

## REVISITING ARTICLE-S

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### ABSTRACT:

The first published account of relative clauses in generative grammar (Smith 1964) analyzed these elements as selected complements of the article or determiner in a nominal. In this paper we revisit the “Article-S” Analysis, examining its underlying assumptions about selection and structure and updating its technical implementation. In so doing we show that Article-S continues to be attractive from a syntactic and semantic point of view. We briefly examine two broader implications of the account for the analysis of languages claimed in the literature to be “D/DP-less” and for the analysis of restrictive modification generally.

**Keywords:** Relative clauses, restrictive modification, nominals, determiners

The period between *Syntactic Structures* (Chomsky 1957) and *Aspects of the Theory of Syntax* (Chomsky 1965) was a fertile one<sup>3</sup>, including the first published account of English relative clause syntax in generative grammar. Smith 1964 proposed the “Article-S analysis”, according to which relatives like *that I knew* in (1a-b) originate as complements of the article or determiner (2a-b) before moving rightward to the edge of the nominal (2a) or clause (2b)<sup>4</sup>.

- (1) a. Every friend of John **that I knew** was present.  
 b. Every friend of John was present **that I knew**.

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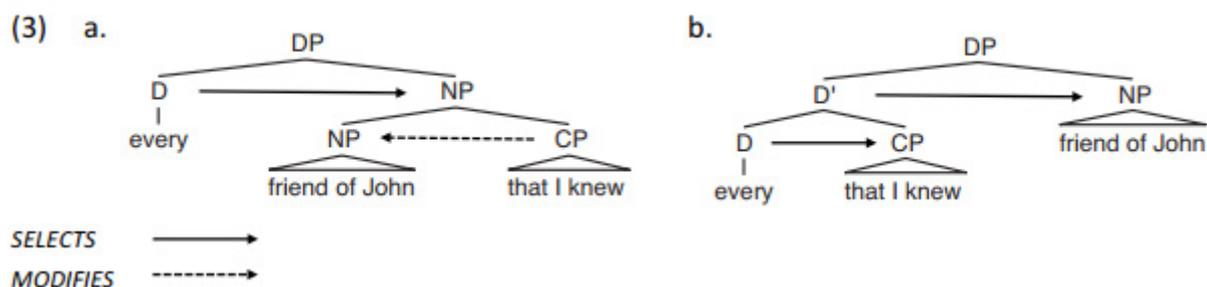
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3 This interval included pioneering work by Lees (1960, 1961a, 1961b) on nominalizations, NP structure and comparatives, Katz and Postal's (1964) unified theory of the syntax-semantics interface, Postal's 1964 review of then-current approaches to phrase structure and his ground-breaking 1969 work on pronouns, Stockwell's (1960) integration of grammar and intonation, and articles by Chomsky on a range of topics (1959a, 1959b, 1961a, 1961b, 1962, 1963, 1964a, 1964b).

4 Smith (1964) is formulated within the framework of Chomsky (1957), which assumes kernel sentences and generalized transformations that embed one sentence inside another; the latter are the source of recursion on S. Smith takes Art/D to include a relative clause marker (RCM) that flags where the relative S will be embedded; this RCM is subsequently displaced to the edge of the nominal, where the relative is ultimately inserted and appears. Chomsky (1965, 217, n.26) affirms that “restrictive relatives belong to the determiner system”, but reformulates the analysis in terms of base PS rules allowing relative S's to be generated directly as complements to Art/D and an extraposition rule that repositions relatives to the right edge of the noun phrase or clause, as in (2).

- (2) a.  $[_{NP} [ \text{every that I knew} ] \text{ friend of John that I knew } ]$  was present.
- b.  $[_{NP} [ \text{every that I knew} ] \text{ friend of John} ]$  was present **that I knew**.

Despite important theoretical and empirical virtues, Smith's Article-S analysis has attracted little modern interest, plausibly because of its unique view of selection in the nominal<sup>5</sup>. Under the most common account found in textbooks, relative clauses are **adjunct modifiers of a nominal projection** (NP in 3a) and together with it form a larger nominal constituent (again NP in 3a) that is selected by D<sup>6</sup>. By contrast under Smith's Article-S analysis, relative clauses are **inner complements of D**, and with it form a complex determiner phrase (D'), which in turn selects the nominal (3b)<sup>7</sup>.



In this paper we revisit Article-S, examining its empirical and conceptual underpinnings and updating it in the light of modern theoretical developments. In section 1 we explore the syntactic evidence for Article-S, both classical and more recent. In section 2 we establish the semantic coherence and plausibility of its view of relative clauses as selected complements. In section 3 we propose a recasting of the account within the framework of “dP/DP shells” in Larson (2014). The latter reanalyzes the surface D-NP-CP order of English as derived, not by rightward extraposition of CP as in (4a), but rather by leftward raising of the D head as in (4b). This analogizes the account of dP/DP to contemporary accounts of vP/VP in multiple complement constructions, wherein the V head also raises leftward, away from its innermost complement (4c):

- (4) a.  $[_{DP} [_{DP} [_{D'} \text{every that I knew} ] \text{ friend of John} ] \text{ that I knew } ]$
- b.  $[_{dP} \text{every d} [_{DP} [\text{friend of John} ] [_{D'} \text{every that I knew} ] ] ]$
- c.  $[_{vP} \text{put} \text{ v} [_{VP} [\text{the salt} ] [_{V'} \text{put on the fish} ] ] ]$

In section 4, we explore questions posed for this analysis by “connectivity effects” widely taken to motivate a head raising analysis of relatives. Exploiting the DP/VP parallelism just noted, we suggest

5 Kayne (1994) proposes a raising analysis of relative clauses which he suggests is “in the spirit” of Article-S. As we discuss in section 3, however, Kayne’s analysis does not embody the full view of selection in Smith 1964.

6 The basic constituency in (3a) descends from the so-called “NOM-S Analysis” of Stockwell, Schachter and Partee (1973), and is found in Radford (1988), Haegeman (1991), Larson (2010), Poole (2011), Carnie (2012), among many other textbooks.

7 Here and in what follows, we update the representation of Article-S, replacing Art with the more contemporary D and S with CP. Nothing substantive hinges on these relabelings.



Nominal modifier theories (3a) require a more complex explanation of facts like (5-7). For example, Jackendoff (1977) suggests they be accommodated simply by saying that “a certain class of restrictive modifiers (of any category) permits the use of the definite article with proper nouns.” (p.179). Besides simply restating the facts, this generalization does nothing to explain either how these modifiers accomplish their task, nor why the demonstrative article does not require them to combine as it does. But the latter is precisely what Kuroda (1969) draws attention to with the paradigm in (5): the dependence between the modifiers and choice of D<sup>8</sup>.

## 1.2 Southwestern Sulawesi Relatives

More recently, compelling syntactic evidence for Article-S has been presented by Finer (1998) in an analysis of relative clauses from languages of southwestern Sulawesi, Indonesia, including Selayarese, Makassarese, Konjo, and Bugis.

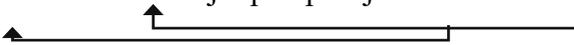
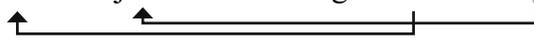
As Finer discusses, the languages of this group appear to be basically head initial, with word order adjusted (sometimes significantly) by movement. For example, Finer takes the Selayarese definite DP in (9a), with surface order NP-D, to derive from an underlying D-NP structure by incorporation of N into D (9b). Similarly, for the possessive DPs in (10a-b), where the possessive *na* is analyzed by Finer as a D head<sup>9</sup>:

- (9) a. doeʔ-iñjo  
       money-DEF  
       ‘the money’  
       b. [<sub>DP</sub> doeʔ-iñjo [<sub>NP</sub> doeʔ ]]  
           ↑  
 (10) a. doeʔ-na  
       money-3POSS  
       ‘his money’  
       b. [<sub>DP</sub> doeʔ-na [<sub>NP</sub> doeʔ ]]  
           ↑

The Selayarese transitive clauses (11a)/(12a) with surface word order VOS are taken to derive from an underlying SVO structure by shifting the absolutive object forward and by raising the verb through its extended projection domain and attaching the absolutive clitic *i* in the process (11b)/(12b).

8 Musan (1995) gives a potential analysis of (7b, d) where Paris denotes an individual concept (i.e., a function from world-time pairs to individuals) and where the temporal modifiers access its time parameter. This analysis does not extend naturally to (7c), however, nor to any of Kuroda’s (1969) examples.

9 We are indebted to Hasan Basri (p.c.) and Daniel Finer (p.c.) for helpful discussion of the Selayarese data in this section. See Finer (2017) for additional discussion.

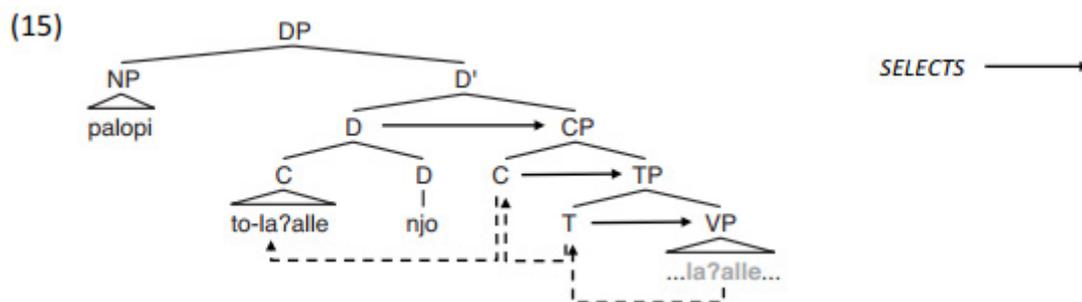
- (11) a. Laʔalle i doe?–iñjo palopi–ñjo  
 take ABS money-DEF sailor-DEF  
 ‘the sailor took the money’  
 b. Laʔalle i doe?–iñjo palopi–ñjo laʔalle doe?–iñjo  

- (12) a. Lakanre i juku?–na meong–na  
 eat ABS fish-3POSS cat-3POSS  
 ‘his cat ate his fish’  
 b. Lakanre i juku?–na meong–na lakanre juku?–na  


Consider now the Selayarese relative clauses in (13) and (14) below, formed from (11) and (12). In each case, as *Finer* (1998) describes, a relative clause marker appears prefixed to V: *to-* if the relative clause head is [HUMAN] and *nu-* otherwise. Furthermore, when the object is relativized (13b)/(14b), the absolutive clitic *i* is absent. But most striking, as *Finer* observes, is the morphology of definite (*ñjo*) or possessive (*na*) determiner associated with the relative clause head. In each case, D forms a unit with the entire relative clause verbal complex:

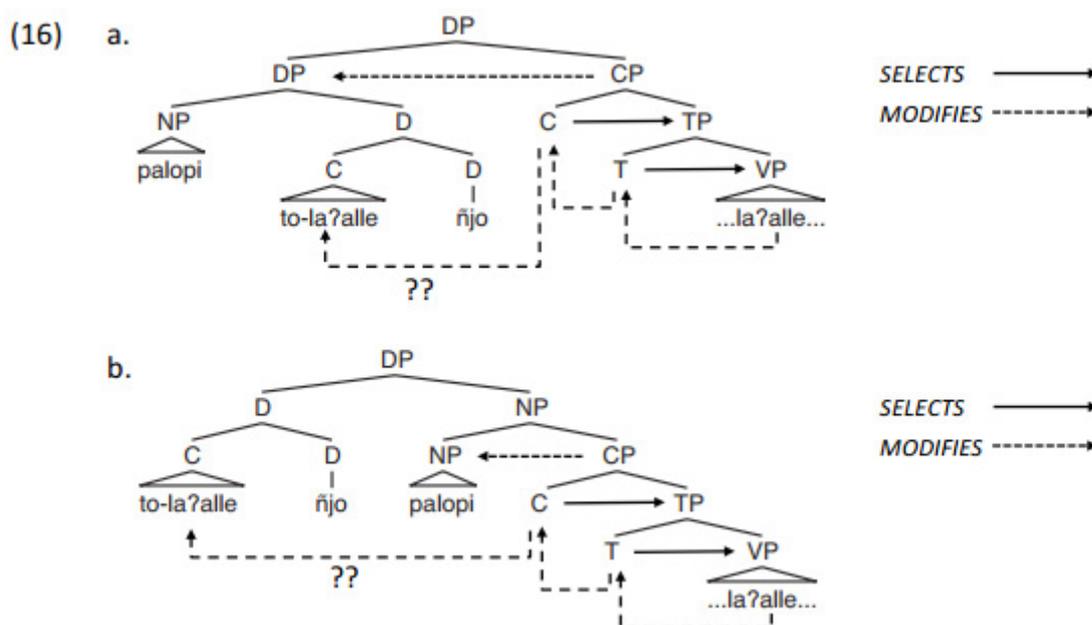
- (13) a. **palopi** to-laʔalle–ñjo i doe?–iñjo  
 sailor REL-take-DEF ABS money-DEF  
 ‘the sailor that took the money’  
 b. **doe?** nu-laʔalle–ñjo palopi–iñjo  
 money REL-take-DEF sailor-DEF  
 ‘the money that the sailor took’
- (14) a. **meong** nu-ŋaganre–na  
 cat REL-eat-3POSS  
 ‘his cat that ate’  
 b. **juku** nu-lri-kanre–na  
 fish REL-PASS-eat-3POSS  
 ‘his fish that was eaten’

*Finer* (1998) points out that under an Article-S type syntax, wherein the relative clause is a complement of D, the Selayarese relatives in (13) and (14) can be derived by successively raising V through T to C to D. (15) gives the schematic derivation for (13a), where the verb *alle* ‘take’ raises, and acquires the relative clause marker *to-*, analyzed as a C, in the process<sup>10</sup>. This movement sequence is licit precisely because the functional projections form a concentric set, the head of each standing in a selection relation to the one below (15).

