

Saturation and reification in adjectival diathesis¹

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The study of adjectival diathesis alternations lags behind the study of verbal diathesis and nominalization. This paper aims to diminish the gap by applying to the adjectival domain theoretical tools with proven success elsewhere. We focus on evaluative adjectives, which display a systematic alternation between a basic variant (*John was rude*) and a derived one (*That was rude of John*). The alternation brings about a cluster of syntactic and semantic changes – in the semantic type of the predicate, its valency and the mode of argument projection. We argue that the adjectival variants are related by the joint application of two operators: a lexical SATURATION operator (also seen in verbal passive) and a syntactic REIFICATION operator (also seen in nominalization). The analysis straightforwardly extends to similar alternations with Subject- and Object-Experiencer adjectives (*proud, irritating*). Among its important implications are (i) lexical saturation is not restricted to external arguments (internal ones may also be saturated), and (ii) ‘referential’ (R) roles are not restricted to nominal predicates (adjectives may assign them as well).

I. INTRODUCTION

The study of verbal diathesis alternations over the past two decades has produced a wealth of empirical generalizations as well as many theoretical insights (see, among others, Bresnan & Kanerva 1989; Levin & Rappaport Hovav 1991, 1995; Hale & Keyser 2002; Reinhart 2002; Borer 2005). In comparison, surprisingly little work has been done during that period on diathesis alternations in adjectives. This is so despite the fact that by now, a number of extremely interesting studies of such alternations are available (Cinque 1990; Stowell 1991; Bennis 2000, 2004). Data taken from the last three sources form the basis of the present study. Consider the following three pairs, which are evidently parallel.

- (1) (a) John was very rude (to Mary).
- (b) That was very rude (of John) (*to Mary).

[1] Material from this paper has been presented in the Syntax, Lexicon and Event Structure Workshop in the Hebrew University (July 2006) and in the NORMS Workshop on Argument Structure in Lund University (February 2008). I thank the audiences at these workshops and two *JL* referees for their useful feedback. Special thanks to Heidy Harley, who made valuable comments on an earlier draft. The usual disclaimers apply.

- (2) (a) John was very confused (about Mary).
 (b) John's manner was very confused (*about Mary).
- (3) (a) John was very irritating (to Mary).
 (b) That comment was very irritating (of John (*to Mary)).

Such alternations are quite systematic and productive across languages. They display several puzzling characteristics. First, the external argument of the (a)-variant appears as an optional PP – an *of*-NP sequence – in the (b)-variant, at least in (1) and (3). Second, the internal argument of the (a)-variant cannot appear in the (b)-variant. Third, while the (a)-variant appears to support either an individual- or a stage-level reading, the (b)-variant is necessarily stage-level with respect to *John*.

These are systematic properties that call for explanation. What makes them even more intriguing is the lack of any obvious analogues in the verbal domain: there is no verbal alternation that lumps these properties together, although some alternations may display them in isolation. An important corollary of the present study is that the theoretical devices needed to explicate the above adjectival alternations are the very same ones that serve to explicate verbal and nominal alternations. In this sense this paper is a step towards a more category-neutral view of argument structure.

In a nutshell, the analysis I will propose is this. The (b)-variants above are derived from the (a)-variants by two operations: unselective saturation (SAT) and what I call 'reification' (R). The SAT operator existentially binds all the individual-type variables of the predicate it applies to, sparing only the event variable, if there is one. The R operator applies to a predicate and introduces a novel external argument, construed as a realization or instantiation of the predicate. SAT renders both arguments of the (a)-variants above inaccessible to direct projection in the (b)-variants; the internal argument is excluded and the external one may only be doubled by an adjunct *of*-NP (parallel to the passive *by*-phrase). R introduces the novel external argument of the (b)-variants.

Both SAT and R lead independent lives in the grammar. SAT is nothing but the operation deriving passive verbs from active ones, also implicated in so-called 'passive' derived nominals. R is the operator that introduces the external argument of nominals. It is therefore not surprising that certain adjectival predications alternate with synonymous nominal predications.

- (4) (a) It was **cowardly** of Mulroney to attack a man who's no longer able to defend himself.
 (b) It was **cowardice** of him to shun away from his fears.

Although ultimately quite straightforward, this analysis will only have been justified after we cover substantial empirical ground. The first half of this paper – sections 2–3 – is dedicated to a detailed description of the

syntactic and semantic properties of the adjectival alternation seen in (1). I will do this by closely following the discussions in Stowell (1991) and Bennis (2000, 2004), pointing out their strengths and weaknesses along the way. Section 4 develops the analysis: we define the operators SAT and R, provide explicit derivations for the two adjectival variants, and show how all the major properties fall out from the analysis.

Section 5 establishes the broader relevance of SAT and R in the grammar. It is shown that these operators are implicated in passive formation, derived nominals, and the adjectival alternations (2) and (3). In section 6 I consider the general implications of the analysis for linguistic theory – in particular, how it modifies our views on the asymmetries between internal and external arguments and how it blurs our semantic criteria for ‘nounhood’ as opposed to ‘adjectivehood’. Section 7 concludes the paper.

2. THE BASIC FACTS

2.1 *The alternation: basic vs. derived EAs*

Evaluative adjectives (EA) typically characterize a person’s behavior or attitude in terms of the speaker’s subjective judgment. The class of EAs is quite large, as can be seen from the following English sample.²

(5) *Evaluative adjectives in English*

rude, mean, clever, smart, nice, kind, silly, imprudent, impolite, generous, courteous, cruel, mad, mischievous, considerate, humane, pretentious, humble, modest, sadistic, masochistic, intelligent, stupid, dumb, idiotic, noble, cowardly, cunning, farsighted, skillful, selfish, crazy, foolish

The most striking property of EAs, which is the focus of both Stowell (1991) and Bennis (2000, 2004), is their occurrence in two syntactic frames. In one frame, which I will call the *basic* variant, the subject argument is a (sentient) individual, the *possessor* of the property in question. In the second frame, which I will call the *derived* variant, the subject argument is

[2] I depart from Stowell’s (1991) label for this class – ‘mental property’ adjectives – as it strikes me that EA adjectives may sensibly participate in predications involving no (conscious) mental state attribution (see also Barker 2002). In this they differ from classical psychological predicates, whose truthful application must be grounded in the subject’s internal experience, cf.:

- (i) John was impolite but felt polite.
- (ii) #John was afraid but felt unafraid.

For in-depth semantic analyses of EAs, see Wikinson (1970, 1976) and Barker (2002). Most of their discussion, however, does not bear on the claims made in this paper.

an inanimate entity, usually (but not necessarily) an event, and the possessor argument is expressed as an optional PP. If the event is realized as a clause, it may extrapose. Examples from English, Dutch and Hebrew are given below.

- (6) (a) John is clever.
 (b) That/Punishing the dog was clever of John.
 (c) It was clever of John to punish the dog.
- (7) (a) Jan is aardig.
 'John is nice.'
 (b) Dat is aardig van Jan.
 'That is nice of John.'
 (c) Het is aardig van Jan om iets tegen mij te zeggen.
 it is nice of John for something to me to say
 'It is nice of John to say something to me.'
- (8) (a) Gil hu anoxi.
 Gil COP selfish
 'Gil is selfish.'
 (b) ze haya anoxi me-cido šel Gil.
 it was selfish from-his-side of Gil
 'That was selfish of Gil.'
 (c) ze haya anoxi me-cido šel Gil le'haš'ir lanu et kol
 it was selfish from-his-side of Gil to.leave to.us ACC all
 ha-avoda.
 the-work
 'It was selfish of Gil to leave all the work for us.'

Both Stowell and Bennis recognize that examples (a) above employ the basic use of EAs whereas those in (b) and (c) employ a less direct, more complex use of the adjective. Both cash out this intuition by placing the latter in a complex syntactic structure, embedding the structure of the former as a subconstituent.

I follow Stowell's and Bennis' basic insight in assuming that the EAs in the (b) and (c) examples above are somehow derived from the basic EAs in the (a) examples. Call the former *DerA* and the latter *BasA*. The details of the derivation, however, are crucially different: I will propose that *DerA* is formed from *BasA* by a combination of a lexical operation (saturation) and a syntactic one (reification).

In this connection, one must address the partial productivity of the rule relating *BasA* and *DerA*, as seen in (9).

- (9) (a) John was obese/important/famous.
 (b) *That was obese/important/famous of John.

I return to this issue in section 4.5.

2.2 *The possessor role is necessary*

Consider the following sentences.

- (10) (a) John is very clever/mean.
 (b) John is very important/famous.
 (11) (a) That was very clever/mean (of John).
 (b) That was very important/famous (*of John).

Discussing these facts, Stowell notes that although many adjectives can be predicated of events or actions, only EAs thereby also attribute a property to an individual, namely, the possessor role. Moreover, this is a necessary part of their interpretation. In Stowell's (1991: 111) words, 'winning an election can be important even if the winner is not important, but punishing a dog cannot be clever without the punisher being clever in performing this action'. Indeed, that EAs necessarily predicate an attribute of an individual, whether expressed in an *of*-NP or not, was already observed by Wilkinson (1976).

While the observation is uncontroversial, it seems to constitute part of the desired explanandum, rather than the explanans. Why can a sentence like **Winning the election was famous of John* not mean 'Winning the election reflected John's fame'? The absence of a possessor role in (11b) should follow from some independent semantic distinction between *important/famous* and *mean/clever*.

The presence of the implicit possessor in DerA can also be detected by obligatory control configurations.

- (12) (a) It was risky (of Bill_i) [PRO_i to climb that mountain].
 (b) [PRO_i donating the entire prize] was quite generous (of Tom_i).

PRO in these sentences is obligatorily controlled by the possessor argument, whether syntactically realized or not.

The possessor argument should be contrasted with the event/action argument in this respect. Whereas the former is necessary (if implicit) in DerA, the latter seems to be lacking altogether from BasA. Thus, (10a) does not seem to imply the existence of any action or event in which John's cleverness/meanness is expressed.

Stowell suggests that 'the action-denoting nominal is truly optional. When it is omitted ... it need not be implicitly understood' (p. 112). However, this seems to misdescribe the facts. An optional argument is precisely the kind of argument whose semantic presence is *preserved* even when it is syntactically unrealized. If anything, it is the possessor argument in DerA which deserves the label 'optional argument'. As for the event-denoting nominal, it is simply not part of the argument structure of BasA, since it is not entailed by it.

2.3 *DerA is necessarily stage-level with respect to the possessor*

Another observation Stowell makes is that DerA predication is temporally bounded in a way that BasA is not.

- (13) (a) John was clever.
 (b) It was clever of John to leave the party.
 (c) Although John is clever, it was absolutely not clever of him to leave the party.

While (13a) could be interpreted either as ascribing a permanent property of cleverness to John, or one that is temporally bounded to some event (given in discourse), (13b) only has the latter reading: cleverness is ascribed to John only with respect to the event of leaving the party. That the temporal property need not coincide with the permanent one is clearly demonstrated in (13c).³

Accounting for the loss of the individual-level reading in the derivation of DerA from BasA is a major challenge for any analysis of this alternation.

2.4 *No internal arguments in DerA*

In light of the preceding discussion, it is puzzling that the goal argument can never be realized in DerA, as Stowell and Bennis observe. Notice that the *to*-PP is excluded regardless of whether the *of*-NP is realized or not.

- (14) (a) *That was kind to me (of John).
 (b) *Fixing my car was kind to me (of John).
 (c) *It was kind to me (of John) to fix my car.
 (15) (a) Jan/*Dat is gemeen tegen kinderen.
 John/*that is mean to children
 ‘John/*That is mean to children.’
 (b) Jan/*Dat is mij gehoorzaam.
 John/*that is to.me obedient
 ‘John/*That is obedient to me.’

As Stowell points out, the puzzle deepens when we realize that DerAs are eventive to begin with, so the exclusion of the goal argument cannot be related to the facts discussed in the preceding section. The goal argument is

[3] The same observation, stated in different terms, has been made by other authors. Wilkinson (1970, 1976) distinguishes between the ‘interior’ reading of EA, which is durational and refers to innate qualities, and the ‘exterior’ reading, which is non-durational and does not refer to innate qualities. Barker (2002) dubs the former reading ‘absolute’ and the latter ‘relative’, suggesting that sentences like *Feynman was stupid to dance like that* do not simply impute stupidity to Feynman, but rather serve to sharpen the current conversational standard of stupidity by pointing to a relevant example.

excluded in DerA but not in BasA, despite the fact that both allow stage-level interpretations.

The force of the restriction at issue can be appreciated by comparing closely related arguments and adjuncts. As the Hebrew examples below show, only argumental PPs are excluded in DerA. Although the semantic contrast between the argumental P *el* ‘to’ and the adjunct P *klapey* ‘toward’ is barely distinguishable in BasA (16a), only the latter may occur in DerA (16b).

