On complex adjectival phrases in Standard Arabic

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Abstract

First, we present three observations about a class of adjectival constructions in Standard Arabic. Second, we account for these observations on the basis of a constituent structure and two generalizations. Lastly, we derive the generalizations from more basic assumptions about syntactic relations and processes.

1 Three puzzles

The empirical focus is on sentences such as (1), which have not, to the best of our knowledge, been studied systematically.[1]

(1) raʔay-tu   atˤ-tˤaalib-a   tˤ-tˤawiilat-a   qaamat-u-hu
      see.PRF-1s the-student.M-ACC the-tall.F-ACC figure.F-NOM-his
      'I saw the tall student'

1.1 Pleonastic definiteness

There are two instances of definiteness in (1): **atˤ-tˤaalib-a** 'the student' and **tˤ-tˤawiilat-a** 'the tall person.' However, the interpretation of the sentence involves only one instance of definiteness.

(2) raʔay-tu $\underbrace{\text{atˤ-tˤaalib-a}}_{\text{student}_{[+def]}}$ $\underbrace{\text{tˤ-tˤawiilat-a}}_{\text{tall}_{[+def]}}$ qaamat-u-hu
      'I saw the student who is a tall person' / *'I saw the student who is the tall person'

The sentence presupposes that there is exactly one tall student but does not presuppose that there is exactly one student and exactly one tall person (cf. Heim 1982, 1991, Heim and Kratzer 1998).

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[1] Note that the literal translation of (1) is 'I saw the student whose figure is tall.' In Arabic, 'having a tall figure' is synonymous with 'being tall.' Note, also, that (1) is not the only syntactic strategy to convey the proposition 'I saw the tall student' where the property 'tall' is expressed as 'having a tall figure.' The sentences in (i) are two other constructions which also do this.

(i) a. raʔay-tu   atˤ-tˤaalib-a   ða al-qaamat-i   tˤ-tˤawiilat-i
          see.PRF-1s the-student.M-ACC with the-figure.F-GEN the-tall.F-GEN
          'I saw the student with the long figure'
     b. raʔay-tu   atˤ-tˤaalib-a   ʔallaðii qaamat-u-hu   tˤawiil-at-un
          see.PRF-1s the-student.M-ACC that   figure.F-NOM-his long-F-NOM
          'I saw the student whose figure is tall'

In this talk we will just focus on sentences of the same type as (1).

1.2 Required resumption

The sentence in (1) contains a resumptive pronoun, **hu**, whose presence is required: removing it from the sentence gives rise to ungrammaticality, as evidenced by (3).

(3)   *raʔay-tu   atˤ-tˤaalib-a   tˤ-tˤawiilat-a   qaamat-u
        see.PRF-1s the-student.M-ACC the-tall.F-ACC figure.F-NOM
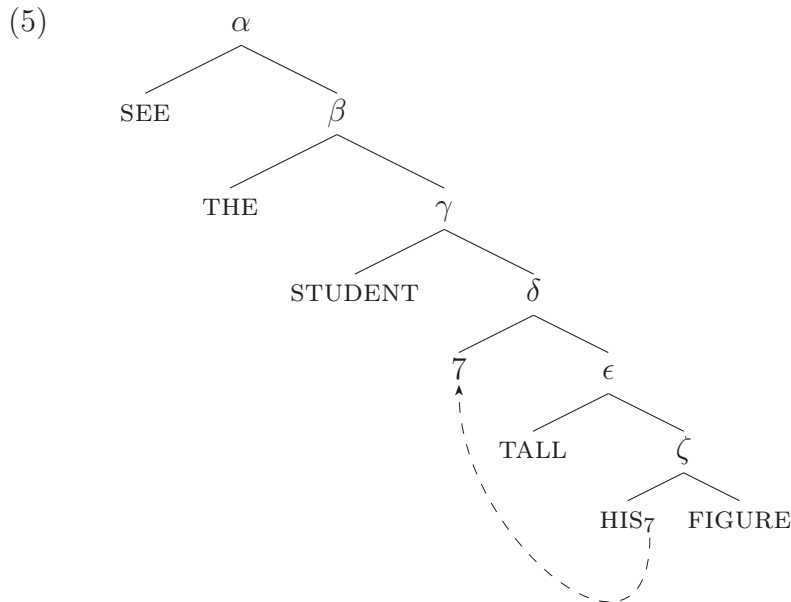
1.3 Case and agreement misalignment

The sentence in (1) shows a misalignment in case and agreement: **tˤ-tˤawiil-a** 'tall' has the same case as the preceding but not the following XP, while it has the same ϕ-features as the following but not the preceding XP.