<sup>10</sup> Structures (15) and (16a) are adapted from *Finer* (1998); see section 3 for further discussion.



By contrast, under an analysis wherein relatives are adjoined, either to the DP as a whole (16a) or to the NP subpart (16b) (with subsequent fronting of *palopi*), the chain of selection relations is broken and the account of verbal raising becomes problematic.



Hence these data appear to lend significant syntactic support to the Article-S analysis of selection relations in nominals containing relatives<sup>11</sup>.

## 2.0 SEMANTIC COHERENCE OF ARTICLE-S

### 2.1 Quantifiers and Restrictions

The semantics of Article-S can be motivated by familiar observations about nominal quantification in natural language. Consider (17a), attributed to famous New York Yankees baseball catcher Yogi Berra and presenting an apparent contradiction. How can a place be crowded if no one goes there? The example is perfectly sensible however, evidently because the quantifier *nobody* is understood in a more restricted way than its surface form implies, perhaps along the lines of (17b).

<sup>11</sup> For further discussion see Finer (2017).

- (17) a. Nobody goes there anymore. It's too crowded.  
 b. 'Nobody who we know', 'nobody from our group', 'nobody important', ... etc.

This suggests that the first sentence of (17a) should not be represented logically as in (18a), but rather as in (18b), which contains an implicit restriction variable  $R$  whose value is fixed contextually (18c):

- (18) a.  $\forall x[\text{person}(x) \rightarrow \neg \text{go-there-anymore}(x)]$   
 b.  $\forall x[(\text{person}(x) \ \& \ \mathbf{R}(x)) \rightarrow \neg \text{go-there-anymore}(x)]$   
 c.  $\mathbf{R}(x) \approx_{\text{context}} \text{know}(\text{we},x), \text{from}(x,\text{our-group}), \text{important}(x), \dots, \text{etc.}$

Cooper (1975, 1979) and Bach and Cooper (1978) propose an analysis of quantificational nominals within the framework of Montague Grammar wherein the implicit restriction variable of (18b) is situated in the determiner meaning (19a-d)<sup>1213</sup>.

- (19) a. *Every*  $\Rightarrow \lambda Q\lambda P\forall x[(Q(x) \ \& \ \mathbf{R}(x)) \rightarrow P(x)]$   
 b. *No*  $\Rightarrow \lambda Q\lambda P\forall x[(Q(x) \ \& \ \mathbf{R}(x)) \rightarrow \neg P(x)]$   
 c. *Some*  $\Rightarrow \lambda Q\lambda P\exists x[(Q(x) \ \& \ \mathbf{R}(x)) \ \& \ P(x)]$   
 d. *The*  $\Rightarrow \lambda Q\lambda P\exists x\forall y[((Q(y) \ \& \ \mathbf{R}(y)) \rightarrow y = x) \ \& \ P(x)]$

For example, assuming *-body* is interpreted as 'person', *nobody* in (17a) will receive the interpretation in (20), where the restriction variable is inherited from *no*:

- (20) *No -body*  $\Rightarrow \lambda Q\lambda P\forall x[(Q(x) \ \& \ \mathbf{R}(x)) \rightarrow \neg P(x)](\lambda y[\text{person}(y)])$   
 $\Rightarrow \lambda P\forall x[(\text{person}(x) \ \& \ \mathbf{R}(x)) \rightarrow \neg P(x)]$

In effect, this analysis claims that natural language determiners (and other NL quantificational elements) are never truly unrestricted in the logical sense, but instead are always accompanied by domain restriction. This appears to hold true even of Ds like *many, few, all, some, both* and *neither*; which Hoeksema (1984) labels "pronominal" because they can occur without an overt nominal restrictor (21a). These determiners are plainly construed along the same lines as (21b), where the restriction is overt<sup>14</sup>.

- (21) a. (We saw a group of men/a pair of men.)  
**Many/few/all/some/both/neither** were/was wearing sandals.  
 b. Many/few/all/some/both/neither **of the men we saw** were/was wearing sandals.

12 Bach and Cooper's semantics for the definite determiner (19d) adopts Montague's (1974) Russellian analysis of the as a Generalized Quantifier that asserts existence ( $\exists x$ ) and uniqueness ( $\forall y \dots \rightarrow y = x$ ) of its denotation. See section 1.2.1. for further discussion of the.

13 See also von Stechow (1994) for important developments of this view, especially in the domain of adverbial quantifiers.

14 The alternation in (21) could be handled either by a dual semantics for the Ds in question (ia-b) or by assuming a syntactic representation in (ii) with a covert NP pronoun and some interpreted uniformly as in (ia).

(i) a. *Some*  $\Rightarrow \lambda Q\lambda P\exists x[(Q(x) \ \& \ \mathbf{R}(x)) \ \& \ P(x)]$   
 b. *Some*  $\Rightarrow \lambda P\exists x[(\mathbf{R}(x)) \ \& \ P(x)]$

(ii) [<sub>DP</sub> Some [<sub>NP</sub> pro ]]

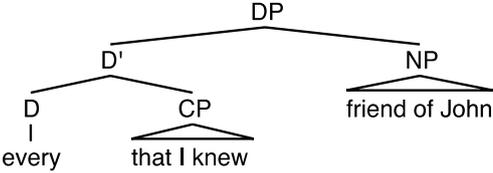
We will not attempt to decide between these two proposals.

## 2.2 Relative Clauses and Other Restrictive Attributives

In concert with the analyses in (19), Cooper (1975, 1979) and Bach and Cooper (1978) propose that overt relative clauses (and other restrictive attributives) may supply the value of R explicitly, for example, when they are “extraposed” as in (22a). This is achieved by the rule in (22b), where S’ is the interpretation of the main clause and RC’ is the interpretation of the relative clause. Applied to (22a), the result is (22c), which is the correct outcome (cf. 18b-c above)<sup>15</sup>.

- (22) a. Nobody goes there anymore **who we know**.  
 b.  $\lambda R[S'](RC')$   
 c.  $\lambda R[\forall x[(\text{person}(x) \ \& \ \mathbf{R}(x)) \rightarrow \neg \text{go-there-anymore}(x)]](\lambda y[\text{know}(we,y)]) \Rightarrow \forall x[(\text{person}(x) \ \& \ \text{know}(we,x)) \rightarrow \neg \text{go-there-anymore}(x)]$

These proposals accord relative clauses (and other restrictive attributives) the status of implicit arguments of D and comport very naturally with Article-S syntax. For example, the interpretation of structure (3b) can be computed compositionally as in (23), using Bach and Cooper’s semantics:

- (23) a. *Every*  $\Rightarrow \lambda Q\lambda P\forall x[(Q(x) \ \& \ \mathbf{R}(x)) \rightarrow P(x)]$   
 b. *that I knew*  $\Rightarrow \lambda y[\text{knew}(I,y)]$   
 c. *friend of John*  $\Rightarrow \lambda z[\text{friend}(z,j)]$   
 d. *Every that I knew*  $\Rightarrow$   
 $\lambda R[\lambda Q\lambda P\forall x[(Q(x) \ \& \ \mathbf{R}(x)) \rightarrow P(x)]](\lambda x[\text{knew}(I,y)])$   
 $\Rightarrow \lambda Q\lambda P\forall x[(Q(x) \ \& \ \text{knew}(I,x)) \rightarrow P(x)]$   
 e. *Every that I knew friend of John*  
 $\Rightarrow \lambda Q\lambda P\forall x[(Q(x) \ \& \ \text{knew}(I,y)) \rightarrow P(x)](\lambda z[\text{friend}(z,j)])$   
 $\Rightarrow \lambda P\forall x[(\text{friend}(x,j) \ \& \ \text{knew}(I, x)) \rightarrow P(x)]$
- 

Furthermore, these proposals raise the interesting prospect of analyzing some relative clauses (and other restrictive attributives) as explicit arguments of D. Compare (19d), the interpretation for the definite determiner, repeated below as (24a), with (24b), where the restriction variable R is not only present, but is abstracted over:

- (24) a. *The*  $\Rightarrow \lambda Q\lambda P\exists x\forall y[ ((Q(y) \ \& \ \mathbf{R}(y)) \rightarrow y = x) \ \& \ P(x)]$   
 b. *The*  $\Rightarrow \lambda R\lambda Q\lambda P\exists x\forall y[ ((Q(y) \ \& \ \mathbf{R}(y)) \rightarrow y = x) \ \& \ P(x)]$

(24a) interprets *the* as a binary determiner with an implicit restriction R on its quantificational domain whose context may be supplied by context or an overt phrase. By contrast, (24b) analyzes *the* as a genuine ternary determiner that requires an additional syntactic restrictor argument to yield a binary D. Evidently which analysis we accept - (24a) or (24b) - will hinge on whether D genuinely requires a restrictor argument.

Vendler (1967) suggests that interpretations like (24b) may be justified for definite Ds. Consider (25)

<sup>15</sup> Bach and Cooper’s (1978) actual rule is more complicated than (22b) insofar as it adds another R variable at the point of combination, as in (i):  
 (i)  $\lambda R[S'](\lambda x[RC' \ \& \ \mathbf{R}(x)])$

This addition is important in allowing for recursion on nominal modifiers. We ignore it in what follows, however, since it doesn’t materially affect our discussion.

and (26), based on Vendler's examples.

- (25) a. I see **a man**. **The man** is wearing a hat.  
b. I see **a man**. **The man I see** is wearing a hat.  
c. I see **a man**. **The man you know** is wearing a hat.
- (26) a. I see **a rose**. **The rose** is lovely.  
b. I see **a rose**. **The rose I see** is lovely.  
c. I see **a rose**. **The red rose** is lovely.

(25a) contains a bare definite description that is naturally understood along the lines of (25b). Both examples present discourse that Vendler terms "continuous": the individual introduced by the indefinite is understood as the same one referenced by the definite. However, as Vendler notes, (25c) is not continuous in the same sense. The individuals picked out with the definite and indefinite are not naturally understood as the same. The difference appears to be induced by the relative clause *you know* in the second clause. Similar points apply to (26).

Vendler interprets these results as showing that "the definite article in front of a noun is always and infallibly the sign of a restrictive adjunct, present or recoverable..."(p.46)<sup>16</sup> - in modern terms, that definite D selects a restrictive phrase. (25a) is analyzed as containing an elliptical or "deleted" relative clause equivalent to (25b), allowing continuity. By contrast, the overt relative in (25c) essentially "saturates" the relative clause required by *the*, hence (25c) cannot be understood equivalently to (25b) and continuity fails<sup>17</sup>.

Continuity phenomena distinguish *the* from other Ds. For example, note that although (27a) is naturally read as continuous, with *the linguists* referring to *the linguists I met*, this is not true for (27b). *Most linguists* is not naturally read as referring to 'most linguists that I met'. Obtaining this interpretation requires an explicit definite (27c):

- (27) a. I met **some linguists**. **The linguists** were educated in California.  
b. I met **some linguists**. **Most linguists** were educated in California.  
c. I met **some linguists**. **Most of the linguists** were educated in California.

These observations suggest that whereas other D's contain an implicit restriction variable and combine with restrictive phrases via the rule in (22b), definite Ds select a restrictive phrase as true arguments, as part of their basic lexical semantics. This points to an interpretation for *the* as in (24b).

Vendler's view of *the* as selecting an (overt or covert) restrictive phrase fits smoothly with Article-S constituency. Compare the derivations in (23) and (28).

<sup>16</sup> This view is also endorsed by Lees (1961a).

