Semantic Correlates of the NP/DP Parameter

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1. NP/DP Parameter Bošković (2008)
> + **Observation:** a number of grammatical phenomena correlate with the presence or absence of articles, see generalizations (1) below.
> + **Hypothesis:** These generalizations, which are syntactic and semantic in nature, indicate that there is a fundamental difference in the TNP of languages with and languages without articles that cannot be reduced to phonology (overt vs. null articles). Furthermore, the generalizations can be explained if languages that lack articles lack DP altogether.
> [For no DP analyses of at least some such languages, see also Fukui 1988, Corver 1992, Zlatić 1997, Chierchia 1998, Cheng and Sybesma 1999, Willim 2000, Baker 2003]

(1) | **Generalizations** (see Bošković 2008 and references therein)
a. Only languages without articles may allow left-branch extraction of the kind in (2)b.
b. Only languages without articles may allow adjunct extraction from TNPs.
c. Only languages without articles may allow scrambling.
d. Multiple wh-fronting languages without articles do not show superiority effects.
e. Only languages with articles may allow clitic doubling.
f. Languages without articles do not allow transitive nominals with two genitives.
g. Head-internal relatives display island sensitivity in languages without articles, but not in languages with articles.
h. Polysynthetic languages do not have articles.
i. Only languages with articles allow the majority reading of MOST. [Živanovič 2007]
j. Languages without articles disallow negative raising and those with articles allow it.

We use the term traditional noun phrase (TNP) to refer to NP/DPs in a theory-neutral way.
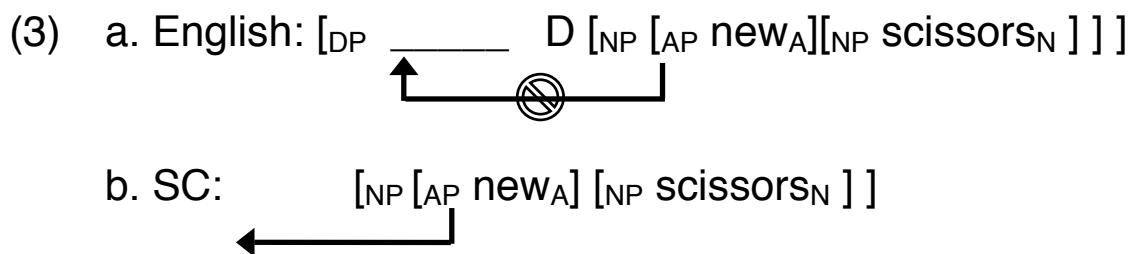
Goal of this talk is explaining these last two semantic generalizations in terms of the hypothesis that the lack of articles indicates the lack of DP.

<u>Sample of the logic of Bošković's (2008) approach: Explaining (1)a.</u>

English does not allow extraction of adjectives from TNP; Serbo-Croatian, which lacks articles, does:

(2) a. *New$_i$ he is buying [t$_i$ scissors]
     b. Nove$_i$ on   kupuje [t$_i$ makaze]   (Serbo-Croatian (SC))
        New   he   buys   scissors
      "He is buying new scissors."

DP is a phase (see Svenonius 2004, Bošković 2005). As a result, given the PIC, which requires that movement out of a phase proceed through the edge of a phase, movement out of DP must proceed via Spec, DP. However movement of NP-adjoined AP violates anti-locality (see, e.g., Bošković 1994,1997, Grohmann 2003, Abels 2003, Ticio 2003, Boeckx 2005), which requires movement to cross at least one full phrasal boundary. The problem does not arise in languages that lack the phrasal category DP.

(3) a. English: [$_{DP}$ _____ D [$_{NP}$ [$_{AP}$ new$_A$][$_{NP}$ scissors$_N$]]]

     b. SC: [$_{NP}$ [$_{AP}$ new$_A$] [$_{NP}$ scissors$_N$]]

Note that this account extends to generalization (1)b given that NP adjuncts are also NP-adjoined. (See also Bošković 2005 and Appendix 2 for an alternative account that does not appeal to phases/anti-locality.)

2. MOST and the NP/DP Parameter

This section discusses a cross-linguistic generalization concerning the interpretation of MOST. We identify MOST from language to language as the morphological superlative (-EST) of a quantity expression (MANY).