(4)   raʔay-tu $\overbrace{\text{tˤ-tˤaalib-a} \quad \text{tˤ-tˤawiilat-a}}^{\text{same case/different } \phi\text{-features}}$ qaamat-u-hu
                         $\underbrace{\phantom{\text{tˤ-tˤaalib-a} \quad \text{tˤ-tˤawiilat-a}}}_{\text{different cases/same } \phi\text{-features}}$

2 Resolving the puzzles

2.1 Accounting for pleonastic definiteness and required resumption

We propose the following structure for (1). We use English words in small caps to represent their Standard Arabic counterparts.

(5)

The dashed arrow represents wh-movement of the index on HIS. The output of this movement, γ, is interpreted by Heim and Kratzer's (1998) rule of Predicate Abstraction.

(6)   Predicate Abstraction
        If X dominates Y and an index i, then $[\![X]\!]^a = [\lambda x \in D_e \ . \ [\![\beta]\!]^{a^{x/i}}]$, for any assignment a.

(7) $[\![\delta]\!]^a = [\lambda x \in D_e \ . \ x\text{'s figure is tall}] = $ the set of tall people.

The next higher node, γ, is interpreted by Heim and Kratzer's (1998) rule of Predicate Modification.

(8)   Predicate Modification
         If X has Y and Z as its daughters, then for any assignment a, if $[\![Y]\!]^a$ and $[\![Z]\!]^a$ are both in $D_{<e,t>}$, then $[\![X]\!]^a = [\lambda x \in D_e \ . \ [\![Y]\!]^a(x) = [\![Z]\!]^a(x) = 1]$

(9) $[\![\gamma]\!]^a = [\lambda x \in D_e \ . \ x$ is a student $\wedge$ x's figure is tall$]$ = the set of tall students.

Assuming Heim and Kratzer's definition of THE, which is

(10) $[\![\text{THE}]\!]^a = [\lambda P \in D_{<e,t>} : |P| = 1 \ . \ $ the unique x such that $P(x) = 1]$.

The sister of SEE is then interpreted by the Heim and Kratzer's (1998) rule of Functional Application,

(11)   Functional Application
         If Y and Z are daughters of X and $[\![Y]\!]^a$ is a function whose domain contains $[\![Z]\!]^a$, then $[\![X]\!]^a$ = $[\![Y]\!]^a([\![Z]\!]^a)$.

(12) $[\![\beta]\!]^a$ = the tall student.

2.1.1 Accounting for pleonastic definiteness

The structure in (21) accounts for the fact that there is only one interpreted instance of definiteness, because it contains only one instance of THE.

Note that (21) ends up presupposing that there is exactly one tall student. Importantly, it does not presuppose there is exactly one student, nor does it presuppose there is exactly one tall person.

2.1.2 Accounting for required resumption

Suppose there is no resumptive pronoun. The structure of (3) is presumably (13).

(13)

The nodes δ and γ will then be interpreted by Predicate Modification, resulting in

(14) $[\![\gamma]\!]^a = [\lambda x \in D_e \ . \ x$ is a student $\wedge$ x is a tall person $\wedge$ x is a figure$] = \emptyset$,