<sup>17</sup> Vendler states: "[16a] is continuous. *The* is the sign of the deleted clause (*whom*) I see. In [16c], the possibility of this clause is precluded by the presence of the actual clause (*whom*) you know. *The* in [16c] belongs to this clause and any further restrictive clauses are excluded. Consequently, there is no reason to think that the man you know is the same as the man I see." (p.53)

- (28) a. *the*  $\Rightarrow \lambda R \lambda Q \lambda P \exists x \forall y [((Q(y) \& R(y)) \rightarrow y = x) \& P(x)]$   
 b. *that I knew*  $\Rightarrow \lambda y [knew(I, y)]$   
 c. *friend of John*  $\Rightarrow \lambda z [friend(z, j)]$   
 d. *The that I knew*  $\Rightarrow$   
 $\lambda R \lambda Q \lambda P \exists x \forall y [((Q(y) \& R(y)) \rightarrow y = x) \& P(x)] (\lambda x [knew(I, y)]) \Rightarrow$   
 $\lambda Q \lambda P \exists x \forall y [((Q(y) \& knew(I, y)) \rightarrow y = x) \& P(x)]$   
 e. *The that I knew friend of John*  $\Rightarrow$   
 $\lambda Q \lambda P \exists x \forall y [((Q(y) \& knew(I, y)) \rightarrow y = x) \& P(x)] (\lambda z [friend(z, j)]) \Rightarrow$   
 $\lambda P \exists x \forall y [((friend(y, j) \& knew(I, y)) \rightarrow y = x) \& P(x)]$

Summarizing, domain restrictions appear to be an essential semantic component of determiner meaning, either realized explicitly via nouns or restrictive phrases or left implicit and construed through context. Relative clauses (and other restrictive attributives) can be understood as supplying domain restrictions and hence as arguments in this sense. With certain Ds, such as definite *the*, it is even arguable that a restriction additional to that provided by the head noun is required by the relational structure. Article-S constituency, which analyzes relative clauses as complements of D, fits with this broad semantic picture in a very natural way.

### 3.0 RELATIVE CLAUSES IN dP/DP SHELLS

Smith (1964) derives the surface D-NP-CP order in English nominals by obligatory rightward repositioning of the relative CP from a position as inner complement to D (29a)<sup>18</sup>. This view is reminiscent of Filmore's (1965) account of English verbal ditransitives, which derives the surface V-NP-PP order by obligatory rightward extraposition of PP from a position as inner complement to V (29b).

- (29) a. [ [ [ every **that I knew** ] friend of John] **that I knew** ]  
 b. [ [ [ give **to John** ] a birthday present] **to John** ]

Modern accounts of ditransitives (Larson 1988, Chomsky 1995) appeal to layered or “shelled” VPs that preserve the inner complement status of PP, but derive surface V-NP-PP order by raising the V head leftward (30a) rather than by extraposing PP rightward. Larson (1991, 2014) proposes an analogous view for English nominals, appealing to shelled DPs that preserve the inner complement status of relative clauses, but derive surface D-NP-CP order by raising the D head leftward (30b).

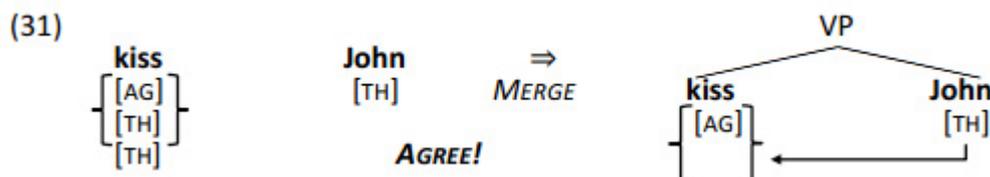
- (30) a. [<sub>VP</sub> give v [<sub>VP</sub> [a birthday present] [<sub>v</sub> **give to John** ] ]]  
 b. [<sub>DP</sub> every d [<sub>DP</sub> [friend of John] [<sub>D</sub> **every that I knew** ] ]]

This parallelism arises from a particular view of syntactic projection.

18 More precisely, by rightward repositioning of its associated relative clause marker; see fn.2

### 3.1 Projection via $\theta$ -features

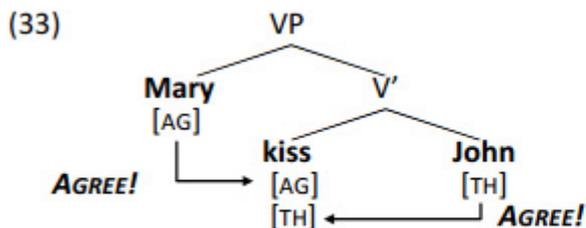
Larson (2014, 2017) proposes that  $\theta$ -roles - AGENT, THEME, GOAL, LOCATION, etc. - from the Government Binding Theory (Chomsky 1981) be reanalyzed as formal syntactic features -  $\theta$ -features - that are born by predicates and arguments and that undergo agreement in the course of a derivation. For example, the traditional analysis of English *kiss* as bearing AGENT and THEME  $\theta$ -roles that are assigned to its arguments during composition might be reinterpreted in terms of *kiss* bearing two  $\theta$ -features - [AG] and [TH] - which undergo agreement with a corresponding feature on an argument at the point of external merge (31):



As a counterpart to a thematic hierarchy AGENT > THEME > GOAL > LOCATION governing order of  $\theta$ -role assignment (Baker 1988), Larson (2014) assumes a feature hierarchy [AG] > [TH] > [GL] > [LOC] >... and the constraint (32):

- (32) **Constraint:** a feature F in a set S can undergo agreement only if there are no lower-ranked, unagreed features F' in S.

Under (32), the hierarchy of  $\theta$ -features will determine the hierarchical projection of arguments. For example, in (33), given [AG] > [TH] and (32), the object argument bearing [TH] must merge and agree first.



### 3.1 Syntactic Features (Pesetsky and Torrego 2007)

The picture just sketched requires elaboration under recent theory of features, which draw a key distinction between instances of features F according to whether they are **interpretable**, **valued** or neither (i.e., uninterpretable-unvalued). Broadly put, this move imports the PF-LF distinction into features (or, more precisely, instances of them). Thus interpretable instances of features, notated “iF”, are ones associated with “meaning” – i.e., with instructions to the conceptual-intentional system (34a). Valued instances of features, notated “Fval”, are ones associated with “pronunciation”

– i.e., with instructions to the system of expression (34b). Uninterpretable-unvalued instances of features, notated simply “F”, are concordial – i.e., they have no independent LF content and whatever pronounced content they have is derivative on their relation to a valued feature (34c).

- (34) a.  $iF[ ]$                     **interpretable** F, associated with a “meaning”  
 b.  $Fval[ ]$                     **valued** F, associated with visible marking/pronunciation  
 c.  $F[ ]$                         **uninterpretable-unvalued** F, concordial

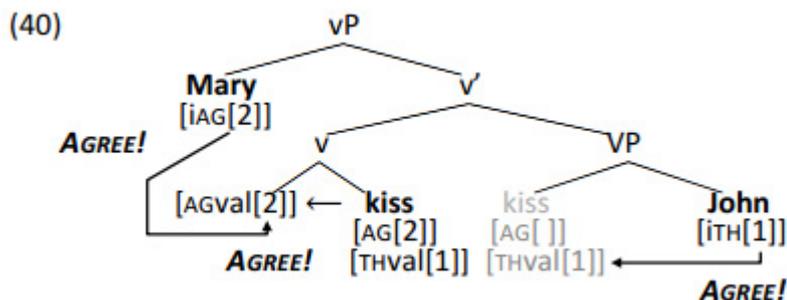
Under the theory of features in Pesetsky and Torrego (2007), unvalued instances of features ( $iF$  or  $F$ ) probe their c-command domain seeking to agree with another instance of  $F$ . In order for a feature  $F$  to be “legible” at the interfaces, it must have both interpretable and valued instances linked by agreement. Thus all of (35a-c) will constitute legible features since all represent a set of instances linked by agreement (signified by “n”) and all contain both an interpretable instance of  $F$  and a valued instance of  $F$ . By contrast (36a-e) will not constitute legible features since one or more of the required conditions – presence of an interpretable instance, presence of valued instance, linking by agreement – fails to hold:

- (35) a.  $iF[n] \dots Fval[n]$   
 b.  $iF[n] \dots F[n] \dots Fval[n]$   
 c.  $iF[n] \dots F[n] \dots F[n] \dots Fval[n]$

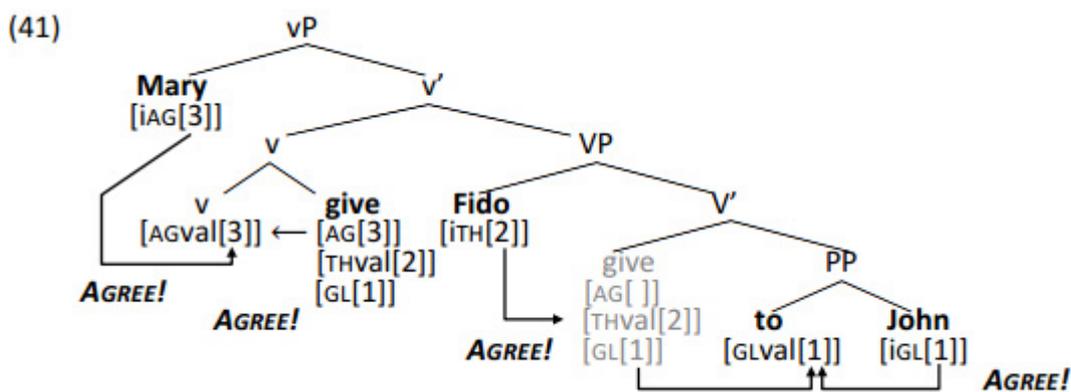
- (36) a.  $iF[ ]$   
 b.  $Fval[ ]$   
 c.  $iF[n] \dots F[n]$   
 d.  $F[n] \dots Fval[n]$   
 e.  $iF[ ] \dots Fval[ ]$

As a brief illustration of these ideas in the domain of case, consider (37a) below from German, containing the transitive verb *küssen* ‘kiss’ and an object showing multiple instances of accusative agreement. Chomsky (1995) analyzes  $v$  as the source of accusative case in such examples. Under Pesetsky and Torrego (2007),  $v$  can be analyzed as bearing an interpretable, unvalued accusative feature ( $iACC$ ), which agrees with the valued, uninterpretable instance of the same feature ( $ACCval$ ) on the object noun (*Mädchen*). The determiner (*das*) and the adjective (*hübsche*) are concordial for this feature, i.e., they bear instances of  $[ACC]$  that are neither interpretable nor valued. Assuming composition proceeds bottom-up as in (37b), unvalued  $[ACC]$  on *hübsche* first probes  $[ACCval]$  on *Mädchen* and agrees with it upon merger (①). Unvalued  $[ACC]$  on *das* then probes  $[ACC]$  on *hübsche* and agrees with it on merger (②). Finally unvalued  $[iACC]$  on  $v$  probes  $[ACC]$  on *das* and agrees with it when  $v$  and VP are merged (③), yielding a feature structure corresponding to (35c), which is licensed, as noted.





In (41), *give* bears the  $\theta$ -feature set  $\{[AG], [THval], [GL]\}$  where again only the theme feature  $[TH]$  is valued. This requires both  $[GL]$  and  $[AG]$  to be valued by other, independent elements. In (41)  $[GL]$  is valued by the preposition *to*, which afterwards itself undergoes agreement with  $V$ ;  $[AG]$  is once again valued by little  $v$ , as in (40).



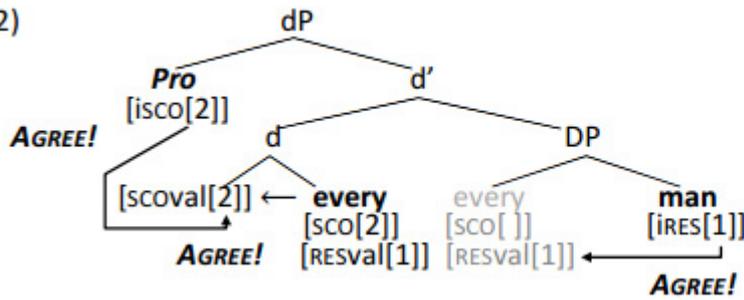
These refinements preserve the basic picture in (33): the  $\theta$ -feature hierarchy determines the projection order of arguments, with  $v$  and  $P$  entering to provide the feature valuation that  $V$  cannot affect on its own.