- (16) (a) Gil haya nexmad el/klapey Rina.
 Gil was nice to/towards Rina
 ‘Gil was nice to/towards Rina.’
- (b) Ze haya nexmad klapey/*el Rina (le’hacia la tremp).
 it was nice towards/*to Rina to.offer to.her ride
 ‘It was nice towards/*to Rina (to offer her a ride).’

Both Stowell and Bennis rightly recognize this as a problem for syntax, and develop structural accounts to explain the restriction. In sections 3.2 and 3.4 I argue against these accounts and in section 4.3 I propose that the restriction on argument expression in DerA should be seen in the context of the broader phenomenon of saturation.⁴

3. PREVIOUS ACCOUNTS

3.1 Stowell (1991)

Stowell considers the basic alternation of EAs to consist of three, rather than two, variants.

- (17) (a) John was stupid.
 (b) It was stupid of John to wash the car.
 (c) John was stupid to wash the car.

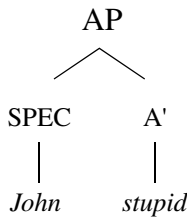
(17a) and (17b) correspond, in our terms, to BasA and DerA, respectively. Stowell claims that DerA selects an MP (= mental property, our ‘possessor’) role and an action role, the latter realized as an infinitive or the demonstrative *that*. In (17c), the third variant, we find the possessor as a subject and the action as a complement.

[4] Apparently there are English speakers who accept sentences like (14a–c). Possibly they allow an ‘ethical’ reading of the dative PP, which is distinct from the argumental goal role. I assume that at least in one major dialect of English (Stowell’s dialect), just as in Hebrew and Dutch, the goal argument is not expressible with DerA. Other EAs allow a variety of senses which do not obviously involve a human Possessor, e.g., *generous* in *She considered the Fry/Lewis relationship in a way that was generous to both sides*; *The price was generous to the waitstaff* (found on the web; note that a price can be generous without the price-fixer being so). It is also possible that benefactive phrases (as opposed to goals) are not core arguments. These matters deserve further elucidation, but I will set them aside here.

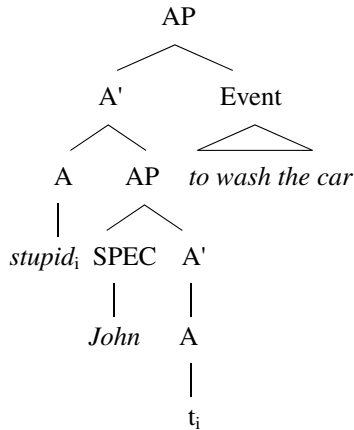
The action-denoting argument, according to Stowell, is nothing but a realization of Kratzer's (1988) event argument. For this reason, DerA is always a stage-level predicate. Following Kratzer, Stowell assumes that the action-denoting argument is external. Evidence from Italian, however, indicates that the MP argument is also external, as it fails to launch *ne*-cliticization, in contrast to genuine ergative adjectives (Cinque 1990). Stowell's solution is to assume that DerA projects two external arguments. The structures for the two types of EA are thus the following:

(18) *Stowell's structures for EAs*

(a) BasA



(b) DerA



In (18b), head movement of A from the inner to the outer AP layer yields the correct word order, as in a Larsonian VP-shell. Both arguments are A'-external, hence both count as external arguments. If *John* is assigned genitive case, it remains in-situ, and the infinitive raises to subject position, deriving the pre-extraposition source of (17b). If *John* gets no case in-situ, it raises to the subject position to get nominative case, deriving (17c). The case-inertness of the clausal argument guarantees that the MP argument may skip it without violating locality constraints.

Stowell presents a series of arguments to support his unorthodox claim that both arguments of DerA are external. As to the infinitive, he shows that it necessarily follows the MP argument (19a), creates a weak island (19b), cannot be gapped in *as*-clauses (19c), and cannot be pied-piped (19d,e) – all in contrast to true complements.

- (19) (a) *It was stupid to wash the car of John.
- (b) %?To whom was it stupid of John to talk?
- (c) *John went home, as it was smart of him ___/as he was smart ___.
- (d) *How stupid to leave town was it of John?
- (e) *How stupid of John to leave town was it?

In support of the claim that the MP argument is also external, Stowell notes the curious fact that this argument resists A'-movement or heavy XP shift (see (19a) above).

- (20) (a) *I spoke to the man of whom it was stupid to leave town.
 (b) *It was stupid to leave town of my brother John.

Stowell tentatively suggests that the MP argument in (18b) is structurally analogous to the first object in a double object construction, which is similarly resistant to A'-movement. In any event, it is quite different from standard complements.

Stowell also appeals to the head movement of the adjective in (18b) to explain the ban on internal arguments in DerA (see section 2.4). Adopting a proposal by Pesetsky (1990), he suggests that a moved head is prevented from assigning a [-Affected] θ -role. On the assumption that the goal in sentences like (14) is unaffected, the trace of the head-raised A will be unable to θ -mark it.

3.2 Challenges to Stowell's account

While Stowell's empirical findings are extremely perceptive, I find some of his theoretical claims problematic. Two claims, however, I think are entirely correct. First, BasA is ambiguous between a stage-level and an individual-level reading, but DerA only permits the stage-level reading. Second, the infinitival argument in DerA is external.

Consider now other aspects of Stowell's proposal. Is it true that DerA always selects an action-denoting argument?

- (21) (a) Today's editorial was silly.
 (b) That fancy restaurant is quite pretentious.

It seems that EAs can be sensibly predicated of any type of object – concrete, abstract or action-denoting – as long as it can be understood as the product of human action (notice the oddity of *#These rock formations are pretentious*). Stowell is correct in claiming that a human actor is always implicated; however, the implication may be quite indirect, with no grammatical expression of the action itself.

This point is important because it undermines one of Stowell's central claims – that the external argument of DerA is equivalent to Kratzer's event argument: If the external argument need not denote an event, then it cannot be equated with the event argument. Notice that Stowell may be right – in fact, I think he is – in classifying DerAs as stage-level predicates (although he does not restrict this classification to the possessor argument). The point is that this cannot be made to follow from the (varied) nature of DerA's external argument.

Consider next Stowell's claim that when the MP argument is a subject, the action-denoting argument is optional.

- (22) (a) John was stupid.
 (b) John was stupid to leave town.

In section 2.2 I have already noted that the sense of 'optionality' here is quite unusual: (22a) does not seem to imply any action whatsoever (compare *John sent the letter*, where the omitted goal argument is necessarily implied). In fact, I would like to argue that the infinitive in (22b) is not even an argument of the adjective. Rather, it is a modifier, an adverbial adjunct headed by some null category.

- (23) John was stupid [_{AdvP} Ø [PRO to leave town]].

We may think of Ø in (23) as related to *in* in the paraphrase (24), which is systematically available for all EAs (Wilkinson 1970, 1976). Notice that the bracketed phrase in (24) is unquestionably an adjunct. Furthermore, the adjuncts in both (23) and (24) are factive.⁵

- (24) John was stupid [**in** leaving town].

Four pieces of evidence support this analysis. First, there is an unexplained asymmetry between the action-denoting argument in DerA and the one in (22b); only the former may be realized as the demonstrative *that*.

- (25) (a) Leaving town/That was stupid of John.
 (b) John was stupid to leave town./*John was stupid of that.
 (c) John was proud to leave town./John was proud of that.
 (d) John was eager to leave town./John was eager for that.

For Stowell, *of*-insertion is licensed by the presence of an external argument. Hence it is not clear what rules it out in (25b), which is thematically identical to (25a) on his analysis; compare also (25c, d), where argumental infinitives are substitutable by *that*. On the other hand, given that the PP *of that* cannot replace the adjunct in (23) – possibly because Ø and *of* are not interchangeable – structure (23) immediately explains the contrast.

Second, since AdvP can modify VPs and APs but not NPs, we predict that sentences of type (22b) will not be nominalizable. This prediction is borne out (26a). If, however, the infinitive were an argument of the predicate, it would mysteriously contrast with other argumental infinitives, which freely occur inside nominalizations (26b).

- (26) (a) John's stupidity (*to leave town), John's rudeness (*to insult Mary).
 (b) John's ability to leave town, John's eagerness to insult Mary.

[5] The shift from an infinitive to a gerund is triggered by the prepositional head of the adjunct in (24). English prepositions do not take infinitival complements.

Third, the factive clause may follow a predicate nominal but may not occur as a sentential subject. This is readily explained if the factive clause functions as an adverbial (licensed by the VP headed by the auxiliary), since adverbials may not occur as argumental subjects. (27) clearly shows that the factive adverbial is not licensed through the argument structure of the main predicate. By parity of reasoning, neither should it be so licensed in (22b).

- (27) (a) John was an idiot to reject the offer/in rejecting the offer.
 (b) *Rejecting the offer was an idiot.

Finally, it is conceivable that null heads like \emptyset in (23) are available in some but not all languages. It is less plausible that the core argument structure of EAs should differ across languages, such that they are monadic in some languages but dyadic in others. Indeed, Bennis (2000) remarks that the equivalent of (22b) in Dutch is marked, even impossible for certain speakers (28a). The Hebrew analogue is completely ungrammatical (28b).

- (28) (a) %Jan is gemeen om dat tegen haar te zeggen.
 John is mean for that to her to say
 ‘John is mean to say that to her.’
 (b) *Gil haya nexmad le’hacia lanu štiya kara.
 Gil was nice to.offer to.us drink cold
 ‘Gil was nice to offer us cold drink.’

Bennis further observes that the complementizer *om* is not omissible in (28a), as it is in complements, and that extraction from the infinitive is considerably worse than extraction out of external arguments. This behavior is characteristic of adjunct infinitives in Dutch and is unexpected under Stowell’s analysis, which derives (17b) and (17c) from the same underlying source.

Based on these considerations, I conclude that EAs come in two varieties only: BasA, a monadic predicate, which can optionally be modified by an adverbial clause;⁶ and DerA, a predicate that takes an external argument (artifact- or action-denoting), possibly a goal PP, and an optional *of*-NP, corresponding to the possessor role.

What is the exact status of this *of*-NP? First, is it an argument, and second, is it external? Stowell’s claim that the *of*-NP is a second external argument of DerA obscures the fundamental distinction between internal arguments, of which there can be more than one, and the external one, which is held to be

[6] Stowell (1991: fn.3) does recognize the possibility of analysing the infinitive in (23) as an adjunct, in fact a degree modifier, headed by an elided *enough*. Appealing as this idea may be, it cannot be sustained. As shown at length by Wilkinson (1976), the infinitive in (22b) is presupposed whereas the complement of *enough* is merely implicative (see Wilkinson 1976 and Barker 2002 for more differences between the two constructions).

(i) John was not stupid to leave town. →John left town.
 (ii) John was not stupid enough to leave town. →John didn’t leave town.

unique. Semantically, it implies that a predicate containing an external argument could still be unsaturated. Notice that the single predicate in (18b) is the lexical A; there is no ‘light *a*’ to assign the outer external role, for this would make the lower Spec an internal argument. These departures from the traditional notion of ‘external argument’ are of course legitimate; the problem is that once they are adopted, it is no longer clear that the empirical properties of the traditional external argument are seamlessly carried over to both of Stowell’s external arguments, and in particular to the inner one. As to the facts in (20), all they establish is that *of*-NPs in DerAs are not canonical complements; this is quite different from showing that they are external.

In fact, I think that Bennis (2000, 2004) is entirely correct in claiming that the *of*-NP is an adjunct. Bennis likens this adjunct to the *by*-phrase in passive, which merely doubles an implicit argument. In section 4.3 I develop a principled account of this parallelism. Indeed, on a purely observational level, the systematic optionality of the *of*-NP (cf. (11a), (12a)) – which holds throughout the class of EAs, with no lexical exceptions – strongly argues for its adjunct status.

Sentences like *That was rude*, then, pose a double puzzle for Stowell: how can an external argument be dropped (unlike canonical external arguments in English), and how come this does not violate the EPP, given that the *of*-NP is the subject of a small clause?

Finally, I think it is fair to say that Stowell’s account of the exclusion of goal arguments from DerA leaves much to be desired. The ‘affectedness’ constraint on head movement is suspect to begin with: syntactic operations should be blind to such conditions, and the LF component should not care about whether θ -roles are assigned from a singleton chain or from the tail of a multi-membered chain. Independently, unaffected arguments are widely attested in Larsonian VP-shells elsewhere (cf. *Mary* in *We recommended to Mary to see a doctor*). One hopes that the striking restriction discussed in section 2.4 follows from some deeper principle of grammar.