which means that $[\![\beta]\!]^a$ will not be in the domain of $[\![\text{THE}]\!]^a$, since $|\emptyset| \neq 1$. Thus, β will be uninterpretable. We submit that this is the cause of the deviance of (3).[2]
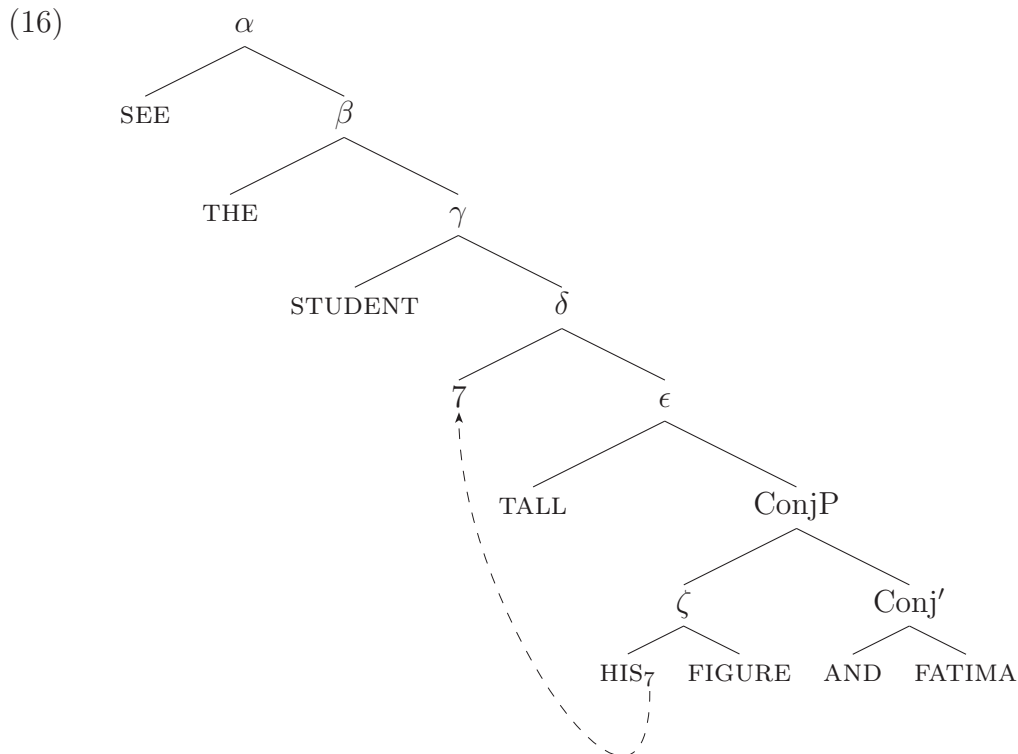
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[2]   We are aware that explaining ungrammaticality in terms of presupposition failure in this way raises questions about expressions such as **the square circle** or **the king of France**. These are all cases of the definite article combining with an empty predicate. Why are they well-formed? More generally, when does semantic deviance lead to ungrammaticality and when does it not? This is an issue which has been at the center of lively debate for quite a long time, and is still far from settled (cf. Barwise and Cooper 1981, von Fintel 1993, Krifka 1995, Gajewski 2003, Chierchia 2006, Fox and Hackl 2006, Abrusán 2007, among many others). We hope that the questions raised by our account of required resumption observed in (1), while they will not be answered by us in this talk, will be a research problem towards a better understanding of the interface between logic and grammar.

2.1.3 Additional prediction

We predict, correctly, that embedding ζ in (21) in a conjunctive phrase will result in ungrammaticality, since movement of the index will violate the Coordinate Structure Constraint (Ross 1967).
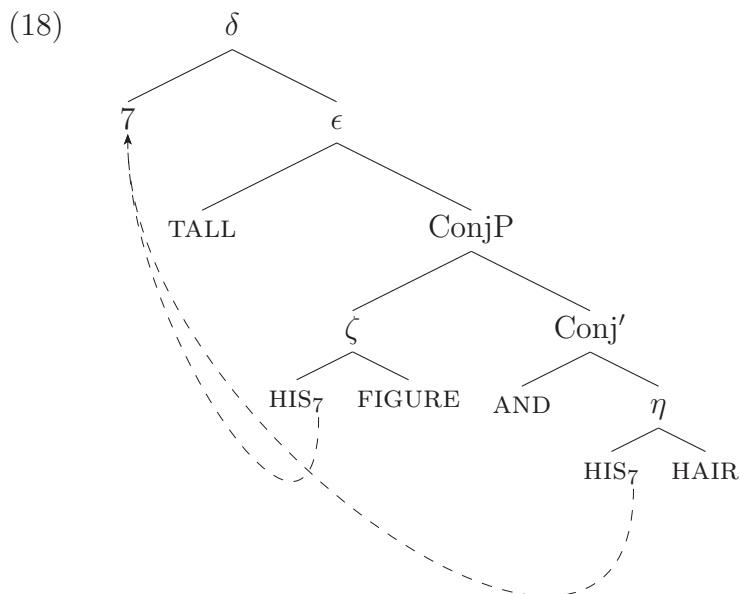
(15)　*raʔay-tu　　at$^{\Omega}$-t$^{\Omega}$aaalib-a　　t$^{\Omega}$-t$^{\Omega}$awiilat-a　qaamat-u-hu　　wa fatimat-u
　　　　see.PRF-1s the-student.M-ACC the-tall.F-ACC figure.F-NOM-his and fatima.F-NOM
　　　　('I saw the student x such that x is tall and Fatima is tall')