Cross-linguistically the form MOST is associated with two distinct readings.

(4) <u>Majority reading</u>
Bill owns most Radiohead albums.
"Bill owns more than half of the Radiohead albums."
(5) <u>Relative reading</u>
BILL owns the most Radiohead albums.
"Bill owns more Radiohead albums than any relevant alternative individual does."

The relative reading unlike the majority reading requires focus and a set of relevant alternatives. Note that the two readings are independent. If Bill owned 5 albums he would own most, though perhaps not the most since someone else might own 7. Similarly, in some contexts, if Bill owned 3, he might own the most but he would not own most.[1]

2.1 Availability of majority reading depends on articles
Živanovič (2007) observes that in Slovenian, a language without articles, the sentence (6) has the relative reading, but not the majority reading.

(6) Najveć ljudi   pije   PIVO.   (Slovenian)
Most   people drink beer
"More people drink beer than drink any other beverage."
(Unavailable reading: "more than half the people drink beer.")

To express the majority reading, Slovenian uses the open class lexical item *večina* "majority." Many languages use such a strategy. We set such cases aside, as being outside the generalization about superlative forms.

This contrasts with languages like English, in which the form MOST in different contexts gives rise to both readings. In other languages, like German the exact same form is associated with both meanings (although the relative reading requires focus):

(7) Die meisten Leute   trinken bier.
The most   people drink   beer.
"More than half the people drink beer."
"More people drink beer than any other drink." (with focus on *beer*.)

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[1] We will not attempt to explain why the reading of MOST in English is controlled by the presence of the definite article.

Živanovič (2007) goes on to observe that the property of allowing the majority reading for the superlative correlates with having articles. More precisely:

(8) a. Every language that allows the majority reading of MOST has a definite determiner.
b. Every language that has a definite determiner (and has MOST) allows the majority reading.

Živanovič observes that English, German, Macedonian, Dutch, Bulgarian, Hungarian, Norwegian and Romanian have articles and allow the majority reading. SC, Slovenian, Czech, Turkish, Polish and Punjabi lack articles and do not allow the majority reading.

2.2 Both readings of MOST derive from superlative semantics
To understand how the presence or absence of the majority reading could be affected by cross-linguistic variation, we must understand how both the majority and relative readings derive from the superlative of MANY.

The answer is provided by Hackl (to appear). Hackl shows that, if MOST is analyzed as the superlative of MANY, the majority and relative readings of MOST reduce to narrow and wide scope for –EST, respectively, with respect to the containing TNP.

2.2.1 Ingredients of Hackl's analysis:
A. MANY has a modificational meaning of type $<d,<<e,t>, <e,t>>>$:

(9) $[\![\text{MANY}]\!](d)(N) = \lambda x.[N(x) \text{ \& } |x| \geq d]$

See Hackl (2000) for arguments that English *many* does not have true predicative uses and hence is not type $<d,<e,t>>$ – unlike *tall*, for example.

B. The superlative is a degree quantifier (cf. Heim 1999)

(10) a. $[\![\text{-EST}]\!](C)(D)(x)$ is defined only if $x \in C$ & $\exists y[y \neq x$ & $y \in C]$
b. $[\![\text{-EST}]\!](C)(D)(x) = 1$ iff
$$\forall y \in C[y \neq x \rightarrow \max\{d:D(d)(x)=1\} > \max\{d:D(d)(y)=1\}]$$

C. MOST = MANY + -EST. -EST is generated in the degree argument position of MANY, that is <u>SpecAP</u>. Due to a type mismatch, -EST must QR.[2]

(11) MOST = [$_{AP}$ [$_{DegP}$ -EST$_C$] [$_{A'}$ MANY]]

　　　　　　　　$<<d,<e,t>>,<e,t>>$　$<d,<<e,t>,<e,t>>$　　　　　MISMATCH!

When it moves, -EST must target a node of type <e,t>. One option is local adjunction to NP. Otherwise, -EST can move out of the TNP completely. (See Szabolcsi 1986, Heim 1999)

(12) Bill owns (the) most Radiohead albums

a. Bill owns [$_{DP}$ (the) [$_{NP}$ −EST [$_{NP}$ [$_{AP}$ t MANY] [$_{NP}$ RH albums]]]]

b. Bill [-EST [owns [$_{DP}$ (the) [$_{NP}$ [$_{AP}$ t MANY] [$_{NP}$ RH albums]]]]

QR landing site	Reading
Noun phrase internal	Majority
Noun phrase external	Relative

It is not surprising that movement out of TNP yields the relative reading. Hackl's achievement is in showing that TNP-internal scope yields the majority reading. Key to achieving this result: **<u>interpret non-identity of pluralities as non-overlap</u>**.