3.3 Bennis (2000, 2004)

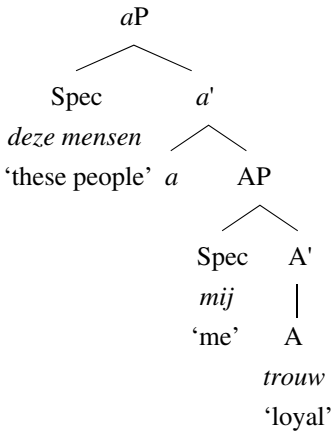
Bennis’ account is guided by the similarity between the BasA–DerA alternation and familiar verbal alternations like causative–inchoative and active–passive. In the 2004 paper, he emphasizes the parallels between DerA and passive. In both constructions, the theme becomes a subject, the former external argument becomes implicit, and it is optionally doubled by a PP adjunct (*by*-phrase in passive, *of*-phrase in DerA).

Bennis adopts the common view on external arguments in recent years, according to which they are generated as specifiers of functional heads (Chomsky 1995, Kratzer 1996). Applying this idea to adjectives, he proposes that BasAs are unergative adjectives; the possessor argument is generated in

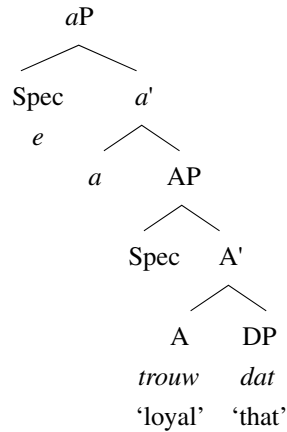
the specifier of a light *a* head. DerAs, in contrast, are what Bennis calls ‘complex ergatives’. Like ergative verbs, they lack an external argument; like unergative verbs, they do project a functional layer, although one that lacks a specifier (much like passive verbs). The structures for the two types of EA are the following.

(29) Bennis’ (2004) structures for EAs

(a) BasA (‘These people are loyal to me’)



(b) DerA (‘That is loyal’)



The indirect object *mij* may be present in (29a) but not in (29b), an asymmetry we noted in section 2.4 above (see below for Bennis’ explanation). In BasA, the external possessor raises to become subject; in DerA, the internal theme raises to become subject. Both movements are case-driven, as adjectives do not assign case. Notice the absence of the *of*-NP in (29b): unlike Stowell, Bennis takes this PP to be an optional adjunct.

The earlier version of Bennis (2000) differs from the above in two important respects. First, it was assumed that the outer layer is projected by a Cause head rather than a light *a*. Second, it was assumed that the theme in DerA is an *external* argument, the product of the operation ‘Externalize Theme’, which, when applied to BasA, absorbs the latter’s external argument, the possessor. Thus, the derivation of DerA from BasA is lexical in Bennis (2000) and syntactic in Bennis (2004).

Bennis (2000) shows that BasA takes no theme argument. The infinitive in examples like (28a) above exhibits the characteristics of an adjunct, not an argument, with respect to complementizer selection, extraction, etc. The exclusion of the theme, Bennis proposes, is deducible as follows: (i) the theme in EA is an event; (ii) the event argument is external; (iii) the possessor argument in BasA is also external; (iv) a predicate may only have a single external argument. By adopting (i) and (ii) from Stowell (1991), then, and

assuming (iv), against Stowell, Bennis (2000) explains the absence of the theme argument from BasA.

Consider finally how Bennis accounts for the incompatibility of DerA with the internal goal argument. On the lexical account of Bennis (2000), this is achieved via a special construal of the thematic hierarchy: Agent/Possessor/Experiencer >> Goal/Location >> Theme. In order for ‘Externalize Theme’ to operate on the lowest argument, any higher ones must be removed from the structure. Thus, the possessor is absorbed, becoming implicit, and the goal is left out. Projecting either of these would violate the thematic hierarchy.

On the syntactic account of Bennis (2004), the effect is attributed to relativized minimality. Objects that leave the lexical domain must first adjoin to its maximal projection. On its way to the *aP*-adjunction site, the theme DP in (29b) moves past [Spec,AP]. Should that position be occupied by the goal argument, the Minimal Link Condition (MLC) would be violated. Object raising is allowed in verbal double object passive (e.g., *That was given to her*), presumably since V-to-*v* raising makes the goal and the theme equidistant. Crucially, no analogous A-to-*a* movement is possible in (29b). Furthermore, in simple ergative adjectives there is no *aP* layer, hence adjunction of the theme to AP is not obstructed by a goal argument in [Spec,AP], both being equidistant from the adjunction site (e.g., *That was clear to her*).

To summarize, the ban on goal arguments in DerA follows, on Bennis’ account, from locality considerations – applying over either lexical or syntactic configurations.

3.4 Challenges to Bennis (2000, 2004)

Two points that Bennis makes are quite convincing: first, BasA takes no theme argument (the infinitive in such constructions being an adjunct); second, the *of*-NP in DerA is an adjunct doubling an implicit possessor role.

Nevertheless, there are problems facing Bennis’ analysis. Consider first the striking fact that BasA does not project a theme argument (recall **John was stupid of that*). This constitutes a very significant *disanalogy* between BasA–DerA alternations and verbal diathesis alternations. In passive and incohesive constructions, the promoted theme argument is also an argument of the source (causative or active) verb; not so in the adjectival case, where the so-called theme subject of DerA has no source at all in the argument structure of BasA.

Bennis (2000) fully recognizes this fact; recall that he derives it from the assumption that the theme in EAs is an event, which must be external. However, we have seen above (see the discussion surrounding (21)) that this assumption is unwarranted. In fact, Bennis’ proposal approaches a contradiction: the operation ‘Externalize Theme’ refers to an alleged argument of

BasA – the theme – which can never be expressed in BasA (or even be implicit). It is also unclear why lexical externalization of the theme-qua-event is ever needed if, as Bennis claims, events are intrinsically linked to the external position.

As to Bennis (2004), the issue is not addressed. As far as I can see, nothing prevents a theme argument from being projected as a sister to A in the syntactic configuration (29a). *Of*-insertion can take care of case-licensing.

Another puzzle left open by Bennis (2004) is the brute fact that the so-called theme argument of DerA behaves, syntactically, like any run-of-the-mill external argument. Although DerAs are unergative on Bennis' analysis, their subject is indistinguishable from the subject of passives and unaccusatives, being derived from an internal position. Nevertheless, the theme of DerA cannot be gapped in an *as*-clause, is associated with an obligatory expletive in Dutch (unlike object clauses, where the expletive is optional), and cannot launch *ne*-cliticization in Italian. While Bennis (2000) explains this behavior by the assumption that the theme is lexically externalized, Bennis (2004) leaves this question unanswered. If the subject of DerA is derived from an internal position, as (29b) implies, then it should pattern syntactically with the subject of ergative adjectives (e.g., *likely*, *known*, *clear*) – but it does not.

Consider next the explanation of the 'No goal argument' constraint operating in DerAs. It is not clear that the assumptions incorporated in Bennis' (2000) lexical account hold in general. Specifically, the claim that theme-externalization necessarily removes an 'obstructing' goal argument is falsified by the paradigm case of theme-externalization – adjectival passives (in boldface below).

- (30) (a) Despite the best efforts of the realtor, the house remained **unsold** to anyone for over a year.
 (b) Despite the complaints of the faculty, the new alumni plaza remained **dedicated** to the outgoing provost.

Here, goal arguments happily co-occur with externalized themes. In fact, if the goal argument 'stands in the way' of externalization, why can it not be externalized itself? In other words, why can (31a) not be interpreted as (31b), with an externalized goal, on a par with forms like *unassisted* and *unreached* which externalize their goal/location arguments?

- (31) (a) John was rude.
 (b) Someone was rude to John.

The Minimal Link Condition (MLC) account of Bennis (2004) also raises problems. Technically, an inherently case-marked argument – the dative goal – should not intervene in the path of A-movement, since it cannot check off the case feature of the target position (the probe). Otherwise, forms like *The book was given to me* would be impossible. Recall also that the result is

achieved by a stipulated distinction – namely, V-to-*v* exists but A-to-*a* does not. This stipulation itself is in need of explanation. Finally, note that the goal argument is excluded even when nothing moves to the subject position. If extraposition constructions with DerA involve simple expletive insertion in [Spec,TP], then the MLC will have nothing to say about them.

(32) It was rude/kind (*to Joan) to offer her your assistance.

There is also some evidence that the diathesis restriction in question has nothing to do with movement. In nominalizations of DerAs, the theme is expressed as a genitive *of*-NP. There is no reason to believe that *of*-insertion inside DPs is limited to a unique position. Therefore, there is no reason to believe that the *of*-NPs in (33)–(34) below, whether preceding or following the goal phrase, obtain their surface position via movement. Nevertheless, the occurrence of a theme precludes a goal in (33a, b) and (34a, b), just as in the adjectival variant. Notice that BasA-nominalizations, with a possessor *of*-NP, do tolerate a goal phrase (33c)/(34c). The fact that the diathesis restriction is identically replicated in nominalizations, although the case for internal movement is NOT, strongly suggests that the solution to the puzzle lies outside movement theory.

- (33) (a) The rudeness of the joke (*to Mary).
 (b) The rudeness (*to Mary) of the joke.
 (c) The rudeness of your neighbor to Mary.
- (34) (a) The kindness of such acts (*to the poor).
 (b) The kindness (*to the poor) of such acts.
 (c) The kindness of Princess Diana to the poor.

3.5 Summary

Before we lay out our proposal, it will be useful to review the major properties of EAs that must be explained.

- (35) *Properties of EAs*
- (a) There is a systematic, productive alternation between BasA and DerA.
 (b) Both BasA and DerA are syntactically unergative.
 (c) BasA is monadic (<possessor>) or dyadic (<possessor,goal>), but never takes a theme argument.
 (d) DerA is necessarily stage level with respect to the possessor, BasA may be individual level.
 (e) The possessor role in DerA is obligatory, but implicit.
 (f) DerA is monadic <'theme'>, and cannot take a goal argument.⁷

[7] 'Theme' is here in scare quotes, since, as I will argue shortly, this is a misnomer.

We have seen that Stowell and Bennis account for some, but not all, of these properties. In the analysis to follow I will attempt to meet the empirical challenge posed by the totality of properties listed in (35). Furthermore, the ingredients of the analysis will be shown to be of general validity in the grammar, beyond the domain of EAs.

4. THE ANALYSIS

The first step is to identify the external argument of DerA. I claim that this argument is a ‘referential’ argument – the same type of external argument that is assigned by nouns. This claim is developed and defended in sections 4.1–4.2. In section 4.3 I argue that the diathesis between BasA and DerA is mediated by a lexical operation that saturates ALL the arguments of the former. This unselective saturation renders both the possessor and the goal arguments inaccessible to direct syntactic projection. Section 4.4 spells out in detail how BasA and DerA are put together in the syntax, while section 4.5 returns to the properties in (35) and derives them from the proposed analysis.

4.1 *First clue: evaluative nouns*

A striking fact about DerAs, unnoticed before, is that they can often be paraphrased by a morphologically related predicate nominal. The paraphrase is close to a synonym, and is available in many languages. English displays this parallelism only to a limited degree, as in the following pair, picked from the Internet.⁸

- (36) (a) He realized that it was **cowardice** of him to shun away from his fears instead of helping the people to fight for the rights they deserve.
 (b) Nevertheless, he didn’t mince words when asked if it was **cowardly** of Mulroney to attack a man who’s no longer able to defend himself.

[8] Most evaluative nouns in English require an explicit action as an external argument, not just a product of an action. Moreover, the possessor adjunct is best expressed as an *on-the-part-of* adjunct rather than an *of*-NP. These discrepancies between the adjectival and the nominal variants vary across specific lexical items, speakers and languages; at present I have nothing to say about them.

- (i) That was selfish of John.
- (ii) It was selfish (on the part) of John to demand the best seat.
- (iii) %That was selfishness (on the part) of John.
- (iv) It was selfishness *(on the part) of John to demand the best seat.

Heidi Harley (p.c.) observes that type-(iii) sentences improve when the derived predicate nominal is emphatic.

- (v) That remark was rudeness itself/simply rudeness on the part of John.

- (37) *Dutch* (anonymous reviewer)
 Het was laf/lafheid van Jan om weg te gaan.
 it was cowardly/cowardice of John for away to go
 ‘It was cowardly/cowardice of John to go away.’
- (38) *Hebrew*
 (a) ha-he’ara ha-zot hayta xacufa/xucpa me-cido.
 the-comment the-that was rude/rudeness from-his-side
 ‘That comment was rude/rudeness of him.’
 (b) ze haya mavrik/havraka me-cidam le’hodot ba-ašma.
 it was brilliant/brilliance from-their-side to.admit in-the-guilt
 ‘It was brilliant/brilliance of them to plead guilty.’
- (39) *Hungarian* (Julia Horvath, p.c.)
 (a) Udvariatlan/udvariatlanság volt Páltól ülve maradnia.
 impolite/impoliteness was Paul.ABL seated to-remain
 ‘It was impolite/impoliteness of Paul to remain seated.’
 (b) Kegyetlen/kegyetlenség volt Páltól megvernie egy gyereket.
 cruel/cruelty was Paul.ABL to.beat a child.ACC
 ‘It was cruel/cruelty of Paul to beat up a child.’
- (40) *Italian* (Caterina Donati, p.c.)
 (a) E’stato maleducato/?una maleducazione da parte di Gianni
 has-been impolite/?an impoliteness from part of John
 fare quel commento.
 to-make that comment
 ‘It was impolite/impoliteness of John to make that comment.’
 (b) Fare quel complimento è stato carino/una carineria
 to-make that compliment has been nice/a niceness
 da parte di Gianni.
 from part of John
 ‘Making that compliment was nice/niceness of John.’