Presumably, (15) has the structure in (16).

(16)

```
                    α
                 /     \
              SEE       β
                      /   \
                   THE     γ
                         /   \
                   STUDENT    δ
                            /   \
                           7     ε
                           ↑   /   \
                           ⌐TALL    ConjP
                           :       /     \
                           :      ζ       Conj′
                           :    /   \     /    \
                           : HIS7 FIGURE AND  FATIMA
                           :____/
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We also make the correct prediction that replacing FATIMA in (16) with HIS7 HAIR would rescue the sentence, due to the possibility of ATB-movement: the sister of STUDENT would be (18).
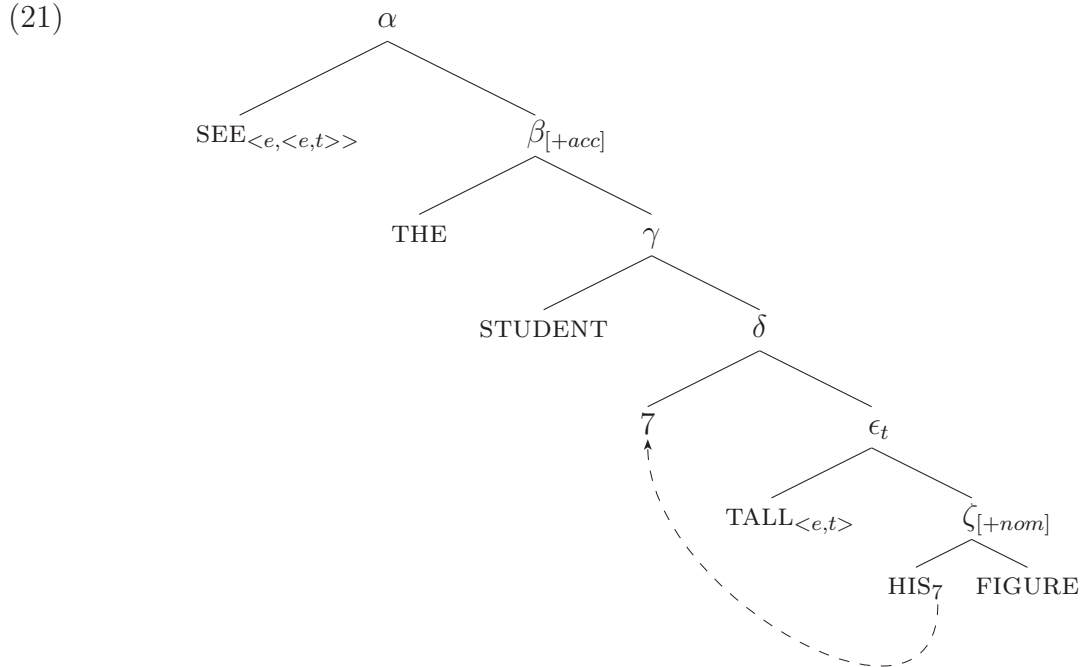
(17)　raʔay-tu　　at$^{\Omega}$-t$^{\Omega}$aaalib-a　　t$^{\Omega}$-t$^{\Omega}$awiilat-a　qaamat-u-hu　　wa ʃaʕr-u-hu
　　　　see.PRF-1s the-student.M-ACC the-tall.F-ACC figure.F-NOM-his and hair-NOM-his

(18)

