous between the absolute-relative interpretations as in (62).

| (62) Low reading |
|------------------|
| **Absolute** | **A-superlative** | **G-superlative** |
| It is true if Ahmad read an article that is long to a degree to which no other article in Ali’s saying-worlds is long. |

On a late merger analysis and following a head-external analysis (Heim 1999, Szabolcsi, 1986), deriving the low reading of the *(ya)lli* relative clause with an absolute interpretation involves the following steps: first, the [-est C ] moves minimally within the DP in the A-superlative the article longest and it creates a degree abstract over the degree d in its base generation position.

Since the sister of [-est C ] in (63) denotes the predicate of degrees [d. PROx is d-long article] each member of [ C ] is a predicate of degrees of type <dt, t> which stands for the comparison class complement of the first argument of the [-est ] operator G (i.e., [-est ] = λG_0.d<tx>, λd. [P(d) ∧ ∀Q ∈ G { Q ≠ P →]
(Q(D))). Intuitively, this set of predicates of degrees include the set that PROx and other relevant articles are long to.27

Second, we propose that the (ya)illi relative clause composes counterfactically via Late Merger: the (ya)illi relative clause composes with the comparison class complement G via predicate modification. To enable this operation, the denotation of (ya)illi relative clause should be type-shifted from the compositionally derived predicate of degrees \( <d, t> \) into a predicate of predicates of degrees of type \( <dt, t> \). To achieve this, we let the SHIFTER operator in (64) operate on the denotation of the (ya)illi relative clause, which takes the predicate of degrees denoted by the (ya)illi relative clause into a predicate of upper-bound degree predicates.

\[
\text{(64)} \quad \text{SHIFTER}^{\text{ab}}_{\text{ab}} \rightarrow \text{ab}_{\text{ab}} \rightarrow \lambda D_{\text{ab}} \lambda D'_{\text{ab}}, 3d' \ [D(d') & D' = \lambda d', d'' \leq d']
\]

The (ya)illi relative clause in (64) denotes the predicate of degrees is type-shifted into a predicate of predicates of degrees by applying the SHIFTER operator in (65).

\[
\text{(65)} \quad \text{SHIFTER}^{\text{ab}}_{\text{ab}} \rightarrow \text{ab}_{\text{ab}} \rightarrow \lambda D_{\text{ab}} \lambda D'_{\text{ab}}, 3d' \ [D(d') & D' = \lambda d', d'' \leq d'] \ \text{[(yd. Ali said that Einstein wrote} [\text{x. x is d-long y})] = \lambda D_{\text{ab}} \lambda D'_{\text{ab}}, 3d' \ \text{[Ali said that}\lambda w' \text{Einstein wrote a d-long article in w in w}] & D' = \lambda d', d'' \leq d']
\]

At this point, the (ya)illi relative clause undergoes late merger to compose with the denotation of \( [C] \) via predicate modification.

\[
\text{(66)} \quad \text{THE} \xrightarrow{\text{DP}} \lambda D_{\text{ab}} \lambda D'_{\text{ab}}, 3d' \ [D(d') & D' = \lambda d', d'' \leq d'] \ \text{[Ali said that}\lambda w' \text{Einstein wrote a d-long article in w in w}] & D' = \lambda d', d'' \leq d']
\]

The comparison class complement of the \(-\text{est} \) operator will have the following denotation that is the result of composing the late merged (ya)illi relative clause in (65) with the denotation of \( [C] \)

\[
\text{(67)} \quad [\text{XP}] = : [C] \cap \lambda D_{\text{ab}} \lambda D'_{\text{ab}}, 3d' \ [\text{Ali said that} \lambda w' \text{Einstein wrote a d-long article in w}] & D' = \lambda d', d'' \leq d']
\]

Finally, the LF representation that delivers the truth conditions of the low reading of the (ya)illi relative with an absolute interpretation in A- is given in (68).

\[
\text{(68)} \quad \text{Ali read the unique } x : 3d' \ [\text{article (x) & long (x,d)} & \lambda Q \in \text{C} \cap \lambda D'_{\text{ab}}, 3d' \ \text{[Ahmad said that} \lambda w' \text{Einstein wrote a d-long article in w}] & D' = \lambda d', d'' \leq d'] \ \text{[Q} \neq (d', x \text{is a d-long article}) \rightarrow \sim Q(d)]
\]

When it comes to the relative low reading, an asymmetry between the two types of superlatives arises: while the A-superlative may have a relative reading, such a reading is blocked in G-superlatives.

\[
\text{(69)} \quad \text{Low Reading (relative) } \checkmark \text{A-superlative } \checkmark \text{G-superlative}
\]

It is true iff Ali read an article that is long to a degree such that no other individual read an article in Ahmad’s saying worlds and it is long to that degree.