In fact, in certain languages the nominalized adjective is not just a paraphrase – it is the *only* way of expressing the meaning of DerA. Marathi and Hindi are two such languages.⁹ The suffix *-paNaa* in Marathi derives an evaluative noun from an unambiguously basic adjective.

- (41) *Marathi* (Veena Dixit, p.c.)
 (a) piTara swarthi: hotaa.
 Peter selfish was
 ‘Peter was selfish.’

[9] Hungarian is partially so; some of (the Hungarian equivalents of) the adjectives in (5) must be nominalized to express the derived variant (e.g., *stupid*) while others are nominalized only optionally (e.g., *clever*), the division being seemingly idiosyncratic (György Rakosi, p.c.).

- (b) to piTara chaa swaarthi-paNaa hotaa.
 that Peter of selfishness was
 ‘That was selfish of Peter.’

In Hindi, three nominal suffixes – *-taa*, *-ii* and *-pan* – are used to derive evaluative nouns from basic adjectives. The choice of suffix is fixed for each root.

- (42) *Hindi* (Anoop Mahajan, p.c.)
 (a) Raam ashisht/acchaa/bholaa thaa.
 Raam rude/nice/innocent was
 ‘Raam was rude/nice/innocent.’
 (b) vah Raam-ki/kaa ashish-taa/acchaa-ii/bholaa-pan thii/thaa.
 that Ram.GEN rudeness/niceness/innocence was
 ‘That was rude/nice/innocent of Ram.’

I would like to argue that some of the puzzling properties in (35) cease to be so once we take the alternation between EAs and evaluative nouns (ENs) seriously. In particular, let us consider what we can learn about EAs from what we already know about nominalizations.

As argued by Grimshaw (1990), complex event nominals inherit the argument structure of their source verb – with two important changes. First, a novel argument – the event argument *Ev* – is added as the external argument of the nominal; second, the original external argument of the source verb is suppressed. This is illustrated in (43).

- (43) (a) Mary assigned problems to the students.
assign: <agent,theme,goal>
 (b) The frequent assignment of problems to the students.
assignment: <*Ev*,agent-Ø,theme,goal>

Because the external argument of the verb is suppressed, it is always optional, as opposed to internal arguments, whose presence in the nominalization reflects the subcategorization requirements of the base verb (e.g., **The frequent assignment to the students*). Suppression also accounts for the possibility of designated adjuncts (*a*-adjuncts, in Grimshaw’s terminology) identifying the suppressed external argument, in the form of a possessor or a *by*-phrase. Even without the adjuncts, the suppressed external argument is implicitly present, as evidenced in familiar tests involving purposive modifiers. In all these respects, event nominalization seems entirely parallel to verbal passive.

More recent advances urge us to modify some of Grimshaw’s assumptions. First, given the ample evidence for a Davidsonian event variable in the argument structure of verbs, one should probably say that the *Ev* argument in (43) is not ADDED to the verb, but rather RETRIEVED and used in the formation of the nominal. Moreover, there is compelling evidence that event nominalizations contain VP as a subconstituent (for recent defenses of this

idea, see Fu, Roeper & Borer 2001, Shlonsky 2004). This provides for an elegant analysis of the optionality of the external argument in derived nominals. When the nominal contains an active VP, the external argument is projected (*John's frequent illustration of the theory*); when it contains a passive VP, the external argument is suppressed (*The frequent illustration of the theory*). As shown in Borer (1999), the passive-within-NP analysis explains why accusative case inside NP depends on the presence of the external argument.

The core insight of this analysis, I think, is the following:

- (44) There is a class of derivations creating a predicate B from a predicate A, where
- (i) B acquires a novel external argument;
 - (ii) A's external argument is saturated.

The alternation of EAs seems to fall into this pattern.

- (45) (a) John was rude (to Mary). BasA
 (b) That was rude (of John) (*to Mary). DerA

As Bennis (2000, 2004) observed, the external argument of BasA is saturated in DerA, licensing an optional adjunct, the *of*-NP. In its stead, a novel argument appears in the external position of DerA, realized by *that* in (45b). Recall that we have established in section 3.2 that this argument is *not* a theme argument inherited from BasA. Formally, then, the external argument added to BasA in the formation of DerA is analogous to the event argument of verbs which is externalized in the formation of event nominalizations.

To understand this parallelism, we need to address two questions at this point. First, what is the nature of the external argument of DerA? Second, why is the goal argument not expressible in DerA? I take up the first question in the next section and return to the second one in section 4.5.

4.2 *The R relation (reification)*

The sense of utterances like *That is rude* is something like 'That expresses rudeness', or 'That is an instance/token/realization of rudeness'. This becomes even clearer when we consider the paraphrase *That is rudeness*. Nominal predications like the latter have been analyzed by several authors (Williams 1981, Higginbotham 1985, Grimshaw 1990). These authors suggest that the predicative capacity of nouns stems from the fact that all nouns assign a special external θ -role – dubbed *R*. *R* stands for the referential property of nouns; however, 'reference' here must be construed very broadly, allowing extreme cases like *The next US president will be a Democrat*, *A square circle is an impossibility*, and indeed, *That was rudeness*.

Perhaps a more appropriate rendition of *R*, still preserving the same initial, would be the REALIZE relation. This relation holds between any nominal

and its external argument. In argument positions, the external slot of the nominal (and possibly the event variable) is ‘closed off’ by the D^0 head, an unselective operator; in predicative positions, the external R role is assigned to the subject.

As is well known, nominals divide into those that denote complex events (‘process nominals’), and all the rest – those that denote the outcome of events (‘result nominals’), concrete nouns, abstract nouns, etc. Grimshaw (1990) distinguishes these two categories in terms of their external argument – *Ev* for event nominals, *R* for other nominals. I will retain the basic dichotomy under a different conceptualization.¹⁰

Assume that all nominals implicate the *R* relation; however, in the case of event nominals the relata of *R* are an individual and an event, whereas in the case of other nominals they are two individuals.

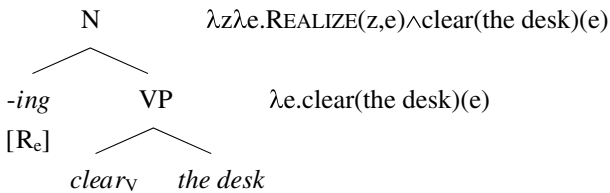
(46) *The R relation: denotations*

(a) *Event nominals*: $[[R_e]] = \lambda z \lambda e. \text{REALIZE}(z, e)$

(b) *Other nominals*: $[[R]] = \lambda z \lambda x. \text{REALIZE}(z, x)$

R is part of the meaning of any nominalizing affix, and sometimes it exhausts that meaning. It combines with the meaning of the lexical stem through Identification: Event Identification (Kratzer 1996) if the stem denotes a property of events, or Theta Identification (Higginbotham 1985) if it denotes a property of individuals. I will use the term REIFICATION to describe the result of combining *R* with a predicate. Intuitively, *R* reifies some object – abstract or concrete – as the embodiment of the predicate.¹¹

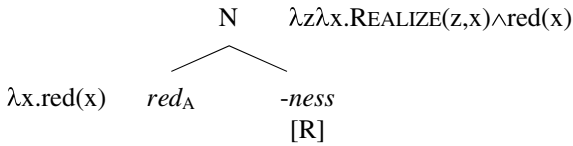
(47) *Event nominal: clearing the desk*



‘*z* is a token of clearing the desk iff *z* realizes an event of clearing the desk’

[10] From this point on I will refer to ‘complex event nominals’ (in Grimshaw’s sense), which introduce an event variable, simply as ‘event nominals’.

[11] An anonymous reviewer asks whether *That is red* and *That is redness* are expected, on this analysis, to overlap in meaning. The answer is positive, I think (e.g., in a context where I point to some red object which cannot be easily classified or named). Still, it is clear that the meanings are usually distinct. A reification of a property (*redness*) is not necessarily an instantiation of the property (*red*); thus Realizer arguments are typically more abstract than direct arguments of the base property.

(48) *Other nominal*: redness

‘z is a token of redness iff z realizes (manifests) a red object’

Notice that positing two kinds of denotations for nominal affixes merely encodes the indisputable fact that two types of nominals, with very different semantic properties, in fact exist in every language. Furthermore, the two denotations are often associated with distinct morphemes (e.g., *-ing* is always eventive in English, *-hood* never is).

World knowledge affects the particular way in which we interpret θ -roles, and REALIZE is no exception. The AGENT of *kick* must engage in some physical action, unlike the AGENT of *decide*, for example. Similarly, the REALIZER of *pilot* must be a physical entity, unlike the REALIZER of *gratitude*. This is the norm with θ -roles, which pick out an extremely narrow semantic aspect of their bearers, disregarding the rest.

I would like to suggest that the external argument of DerA is assigned the R role, just like the external role of the corresponding evaluative noun.¹² This is the first theoretical consequence of the facts observed in (36)–(42). In section 4.5 we will see that for independent reasons, only R_e , the eventive variant, may successfully apply in DerA. Somewhat simplified, the result of this combination will look as follows.¹³

(49) That comment is rude.

$$[[rude]] = \lambda e. rude(e)$$

$$[[R_e(rude)]] = \lambda z \lambda e. REALIZE(z,e) \wedge rude(e)$$

$$[[R_e(rude)]](that\ comment)] = \lambda e. REALIZE(that\ comment,e) \wedge rude(e)$$

‘That comment realizes an event of rudeness.’

Taking the external argument of DerA to bear the REALIZE relation immediately solves some difficulties with Stowell’s and Bennis’ accounts. We are no longer committed to the view that the subject of DerA must be an

[12] Therefore, the capacity to assign an R-role is not exclusive to nouns. In section 6 I return to some broader implications of this claim.

[13] Throughout, I am assuming that (i)–(iii) are all manifestations of DerA. The REALIZER is a DP in (i), a gerund/infinitive in (ii) and (iii), and is extraposed in (iii). The argument structure of the adjective is the same.

(i) That comment is rude.

(ii) Making that comment/To make that comment is rude.

(iii) It is rude to make that comment.

action-denoting argument, since a REALIZER is not intrinsically specified for semantic type; the semantic restrictions on such an argument, in each case, depend on the specific predicate that applies to the argument. Nor do we have to worry about the absence of the alleged theme argument from BasA (**John was stupid of that*). By assumption, R is an external argument. Since the external argument of BasA is already assigned the possessor role, there is no room for the R-argument.

Moreover, complications arising out of the presence of a theme in an external position – despite evidence for syntactic *unergativity* – simply dissolve. In particular, there is no longer any motivation for an unaccusative derivation, where the subject of DerA is promoted from an AP-internal complement position. Finally, we understand the alternation between EAs and ENs in many languages. The canonical introducers of the R-argument, in all languages, are the nominalizing affixes; indeed, in some languages (e.g., Marathi and Hindi), *only* nouns project an R argument. Since the external argument of DerA is precisely the type of argument associated with the external role of nominals, it is completely natural to find ENs alternating with EAs.

4.3 *Unselective saturation*

As noted above, it is commonly assumed that part of what the passive morpheme does is to saturate the external argument of the active verb. Furthermore, Grimshaw (1990) suggests that the nominal affix in event nominalizations is performing precisely the same function.

A question that is rarely raised is *why* the external argument is special in this regard. Why is there no comparable, systematic lexical operation that saturates only internal arguments?¹⁴ Of course, recent proposals (Chomsky 1995, Kratzer 1996) do propose that external arguments are special, in the sense that they are introduced by functional heads above the lexical projection. Yet this specific property, to my knowledge, has never been used to explain the exclusive application of saturation to external arguments.

This explanatory gap, I think, reflects the fact that not much is known about the inner workings of the saturation operation. Existing proposals hardly go beyond assuming existential binding. The proposal I develop in this section attempts to put more flesh on this notion of saturation. We will construct a general operation, SAT, that will account for the major types of argument saturation. Crucially, this single operation, interacting with independent principles, will explain why saturation applies to all arguments in some cases (evaluative adjectives), but only to the external argument in others (passive and event nominalization).

[14] This may be an overstatement; see section 6 for possible instances of internal saturation.

Let me start with a key assumption: on natural compositional grounds, SAT should apply to predicates, not to arguments. Thus, it is a property of the passive PREDICATE that its external argument is saturated. In particular, reference by SAT to specific arguments of the predicate it applies to is prohibited. In this sense SAT is an unselective operator. Apparent selectivity of SAT, when attested, must be traced to independent factors.