### 3.3 Projecting DP

Larson (2014) proposes that DPs are projected like VPs by means of a parallel (but non-identical) set of  $\theta$ -features for Ds, including scope  $[SCO]$ , restriction  $[RES]$  and nominal oblique  $[NO]$ , arranged hierarchically in that order. On this proposal, a standard binary quantifier like *every* bears the two roles  $\{[SCO],[RES]\}$  and receives a structure parallel to a transitive verb like *kiss*; cf. (42) and (40)<sup>19</sup>:

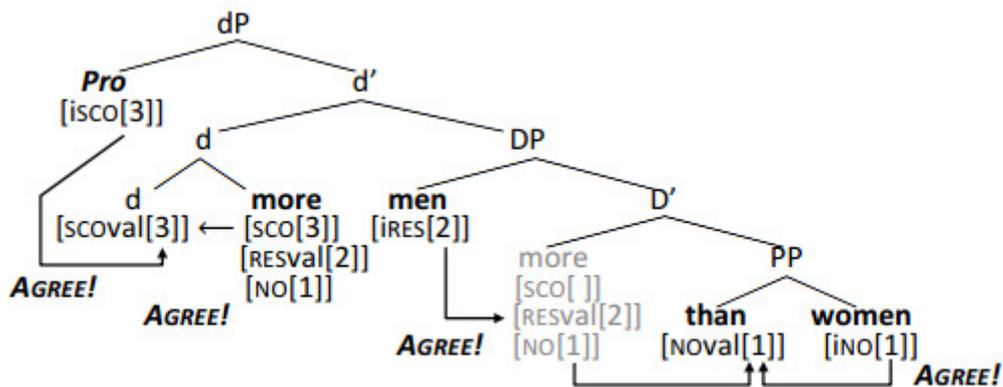
19 Pro in (42) and (43) corresponds to the scope of D. For details and semantics, see Larson (1991, 2014).

(42)



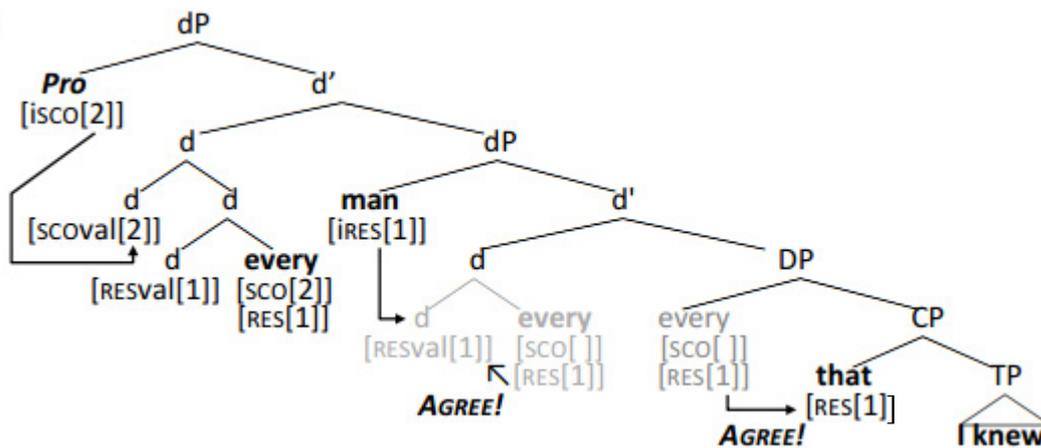
Likewise a ternary quantifier like *more...than* bears the three roles {[SCO],[RES]],[NO]} and receives a structure parallel to a ditransitive verb like *give*; cf. (43) and (41)<sup>20</sup>:

(43)



Assuming that relative clauses are semantic complements of determiners providing an additional semantic restriction ([RES]), as discussed in section 2.2, an example like *every man that I knew* can be assigned a ternary structure similar to (43):

(44)



Here as in (42), *every* bears the  $\theta$ -features {[SCO],[RES]}. In (44), however, *every* combines with two

20 See Keenan and Stavi (1986) for an analysis of *more...than* as a ternary quantifier and see Hackl (2000) for an alternative view.

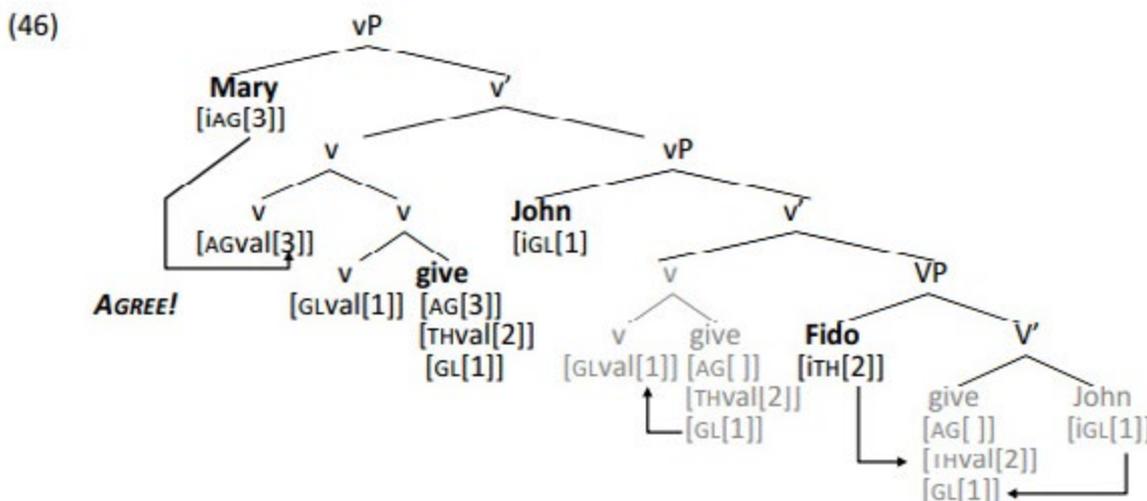
phrases bearing [RES] - *man* and *that I knew* - which ultimately come to agree<sup>21</sup>. This is our way of capturing the fact that in *every man that I knew*, *man* and *that I knew* jointly determine the domain restriction on the quantifier *every*. In the current framework, this might be viewed similarly to what occurs (45a-b):

- (45) a. John spoke to Mary, **his daughter**.  
 b. Mary left the keys on the table, **in the far corner**.

In these examples the boldfaced phrase does not represent an additional argument of V, but rather supplies a further specification of the argument preceding it. Note in particular that in (45b) the boldfaced phrase stands in a restrictive relation to the preceding phrase insofar as it specifies a location within the already established domain of the table. Notionally this is quite analogous to the relation holding between the nominal and the following relative clause in (44).

### 3.3 Argument Inversions

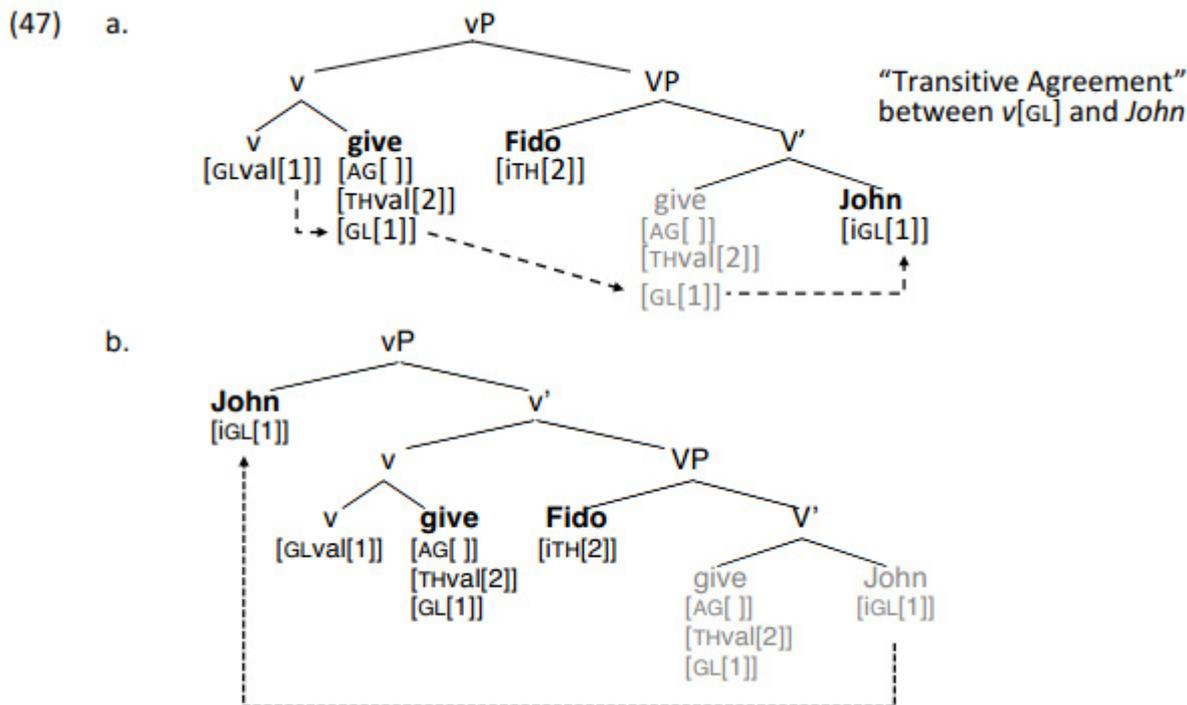
Within the framework just described, alternations in structure will result from variation in how  $\theta$ -features are valued in the course of derivation. For example, in the oblique ditransitive structure in (41), the goal-feature ([GL]) is valued by means of a preposition (*to*) and the agent-feature ([AG]) is valued by means of a voice head (*v*). By contrast, in the double object (or applicative) structure (46), both of these features are valued by a voice head:



Here, as above, the goal (*John*) must be merged first given the constraints of  $\theta$ -feature agreement. Absence of the preposition *to*, however, entails that the [GL] feature is unvalued after merger. In (46), valuation is achieved by means of a voice head ( $v[GL]$ ) and a chain of  $\theta$ -feature agreement relations extending from  $v$  and mediated by the raised verb (*give*):  $v$  agrees on [GL] with *give*, and *give* agrees

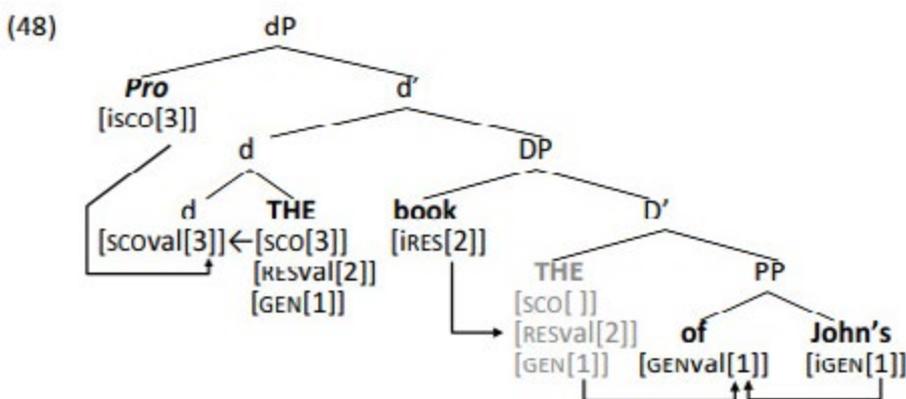
21 Since the two lower arguments in (44) bear the same  $\theta$ -feature, viz., [RES], the relative ordering in this structure must be ascribed to other factors. Larson and Yamakido (2008) proposes that dP/DP contains its own case system, with genitive case arising in d([SCO]) and assigned to the NP-restriction argument. We tentatively attribute the high position of *man* in (44) to its need to enter into a local case relation with d([SCO]), the highest d. Note also that in (44) the quantifier *every* is not valued for [RES], in contrast to (42). This assumption is necessary to allow the appropriate agree relation between *every* and the relative clause. We assume this option is generally available with quantifiers.

on [GL] with *John*, *v* agrees on [GL] with *John*. The latter occurs “by transitivity” (47a). Assuming that *v*[GL] bears an edge feature and can raise an argument agreeing with it, we derive (47b), where the goal argument crosses the theme without incurring a Minimality violation:



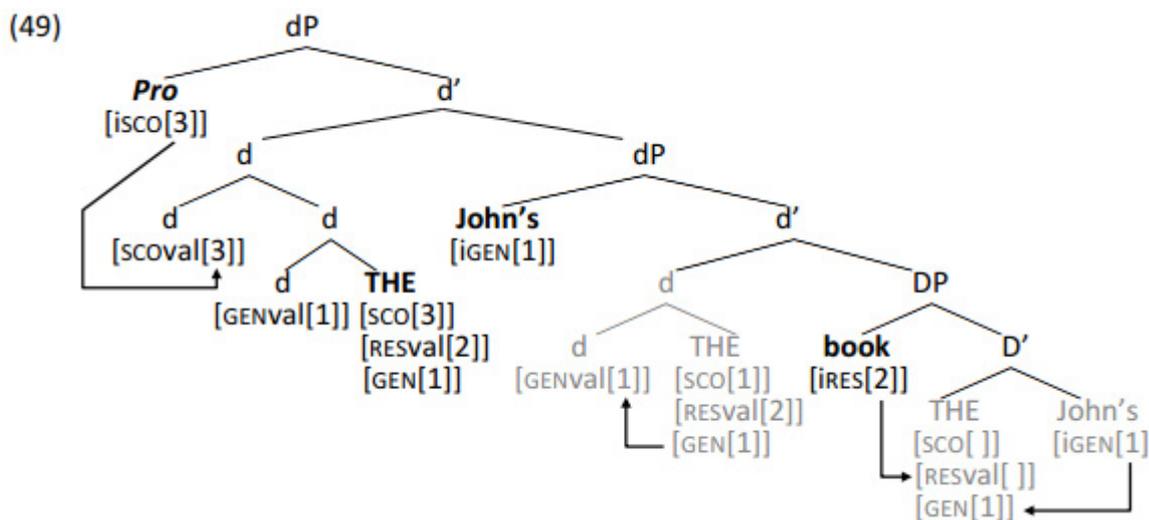
The final structure (46) is achieved by merging a voice head (*v*[AG]) and the subject above (47b).