27 We assume an NP-internal PRO movement within NP that leaves a trace \( t_2 \) of type \( e \). Such an empty category is to be focus-marked to shape the default absolute reading (Heim 1999; Krifka, 1998, Romero 2011).

28 The same semantics applies to derive the absolute low reading in the G-superlatives.
We assume that the whole DP the longest paper along with its nominal modifier the yalli relative clause YALLI Ahmad said that Einstein wrote requires Case. Since the superlative head undergoes QRing into a Case-assigning position (i.e., within the c-command domain of the functional v head), the yalli relative can be introduced at this position to receive Case.

So what blocks the relative reading of G-superlatives with the low reading?! Recall that under the late merger analysis, the relative low reading of the G-superlative is derived through the DegP [-est C ] QRing into Spec-VP followed by the late merger of the yalli relative clause to compose with the denotation of the comparison class complement [ C ] via predicate modification. The unavailability of this reading is well predicted under the current analysis: since the NP head along with its yalli relative clause reading requires Genitive Case which is assigned by the Case assigning functional head D0,29 the yalli relative clause cannot be introduced outside the c-command domain of D0 (i.e., higher than the DP at the VP level). In this way, deriving the relative low reading of G-superlative is blocked by Case Filter as shown in (73).

Our analysis makes one more correct prediction: it explains the asymmetry between A-superlative and G-superlative with respect to Condition C as exemplified in (74), repeated from (53).

Recall that the A-superlative in (74) has a reading in which the comparative operator –est takes scope over the VP ‘told-him’. Such a reading holds true if the teacher told Ali to read the article x to a degree d and there is no other article among the ones that Ali read which is as long or longer than d. A late merger analysis where the est-operator undergoes QRing as high as the VP ‘told-him’ followed by the late merger of the yalli relative clause can derive this new scopal reading and it also removes the R-expression Alii that is dominated by the yalli relative clause out of the c-command domain of its co-referential pronoun. Therefore, the A-superlative in (74) gives rise to a Condition C bleeding effect. Notice that this operation is not blocked by Case filter: the superlative operator QRs into a Case assigning position (i.e., within the c-command domain of the accusative Case assigning head, the matrix v and the yalli relative, which also demands accusative Case, is introduced in this Case assigning position.

As for the ungrammatical G-superlative in (74.b), since the late merger of the yalli relative as high as the matrix VP is blocked by the need of the yalli relative clause to be Case-marked at the lower DP level, a Condition C effect is inevitable.

5. Conclusion

In this paper, we introduced a puzzle related to an asymmetry between the so-called (A)tributive and (G)enitive superlatives that modify yalli relatives in Jordanian Arabic: while the A-superlative is ambiguous between the absolute and relative readings under the low reading of the yalli relative (Bhatt 2002), the G-superlative is unambiguous and the only reading it has is the absolute reading.

To resolve the puzzle, we proposed a compositional analysis that explains the asymmetry between these two modes of superlative modification in yalli relatives. Our analysis is based on the following well-motivated working assumptions that were used to derive the low reading of the yalli relative clause: (i) the yalli relative clause undergoes late merger to compose with the comparison class complement of the QRed operator via predicate modification. (ii) Such composition may take place at the DP level to form the LF associated with the absolute low reading of the A- and G superlative and at the VP level to form the LF associated with the relative low reading in A- superlatives. (iii) Since late

29 Notice that the yalli relative clause is argued to be nominal, not sentential so it needs Case.
merger is controlled by Case filter (Takahashi and Hulsey 2009: 164), the relative low reading of G-superlatives is blocked because the yalil relative in this structure cannot be introduced outside the c-command domain of the genitive Case assigning head within the DP. And finally, (iv) such a Case requirement explains the asymmetry between the A- and G-superlatives with respect to Condition C.

Declarations

Author contribution statement

Abdel-Rahman Abu Helal: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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