```
              δ
            /   \
           7     ε
           ↑   /   \
           : TALL   ConjP
           :       /     \
           :      ζ       Conj′
           :    /   \     /    \
           : HIS7 FIGURE AND    η
           :                  /   \
           :              HIS7   HAIR
           :_____/
```

2.2 Accounting for case and agreement misalignment

2.2.1 Two generalizations

(19) Case Generalization (CG)
  (i) Arguments of predicates of type $< e, < e, t > >$ receive ACC
  (ii) Arguments of predicates of type $< e, t >$ receives NOM

(20) Agreement Generalization (AG)
  Nodes of type t are barriers for agreement

(21)

Note that neither δ nor STUDENT is an argument of the other: they compose by way of Predicate Modification.

From CG it follows that β receives ACC and ζ receives NOM, which means, given familiar locality constraints, that all nodes dominated by β bear ACC except those dominated by ζ which bear NOM. This is exactly what is observed. From AG it follows that there can be no agreement between something which is a subconstituent of ϵ and something which is not, or more specifically, between TALL and STUDENT. This is also what is observed.

Note that the domain for ϕ-feature agreement does not correlate with the domain for (structural) case assignment (cf. Bobaljik 2006).
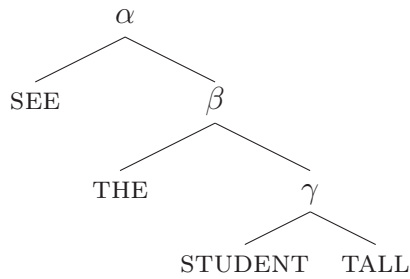
2.2.2 Additional prediction

Given AG, we make the following prediction: if instead of δ we just have the predicate TALL, agreement between the head noun STUDENT and TALL would occur. This prediction is correct, as evidenced by the acceptability of (22).

(22) raʔay-tu   atˤ-tˤaalib-a   tˤ-tˤawiil-a
    see.PRF-1s the-student.M-ACC the-tall.M-ACC
    'I saw the tall student'

Presumably, the structure of (22) is (23).

(23)

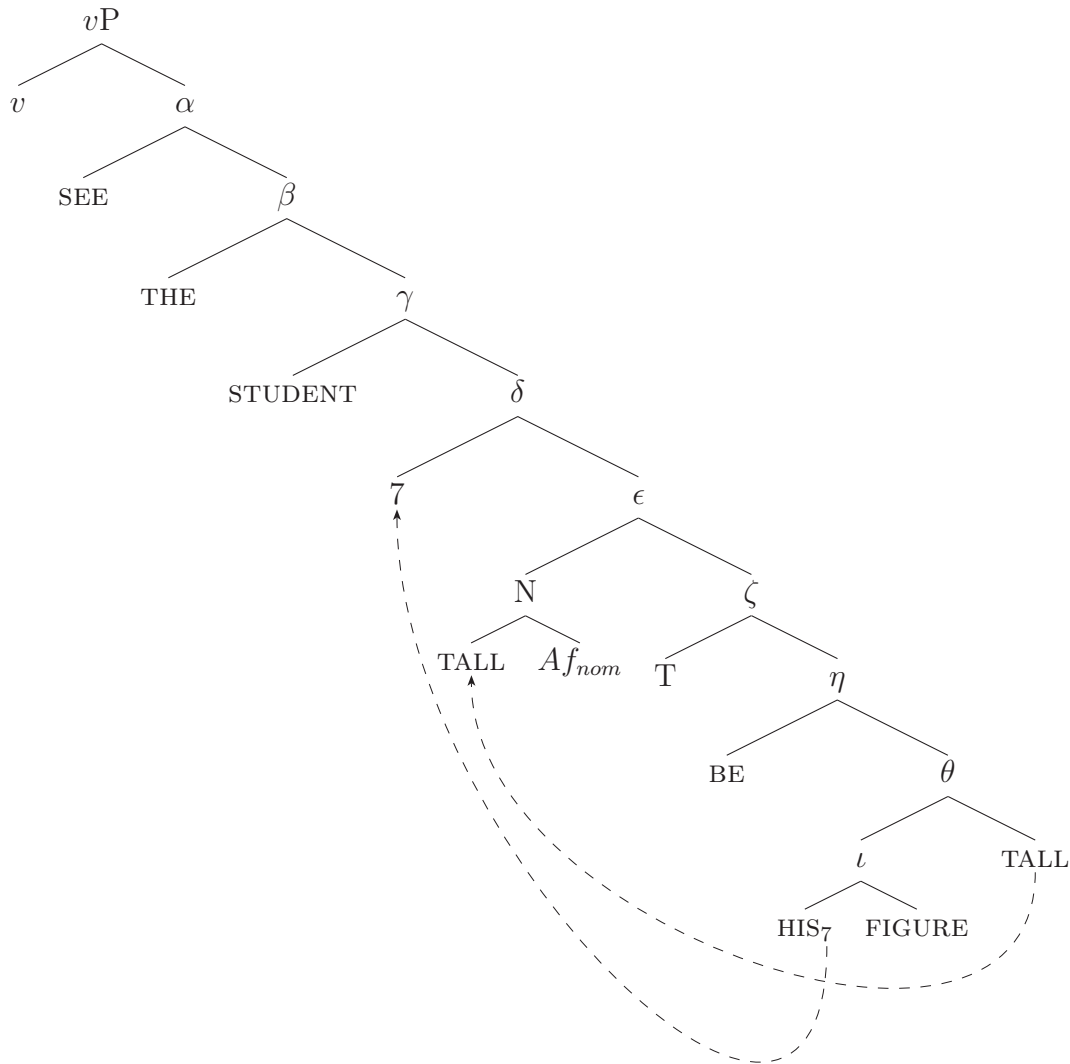## 3   Deriving CG and AG

We propose that (21) is to be analyzed in more detail as in (24), where Af_{nom} is the null "nominalizing" affix (cf. Aldolmi 2015).
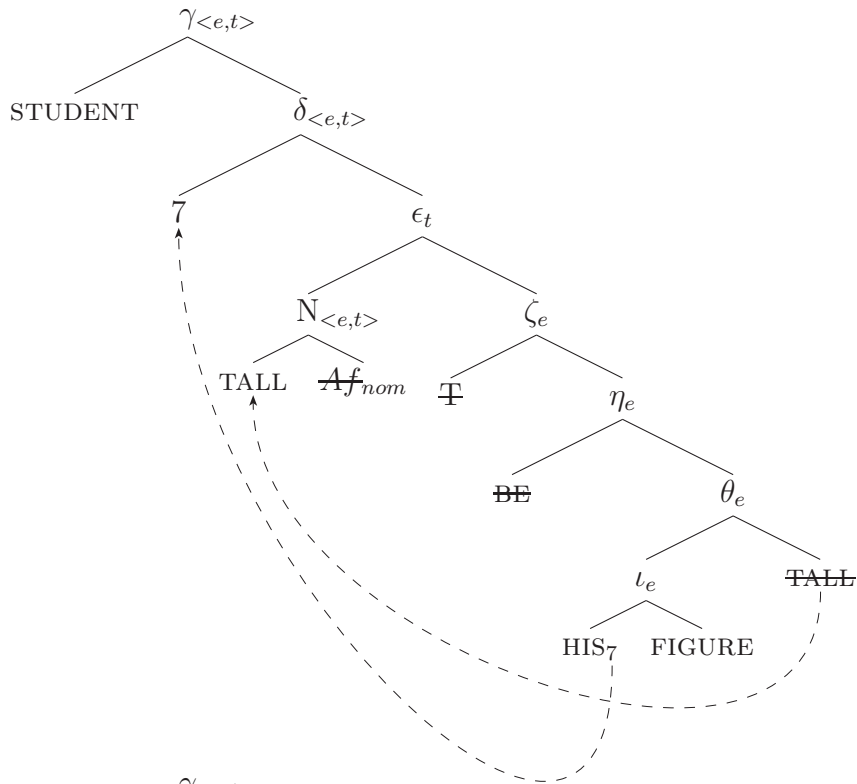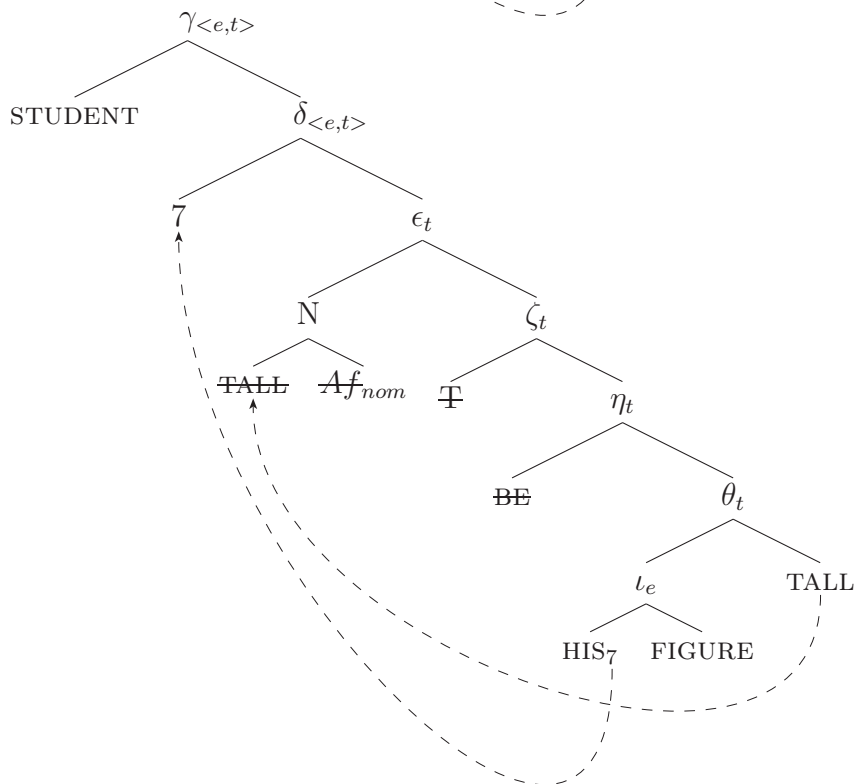
(24)