Larson (2014) proposes that a parallel oblique-applicative alternation holds within the DP with postnominal and prenominal genitives. The postnominal genitive is counterpart to the oblique dative and involves a counterpart feature [GEN]; cf. (48) and (41).



The prenominal (or “Saxon”) genitive is counterpart to the double object or applicative dative, and

involves the same interior movement operations. The chaining of agreement relations enabled by the raised D head in (49) is parallel to the chaining enabled by the raised V head in (46). Likewise, the raising of the low genitive argument of D (*John's*) by the d voice head (*d*[GEN]) in (49) is parallel to the raising of the low goal argument of V (*John*) by the v voice head (*v*[GL]).



## 2.4. Raising

The set of verbal and nominal  $\theta$ -features underlying projection in vP/VP and dP/DP are largely distinct. But in at least one case there is potential overlap. The features [GL] and [GEN] evidently both mark notional possessors: dative arguments in the verbal system and genitive arguments in the nominal system, respectively. It is at least conceivable that a language might assimilate the two to the same feature. This would allow for the possibility of interaction between vP/VP and dP/DP arguments.

A plausible instance of this is the “possessor raising” phenomenon, where a possessor argument in DP apparently is “promoted” to a verbal argument in VP. (50) gives an example pair from Korean (Cho 2000). (50a) shows a transitive verb (*cha-* ‘hit’) and a possessive direct object (*Johnuy talilul* ‘John’s leg’); the possessor (*John*) is marked with genitive (*-uy*) and the head (*tali* ‘leg’) is marked with accusative (*-lul*). (50b) shows the counterpart possessor raising example. Here the notional possessor (*John-ul*) is now marked with accusative like an independent verbal object.<sup>22</sup>

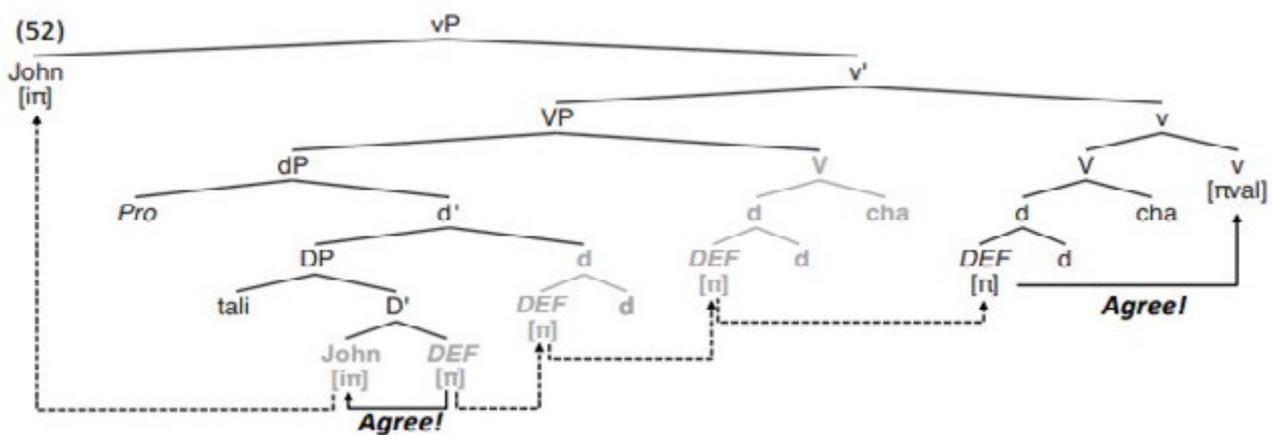
(50) a. Mary-ka [<sub>DP</sub> John-uy tali-ul ] cha-ess-ta.

22 As noted by Cho (2000), the impossibility of interrupting the sequence *John-uy tali-ul* ‘John’s leg’ with a VP adverb (*seykey* ‘hard’) in (ia) argues that it is a constituent. By contrast, the possibility of interrupting *John-ul tali-ul* ‘John leg’ with *seykey* in (ib) indicates that it is not a constituent, but rather two separate phrases.

- (i) a. Mary-ka (**seykey**) John-uy (**\*seykey**) tali-lul (**seykey**) cha-ess-ta.  
 Mary-NOM hard John-GEN hard leg-ACC hard kick-PST-DECL  
 ‘Mary kicked John’s leg hard’  
 b. Mary-ka (**seykey**) John-ul (**seykey**) tali-lul (**seykey**) cha-ess-ta.  
 Mary-NOM hard John-ACC hard leg-ACC hard kick-PST-DECL  
 ‘Mary kicked John’s leg hard’

- Mary-NOM     John-GEN leg-ACC kick-PST-DECL  
 ‘Mary kicked John’s leg’
- b. Mary-ka    [<sub>DP</sub> **John-ul** ] [<sub>DP</sub> tali-ul ] cha-ess-ta.  
 Mary-NOM    John-ACC       leg-ACC kick-PST-DEC  
 ‘Mary kicked John’s leg’

Consider now the schematic structure for (50b) in (51) (where all features but the relevant one  $[\pi]$  are suppressed for clarity). The covert definite D head (*DEF*) of the possessive DP agrees with the possessor (*John*) on the possessive feature  $[\pi]$ , which is assumed to be shared by the nominal and verbal system. The definite head then raises successively to *d*, to *V* and finally to a little *v*, which bears a valued instance of  $[\pi]$ . In the high position  $v(\pi)$  and *DEF* agree, creating a chain of agreement from *v* down to *John*. Accordingly, *v* can raise the possessor *John* out of DP to the spec of *vP* in the verbal projection - i.e., to object position.



$\theta$ -feature sharing between two projection systems (here *vP/VP* and *dP/DP*) will thus enable them to interact and for arguments to move between them.<sup>23</sup>

#### 4.0 CONNECTIVITY EFFECTS IN RELATIVE CLAUSES

The possibility of argument raising between different projections has relevance, we believe, for the analysis of “connectivity effects” (Bianchi 2002a,b) between relative clause heads and their associated CPs.

##### 4.1 The Standard Analysis of Relative Clauses

Chomsky’s well-known 1977 account of relative clauses posits an operator (*OP*) in *A'*-position and a gap ( $\_\_g$ ) left by it (53a). On the usual semantics for this structure, *OP* corresponds to a  $\lambda$ -abstractor and  $\_\_g$  to an individual variable bound by it (53b):<sup>24</sup>

<sup>23</sup> Dative and genitive case marking are known to connect historically in some languages. Thus the case morphology of dative object pronouns in Modern Greek and some neighboring Balkan languages is known to descend from the genitive (Lindstedt 1998). The connection between these cases suggests a potential connection between their associated  $\theta$ -features.

<sup>24</sup> Bach and Cooper’s (1978) semantics for relatives discussed in section 2.2 is an example. Note that in (23b) *that I knew* translates as  $\lambda y[knew(I,y)]$ .



**head raising analysis**, due originally to Brame (1968) and Vergnaud (1974), a nominal moves from within CP and occupies relative clause head position (54a); the head thus forms a movement chain with the gap or source position. On the **matching analysis**, due originally to Lees (1960, 1961a), a nominal raises from within CP to its edge, where it is obliged to match in form with the independently generated relative clause head (54b); the head thus forms a matching-movement chain with the gap.

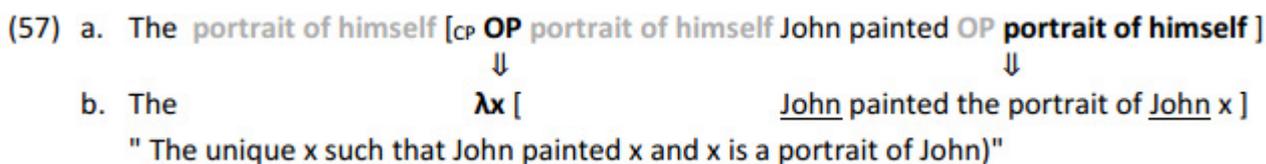


A key assumption in both accounts is that movement of  $\alpha$  always leaves behind an interpretable copy of  $\alpha$ . An additional assumption is that only one copy in a formal chain can be interpreted. Thus in either (55a) or (55b) only one of the three NPs can be interpreted.<sup>27</sup>

These proposals derive the appropriate syntactic and semantic results with (54a-d). Under either head-raising or matching, an idiom chunk will be generated within its associated idiom in underlying form, even if subsequently separated from it. On both theories, the original copy of will be interpretable in the lowest position (56), so whether licensed at external merge or LF, the idiom is predicted to be licit.

(56) The **headway** [<sub>CP</sub> **OP headway** John **made OP headway**]

Interpreting copies in low position will also predict the binding and obviation effects observed in (54b) under appropriate assumptions about interpretation. Thus Bhatt (2002) (following Fox 2002) takes low copies to interpret as definite descriptions ( $\iota$ -terms). (54bi) will thus be represented as in (57a) and interpreted as in (57b), where *himself* is construed as John since it now falls within the c-command domain of the subject.



Similarly, for the account of Principle C (54bii) and quantifier binding (54biii).

Finally, interpreting copies in low position will allow for scopal reconstruction of the head, as required in (54c-d). Thus (54d) will be represented as in (58a) and interpreted as in (58b), where the superlative degree assertion falls with the scope of John's saying:

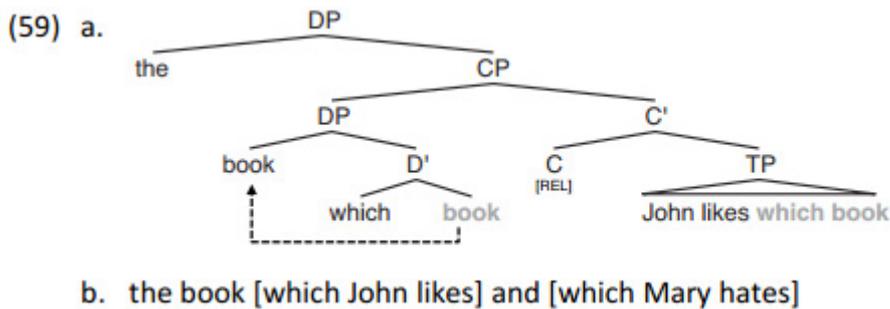
<sup>27</sup> The matching analysis requires the assumption that copies formed by either movement or matching constitute a formal chain of which only one member needs to be interpreted. This assumption is required for the account of (54bi), where assigning an independent interpretation to *portrait of himself* would yield an unbound variable.

- (58) a. The longest book [<sub>CP</sub> OP longest book John said Tolstoy wrote OP longest book]  
 ↓ ↓  
 b. the λx [ John said -est λd [Tolstoy wrote the d-long book x]]

Similarly, for the account of modal scope in (54c).

The head-raising analysis offers what is arguably the simplest account of connectivity effects in relative clauses in requiring no appeal to a matching operation nor to special assumptions about chains for the purposes of copy-interpretation. Instead it relies solely on the copy theory of movement, which is required by the matching analysis in any case. At the same time, the syntax of head raising encounters some difficult questions.

As discussed by Borsley (1997) and Bhatt (2002), (59a), the version of the head raising analysis favored by Kayne (1998), appears to encounter constituency problems, such as, for example, the availability of conjunctions like (59b) suggest that *which John likes* is a constituent. (59a) does not express this constituency:

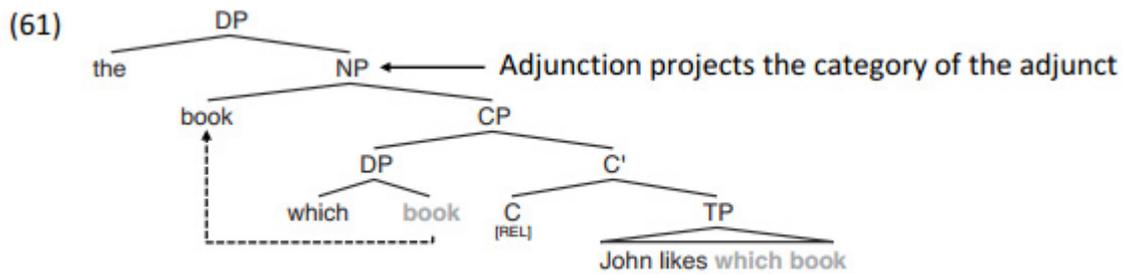


(59a) has the additional liability of sharply separating the account of (60a) and (60b); the former will presumably involve selection of NP (*book*) whereas the second will involve selection of CP (*book which John likes*).<sup>28</sup>

- (60) a. Every book  
 b. Every book which John likes.