Some care must be taken in the precise statement of this condition. Saturation, by its very nature, makes an argument inaccessible to syntactic projection. What will then be the fate of an argument that is already, in principle, inaccessible to syntactic projection? We may suppose that such an argument will, ipso facto, be exempt from saturation. The Davidsonian event argument appears to be of this nature – it is never syntactically projected. Plausibly, then, it should not be affected by saturation.¹⁵

SAT is a lexical operation. The SAT operator has no argument structure in the traditional sense; as we will see below, even its semantic type is flexible. It applies to heads, not to phrases. Furthermore, SAT is unspecified for category. Lacking argument structure and syntactic category, SAT may not project as an independent syntactic head. Therefore, it must attach to its host predicate in the lexicon. The result is a sort of a complex head, perhaps in the sense of Embick (2004).

To be completely general, SAT must be able to apply to predicates of arbitrary valence. A definition meeting all these conditions is given below (D_e is the domain of individuals, D_s is the domain of eventualities).

- (50) For any n -place predicate $P(x_1, x_2, \dots, x_n)$, $n \geq 1$,
 where for any $i \leq n-1$, $x_i \in D_e$:
- (a) If $x_n \in D_e$, then $SAT(P) = \exists x_1 \exists x_2 \dots \exists x_n [P(x_1, x_2, \dots, x_n)]$
 - (b) If $x_n = e \in D_s$, then $SAT(P) = \lambda e. \exists x_1 \exists x_2 \dots \exists x_{n-1} [P(x_1, x_2, \dots, x_{n-1}, e)]$

Put simply, SAT existentially binds all the individual-type arguments of the predicate to which it applies. In this sense, saturation is unselective. If there is an event variable, the result of applying SAT to P is a predicate of events (type $\langle s, t \rangle$). If there is no event variable, the result is a proposition (type t).¹⁶

My claim is that SAT is crucially implicated in the derivation of DerA from BasA. In particular, before the external role R is introduced, all the original arguments are suppressed. This is why the possessor role can only be

[15] A more liberal implementation could allow SAT to select only the TYPE of the variables it applies to, thus distinguishing individual arguments from the event argument. Whether cognate objects are the projection of event variables is an open question, which in any event does not bear on the present case, since adjectives do not license cognate objects. Notice that for simplicity, I disregard intensional types.

[16] We need to allow the latter option, since individual-level predicates – presumably lacking an event variable – may be saturated in the passive (e.g., *This house was owned by Benjamin Franklin*).

expressed as an adjunct (the *of*-NP) and the goal argument is excluded. In fact, the latter can also be expressed as an adjunct, as noted in (16) above. As I show below, the joint effect of SAT and R is to explain all the peculiar properties of these constructions.

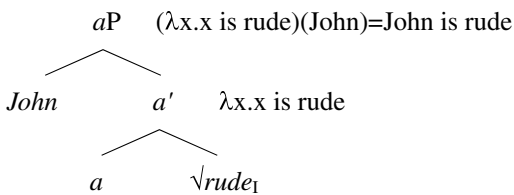
4.4 Building up EAs

We are now in a position to offer a fully explicit derivation of EAs. I will present this derivation in the standard form of a syntactic tree, in line with the general framework of Distributed Morphology (DM). I will also follow DM practice in assuming that roots and categorial features are combined in the syntax, although this assumption will be of secondary importance.

Consider first the simpler case of BasA. As noted in section 2.3, these adjectives are often ambiguous between a stage-level and an individual-level reading. The former is facilitated, but not forced, by the presence of a goal phrase. I will assume that BasAs appear in two varieties – with or without an event variable (setting aside the question of how these varieties are related to each other, whether one of them is derivative, etc.). The two types are represented below.

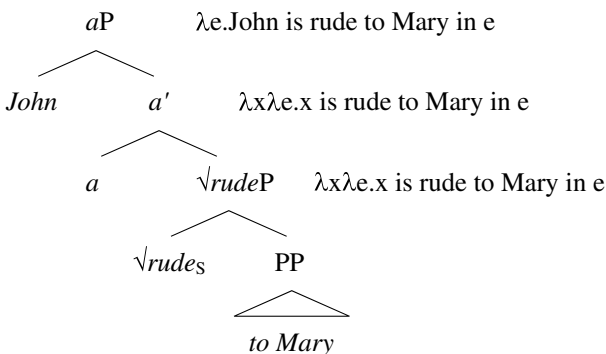
(51) (a) John was rude.

$[[\sqrt{\text{rude}}_1]] = \lambda x.x \text{ is rude}$



(b) John was rude to Mary.

$[[\sqrt{\text{rude}}_s]] = \lambda y \lambda x \lambda e.x \text{ is rude to } y \text{ in } e$

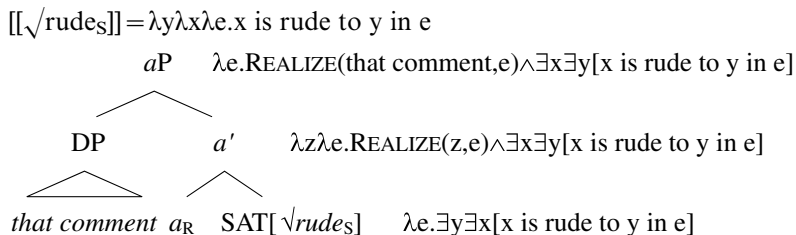


The first thing to note here is that the adjectivizing head *a* does not project any argument. While it is possible (perhaps likely) that it contributes some

semantic features to the root (e.g., scalar structure), valency is not one of them. Thus the argument structure of a' is inherited from the sister of a . Notice that if *John* were made a semantic argument of a in (51a), it would no longer be clear what could remain in the denotation of the individual-level root $\sqrt{\text{rude}}_i$. Finally, we will see shortly that the semantic transparency of the aP layer is actually crucial in explaining the particular saturation effects observed in DerA.

Consider now how DerA is derived. Here I propose that both saturation (SAT) and reification (R) apply. Recall that SAT applies prior to lexical insertion. I will assume that SAT takes the stage-level root as an argument (other possibilities are ruled out, as will be seen below). In contrast, R, introducing the external argument, is the semantic value of the adjectivizing head, which will accordingly be labeled a_R (cf. the verbalizing head v , whose semantic value is the AGENT function).

(52) That comment was rude.



The meaning of this structure is: ‘events that are realized by that comment, and in which there are x and y , where x is rude to y ’. This seems correct. Notice that the order of composition of the operators with the root follows from the sequencing of lexical and syntactic operations. In fact, as we will see in the next section, any other combination will yield an ill-formed result.

The distinction between a and a_R is well-motivated, given the semantic differences between BasA and DerA. Naturally, it would gain more support if we could demonstrate that the two abstract heads may be spelled out by different morphemes. The discussion in section 4.1 has shown that in some languages, a_R is in fact n_R , i.e. derived evaluative predicates are nominal, not adjectival. But is there any morphological evidence for a distinction internal to adjectives between BasA and DerA?

In the languages discussed above – English, French, Italian, Dutch, etc. – there seems to be no such evidence. In Hebrew as well, most EAs do not change form in their two guises. A few EAs, however, do. Interestingly, the morphologically basic form corresponds to BasA, while the complex one corresponds to DerA. The derivational suffix *-i* is used to derive the latter from the former.

(53) (a) Gil haya tipeš/ga'on/idyot.
 Gil was stupid/genius/idiot

- (b) ze haya tipši/*tipeš me-cido šel Gil.
 that was stupid from-his.side of Gil
 ‘That was stupid of Gil.’
- (c) ze haya ge’oni/*ga’on me-cido šel Gil.
 that was genius from-his.side of Gil
 ‘That was brilliant of Gil.’ (Lit. ‘That was genius-like of Gil’)
- (d) ze haya idyoti/*idyot me-cido šel Gil.
 that was idiotic from-his-side of Gil
 ‘That was idiotic of Gil.’

The BasAs in (53a) cannot be used as DerAs in (53b–d); for these specific roots, the spellout of *a* and a_R are necessarily distinct. In fact, the English DerA *cowardly* (see (36b)) is probably derived from the basic evaluative noun *coward* by a similar process. That such cases exist – we expect that deeper crosslinguistic investigation will reveal more of them – is not surprising under the present analysis. It is similarly predictable that a_R , the semantically contentful head, rather than *a*, the semantically null one, implicates morphological complexity.¹⁷

4.5 Explaining the properties of EAs

In this section I show how the proposed analysis explains the cluster of properties associated with EAs. Recall the major properties to be explained, repeated from (35).

(54) Properties of EAs

- (a) There is a systematic, productive alternation between BasA and DerA.
- (b) Both BasA and DerA are syntactically unergative.
- (c) BasA is monadic (<possessor>) or dyadic (<possessor,goal>), but never takes a theme argument.
- (d) DerA is necessarily stage level; BasA may be individual level.
- (e) The possessor role in DerA is obligatory, but implicit.
- (f) DerA is monadic <‘theme’>, and cannot take a goal argument.

Properties (54a–c) follow straightforwardly from the structures in (51) and (52). By applying SAT to BasA and embedding the result under a_R , we derive the corresponding DerA, accounting for the systematic, productive

[17] The DerA in (53b) further involves vowel-deletion in the second syllable of the stem – a consequence of an independent prosodic constraint on foot size operating in several paradigms in the Hebrew lexicon. Notice that the derived forms can be used with a human subject: e.g., *Gil haya tipši* ‘Gil was stupid’. Such a sentence, however, does not imply that Gil is intellectually challenged; rather, it says that something about Gil (his manner, appearance, etc.) is stupid. This is precisely what we expect if Gil is understood as a Realizer, rather than a possessor, of the evaluative property.

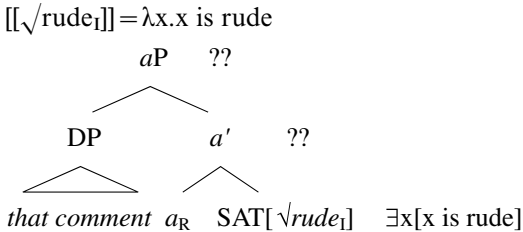
alternation between the two forms. Notice that failure to reify the saturated predicate would leave a predicate whose sole unsaturated argument is an event variable. But event variables are not projectable to syntax, hence the predicate would be unable to license any syntactic argument – by assumption, an illicit situation. Similarly, re-applying SAT to a_R would leave the resulting adjective with no projectable arguments. In this sense, saturation leads to different results in the adjectival and the verbal domains, since a saturated light v produces a well-formed output (namely, passive; see section 5.1).

If the criterial property of unergativity is that the highest argument is generated in the specifier of a functional head, then both EA types are unergative. Notice that a semantic notion of unergativity is insufficient, at least for BasA, since the functional head a is semantically empty.¹⁸ As to the argument structure of BasA, the options are (51a) or (51b) – neither of which contains a theme argument.

Consider the less trivial properties (54d–f). One of the surprising effects of the shift from BasA to DerA is the loss of the individual-level reading. What is it about the constitution of DerA that necessarily requires the presence of an event variable?

Although (51) presents two variants of BasA, only one of them – the stage-level root \sqrt{rude}_S – forms the kernel of DerA in (52). It turns out that if we plug in instead the individual-level root \sqrt{rude}_I , the result is uninterpretable.

(55) That comment was rude.



The R operator can relate two individuals, or an individual and an event (by Function Application); it can also relate an individual and a property (by Identification); but it cannot relate an individual and a proposition – the type of $SAT[\sqrt{rude}_I]$. Conceptually, it is hard to imagine how an individual can realize (express, instantiate) a proposition. Since \sqrt{rude}_I has nothing but individual-type arguments, saturation turns it into a proposition. By contrast, in virtue of harboring an event variable which ‘escapes’ saturation, a saturated \sqrt{rude}_S remains a predicate (of events) – a suitable argument for the R operator. We thus derive property (54d).

[18] This implies that ergative adjectives (Cinque 1990), whose subject is an internal argument, lack the aP layer. Their predicative head must therefore be intrinsically specified for category (i.e., Adj).

If this reasoning is correct, we derive a strong prediction: adjectives that are unambiguously individual level will not participate in the EA alternation. The reason is that upon saturation, the root of such adjectives becomes a closed proposition, which cannot be reified by R. Indeed, I suspect that this is the underlying reason for the ungrammaticality of the examples cited in (9), repeated below.

(56) *That was obese/famous/important of John.

Such adjectives, although ‘evaluative’ in the general sense, are strictly individual level. This is independently verifiable by the standard methods.

(57) *When John is obese/famous/important, people tend to shun him.
[cf. When John is rude/nice/selfish, people tend to shun him.]

Naturally, to the extent that coercion may generate a marginal stage-level reading for these adjectives, they are expected to give rise to marginal DerAs.