For present purposes, we assume that BE, T and Af_{nom} is semantically empty. We are thus left with two options: (i) it is the higher copy of TALL which gets interpreted, or (ii) it is the lower copy of TALL which gets interpreted.[3]

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[3]   The option of interpreting both copies as a chain is ruled out, since the higher copy does not c-command the lower one (cf. Heim and Kratzer 1998, Fox 2003).

(25)

$\gamma_{<e,t>}$

STUDENT $\quad \delta_{<e,t>}$

7 $\quad \epsilon_t$

$N_{<e,t>}$ $\quad \zeta_e$

TALL $\quad$ ~~Af_{nom}~~ $\quad$ ~~T~~ $\quad \eta_e$

~~BE~~ $\quad \theta_e$

ι_e $\quad$ ~~TALL~~

HIS$_7$ $\quad$ FIGURE

(26)

$\gamma_{<e,t>}$

STUDENT $\quad \delta_{<e,t>}$

7 $\quad \epsilon_t$

N $\quad \zeta_t$

~~TALL~~ $\quad Af_{nom}$ $\quad$ ~~T~~ $\quad \eta_t$

~~BE~~ $\quad \theta_t$

ι_e $\quad$ TALL

HIS$_7$ $\quad$ FIGURE

The facts considered until now do not decide between (25) and (26). Nevertheless, we submit that (26) is the correct analysis. The empirical justification for our claim is presented in the next section.