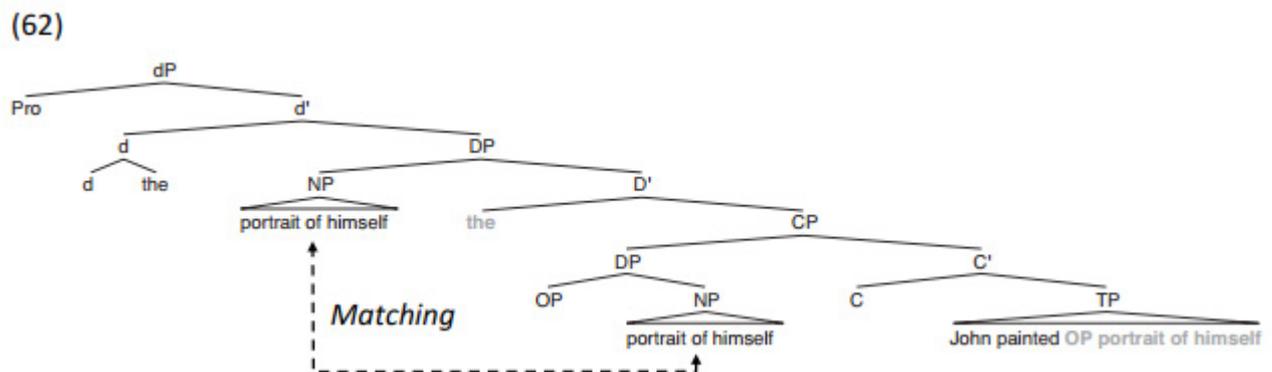
Alternative structural proposals, like (61) by Bhatt (2002), avoid the constituency and selection problems, but require a special syntactic projection mechanism to do so, one in which the head (*book*) extracts, adjoins to CP and confers its categorial label (NP) upon the larger constituent.

<sup>28</sup> Donnellan (1968) and Wettstein (1981) argue against assimilating (60a) to (60b) - i.e., against the view that the former simply involves an elliptical relative clause. They note that even when bare quantifier phrases involve implicit restrictions, there are typically many different ways of stating those restrictions and speakers are typically unprepared to specify which is intended. Under the ellipsis theory, speaker would be expected to entertain a definite underlying relative clause in relation to (60a).



### 4.3 Relative Clause Head Raising as Argument Raising in the D system

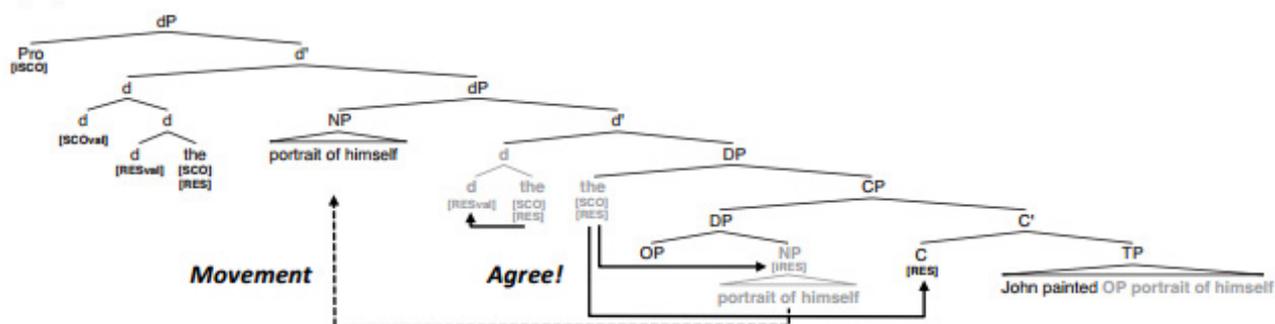
The version of Article S developed here is compatible with a matching analysis of the connectivity effects discussed above. Matching is available between the raised operator phrase in CP and the independently generated NP head. As in other matching analyses, this account will require the NP head to be left uninterpreted with examples requiring a low interpretation of the NP copy.



But the dP/DP shell framework also permits development of raising account within its own terms, one based on ideas noted in section 2.4.

Consider (63), a version of (62), with  $\theta$ -features as labeled. Here an operator phrase (*OP portrait of himself*) has been raised from within CP and bears the [iRES] feature that nominals typically do within DP. In this position both NP and C are in the c-command domain of *the*, which bears [SCO] and [RES] and hence can agree with both on this feature. Subsequently, *the* raises to *d*, probing its valued [RES] feature and agreeing with it. This now creates an agreement chain extending from *d*([RES]) to *portrait of himself*, which can then raise from its position within CP to the spec of dP. The remainder of the dP/DP assembles in the usual way:

(63)



Notice that the resulting structure is virtually identical to that involved with matching (62) and to the basic analysis of relative clauses sketched in (44).

As in the case of raising discussed in section 2.4, when a  $\theta$ -feature - here [RES] - is available in two projections, a phrase bearing it will be capable of raising from one to another. The dP/DP shell theory thus also permits an account of relative clauses via head raising, as seems to be required for the analysis of connectivity effects. In so doing, it essentially assimilates head raising in the nominal system to possessor raising (and raising to object) in the verbal system.

## 5.0 SOME IMPLICATIONS OF ARTICLE-S

Smith's (1964) Article-S analysis has serious implications both for the cross-linguistic syntax of relative clauses, and for the account of "restrictive modifiers" generally.

### 5.1 Relative Clauses in "D-less" languages?

Consider examples (64)-(65) from Serbian. (64a,b) contain the quantifiers *svaki* 'each' and *mnogi* 'many', resp. (65a,b) exhibit no overt determiner element, but are naturally rendered by English sentences containing a definite and an indefinite article, resp.

- (64) a. **Svaki** Jovanov prijatelj [ kojeg sam poznavala ] bio je prisutan.  
each Jovan.POSS friend who.ACC AUX knew was AUX present  
'Each friend of John who I knew was present.'
- b. **Mnogi** Jovanovi prijatelji [ koje sam poznavala ] bili su prisutni.  
many Jovan.POSS friends who.ACC AUX knew were AUX present  
Many friends of John who I knew were present.'

- (65) a. Jovanove slike [ koje je Marija naslikala ] bile su odlične.  
Jovan.POSS pictures which AUX Marija drew were AUX excellent  
'The pictures of John that Mary drew were excellent.'

- b. Zvaničnik [ koji je predstavljao vladu ] bio je prisutan.  
 official who AUX represented government was AUX present  
 ‘An official who represented the government was present.’

(64a,b) can be accommodated directly under an Article-S account; the bracketed relative clauses can be analyzed as complements of their accompanying quantifiers and as providing an additional restriction on their domains. What then should one say about (65a,b)?

LaTerza (2014) proposes that Serbian contains null articles  $D_{DEF}$  and  $D_{INDEF}$  counterpart to English *the* and *a*. On this view (65a-b) would be analyzed as in (65’a-b), where  $D_{DEF}$  and  $D_{INDEF}$  are unpronounced:

- (65’) a.  $D_{DEF}$  Jovanove slike [koje je Marija naslikala] bile su odlične.  
 b.  $D_{INDEF}$  zvaničnik [koji je predstavljao vladu] bio je prisutan.

An Article-S analysis of the Serbian relative clauses would then proceed along the same lines as (64a,b) and the corresponding English cases, with the relative clause functioning as a complement of the accompanying null article. Such a view is surely plausible. Null articles have been proposed for nominals in various languages, including for English prenominal possessives like (66a) and English “bare” plurals like (66b):

- (66) a.  $D_{DEF}$  John’s book (was recently published).  
 b.  $D_{INDEF}$  children (are present). (cf. *Some children are present.*)

Furthermore, Serbian is known to mark definiteness explicitly in the nominal context. Bailyn (1994) and Browne (2002) observe that the familiar short form/long form distinction in Slavic adjectives (Babby 1975) is recruited by Serbian in prenominal position to mark definiteness in the masculine singular (67a,b):

- (67) a. **nòvī** grâd  
 new.NOM.SG.MASC.LONG city  
 ‘the new city’  
 b. **nòv** grâd  
 new.NOM.SG.MASC.SHORT city  
 ‘a new city’
- Browne (2002, p.237)

Overt marking in contexts like (67a,b) might be viewed as agreement with  $D_{DEF}$  and  $D_{INDEF}$  and as cuing Serbian speakers (and learners) to the presence of the latter.

Interestingly, Zlatic (1997), Stjepanović (1998), Trenkić (2004), Bošković (2005) and Despić (2011) have argued that an analysis along the lines of (65’) is not correct for Serbian. On the basis of various syntactic phenomena, they argue that Serbian is genuinely “D-less” and that the nominal subjects in (65a-b) are in fact bare nominals - NPs, and not DPs. If correct, their conclusion would plainly have strong implications for Article-S. Minimally, Article-S could not be correct for Serbian since the relative clauses in examples like (65a-b) could not be analyzed as D-complements. More broadly, if the analysis of relative clauses is assumed to be uniform for all languages, the existence of genuinely

D-less languages would reveal Article-S as simply inadequate - unable to embrace the full scope of relative clause variation underwritten by Universal Grammar.

LaTerza (2014, 2015, 2016) contests the D-less view of Serbian, showing that the suite of properties taken by Zlatić (1997), Stjepanović (1998), Trenkić (2004), Bošković (2005) and Despić (2011) diagnose “D-less-ness” are also exhibited by related languages with overt articles. Without rehearsing that discussion, we wish to note here the existence of certain additional phenomena in Serbian that strikingly resemble the data patterns used to originally motivate Article-S for English, and which appear to have implications for the question of when a language can be said to “lack articles”.

We observed earlier in (7) the behavior of English *the* with proper nouns, where the definite article was possible only when “supported” by a restrictive attributive phrase - AP, PP or relative clauses. Interestingly, LaTerza (2014) notes a parallel pattern with Serbian *onaj*. *Onaj* is typically identified by Serbian grammars as a distal demonstrative and does have a standard use on which it is deictic and bears accent (67).

- (67) Onaj grād ( je predivan ).  
DEM city AUX beautiful  
‘That city (is beautiful)’.

But when *onaj* occurs with a restrictive attributive (AP, PP or CP), it has an additional, de-accented/non-deictic use, on which it is interpreted essentially as a definite article.<sup>29</sup>

- (68) ( Koji grad vam najviše dopao?  
Which city you most like  
‘Which city did you like most?’ )  
a. onaj prelepi grad  
DEM beautiful city  
‘the beautiful city’  
b. onaj grad pored reke  
DEM city beside river  
‘the city beside the river’  
c. onaj grad koji smo posetili prvog dana  
DEM city which AUX visited first day  
‘the city we visited the first day (of our trip)’

LaTerza notes that when occurring with a proper name in this usage, *onaj* requires a restrictive attributive (AP, PP or relative clause) in striking parallel to English *the* (69a-c) (cf. 7a-c).

- (69) a. Sećam se onog \*(starog) Novog Sada.  
remember REFL that old Novi Sad  
‘I remember the \*(old) Novi Sad.’

<sup>29</sup> When accompanied by pointing and accent, *onaj* in (68a-c) can of course also be interpreted also as a demonstrative. Note further that the adjective *prelepi* ‘beautiful’ is in the long form, used to mark definiteness in Serbian. This form would also be appropriate on a deictic use of *onaj*.

- b. Sećam se onog Novog Sada \*(iz 80-ih).  
remember REFL that Novi Sad from 80s  
'I remember the Novi Sad from the 80s.'
- c. Sećam se onog Novog Sada \*(u kojem sam odrasla).  
remember REFL that Novi Sad in which AUX grew.up  
'I remember the Novi Sad I grew up in.'

And the parallelism between *onaj* and *the* extends further. We also noted earlier in (5) the behavior of English *the* with "indefinite nouns" like *way*, where, again, the definite article was possible only when reinforced by a restrictive attributive. Ivić (1964) notes that certain Serbian temporal nouns can appear in two contexts: (i) as accusative-marked PP objects (70a) or (ii) as genitive-marked nominals. In the latter case they occur either with a deictic demonstrative (70b), or with non-deictic *onaj* 'that' and an obligatory restrictive attributive (70c-e):<sup>30</sup>

- (70) a. Marija je otputovala na zimu.  
Marija AUX left on winter.ACC  
'Marija left **in winter**.'
- b. Marija je otputovala one/te zime  
Marija AUX left that winter.GEN  
Marija left **that winter**.'
- c. Marija je otputovala one \*(hladne) zime  
Marija AUX left that cold winter.GEN  
Marija left **that cold winter**.'
- d. Marija je otputovala one zime \*(posle Božića).  
Marija AUX left that winter.GEN after Christmas  
Marija left **the winter after Christmas**.'
- e. Marija je otputovala one zime \*(koje je Todor maturirao).  
Marija AUX left that winter.GEN which AUX Todor graduated  
Marija left **the winter Todor graduated**.'