Finally, consider properties (54e) and (54f). In the earlier accounts of Stowell (1991) and Bennis (2004), these two were unrelated. For Stowell, in fact, the *of*-NP was the possessor argument itself, and not a doubling adjunct; section 3.2 discussed the reasons why this cannot be right. For Bennis (2004), the possessor role is implicit in DerA because the *a* head in (29b) is defective, failing to project a specifier; the exclusion of the goal is attributed to the MLC.¹⁹

The present analysis not only avoids the difficulties arising under the earlier accounts, it also offers a more parsimonious treatment. *Both* the possessor and the goal slots are saturated in DerA; hence, neither can be projected as an argument. This is an inevitable consequence of the unselective nature of SAT.

The parallelism I would like to highlight is the following:

- (58) (a) John was rude.
(b) *That was rude John.
(c) That was rude of John.
- (59) (a) John was rude to Mary.
(b) *That was rude to Mary.
(c) That was rude towards Mary.
- (60) (a) John invited Mary.
(b) *Mary was invited John.
(c) Mary was invited by John.

Direct projection of the possessor and the goal roles is impossible due to the fact that they are saturated (58b)/(59b). The only alternative is to introduce

[19] Bennis (2000) does derive the two effects from different aspects of a single operation involved in DerA – ‘Externalize Theme’. However, we have presented much evidence that the external argument in DerA is neither a theme nor externalized from any internal position.

an adjunct doubling the saturated argument slot, as in (58c)/(59c). The situation is entirely parallel to the doubling of a saturated agent slot in passive by a *by*-phrase (60b–c) (in section 5.1 we return to passive formation).

An obvious objection to this line of reasoning would attribute the ungrammaticality of (58b) to Case theory, on the assumption that adjectives do not assign structural case. On this alternative view, the parallelism between (58b) and (59b) is spurious: while the former is explained by the Case Filter, the latter reflects a semantic restriction on argument realization (possibly due to saturation).

The alternative is *prima facie* less appealing, in that it replaces a unitary analysis by a dual one. It is also empirically dubious. If Case were the only thing that mattered in (58b), one would expect languages to consistently insert some dummy preposition in such contexts. While English obscures the true state of affairs (since *of* spells out both the dummy and the ‘ablative’ prepositions in the language), other languages reveal that the characteristic preposition selected by DerA is i) semantically rich and ii) morphologically complex. In Hebrew and Italian (see (38), (40)), for example, it consists of the sequence *from–side–of*. Using such prepositions to save an otherwise licensed argument is simply implausible. Recall also that both Stowell and Bennis adduce much evidence to the effect that the *of*-NP is not an internal argument of DerA. Thus, we have converging reasons to maintain that it is an adjunct doubling a saturated argument slot.

Property (54f), then, follows from the architecture of DerA. Suppose we try to generate a goal phrase under a_R . Saturation must be avoided, to allow the goal to be projected. Hence the possessor role is also assigned. That role, however, is external, merged in the specifier of *a*. In order to introduce a Realizer argument, we need the alternative head a_R . Either the *a* head is not projected, leaving the possessor role unassigned;²⁰ or both *a* and a_R are projected, violating morphosyntactic well-formedness.

- (61) (a) *[*that* [a_R [$\sqrt{rude_S}$ [*to Mary*]]]] → possessor unassigned
 (b) *[*that* [a_R [*John* [*a* [$\sqrt{rude_S}$ [*to Mary*]]]]]] → two *a* heads

Other options are excluded as well. SAT(*a*) cannot be used as the head of the AP, since it is semantically undefined (*a* has no denotation). Nor can SAT project independently, for reasons discussed above. The only well-formed output – (52) – is one in which both the goal and the possessor role are saturated.

To summarize, we have argued that DerA is derived from BasA by successive application of saturation and reification. The former operation

[20] Technically, R in (61a) applies directly to $\sqrt{rude_S}P$. However, R – a type $\langle e, \langle e/s, t \rangle \rangle$ operator – may only apply to individuals (by Function Application) or to one-place predicates of type $\langle e/s, t \rangle$ (by Identification). $\sqrt{rude_S}P$ is a two-place predicate of type $\langle e, \langle s, t \rangle \rangle$; the expression R($\sqrt{rude_S}P$) is thus uninterpretable.

existentially binds all but the event variable of the adjective; the latter introduces a Realizer of this event. The order of application need not be stipulated, while the joint effect derives all properties of the alternation.

5. THE BROADER RELEVANCE OF R AND SAT

Naturally, the proposed analysis for EAs will gain more plausibility the more we can justify its individual components on independent grounds. Specifically, we ought to be looking for the effects of the two operators involved in DerA – R and SAT – in other environments. Section 5.1 discusses two contexts where these operators give rise to apparent selective saturation of the external argument: passive verbs and derived (event) nominals. Sections 5.2 and 5.3 discuss two other cases of adjectival alternations – involving subject-experiencer and object-experiencer adjectives – that replicate the pattern of unselective saturation of EAs.

5.1 *Apparent selective saturation: external arguments*

Unselective saturation explains why neither the external argument of BasA nor the internal one are projectable in DerA. Indeed, this uniformity constitutes a strong argument in favor of the unselective nature of saturation. But now we face an obvious challenge: How come saturation *appears* to be selective in passive and in so-called ‘passive’ event nominals, singling out the external argument (e.g., agent), and sparing the rest (e.g., goal)?

- (62) (a) Money was allocated to grandiose projects.
 (b) The frequent allocation of money to grandiose projects by government officials.

Recall that on top of the empirical justification against selective saturation, there was an equally strong conceptual argument; namely, an operator applying to a predicate should have no access to particular positions in the predicate’s argument structure. The puzzle, then, is this: how can we reconcile the strongly motivated unselective SAT with the equally strongly motivated observation that passive verbs and nominals selectively saturate the external argument slot but not the internal ones?

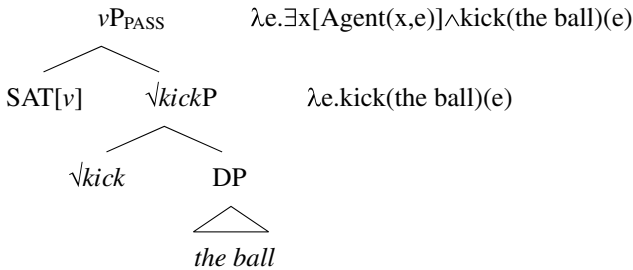
The answer to the puzzle is straightforward if we take into account the fact that the functional category heading the passive verb phrase is semantically contentful. As such, it is a suitable host for the SAT operator, which need not attach as low as the root. Saturation at the level of light *v* comes ‘too late’ to affect internal arguments; thus, it leaves its mark on the external argument alone.

Consider first the derivation of passive verb phrases. The result of applying SAT to the agentive *v* is a predicate of events. This predicate combines with the $\sqrt{\text{rootP}}$ denotation by Predicate Modification, as shown below.

(63) The ball was kicked.

$[[v]] = \lambda x \lambda e. \text{Agent}(x, e)$

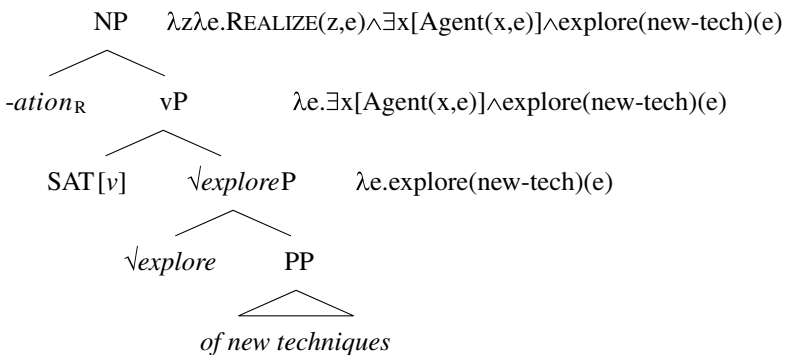
$[[\text{SAT}(v)]] = \lambda e. \exists x [\text{Agent}(x, e)]$



It will now be understood that the appearance of selective saturation in passive is misleading. The saturation operation itself is unselective; it applies to all of the unsaturated argument slots of v – which happen to consist of just the external slot. The internal argument slots are buried too deep in the structure to be visible to SAT.

A similar treatment is readily available for passive event nominalizations (and presumably, *-able* adjectives). Following the syntactic approach to derived event nominals (Hazout 1991, Valois 1991, Fu 1994, Borer 1999, Fu et al. 2001, Shlonsky 2004), I will assume that such nominals consist of a nominal head (an affix) embedding a full vP structure; the surface word-order is obtained by V-to- v -to-N movement. Assume further that derived nominals of type (62b) are really passive, i.e. the vP they embed is passive (Borer 1999). The structure of passive event nominals, therefore, is straightforwardly obtained by combining a passive vP with a nominalizing affix that carries the R argument (recall from section 4.2 that all nouns project an R argument).²¹

(64) The exploration of new techniques by researchers.



[21] In contrast, there is solid evidence from binding and secondary predication that the agent argument in *active* event nominalizations (lacking an overt subject) is not saturated but rather is projected as PRO/pro (Chomsky 1986, Roeper 1987, Safir 1987).

With an internal subject (*Our exploration of ...*), *v* will occur without SAT and will project a specifier. Notice that the analysis will not substantially change under a lexicalist view of derived nominals (Chomsky 1970, Grimshaw 1990). The only difference would be that the *v*P layer in (64) would be missing and the [SAT] operator would be bundled together with R on the nominalizing affix.²²

5.2 Subject-experiencer adjectives

The EA alternation is not the only instance of unselective saturation in adjectival diathesis. Another case with similar properties involves subject-experiencer (SubjExp) predicates.²³ Many SubjExp adjectives can be predicated of either a person or a person's manner/words.

- (65) (a) Mark was optimistic.
 (b) Mark's speech was optimistic.

Higgins (1973) observed that a complement to the adjective can only appear in the first context (the following paradigms are adapted and expanded from Pesetsky 1995).

- (66) (a) John was proud (of his son).
 (b) Tom was fearful (of an earthquake).
 (c) Sue was angry (at the exam).
 (d) Helen was furious (at the results).
 (67) (a) John's manner was proud (*of his son).
 (b) Tom's attitude was fearful (*of an earthquake).
 (c) Sue's expression was angry (*at the exam).
 (d) Helen's reaction was furious (*at the results).

This pattern exactly mirrors the EA alternation. (67) further shows that the absence of the internal argument from DerA is not a consequence of its being a goal; even when the internal argument is a Subject-Matter (in the sense of Pesetsky 1995), it is excluded in parallel contexts.

Just as with EAs, it is easy to see that the derived variants in (67) only permit a stage-level reading, whereas the basic variants (66) are ambiguous

[22] In principle, nothing prevents one R operator from applying after another, as long as both are morphologically licensed. Indeed, forms like *The rudeness of such acts* (cf. (33)–(34)) involve two reifications: first BasA is reified by a_R , generating DerA, which is subsequently reified by the nominalizer $-ness_R$.

[23] The facts were first noted by Higgins (1973) (see Pesetsky 1995 and McGinnis 2001 for analyses). Pesetsky (p. 65) observes that the pattern extends to 'agentive' adjectives like *wary*, *attentive* and *stingy* – which I would classify under EAs.

between a stage-level and an individual-level reading. The following are non-contradictory:

- (68) (a) Sue's expression was angry, though she wasn't an angry person at all.
 (b) Tom wasn't a fearful man, but his attitude was often fearful.

There are two apparent disanalogies between SubjExp adjectives and EAs that must be addressed. First, the Realizer of derived SubjExp adjectives is more restricted than the Realizer in DerA in that it can only express an attribute of the experiencer argument, not an event initiated by him/her. Notice that the problem in (69b) is not related to the need to control the PRO subject of the infinitive, as (69c) makes clear.

- (69) (a) That behavior was rude/proud.
 (b) It was rude/*proud to behave that way.
 (c) For John to behave that way was rude/*proud.

I assume that such restrictions are typical of s-selectional relations between predicates and their arguments. Whether or not they are amenable to systematic analysis is a question I leave for future research.

The second disanalogy between SubjExp adjectives and EAs is that the former do not provide any means of expressing the original experiencer in the derived variant; the *of*-NP adjuncts in (70) are all impossible.

- (70) (a) *John's_i manner was proud of him_i.
 (b) *That attitude was fearful of Tom.
 (c) *Sue's_i expression was angry of her_i.
 (d) *That reaction was furious of Helen_i.

Sentence (70b), for example, cannot mean 'Tom's attitude revealed that he was fearful'. One could perhaps explain away (70a, b): if the genitive case of these adjectives were linked to the internal argument, it would not be available to the (doubled) possessor. Examples (70c, d), however, clearly show that even psych adjectives selecting a preposition other than *of* (like *at*) for their internal argument do not allow the saturated external (experiencer) slot to be doubled by an *of*-NP. In Hebrew, where the designated preposition for the doubling adjunct never occurs with arguments, the difference between evaluative and psychological adjectives is vividly illustrated by morphologically related forms (in (71), *paxdani* and *mefoxad* both come from the same root *p-x-d*).