CG and AG would then be derived from the rather standard assumptions in (27a) and (27b), respectively.
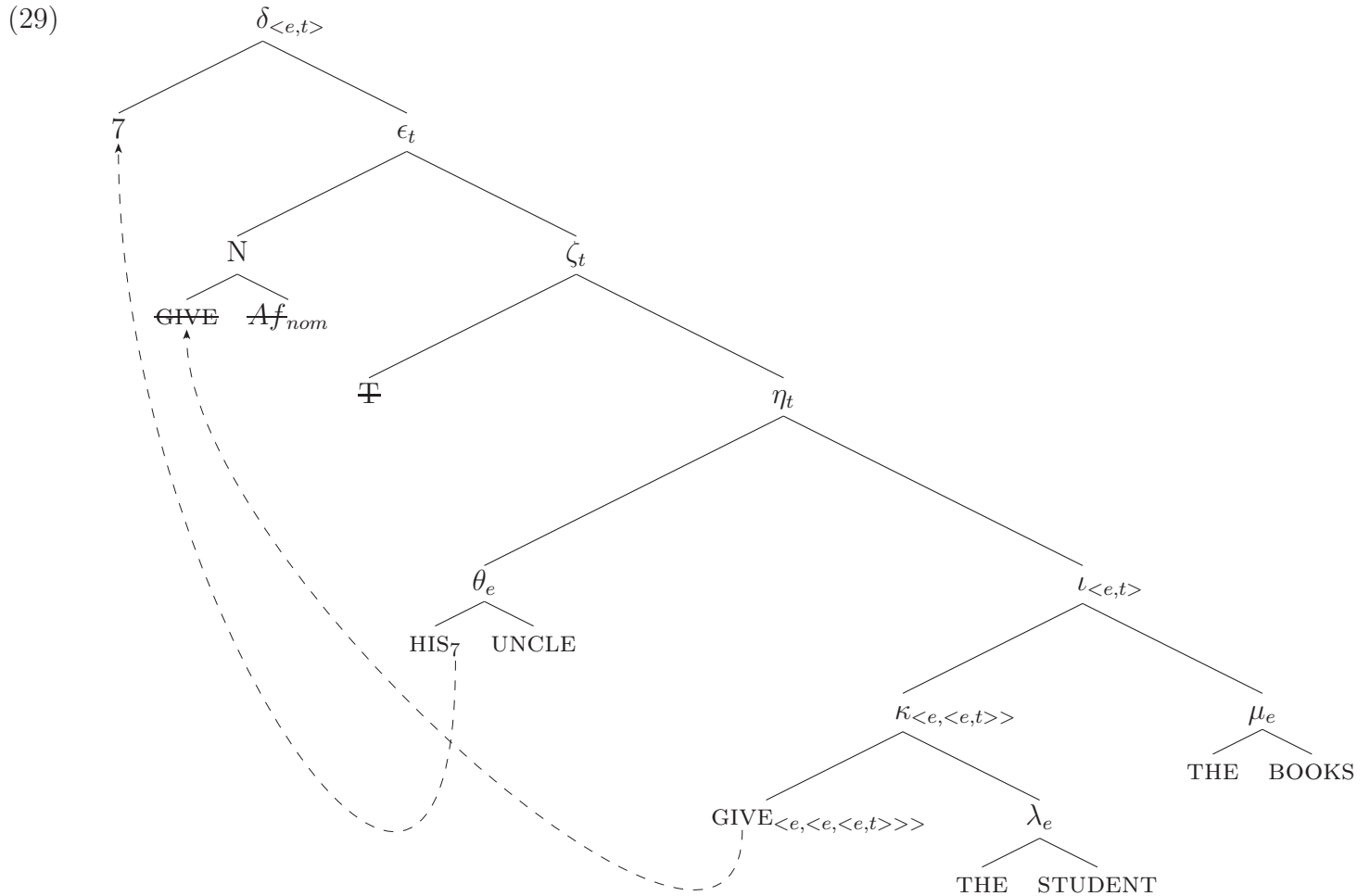
(27) a. v assigns ACC and T assigns NOM (cf. Pesetsky and Torrego 2011 and references therein)
      b. Nodes of type t are phases, which are islands for agreement (cf. Chomsky 2001 et seq.)

Agreement between TALL and HIS$_7$ FIGURE is thus established within θ, not ϵ.

4   Extending the analysis to transitive predicates

(28)   raʔi-tu   atˤ-tˤullab-a   l-maanih-a   khal-u-hum
        see.PRF-1s the-student.M.PL-ACC the-giver.M.SG-ACC uncle.M.SG-NOM-their
        t-taalibat-a   l-kutub-a
        the-student.F.SG-ACC the-book.M.PL-ACC
        'I saw the students whose uncle gave the female student the books'

The modifier of STUDENT is (29). Obviously, it must be the lower copy of GIVE that gets interpreted!

(29)

$\delta_{<e,t>}$
7   ϵ_t
N ζ_t
GIVE Af_{nom}
⊤ η_t
θ_e $\iota_{<e,t>}$
HIS$_7$ UNCLE
$\kappa_{<e,<e,t>>}$ μ_e
GIVE$_{<e,<e,<e,t>>>}$ λ_e THE   BOOKS
THE   STUDENT

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