(13) [-est$_i$ [t$_i$ many] RH albums]

Under this assumption, the constituent (13) denotes a predicate true of a plurality of RH albums if it contains more RH albums than any other non-overlapping plurality of RH albums. The pluralities of RH albums that contain more RH albums than any non-overlapping RH album are precisely those that contain more than half the RH albums. A covert existential determiner quantifies over these, yielding the majority reading.

2.3 Our Proposal

We propose to explain Živanović's generalization through the effects of Bošković's hypothesis on Hackl's analysis of the two readings of MOST.

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[2] Notice that when generated as the degree argument of a predicate like *tall*, -est may be interpreted in situ.

♦Languages that lack articles lack the majority reading of MOST.

♦Languages that lack articles lack the DP projection.

2.3.1 NP Languages

The setting of the NP/DP parameter has an effect on the availability of the two landing sites for the QR of −EST. In a language that lacks DP, the only possible landing site that yields the majority reading is adjunction to NP.

We propose that such adjunction is not possible in an NP language.

(14) In an NP language, NP is an argumental category. Chomsky (1986) proposes that adjunction to arguments is banned. (For additional arguments see McCloskey 1992, Bošković 2004b)[3]

(15) <u>-EST movement in NP languages</u>
a. Bill owns [$_{NP}$ −EST [$_{NP}$ [$_{AP}$ t MANY] [$_{NP}$ RH albums]]]

b. Bill [-EST [owns [$_{NP}$ [$_{AP}$ t MANY] [$_{NP}$ RH albums]]]

Given Hackl's analysis, this means that only the relative reading is available in NP languages.[4]

2.3.2 DP Languages

In DP languages, NP is always contained within a DP projection. Hence, NP does not serve as an argument in DP-languages and NP is an available site for −EST adjunction.

(16) <u>Local NP-adjunction available in DP languages</u>

Bill owns [$_{DP}$ D [$_{NP}$ −EST [$_{NP}$ [$_{AP}$ t MANY] [$_{NP}$ RH albums]]]

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[3] This does not contradict our assumption that APs are NP-adjoined. Following Bošković (2005) we interpret the ban on adjunction to arguments derivationally. When AP adjoins to NP, NP has not yet been merged as an argument; when covert −EST movement applies, NP is already an argument.

[4] This naturally raises the question of how superlatives are treated generally in NP languages under this hypothesis. Absolute readings of superlatives appear to be available in NP languages. We believe this may have to do with a difference in type between MANY and other gradable adjectives. −EST can be interpreted in situ if it's sister is type <d,<e,t>>. This, however, raises the question of how the superlative's comparison class is determined. See Appendix 2 for more discussion.

Notice also that this movement does not violate anti-locality. −EST occupies the position SpecAP. So movement to adjoin to NP crosses the full AP boundary. Given Hackl's analysis, the availability of local NP-adjunction means the majority reading is available in DP languages.

The relative reading in DP languages derives from extraction through Spec, DP.

(17) <u>Extraction of −EST from DP available in DP-languages</u>

$$[_{DP} _____ D [_{NP} [_{AP} [_{DegP} -EST] MANY_A] [_{NP} RH albums_N]]]$$

It also is possible to analyze these facts in a way consistent with Bošković's (2005) alternative account of Generalization (1)a based on different positions for AP in NP and DP languages. See Appendix 2.

2.4 Summary of Section 2

Hackl's (to appear) approach to the two interpretations of MOST and Bošković's (2008) hypothesis that article-less languages lack DP combine to explain the cross-linguistic availability of relative readings of MOST observed by Živanović (2007).

3. Neg-raising and the NP/DP parameter: Generalization (1)j
Negative raising is the phenomenon whereby a high negation is understood as negating a lower clause.

(18) a. Mary did not believe that Fred was smart.
 ≈b.Mary believed that Fred was <u>not</u> smart.