- (71) ze haya paxdani/*mefoxad me-cido šel Gil.
 that was cowardly/*scared from-his.side of Gil
 'That was cowardly/*scared of Gil.'

The problem is restricted to the experiencer role. An adjunct headed by *regarding/with regard to* can double the saturated Subject-Matter argument slot.

- (72) (a) ha-hitnahagut šel Gil hayta zo'emet be-yaxas la-/*al
 the-behavior of Gil was furious in-relation to.the/at
 ha-tvusa.
 the-defeat
 'Gil's behavior was furious regarding/*at the defeat.'
- (b) ha-giša ha-zot hayta mefoxedet be-yaxas le-/*me-
 the-attitude the-this was scared in-relation to-/*of
 iyumim ešariyim.
 threats potential
 'This attitude was scared with respect to/*at potential threats.'
- (c) ha-ne'um šel ha-nasi haya me'od ge'e be-noge'a
 the-speech of the-president was very proud concerning
 le-/*be-hesegey ha-cava.
 to-/*in-achievements the-army
 'The president's speech was very proud concerning/*of the army's
 achievements.'

Two possible explanations for the restriction seen in (70) come to mind. It may be that the experiencer role in (70) is not saturated, but rather is completely absent from the argument structure of the derived variants. If so, this case is not really parallel to the EA case. In particular, the exclusion of the internal arguments in (67) would be unrelated to saturation (which should have affected the external role as well). Alternatively, we may maintain that the experiencer role is saturated in (70); however, *of* is not a semantically suitable preposition to introduce the doubling adjunct.

The second option is to be preferred in principle, since it offers a unified explanation where the first option does not. Empirical considerations point in the same direction. Notice that semantically, utterances like *That statement was proud* imply the existence of a purported displayer of the pride (namely, the creator or reader of the statement), much as utterances like *That statement was rude* imply the existence of a purported possessor of the rudeness. When the referent of the external argument cannot sensibly be construed as a manifestation of a mental event, the result is anomalous, e.g., #*John's carpet was proud*. We account for these implications by invoking saturation, applied to the external argument of the basic adjective.

Why can the *of*-NP adjunct in English (and the 'from-the-side-of' adjunct in Hebrew) introduce a possessor but not an experiencer? The reason, I suspect, lies not in the possessor/experiencer distinction per se, but in one of its effects. In section 3.2 we mentioned a peculiar lexical entailment of DerA: the external argument (the Realizer) must be construed as the product of a deliberate action on the part of the (saturated) possessor argument. Take this to be a presupposition associated with the Realizer role in the relevant adjectival alternations. Then, when the Realizer is an event, the implication is

that it must be agentive, with the agent ‘controlled’ by the possessor role of the adjective. This accounts for contrasts like the following.

- (73) (a) That comment/#climate was very impolite (of Bill).
 (b) It was crazy of Tom to mimic/#resemble Bill.

Although easy to describe, the condition at issue is not easy to formalize; the semantic relation is rather indirect, holding between an argument slot of the basic adjective and an understood creator of the Realizer argument of the derived adjective.²⁴ Whatever the exact statement, however, this indirect agentivity cannot be superimposed on an experiencer role *in the same event*. The interpretation of DerA in (52) implies that the event denoted (or invoked) by the Realizer argument is the very same event described by the adjectival root. While the possessor of *impolite* can simultaneously be the ‘indirect agent’ of an event/object realizing impoliteness, the experiencer of fear cannot be so; experiencers are simply non-agentive. This failure to meet the presupposition pertaining to the saturated external argument explains the anomalous examples in (70), (71) and (73).

In fact, what we are saying amounts to the claim that the implicit external argument in (67) is *not* interpreted as an experiencer; rather, it is coerced into a possessor reading in analogy to *rude*-type adjectives. Notice that genuine experiencers are defined by the fact that they support psychological entailments. It is therefore instructive to observe that such entailments are lost in the derived variant of SubjExp adjectives.

- (74) (a) #John was agitated, but he felt no agitation.
 (b) John’s manner was agitated, but he felt no agitation.

Since EAs do not entail psychological states, but rather evaluate a person/act as displaying some property, no coercion is needed, and the ‘display’ entailment is preserved in the alternation.

- (75) (a) #John was rude to Mary, but he displayed no rudeness.
 (b) #That was rude of John, but he displayed no rudeness.

Some facts from Dutch appear to challenge our claim that the *of*-NP forces the original, experiencer reading, thereby blocking coercion of the SubjExp adjective into a non-psychological reading. Bennis (2000) observes

[24] See Barker (2002) for a proposal on how to explicitly build this entailment into the lexical presuppositions of the adjective. Barker, in fact, argues that EAs comprise three subclasses, varying in the strength of this presupposition. Some only require the possessor argument to be sentient (e.g., *lucky*), others require it to exercise discretion (e.g., *stupid*), and others require full intentionality (e.g., *smart*). The last of these is encoded via a RESP(onsibility) relation (see Farkas 1988) holding between the possessor and the event/object denoted by the subject. Notice that *lucky* is not an EA in our sense of the term, since it does not participate in the defining alternation of this class (**That was lucky of John*).

that sentences equivalent to (70) are acceptable in Dutch (albeit still excluding the internal argument, for the reasons discussed above).

- (76) (a) Dat is bang van Jan (*voor slangen).
 that is afraid of John for snakes
 (b) Dat is trots van Jan (*op zijn vrouw).
 that is proud of John on his wife

Bennis does not provide translations, but a closer look reveals that these examples not only fail to challenge our proposal, they actually support it. It turns out that the *van*-NP here has no psychological entailments, in contrast to the subject experiencer in the basic variant (Jeannette Schaeffer, p.c.).

- (77) (a) #Jan was bang, maar in werkelijkheid voelde
 John was afraid but in reality felt
 Jan (zelf) geen angst.
 John himself no fear
 ‘John was afraid but in fact John himself felt no fear.’
 (b) Dat was bang van Jan, maar in werkelijkheid
 that was afraid of John but in reality
 voelde Jan (zelf) geen angst.
 felt John himself no fear
 ‘That displayed fear on John’s part, but in fact John himself felt
 no fear.’

It seems, then, that Dutch differs from English and Hebrew only in allowing the doubling adjunct to ‘adapt’ to the coerced, non-psychological reading of the saturated external argument. What remains constant across all these languages, as far as we can tell, is this: (i) the saturated external argument is identified with the creator/initiator of the Realizer argument in the derived variant; and (ii) experiencers resist the creator/initiator reading.²⁵

As a final piece of evidence for this account, observe that the suppressed possessor of English DerA CAN be expressed as an adjunct headed by *on-the-part-of* (cf. (70)) (Heidi Harley, p.c.).

- (78) (a) The attitude was fearful on Tom’s part, though not on Helen’s.
 (b) The reaction was furious on Helen’s part, though not on Tom’s.

[25] Coercion is subject to lexical variation, as is well known. Not all SubjExp adjectives in Dutch allow a *van*-NP in their derived form (Jeannette Schaeffer, p.c.).

(i) Dat is blij/geamuseerd (*?van Jan).
 that is delighted/amused (*?of John)

This means that *on-the-part-of* adjuncts are semantically more lenient than *of*-adjuncts, permitting a range of interpretations for their object DP that are not necessarily identical to the external argument of the source (basic) adjective. Thus, experiencers can be ‘unpsyched’ in the former type of adjunct but not in the latter.

If this reasoning is on the right track, we can maintain the parallelism between EAs and SubjExp adjectives. The two types of predicates display an alternation between a basic form and a form derived by unselective saturation of both the internal and the external argument. The saturated arguments may only be expressed by doubling adjuncts, so long as general and item-specific lexical conditions are respected.

5.3 *Object-experiencer adjectives*

I will close this section by considering an alternation found with object-experiencer (ObjExp) adjectives that is closely related to the EA and the SubjExp alternations. In the basic variant, the subject may be either animate or not, and the internal argument – the experiencer – is optionally realized (examples (a–b) below). In the derived variant, the subject is inanimate, and an *of*-NP adjunct may occur – but it cannot cooccur with the internal argument (examples (c–d) below). Notice that, as with EAs and SubjExp adjectives, the derived variant forces a stage-level reading.

- (79) (a) John was appalling (to her).
 (b) That was appalling (to her).
 (c) That was appalling of John.
 (d) *That was appalling to her of John.
- (80) (a) John was amusing (to her).
 (b) That was amusing (to her).
 (c) That was amusing of John.
 (d) *That was amusing to her of John.

Bennis (2000), who first observed facts similar to (79d)/(80d), maintained that the experiencer and the possessor roles both compete for the external position, which can only realize one of them. It is unclear, however, why the experiencer role in the (d) examples cannot project internally, as it does in the (a–b) examples and in related ObjExp verbs.

I believe that ObjExp adjectives fall under the general pattern of EA and SubjExp adjectives, although they present some additional complexity arising from their fundamental ambiguity. Thus, a sentence like *X was amusing* (with inanimate X) can either mean ‘X was the content of a mental state of amusement’, or ‘X was an event/artifact displaying some person’s property of being amusing’. In the former reading, X is understood as a Subject-Matter (cf. Pesetsky 1995) of some mental state; in the latter reading, X is

understood as the Realizer of the property of being amusing. Although the latter entails the former, the reverse does not hold; Subject-Matters of mental states need not qualify as Realizers (see (83) below).

Semantically, then, there are three types of ObjExp adjectives, corresponding to, respectively, the (a)–(b)–(c) examples in (79)–(80) (the external arguments in (81) are underlined).

(81) *ObjExp adjectives*

- (a) Type A: <Possessor, Experiencer >
- (b) Type B: <Subject-Matter, Experiencer >
- (c) Type C: <Realizer >

Types A and B are distinguished in the nature of their subject argument: an external possessor in type A, an internal Subject-Matter (SM) in type B. Following much work on psych verbs (Pesetsky 1995, Reinhart 2001, Landau to appear), I assume that the latter is unaccusative, thus lacking an external argument.²⁶ Since the *of*-NP doubles an external argument, type C may be derived from type A only.

- (82) (a) That was amusing of John.
 (b) *That was amusing of John's behavior.

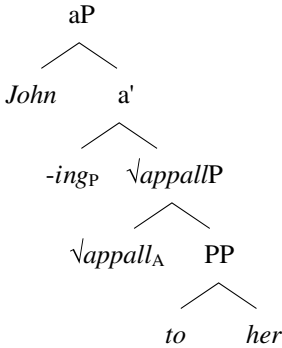
Types B and C in (81) are similarly distinguished in the nature of their subject argument – SM vs. Realizer. SMs are nearly unrestricted – anything can function as the target of a mental state. A Realizer of an adjective, as we have seen in the previous section, must be construed as an intentional product of some agent, a much narrower class. This explains the following contrasts.

- (83) (a) The stench of rotting potatoes was appalling to him/#of him.
 (b) That secret memory was embarrassing for her/#of her.

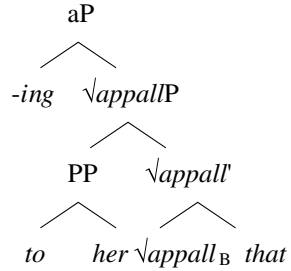
The three-way ambiguity of ObjExp verbs calls for three different structures. Type A is headed by the simple *-ing_p*, which projects the external Possessor argument; semantically, this is an argument of the root (just as the possessor in EA is an argument of the root). The $\sqrt{\text{rootP}}$ consists of the root and the experiencer argument. Type B is headed by *-ing*, which projects no specifier; its sister $\sqrt{\text{rootP}}$ consists of an experiencer and a SM. The two structures are given below.

[26] It is actually possible that type B also projects an external Realizer, which 'binds' the internal SM role. This would be parallel to certain nominal predicates whose R argument corresponds to the internal theme role; e.g., *Our selection is John* (see Sproat 1985, Grimshaw 1990).

- (84) (a) *Type A*
 John was appalling to her.
 $[[\sqrt{\text{appall}}_A]] = \lambda x \lambda y \lambda e. y$ possesses an appalling property with respect to x in e

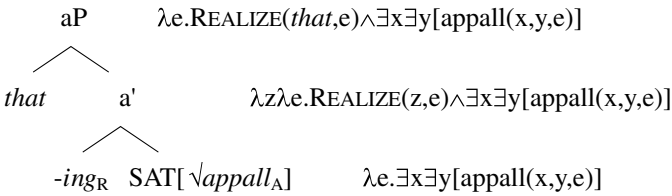


- (b) *Type B*
 That was appalling to her.
 $[[\sqrt{\text{appall}}_B]] = \lambda x \lambda y \lambda e. y$ is appalled at x in e



Finally, type C ObjExp adjectives are derived just like DerAs and derived SubjExp adjectives: by saturation of the basic adjective – in this case, type A, which has an external argument – and reification of the result. The latter operation is mediated by an R-introducing head, *-ing_R*.