Serbian genitive-marked temporal nouns thus behave like English "indefinite nouns"; furthermore, non-deictic *onaj* 'that' once again patterns like English *the* in this context.

It is instructive to compare Serbian with Macedonian, a related South Slavic language with definite articles, but without case-marking or a short-form/long-form distinction in adjectives. LaTerza (2014) notes that where Serbian employs a genuine demonstrative in the contexts above so does Macedonian, but where Serbian employs de-accented/non-deictic *onaj*, Macedonian uses either the counterpart, de-accented/non-deictic demonstrative *onoj* or the definite article *to*, with synonymous meaning. Compare (68a-c) with Macedonian (71a-c) below; and compare (70a-e) with Macedonian (72a-c):<sup>31</sup>

- (71)( Koj grad vi se dopadna najmnogu?  
Which city you REFL like most

30 Other Serbian temporal nouns behaving like *zima* 'winter' include: *jutro* 'morning', *veče* 'evening', *leto* 'summer', *proleće* 'spring', *jesen* 'fall', *ponedeljak* 'Monday', etc. (In short, any noun that can be used to mark time, days of the week, months, parts of day, etc).

31 We are grateful to Boban Karapejovski (p.c.) for discussion of the Macedonian data.

- ‘Which city did you like most?’ )
- a. **onoj** preubav grad/ **preubaviot** grad  
DEM beautiful city/ beautiful-the city  
‘the beautiful city’
- b. **onoj** grad pokraj rekata / **gradot** pokraj rekata  
DEM city beside river / city-the beside river  
‘the city beside the river’
- c. **onoj** grad što go posetivme prvot den / **gradot** što go posetivme prvot den  
DEM city which it visited first day / city-the which it visited first day  
‘the city we visited the first day (of our trip)’

- (72) a. Marija otpatuvava on zima.  
Marija left on winter  
‘Marija left **in winter.**’
- b. Marija otpatuvava onaa / taa zima.  
Marija left that winter  
Marija left **that winter.**’
- c. Marija otpatuvava onaa \*(ladna) zima.  
Marija left that cold winter.GEN  
Marija left **that cold winter.**’
- d. Marija otpatuvava zimata \*(po Božik).  
Marija left winter-the after Christmas  
Marija left **the winter after Christmas.**’
- e. Marija otpatuvava zimata \*(vo koja veeše strašen sneg).  
Marija left winter-the on which fallen big snow  
Marija left **the winter which had a lot of snow.**’

These results strongly suggest that although Serbian grammar lacks a dedicated morphological form comparable to *the*, it recruits the de-accented/non-deictic version of demonstrative *onaj* as a definite article in certain contexts.<sup>32</sup> Given the well-established syntactic connection between de-accentuation and ellipsis (Tancredi 1992), this lends further support to LaTerza’s view that Serbian possesses a null definite article - potentially, a fully-deaccented *onaj* (65a’):

- (65a’) **ONAJ** Jovanove slike [ koje je Marija naslikala ] bile su odlične.  
DEF Jovan.POSS pictures which AUX Marija drew were AUX excellent  
‘The pictures of John that Mary drew were excellent.’

The apparent challenge to the Article-S analysis of relative clauses raised by purported “D-less” languages like Serbian therefore turns out to be more difficult to assess than might appear. Simple

32 This result is in some ways unsurprising given the well-known historical tendency of languages to derive definite articles from demonstratives. Presumably such development must involve a stage in which the proto-article is a “de-deictic” demonstrative. We also note the interesting results by Snape et al (2006) demonstrating acquisition differentials among L2 learners of English whose L1 language lacks dedicated definite and indefinite articles. Snape et al (2006) note that speakers of Mandarin, which uses a de-accented/non-deictic version of the demonstrative *nei* ‘that’ in many contexts where English *the* is used, show more robust acquisition of English articles than speakers of Korean and Japanese, where this use is not present. Snape et al (2006) make the interesting conjecture that access to de-accented/non-deictic *nei* bootstraps acquisition of *the*.

absence of dedicated morphological forms equivalent to *the* and *a*, for example, does not seem adequate to diagnose the absence of articles generally, given that Serbian can apparently recruit demonstrative *onaj* as a definite article in concert with other systems of marking (de-accentuation, case, short-form/long-form morphology, etc.).<sup>33</sup> This conclusion raises many interesting questions about the composition of articles, the ways in which their elements can be distributed by the grammar, and the conditions under which articles can be covert. We must put these aside for future investigation.

## 5.2. Modifiers as Arguments in TP and VP

Article-S analyzes “restrictive modifiers” of the nominal (NP), including APs, PPs and CPs, as selected complements that provide a restriction on the quantificational domain of a determiner head (73a). It is natural to inquire whether this general view extends to other domains; whether, for example, “restrictive modifiers” of the clause (TP or VP), including AdvPs, PPs and CPs, might be analyzed as selected complements that delimit the quantificational domain of some other head(s) X (73b):

- (73) a.     D       NP   AP/PP/CP           Nominal “modifiers”  
           ↑\_\_\_\_\_↓  
       b.     X       VP   AdvP/PP/CP        Clausal “modifiers”  
           ↑\_\_\_\_\_↓??

Larson (1982) proposes that temporal *when* and *while* clauses can be analyzed as providing restrictions on a matrix tense (T), which (following many authors) is taken to denote a quantifier over times. This view might be generalized to temporal modifiers of all categories (74).

- (74)       T       ...           AP/PP/CP  
           ↑\_\_\_\_\_↓

Larson (1982) motivates this proposal via observations by Hale (1976) concerning the Australian aboriginal language Warlpiri. Hale notes that Warlpiri adjoined clauses marked by the complementizer

33 Yamakido (2005) notes related facts for Slovenian. She observes that Standard Slovenian has long-form/short-form adjectives marking a definite/indefinite opposition and no surface article (Priestly 2002) (i):

- i. a.   novi                   pəs  
       new.NOM.SG.MASC.LONG dog.NOM.SG.MASC  
       ‘the new dog’  
    b.   nov                   pəs  
       new.NOM.SG.MASC.SHORT dog.NOM.SG.MASC  
       ‘a new dog’

However in colloquial Slovenian, definiteness vs. indefiniteness is expressed with *ta* and *en*, where the former is a de-accented/non-deictic version of the proximal demonstrative and the latter is a version of the cardinal meaning ‘one’. Note the presence of genitive case in (ii), as in Serbian:

- ii. a.   ta   novega           psa  
       DEF new.GEN.SG.MASC dog.GEN.SG.MASC  
       ‘the new dog’  
    b.   nega   novega           psa  
       INDEF new.GEN.SG.MASC dog.GEN.SG.MASC  
       ‘a new dog’

Yamakido (2005), citing Marušič (p.c.), observes that in noun phrases without an adjective (or any other restrictive attributive presumably), *ta* is interpreted solely as a demonstrative:

- iii. ta           pəs  
       DEM/\*DEF dog.NOM.SG.MASC  
       ‘this/\*the dog’

*kuja* are systematically ambiguous between readings as a nominal vs. a temporal modifier. Compare the glosses of (75)-(77), where *kuja* appears throughout:

(75) ngajulu-rlu kapi-rna wawiri pura-mi [<sub>CP</sub> **kuja**-npa pantu-rnu nyuntulu-rlu ]  
 I-ERG AUX kangaroo cook-NPST COMP-AUX spear-PST you-ERG  
 ‘I will cook the kangaroo **which you speared**’ (= (4), Hale 1976)

(76) ngajulu-rlu lpa-rna karli jarntu-rnu [<sub>CP</sub> **kuja**-∅-npa ya-nu-rnu njuntu ]  
 I-ERG AUX boomerang trim-PST COMP-AUX walk-PST-HITHER you  
 ‘I was trimming a boomerang, **when you came up**’ (= (5), Hale 1976)

(77) ngatjulu-rlu ∅-na yankiri pantu-rnu, [<sub>CP</sub> **kuja**-lpa ngapa nya-nu ]  
 I-ERG AUX emu spear-PST, COMP-AUX water drink-PST  
 a. ‘I speared the emu **which was drinking water**’  
 b. ‘I speared the emu **while/when it was drinking water**’ (= (1), Hale 1976)

Larson suggests that Warlpiri temporal adverbial clauses can be assimilated to relative clauses under an extension of Bach and Cooper (1978). Consider (78), the English equivalent of (75).

(78) I was trimming a boomerang [<sub>CP</sub> when you arrived].

Suppose the main clause tense is analyzed as a quantifier containing an implicit restriction variable R, just like a nominal quantifier; cf. (79a) and (19a-d). This R variable will be inherited by the TP containing the tense (79b).<sup>34</sup> Suppose further that adjoined temporal clauses are analyzed as denoting a temporal property (79c). This property can then be substituted for R when the interpretations for TP and CP combine, yielding the correct result (79d):

(79) a. PST ⇒ λT∃t [t < t\* & R(t) & T(t)]  
 b. I was trimming a boomerang ⇒  
 ∃t [t < t\* & R(t) & AT(t, ∃x [boomerang(x) & trim(I,x)]]]  
 c. when you arrived ⇒ λt[ t < t\* & AT(t, arrived(you))]  
 d. I was trimming a boomerang when you arrived ⇒  
 λR [∃t [t < t\* & R(t) & AT(t, ∃x [boomerang(x) & trim(I,x)]]] ] (λt[ t < t\* &  
 AT(t, arrived(you))]  
 ∃t[t < t\* & AT(t, arrived(you)) & AT(t, ∃x [boomerang(x) & trim(I,x)]]]

This approach permits a unified semantics for adjoined relative and temporal clauses under the schematism in (80), and thus responds to the unified way in which Warlpiri morphology and syntax represents nominal and temporal modification readings; the difference between the two lies simply in the type of variable abstracted over in the adjoined clause.

(80) [<sub>TP</sub> TP CP] ⇒ λR[[TP]](λα[[CP]]), where α = x or t

Larson (2016) explores a further extension of this approach beyond nominal and temporal adverbial

<sup>34</sup> In (79b) we suppress the restriction variable introduced by a *boomerang* for simplicity.

modifiers, again motivated by facts from Warlpiri. Note that in (81) and (82), the adjoined *kuja*-clause can correspond to, not a relative or temporal clause, but rather a locative adverbial:

- (81) a. ya-ni ka-rna, [<sub>CP</sub> **kuja**-ka nyanungu nyin-mi ]  
 go-PST AUX-1.SG COMP-AUX him stay-NPST  
 I'm going **where he lives**' (Hale nd, unpublished fieldnotes)
- b. nya-ngu-rna nyanungu-ju [<sub>CP</sub> warna **kuja**-npa pu-ngu ]  
 see-PST-1.SG him-OLDINFO snake COMP-AUX hit-PST  
 I saw him **where you killed the snake**' (Hale nd, unpublished fieldnotes)
- (82) [<sub>CP</sub> yapa *kuja*-ka yangka yali-rlu pali ] kula-ka-lu ngula-ngka nyina kutu  
 person COMP-PRES that that-LOC die(-NPST) NEG-PRES-333 that-LOC sit(-NPST) nearby  
 a. 'When a person dies, they don't stay close by there'  
 b. '**Where a person dies**, they don't stay close by there' (= (18), Hale 1986)

Larson (2016) proposes that examples like (81) and (82) can be accommodated under Davidsonian semantic views, according to which verbs express quantifications over events. Consider (83), the English equivalent of (81b).

(83) I saw him [<sub>CP</sub> where you killed the snake].

The main clause verb can be analyzed as involving a quantifier over events containing an implicit restriction variable R (84a), again like a nominal quantifier.<sup>35</sup> This variable is inherited by the TP containing the verb (84b). Adjoined locative clauses can then be analyzed as supplying a property of events, viz.: those events located at the same place as the subordinate clause event (84c). This property can be substituted for R when the interpretations for T and CP combine (84d), yielding the correct result:

- (84) a.  $see \Rightarrow \lambda y \lambda x \exists e [seeing(x,y,e) \ \& \ \mathbf{R}(e)]$   
 b.  $I \text{ saw } him \Rightarrow \exists t [t < t^* \ \& \ AT(t, \exists e [see(I,him,e) \ \& \ \mathbf{R}(e)])]$   
 c.  $where \ you \ killed \ the \ snake \Rightarrow$   
 $\lambda e'' \exists t' [t' < t^* \ \& \ AT(t, \exists e' [killed(you,snake,e') \ \& \ LOC(e'',e')])]$   
 d.  $I \text{ saw } him \ where \ you \ killed \ the \ snake \Rightarrow$   
 $\lambda R [\exists t [t < t^* \ \& \ AT(t, \exists e [see(I,him,e) \ \& \ \mathbf{R}(e)]) \ \lambda e'' \exists t' [t' < t^* \ \&$   
 $AT(t', \exists e' [killed(you,snake,e') \ \& \ LOC(e'',e')])]$   
 $\exists t [t < t^* \ \& \ AT(t, \exists e [see(I,him,e)) \ \& \ \exists t' [t' < t^* \ \&$   
 $AT(t', \exists e' [killed(you,snake,e') \ \& \ LOC(e,e')])]]]$

The basic semantic schematism for adjoined clauses thus extends from (80) to (85), where we now allow abstraction over events:

(85) [<sub>TP</sub> TP CP]  $\Rightarrow \lambda R [[TP]] (\lambda \alpha [[CP]])$ , where  $\alpha = x$  or  $t$  or  $e$

These proposals for temporal and locative adverbial clauses all represent, in effect, extensions of the basic semantics for Article-S offered in section 2.2. In all cases, we are dealing with an underlying

<sup>35</sup> In (84b) we suppress the restriction variable introduced by past tense for simplicity. Likewise, we harmlessly treat *him* as denoting a constant.

quantificational element, whether D, T or V, containing an implicit restriction R on its domain. The “modifiers” associated with these elements uniformly provide denotations for this implicit restriction, whether they be APs/AdvPs, PPs or CPs. The grammars of certain languages, for example, Warlpiri, seem to provide evidence that a unified semantics is in play here, across these apparently disparate categories and modification types.