English verbs differ regarding whether they allow negative raising. *Believe* does, but *claim* does not.

(19) a. John did not claim that Mary is smart.
 ≠b.John claimed that Mary is not smart.

Following Lakoff (1969), Horn (1978), Gajewski (2007), a.o., we take the best diagnostic for the presence of neg-raising in a language to be <u>long-</u>

distance licensing of strict NPIs.

(20) a. John didn't leave/*left <u>until yesterday</u>.
      b. John hasn't/*has visited her <u>in (at least two) years</u>.
      c. *John didn't claim [Mary would leave [NPI <u>until tomorrow</u>]]
      d. *John doesn't claim [Mary has visited her[NPI <u>in at least two years</u>]]

(21) a. John didn't believe [Mary would leave [NPI <u>until tomorrow</u>]]
      b. John doesn't believe [Mary has visited her[NPI<u>in at least two years</u>]]

This type of long-distance strict NPI licensing is not available in all languages.
E.g., *believe* doesn't allows long-distance strict NPI licensing in SC.

(22) a. *Marija ju je posjetila najmanje dvije godine.   SC
         'Mary visited in at least two years.'
      b. Marija je nije posjetila najmanje dvije godine.   SC
         'Mary hasn't visited in at least two years.'

(23) *Ivan ne vjeruje da ju je Marija posjetila najmanje dvije godine.
       'Ivan doesn't believe that Mary has visited her in at least two years.'

In fact, there is a correlation between articles and the availability of neg-
raising, where the possibility of long-distance strict NPI licensing (i.e.
licensing across finite clauses) is taken as the diagnostic of neg-raising.
While English, German, French, Portuguese, Romanian, Bulgarian and
Spanish allow cases like (20), SC, Slovene, Czech, Polish, Russian, Turkish,
Korean, Japanese, and Chinese disallow them. What differentiates these
two groups is articles. This leads to (24), a two-way correlation so far.

(24) Languages without articles disallow negative raising and those with
      articles allow it. [Generalization (1)j above]

A partial paradigm is given in the Appendix 1.

We propose to explain (24) by highlighting a similarity in the interpretation of
definite plurals and neg-raising predicates.

A common analysis of neg-raising attributes to certain predicates (the neg-
raising predicates, NRPs) a special assumption of the Excluded Middle
(Bartsch 1973, Horn 1989, Gajewski 2007). Following Bartsch 1973 we take
this to be a presupposition.

(25) 1. F is a Neg-Raising Predicate
      2. Where p is a proposition,
            F(p) presupposes: $F(p) \vee F(\sim p)$
      3. $\sim F(p)$ also presupposes $F(p) \vee F(\sim p)$. Together these entail:
            $\boxed{F(\sim p)}$

(26) **Mary believes that p** is defined only if
      All worlds in BEL_{Mary} are p-worlds or no world in BEL_{Mary} are p-worlds.
      When defined, **Mary believes that p** is true if and only if
            All worlds in BEL_{Mary} are p-worlds.

(27) BEL_a = the world compatible with a's beliefs

Distributive definite plurals show a similar behavior, exhibiting a kind of excluded middle. (28)a and (29)b are nearly equivalent; but (29)b is stronger than (29)a.

(28) a. Bill shaved every patient.
      b. Bill shaved the patients.

(29) a. Bill didn't shave every patient.
      b. Bill didn't shave the patients.   ($\approx$Bill shaved no patients)

The reading (29)b exhibits is that of a universal scoping over negation. This can be attributed to an EMP as in the case of NRPs (see Fodor 1970, Schwarzschild 1994, Löbner 2000).

(30) **The students are blond** is defined only if
      every student is blond or no student is blond
      When defined, **The students are blond** is true if and only if
            Every student is blond

The structure of distributive definite plural predication:

(31) [the   boy –s]   [* smoke]
       iota   set   PL   *   set
            set of sums   set of sums
                 sum

We pin the EM presupposition on the *-operator (cf. Löbner 2000). It takes a sum and a predicate of atoms as arguments. It presupposes that either all or none of the atomic parts of the sum satisfy the predicate. It asserts that all atomic parts of the sum satisfy the predicate.

Attitude predicates are often analyzed as quantifiers over worlds. We propose that they might also denote sums of worlds and participate in distributive plural predication.