- (85) That was appalling (of him).
 $[[\sqrt{\text{appall}}_A]] = \lambda x \lambda y \lambda e. \text{appall}(x, y, e) = y$ possesses an appalling property with respect to x in e
 $[[\text{SAT}(\sqrt{\text{appall}}_A)]] = \lambda e. \exists x \exists y [\text{appall}(x, y, e)]$



Unselective saturation accounts for the unavailability of both the possessor and the experiencer as direct arguments of the adjective. Doubling adjuncts are possible, though, for both argument slots, as the following Hebrew examples show.

- (86) (a) Rina hayta mag'ila elav.
 Rina was disgusting to.him
 'Rina was disgusting to him.'
 (b) ze haya mag'il klapav / *elav lalexet bli
 it was disgusting towards.him to.him to.leave without
 lomar šalom.
 to.say goodbye
 'It was disgusting towards him to leave without saying goodbye.'

- (c) ze haya mag'il me-cida.
that was disgusting from-her.side
'That was disgusting of her.'
- (d) ze haya mag'il me-cida klapav / *elav.
that was disgusting from-her.side towards.him to.him
'That was disgusting of her towards him.'

Interestingly, Hebrew differs from English in excluding an argumental experiencer not only in type C (86d) but whenever the subject is inanimate, as in (86b); cf. the grammatical English counterparts (79b)/(80b). This implies that Hebrew simply lacks type B ObjExp adjectives altogether. This cannot be due to the absence in the language of psych-roots that select SM and experiencer arguments – such roots exist and give rise to Hebrew unaccusative psych verbs just as they do in English (see Reinhart 2001, Landau to appear). Instead, we may suppose that what is lacking in Hebrew is the simple adjectival head, introducing neither a Possessor nor a Realizer – the head of the Type B structure in (84). Whenever the subject of a Hebrew ObjExp adjective is inanimate, it is by necessity a Realizer, occurring in a type C structure like (85), where the experiencer is saturated together with the possessor. Thus, the Hebrew facts lend independent support to the distinction between types A and B ((81a) vs. (81b)) proposed for English.

The fact that the absence of an *of*-NP enables the internal argument to surface in an ObjExp adjective but not in an evaluative adjective is also explained.

- (87) (a) That was rude (*to her).
(b) That was irritating (to her).

The external argument in (87a) is a Realizer; the external argument of the basic adjective (BasA) has been saturated by unselective saturation, along with the internal argument. Hence, the goal phrase is excluded. By contrast, (87b) is ambiguous between a type B and a type C reading. The former is isomorphic to the source verb *irritate* – the subject is a SM, the PP is an experiencer. Neither SAT nor R applies in this derivation, hence both arguments project freely. It is only in the type C derivation that saturation renders both arguments unavailable in the syntax. Since an inanimate subject in EA may only surface by virtue of saturation, it is incompatible with any internal argument. Since an inanimate subject in ObjExp adjectives may still be a SM argument involving no saturation, the internal argument is licensed. Essentially, then, the contrast between (87a) and (87b) boils down to the fact that ObjExp roots select an inanimate argument whereas EAs do not.²⁷

[27] Pesetsky (1995: 65–66) discusses contrasts parallel to (87):

- (i) Sue's behavior was attentive (*to every detail).
(ii) Bill's behavior was annoying (to us).

6. SOME THEORETICAL CONSEQUENCES

In this section I would like to consider some broader implications of the present analysis for linguistic theory. Specifically, I will try to assess to what extent the results reported here bear on our general approach to diathesis alternations and the mapping from syntactic categories to semantic types.

Consider first the scope of the SAT operation. A natural question to ask is whether there are any cases of apparent selective saturation of *internal* arguments, just as there are cases of of apparent selective saturation of external arguments. Logically, at least, they should exist. Whenever a semantically contentful categorial head combines with a root, saturation of the root should leave the external argument intact. Do such cases actually exist?

The answer is not straightforward. *Prima facie*, the phenomenon of object drop may well instantiate internal saturation. Thus, an utterance like *Fred pulled with all his might, but nothing happened* implies that there is an *x* such that Fred pulled *x*. The real question is how this interpretation comes about: is it through grammatical saturation or by some pragmatic process? On the latter scenario, implicit internal arguments could be just free variables, whose value is contextually assigned. On occasion, they may be interpreted deictically. In the absence of any deictic or linguistic antecedent, a default existential reading may arise. Whether or not saturation applies in these cases, any account of object-drop must explain why the phenomenon is so idiosyncratic and language-dependent. The complexity of the topic forces us to leave it at that.²⁸

A second type of construction where internal saturation is likely involved is Antipassive, attested in ergative languages. In this construction, a transitive predicate is detransitivized, with the original direct object becoming an optional oblique, much like the *by*-phrase in Passive. This alternation, then, could be the result of saturating the direct object argument slot, preventing it from being directly projected and thus giving rise to the doubling (oblique) adjunct option.

A third potential instantiation of internal saturation, perhaps more akin to the kind of cases examined in this article, involves deverbal adjectives that ‘lose’ the theme argument of their source verb. Baker (2003: 84) points out that many English adjectives derived by the *-ive* suffix have this property.

Only (i), according to Pesetsky, involves the formation of a complex predicate *attentive-SUG*, where *SUG* contributes the meaning ‘suggest that’; the result is said to be morphologically ill-formed. (ii), on the other hand, involves simple predication. This intuition is preserved in the present analysis, since the subject in (i) is the Realizer of a saturated predicate whereas the subject in (ii) is the direct SM argument of the root.

[28] Saturation of internal arguments is theoretically distinct from null operator movement from the object position (Huang 1984). The two phenomena should be potentially distinguishable (e.g., sensitivity to island effects).

- (88) (a) Mark is productive (*of good ideas).
 (b) This proposal is corrective (*of the situation).
 (c) Chris is decisive (*of this kind of issue).

At first sight, it is tempting to suggest that that these adjectives instantiate (selective) internal saturation: a saturated root, already deprived of its internal arguments, combines with a semantically contentful adjectival head that introduces the external argument. The problem is that saturation appears to be over-selective here; as Baker observes, not all the internal arguments are lost in the adjectival variant – only the theme is, if at all.²⁹ This is especially evident in adjectives derived from double object verbs (unmentioned by Baker). Unlike the theme, the goal/source argument remains available.

- (89) (a) She was envious of him (*of his many talents).
 (b) That was explanatory (*of the theory) to the students.

Within the present framework, there are two possible explanations for why unselective saturation of the root spares the goal/source argument. First, it is possible that the theme argument is radically absent from these adjectives, which will then be dyadic, not triadic. If so, it is not saturation that derives these adjectives, but something more akin to the operation that eliminates the verbal external argument in the formation of adjectival passives.

A second possibility is to acknowledge that saturation does apply to the root in these cases, but it spares the goal/source argument for the same reason it spares the external argument – both are introduced by separate, designated heads in an extended *a*P-shell. This would amount to saying that there is a null head – prepositional or applicative – introducing a goal/source specifier and taking a $\sqrt{\text{rootP}}$ complement, whose single argument is the theme. Notice that this ‘complex predicate’ analysis has been independently advocated for double object constructions by various authors (Kayne 1984, Marantz 1993, den Dikken 1995, Pykkänen 2002). Again, pursuing these issues would take us too far afield, so we must leave them at that.

Perhaps the major solid conclusion of this study regarding saturation concerns its unselective character. It has been a standard assumption in the field that saturation is selective; specifically, that it may only target the external argument (Williams 1981, Grimshaw 1990, Reinhart & Siloni 2005). The chief examples given in support of this claim have been passive formation, derived nominals and reflexivization. However, the question has rarely been faced why external arguments are privileged in this sense. The visibility of the external argument to external manipulation could not be rationalized in a satisfactory way prior to the advent of the Neo-Davidsonian view of argument structure. Once the external argument is dissociated from the root

[29] Not all *-ive* adjectives lose their theme argument (cf. *indicative, descriptive, instructive*). Whether there is any generalization here is a matter for further study.

and becomes associated with a distinct predicate (the v head), it is no longer surprising that it may be subject to operations that internal arguments are not subject to – specifically, operations that apply to v but not to the root.

However, even with this progress made, the puzzle of selective saturation persists. Why is it that only the categorial head, and not the root itself, is subject to saturation? The Neo-Davidsonian view, as such, does not provide an answer.

If the argumentation developed in this article is correct, we do have an answer. Saturation is confined neither to external arguments nor to categorial heads. It may equally well apply to the root itself, thereby depriving it of projectable arguments. Saturation can achieve that – in fact, it cannot help but achieve that – because it is essentially unselective: all arguments of a saturated predicate end up with the same status, and no discrimination among them is possible.

Under the strongest construal of this claim, this is the only option; there are no selective saturation operations. Apparent selective effects result from the application of unselective saturation to a ‘sub-predicate’ that does not exhaust all the arguments of the entire complex predicate. As mentioned above, this is the desired state of affairs from a conceptual point of view, assuming that SAT may not ‘look into’ the arguments of its argument (the predicate). I have tried to argue that to a large extent, it is also empirically viable, although some open questions remain. The final verdict on the success of this proposal must await further research.

Consider now the implications of the second major ingredient in our analysis, the reification operator R . To my knowledge, all previous work has exclusively associated this operator (or more concretely, the argument it introduces) with nominal predicates; see Williams (1981), Higginbotham (1985), Grimshaw (1990). The most sophisticated version of this approach is offered by Baker (2003), where the category N is associated with a distinctive semantic property – a ‘criterion of identity’ – corresponding to a distinctive syntactic diacritic, a referential index.

We have considered two challenges to this traditional bi-unique mapping from the category N to the operator R . First, predications that are predominantly adjectival in one language can be predominantly nominal in a different language. The same kind of alternation can often be found within a single language, as in evaluative adjectives and nouns, with no detectable semantic contrast. If the external argument of evaluative nouns is the standard R -argument of nominals, then at least EAs should be able to select this argument as well.

Second, we have observed that a common ‘conspiracy’ in the nominal system is replicated in the adjectival system: a ‘basic’ predicate is saturated and then reified (i.e., acquires an R argument), the new external argument replacing the former saturated one. This is the well-known pattern of derived nominals. Interestingly, the same combination of saturation and reification

is attested in three separate adjectival alternations: EAs, SubjExp and ObjExp adjectives. To the extent that saturation is well motivated across the categorial distinction, so is reification.

This picture undermines any simplistic attempt to define syntactic categories by their semantics. If ‘reference’ to an (abstract) individual is no longer a privilege of nominal predicates, then perhaps the distinctive semantic import of nouns is even more elusive than we had suspected, if it exists at all. At least within well-defined lexical domains, our analysis blurs the boundary between nouns and adjectives.

7. CONCLUSION

The systematic alternation displayed by EAs in many languages is a serious challenge to theories of the lexicon–syntax interface. The few attempts to face this challenge have taken either a lexical (Bennis 2000) or a syntactic (Stowell 1991, Bennis 2004) approach to the problem. The underlying models for these attempts have been the better-studied cases of verbal diathesis alternations (causative–inchoative, active–passive). However, as the first part of this paper argued, for all their positive aspects, the resulting accounts of the EA alternation suffer from serious shortcomings.

The proposal defended in this paper consists of one central observation and two theoretical devices. The observation is that in their derived guise, EAs frequently alternate with nominals; this implies that the basic argument structure of the adjective and the noun are similar. The theoretical devices introduced are the SAT operator, which unselectively saturates all argument positions in any predicate it applies to (save the event variable); and the R operator, which introduces an entity that realizes (or manifests) the property denoted by its complement – a process we dubbed ‘reification’. Applied consecutively to a basic EA like *rude* in *John is rude*, they derive an adjective whose meaning is ‘realizes an event of rudeness, in which there exist a possessor (the rude person) and a goal (the target of rudeness)’. The saturated goal and possessor argument slots can only be expressed as doubling adjuncts (e.g., *rude of X towards Y*).

It has been shown that all the major properties of EAs follow from the proposed formal character of the operators and the general laws of semantic composition. In particular, two peculiar restrictions on DerA fall out immediately: the obligatory stage-level reading and the exclusion of the goal argument.

SAT and R operate in other areas of the grammar, too, thus receiving independent support. SAT applies in passive formation, saturating the external argument of the verb; and by extension, in derived nominals that embed a passive *v*P. R applies in any nominal, derived or not. Interestingly, the combined effect of SAT and R can be seen in two other alternations, based on SubjExp and ObjExp adjectives.

Overall, then, the proposed analysis has considerable explanatory efficacy. No doubt it raises new questions. For example, is it true that nouns have no intrinsic semantic core, exclusive to them? Why does saturation apply to some roots but not to others? Are there any deeper constraints on the applicability of SAT and R? While these issues are not addressed in the present paper, I hope to have shown that what makes them interesting is precisely the kind of issues and solutions that WERE discussed here.

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