## REFERENCES

- Babby, Leonard. 1975. *A transformational grammar of Russian adjectives*. The Hague: Mouton.
- Bach, Emmon, and Robin Cooper. 1978. The NP-S analysis of relative clauses and compositional semantics. *Linguistics and Philosophy* 2: 145-150.
- Bailyn, John. 1994. The syntax and semantics of Russian long and short adjectives: an X'-theoretic account. In J. Toman, ed. *Annual Workshop on Formal Approaches to Slavic Linguistics*. pp. 1-30. Ann Arbor, MI: Michigan Slavic Publications.
- Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing*. Chicago, IL: University of Chicago Press.
- Bhatt, Rajesh. 2002. The raising analysis of relative clauses: evidence from adjectival modification. *Natural Language Semantics* 10: 1, 43-90.
- Bianchi, Valentina. 2002a. Headed relative clauses in generative grammar - part 1. *Glott International* 6(7). 197-204.
- Bianchi, Valentina. 2002b. Headed relative clauses in generative grammar - part 2. *Glott International* 6(8). 235-247.
- Borsley, Robert D. 1997. Relative clauses and the theory of phrase structure. *Linguistic Inquiry* 28: 629-647.
- Bošković, Željko. 2005. On the locality of left branch extraction and the structure of NP. *Studia Linguistica* 59: 1-45.
- Brame, Michael. 1968. A new analysis of the relative clause: evidence for an interpretive theory. unpublished ms. MIT.
- Browne, Wayles. 2002. Serbo-Croat. In B. Comrie and G. G. Corbett, eds., *The Slavonic Languages*. pp. 306-387. London: Routledge.

- Carnie, Andrew. 2011. *Modern syntax*. Cambridge: Cambridge University Press.
- Cho, Sungeun Christine. 2000. *Three forms of case agreement in Korean*. PhD Thesis. Stony Brook University.
- Chomsky, Noam. 1957. *Syntactic structures*. The Hague: Mouton and Co.
- Chomsky, Noam. 1959a. Review of B.F. Skinner *Verbal Behavior*. *Language* 35: 26-58.
- Chomsky, Noam. 1959b. On certain formal properties of grammars. *Information and Control* 2: 137-67.
- Chomsky, Noam. 1961a. On the notion “rule of grammar”. In Jakobson, R. ed., *Structure of language and its mathematical aspects. (Proceedings of the twelfth symposium on applied mathematics.)* Providence, RI: American Mathematical Society.
- Chomsky, Noam. 1961b. Some methodological remarks on generative grammar. *Word* 17: 219-39.
- Chomsky, Noam. 1962. A transformational approach to syntax. In Hill, A.A., ed., *Proceedings of the third Texas conference on problems of linguistic analysis in English*. (pp. 124-58) Austin, TX: University of Texas Press.
- Chomsky, Noam. 1963. Formal properties of grammar. In Luce, R.D., R.B. Bush and E. Galanter, eds., *Handbook of mathematical psychology II*. NY: Wiley.
- Chomsky, Noam. 1964a. *Current issues in linguistic theory*. The Hague: Mouton.
- Chomsky, Noam. 1964b. The logical basis of linguistic theory. In Lunt, H.G., ed., *Proceedings of the ninth international conference in linguistics*. The Hague: Mouton.
- Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1977. “On wh-movement.” In P. Culicover, T. Wasow, and A. Akmajian eds. *Formal Syntax*. pp. XX-YY. New York: Academic Press.
- Chomsky, Noam. 1981. *Lectures on Government and binding*. Dordrecht: Foris.
- Chomsky, Noam. 1995. *The minimalist program*. Cambridge, MA: MIT Press.
- Cooper, Robin. 1975. *Montague’s semantic theory and transformational syntax*, PhD thesis, University

of Massachusetts.

Cooper, Robin. 1979. "The interpretation of pronouns," *Proceedings of the third Groningen round table: syntax and semantics* 10, ed. by Heny and Schelle, New York: Academic Press.

Despić, Miloje. 2011. *Syntax in the absence of determiner phrase*. PhD thesis, University of Connecticut.

Diessel, H. 1999. *Demonstratives: Form, Function and Grammaticalisation*. Amsterdam, John Benjamins.

Donnellan, K. S. 1968. Putting Humpty Dumpty together again. *Philosophical Review* 77: 203-215.

Fillmore, Charles J. 1965. *Indirect constructions in English and the ordering of transformations*. The Hague: Mouton.

Finer, Daniel. 1998. Sulawesi relatives, V-raising, and the CP-complement hypothesis. *The Canadian Journal of Linguistics* 43, issue 3/4, 283-306.

Finer, Daniel. 2017. Spelling out Selayarese relative clauses. unpublished ms. Stony Brook University.

von Fintel, Kai. 1994. *Restrictions on quantifier domains*. PhD thesis. University of Massachusetts.

Fox, Dany. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33: 63-96.

Givón, T. 1984. *Syntax: A Functional-Typological Approach*. Vol 1. Amsterdam, John Benjamins.

Greenberg, J. 1978. "How a Language Acquires Gender Markers?", in J. Greenberg (ed.) *Universals of Human Language*. Stanford, California, CSLI.

Hackl, Martin. 2000. *Comparative quantifiers*. PhD thesis. MIT.

Haegeman, Liliane. 1991. *Introduction to government and binding theory*. Oxford: Blackwell Publishers.

Hale, Kenneth. 1976. The adjoined relative clause in Australia, In R. M. W. Dixon, ed., *Grammatical Categories in Australian Languages*. pp. 78- 105. New Jersey: Humanities Press.

Hoeksema, Jack. 1984. 'On the structure of English partitives,' unpublished ms. University of Groningen.

- Ivić, Milka. 1964. Non-omissible determiners in Slavic languages. In *Proceedings of the Ninth International Congress of Linguists*. pp. 476-479. The Hague.
- Jackendoff, Ray. 1977. *X-bar syntax*. Cambridge, MA: MIT Press.
- Katz, Jerrold J. and Paul M. Postal. 1964. *An integrated theory of linguistic descriptions*. Cambridge, MA: MIT Press.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press
- Keenan , Edward L. and Johnathan Stavi. 1986. A semantic Characterization of natural language determiners. *Linguistics and Philosophy* 9: 253-326.
- Kordić, Snežana. 1995. *Relativna rečenica*. Hrvatsko filološko društvo, Zagreb.
- Kuroda, Sige-Yuki. 1969. English relativization and certain other related problems. *Language* 44: 244-266
- Larson, Richard. 1982. “A note on the interpretation of adjoined relative clauses,” *Linguistics and Philosophy* 5: 473-482.
- Larson, Richard. 1988. “On the double object construction,” *Linguistic Inquiry* 19: 335-391.
- Larson, Richard. 1991. “*Promise* and the theory of control,” *Linguistic Inquiry* 22: 103-139.
- Larson, Richard. 2010. *Grammar as science*. Cambridge, MA: MIT Press.
- Larson, Richard. 2014. *On shell structure*. London: Routledge.
- Larson. R.K.L. 2016. Warlpiri adjoined clauses. Paper presented at Workshop on the internal and external syntax of adverbial clauses. Zentrum für Allgemeine Sprachwissenschaft-Berlin (ZAS). July 23 2016.
- Larson, Richard. 2017. On “dative idioms” in English. *Linguistic Inquiry* 48: 389-426.
- Larson, R.K. and H. Yamakido. 2008. Ezafe and the deep position of nominal modifiers. In L. McNally and C. Kennedy (eds.) *Adjectives and adverbs*. pp.43-70. Oxford: Oxford University Press.
- LaTerza, Ivana. 2014. *The DP category and Serbian nominal structure*. PhD thesis. Stony Brook University.

- LaTerza, Ivana. 2016. Binding in English and South Slavic and the parameterized DP-hypothesis. *Linguistic Inquiry* 47: 741-753.
- LaTerza, Ivana. 2015. Adjectives and determiners. *Lingua* 168: 85-103
- Lees, Robert B. 1960. *The grammar of English nominalizations*. The Hague: Mouton and Co.
- Lees, Robert B. 1961a. The constituent structure of noun phrases. *American Speech* 36: 159-168.
- Lees, Robert B. 1961b. "Grammatical analysis of the English comparative construction." *Word* 17: 171-185.
- Lehmann, Ch. 1982. *Thoughts on Grammaticalisation: A Programmatic Sketch*. Vol. 7, akup 48, Universität zu Köln.
- Lindstedt, Jouko. 1998. On the Balkan linguistic type. *Studia Slavica Finlandensia* 15: 91–101.
- Lyons, C. 1999. *Definiteness*. Cambridge, Cambridge University Press.
- Montague, Richard. 1974. *Formal philosophy*. New Haven: Yale University Press.
- Musan, Renate. 1995. *On the temporal interpretation of noun phrases*. PhD thesis, MIT.
- Pesetsky, David and Eshter Torrego. 2007. The syntax of valuation and the interpretability of features. In S. Karimi, V. Samiian and W. Wilkins, (eds.) *Phrasal and clausal architecture*. Amsterdam: Benjamins.
- Poole, Geoffrey. 2011. *Syntactic theory*. NY: Palgrave MacMillan.
- Postal, Paul. 1964. *Constituent structure*. The Hague: Mouton.
- Postal, Paul. 1969. "On so-called 'pronouns' in English," in D. Reibel and S. Schane, eds., *Modern studies in English* (pp. 201-224). Englewood Cliffs, NJ: Prentice-Hall.
- Priestly, T. M. S. 2002. Slovenian. In B. Comrie and G. G. Corbett, eds., *The Slavonic Languages*. pp. 388-451. London: Routledge.
- Radford, Andrew. 1988. *Transformational syntax: a first course*. Cambridge: Cambridge University Press.

- Runić, Jelena. 2006. On the syntax of determiners in Serbian and Romanian. *Filološki pregled* 33: 75-93.
- Sauerland, Uli. 1998. *The meaning of chains*. PhD thesis, MIT.
- Smith, Carlota S. 1964. Determiners and relative clauses in a generative grammar of English. *Language* 40: 37-52.
- Snape, Neal et al. 2006. Comparing Chinese, Japanese and Spanish Speakers in L2 English article acquisition: evidence against the fluctuation hypothesis? In *The Proceedings of the 8th Generative Approaches to Second Language Acquisition Conference*. pp. 132-139. Somerville, MA: Cascadilla Proceedings Project.
- Stjepanović, Sandra. 1998. Extraction of adjuncts out of NPs. Paper presented at the workshop *Comparative Slavic Morphosyntax: 'The State of the Art'*, Spencer, Indiana.
- Stockwell, Robert P. 1960. "The place of Intonation in a generative grammar of English", *Language* 36: 360-07.
- Stockwell, R., P. Schacter, and B. Partee. 1973. *The major syntactic structures of English*. New York: Holt, Reinhart and Winston.
- Tancredi, Christopher. 1992. *Deletion, deaccenting, and presupposition*. PhD thesis. MIT.
- Trenkić, Danijela. 2004. Definiteness in Serbian/Croatian/Bosnian and some implications for the general structure of the nominal phrase. *Lingua* 114: 1401-1427.
- Vendler, Zeno. 1967. *Linguistics in Philosophy*. Ithaca, NY: Cornell University Press.
- Vergnaud, Jean-Roger. 1974. *French relative clauses*. PhD thesis. MIT.
- Wettstein, H. 1981. Demonstrative reference and definite descriptions. *Philosophical Studies* 40: 241-57.
- Yamakido, Hiroko. 2005. The nature of adjectival inflection in Japanese. PhD thesis. Stony Brook University.
- Zlatic, Larisa. 1997. *The structure of the Serbian noun phrase*. PhD thesis. University of Texas at Austin.