(32) a. ALL(BEL_a) = $\lambda p.$ $BEL_a \subseteq p$
b. THE(BEL_a) = the sum of a's belief worlds[5]

If distributive definite plural predication is chosen, the attitude predicate will create statements that are true if the modal base is a subset of the embedded propositions, but <u>false</u> only if the modal base is disjoint from the embedded proposition.

So, in English, the representation for the NRP *believe* involves the definite determiner, not universal quantification.

(33) ⟦ **believe_a** ⟧ = THE(BEL_a)

To have a chance at being true, a statement containing THE(BEL) must involve the *-operator applied to the embedded proposition, yielding a predicate of sums of worlds:

(34)

```
          ...
           /\
          /  \
         /    \
    THE(BEL)  *      p
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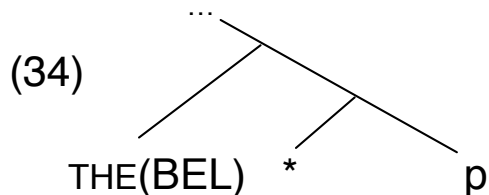
(35) ⟦ * ⟧ = λW: **$W \subseteq p$ or $W \cap p = \varnothing$**. $W \subseteq p$

Such a representation for NRPs explains the strengthening of their negations. Furthermore, Gajewski (2007) shows how attributing this

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[5] Making room for the external arguments, the lexical entries would look like this:

(i) $\forall$(BEL) = $\lambda p.\lambda x.$ $BEL_x \subseteq p$

     THE(BEL) = $\lambda p.\lambda x$: $x \in dom(p)$. p(the sum of x's belief worlds)=1

presupposition to NRPs explains their behavior with respect to NPI-licensing.

> The lack of a definite article prevents the construction of neg-raising predicates.

Caveat:
Even in languages where the NPI test fails negation is interpretable in the lower clause. Thus, SC (36) allows the atheist (i.e. non-agnostic) interpretation 'Ivan believes God does not exist'. The same holds for Korean, Japanese, Turkish, Chinese, Russian, Polish and Slovenian.

(36) Ivan ne vjeruje   da bog   postoji.
     Ivan neg believes that God exists   (SC)
     "Ivan believes God does not exist."

We assume that in such languages the 'low' reading for negation is derived in the pragmatic way described by Horn (1989). These languages lack the kind of grammaticalized neg-raising that licenses long-distance strict NPIs. Horn's pragmatic principles do not suffice to account for such NPI-licensing, a semantic account is needed as in Gajewski (2007).

APPENDIX 1: NPI data

John didn't believe(/claim) that Mary would leave until tomorrow:	
O João não acreditou/??disse que a Maria vai sair <u>até amanhã</u>.	Portuguese
Jean ne croyait/*espérait pas que Marie parte <u>avant demain.</u> 'Jean didn't believe/*hope Mary would leave until tomorrow.'	French
*Ivan ne veril, čto Marija uedet <u>až do zavtrašnego dnja</u>.	Russian
*Jan nie wierzył, że Maria wyjedzie <u>aż do jutra</u>.	Polish
*Ivan nije vjerovao da će Marija otići <u>sve do sutra</u>.	SC
*Jon-wa [Mary-ga <u>asita made </u>syuppatu suru daroo to] sinzi-nakatta.	Japanese
??John-un [Mary-ka <u>ecey-kkaci-to</u> ttena-l kes-irako] mitci ahn-ass-ta.	Korean
*Yuehan bu/cai xiangxin Mali <u>zhidao mingtian</u> hui likai.	Chinese

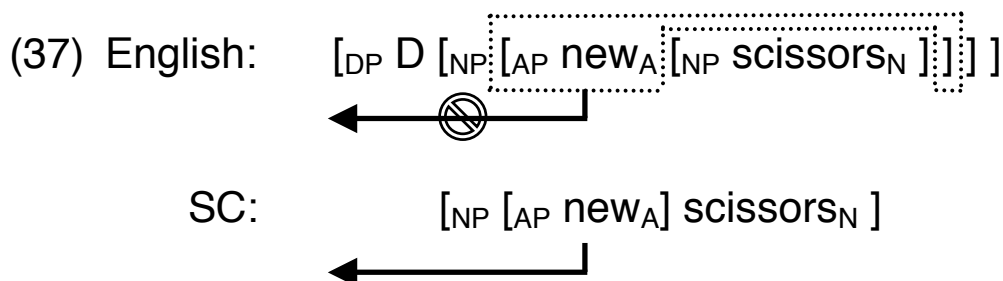| Er hat *(nicht) <u>sonderlich</u> viel gegessen. he has not particularly much eaten	German
Ich glaube/*freue mich nicht dass er <u>sonderlich</u> viel gegessen hat I believe/*look.forward not that he particularly much eaten has	

John doesn't believe(/claim) that Mary has visited her in at least two years:	
Juan no cree/*dijo que María la ha visitado <u>en al menos dos años</u>.	Spanish
Ion nu crede/*spune că Maria a vizitat-o <u>de cel puţin doi ani</u>.	Romanian
Az ne vjarvam/*kazah če Meri ja e poseštavala <u>pone ot dve godini</u>. 'I don't believe/*didn't say Mary has visited her in at least two years.'	Bulgarian

*Jan nevěří, že Marie ji navštívila <u>nejméně dva roky</u>.	Czech
*Janez ne verjame, da jo je Marija obiskala <u>že najmanj dve leti</u>.	Slovenian
*John [Mary o-nu <u>en az iki yıl</u> ziyaret et-ti] san-mı-yor.	Turkish

See Bošković 2008 for additional data (the base-line data are omitted for space reasons). The NPIs from (20) (if there were no interfering factors, as in German) and 'believe' were used in all examples. Under the relevant reading the NPIs are interpreted in the embedded clause. Some examples have irrelevant readings that are ignored (e.g. 'return tomorrow' for 'leave until tomorrow'). Both negative raising and non-negative raising verbs are given for negative raising languages to show that we are dealing here with strict NPIs.

APPENDIX 2: An alternative account of Generalization (1)i

Bošković (2008) proposes an alternative account of (1)a. He proposes that adjectives project differently in languages with and without DP. In NP languages, adjective phrases are adjoined to NP. In DP languages, by contrast, adjectives take NPs as complements (see Bošković 2008 for independent evidence for this distinction). This prevents extraction of AP without NP as non-constituent movement.

(37) English: $[_{DP} \text{ D } [_{NP} [_{AP} \text{new}_A [_{NP} \text{scissors}_N]]]]$

SC: $[_{NP} [_{AP} \text{new}_A] \text{scissors}_N]$

Under this assumption, we explain (1)i as follows. Since the structure of NP languages remains the same as above, we rule out the majority readings in NP languages the same way as in Section 2.3.1. The approach to DP languages changes slightly.

DP Languages
Under this alternative proposal, in DP languages adjectives take NPs as complements. We assume this means that in DP languages *many* takes its arguments in the opposite order:[6]

(38) $[[\text{MANY}]] = \lambda f_{<e,t>}.\lambda d_d.\lambda x_e. \ |x| \geq d \text{ and } f(x) = 1$

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[6] Predicate-type (<d,et>) gradable adjectives undergo the following type shift:
$TS([[Adj]]) = \lambda f_{<e,t>}.[\lambda d.[\lambda x. \ [[Adj]](d)(x)=1 \ \& \ f(x)=1]]$

Notice that this has the effect that -EST – still generated in Spec, AP (see Abney 1987) – can be interpreted *in situ* in DP languages. Thus, the majority reading comes for free.

(39) [$_{AP}$ [$_{DegP}$ −EST] MANY$_A$ [$_{NP}$ albums$_N$]]]   (English)
          <<d,et>et> (<et,<d,et>>   (<e,t>   ))

The relative reading in DP languages derives from extraction through Spec, DP, as in Section 2.3.2.

(40) English: [$_{DP}$ _____ D [$_{AP}$ [$_{DegP}$ −EST] MANY$_A$ [$_{NP}$ albums$_N$]]]

Since under this alternative adjectives form constituents with NPs that exclude DegP, all adjectives in DP languages must be modificational in type, i.e., <d<<e,t>,<e,t>>>. In NP languages, where adjectives form constituents with DegP, adjectives may be type <d,<e,t>>. This offers a possible way of distinguishing MANY, which lacks a majority reading with -EST, from other adjectives in NP languages, which appear to allow absolute readings.

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