(Non-)Intersective Adjectives and Root Suppletion

Abstract: In this paper I examine certain gradable adjectives in Serbian, whose suppletive comparative forms display unexpected semantic properties. In particular, while these adjectives are ambiguous between intersective and non-intersective readings in the positive form, their suppletive comparative and superlative forms are limited to the non-intersective interpretation. These facts show, I argue, that in a theory like Distributed Morphology either adjectival roots or category-assigning heads they combine with come in semantic subtypes (i.e., are specified for certain semantic properties; Harley 2005, Anagnostopoulou and Samioti 2014). I show how the analysis I propose explains semantic properties of change-of-state verbs derived from these adjectives and why these adjectives are restricted to the intersective interpretation when their positive form takes the long-form (definite) inflection. I also provide an illustration of how Arregi and Nevins's (2014) analysis of disuppletive roots, such *worse/badder*, can deal with the facts presented in this paper. Finally, I discuss implications of these facts in the context of Bobaljik's (2012) approach to suppletive comparative morphology.

Keywords: (non-)intersective adjectives, suppletion, comparatives, superlatives, Serbian

1 Introduction

Mel'čuk (1994:358) characterizes *suppletion* in the following way: "for the signs X and Y to be suppletive their semantic correlation should be maximally regular, while their formal correlation is maximally irregular." In other words, the phonological criterion for suppletion is *unpredictable irregularity*, while its semantic criterion is *predictable regularity*. The English example of suppletion in (1) below illustrates this point: although *went* cannot be related in terms of its morpho-phonological properties to *go* in any predictable way, its meaning is completely predictable: it means exactly what "goed" would have meant if it were grammatical.

(1)

Present	Past
go	*went*

In this paper I discuss certain gradable adjectives in Serbian which do not fit perfectly into this general, descriptive characterization of suppletion. In particular, while comparative and superlative forms of these adjectives are in terms of morpho-phonology maximally irregular with respect to their positive forms (i.e., they cannot be related to them through any productive phonological rules of the language), their semantic correlation is *not* maximally regular. Specifically, these comparatives and superlatives are in terms of interpretation limited to a subset of meanings their positive forms may have: while the positive forms are ambiguous between intersective and non-intersective readings, the suppletive comparative and superlative forms can only have the non-intersective interpretation. This is surprising if the semantic correlation between an adjective and its suppletive comparative and superlative forms is maximally regular. That is, we would expect their suppletive comparative and superlative forms also to be ambiguous between intersective and non-intersective readings, just like their basic form is. This is indeed the case with ambiguous adjectives whose superlative and comparative forms are not suppletive; i.e., in such cases all three forms (positive, comparative and superlative) are ambiguous. Thus, it seems that suppletion can affect interpretation in unpredictable ways after all.

This also raises some problems for theoretical models like *Distributed Morphology* (DM hereafter), adopted here, which assumes that operations responsible for suppletion are part of the PF component of grammar and, therefore, cannot have any effect on interpretation. The facts presented here then strongly suggest that either roots of the adjectives in question or category-assigning heads they combine with must come in semantic subtypes (i.e., must be specified for certain semantic properties; Harley 2005, Anagnostopoulou and Samioti 2014). Assuming the Y-model of grammar, it seems that we are forced to conclude that the information about intersective and non-intersective semantic types must be present in syntax proper and thus accessible to both PF (i.e., suppletion rules) and LF (interpretation). I will show how the analysis based on this conclusion can help us better understand morpho-semantic properties of change-of-state verbs derived from the adjectives in questions. I will also argue that the analysis presented here can also shed light on why these particular adjectives are restricted to the intersective interpretation when their positive form takes the definite inflection. Finally, I will discuss implications of the presented facts in the context of Bobaljik's (2012) analysis of universals in suppletive comparative morphology.

The paper is organized as follows: In Section 2 I present the main empirical contrast relevant for this paper and a brief summary of the semantic analysis given in Despić and Sharvit (2011) (D&M (2011) henceforth), which I adopt. In Section 3 I show why these facts are problematic for standard morphological approaches to suppletion. I present my proposal and discuss how it fits into Bobaljik's (2012) approach to suppletive comparative morphology. In Section 4 I show how my analysis extends to deadjectival change-of-state verbs and definite adjectives. I conclude in Section 5.

2 Suppletion and (non-)intersective adjectives in Serbian

As discussed in D&M (2011), a standard diagnostic for identifying intersective adjectives (I-adjectives hereafter) is given in (2), which checks whether applying a predicate formed of an adjective-noun complex to an individual intuitively entails applying the adjectival predicate to that individual and applying the nominal predicate to that individual.

(2) x is [Adj N] ==> x is Adj and x is N

According to this test *blonde* is an I-adjective (similarly to *three-legged*, *carnivorous*, or *Italian*), and *former* is a non-intersective adjective (NI-adjective hereafter):

(3) a. *John is a blonde actor* ==> *John is blonde and John is an actor.*
b. *John is a former actor* =/=> *John is an actor.*

Now, as is well known, some adjectives are ambiguous in this respect: they have an I-reading as well as a NI-reading (Siegel 1976, Larson 1999, among many others).[1]

(4) a. *John is a good thief.*
I-reading: Cannot be true when John is evil. (e.g., Robin Hood)

[1] This typology doesn't capture more subtle distinctions within the NI-class. For a more fine-grained classification, see Partee (2010) and references therein.

NI-reading: May be true when John is evil as long as his stealing is good. (e.g., Professor Moriarty)

b. Mary is a beautiful dancer.
I-reading: Cannot be true when Mary is not beautiful.
NI-reading: May be true when Mary is not beautiful as long as her dancing is beautiful.

As pointed out in D&M (2011), on the traditional account of the NI modification (e.g., Siegel 1976) NI-adjectives take the noun-denotation as their argument. The I/NI distinction is assumed to be mainly lexical: while some adjectival predicates take nominal predicates as arguments, some "intersect" with them (and some do both). Larson (Larson 1983, 1998, Larson and Segal 1995) proposes a very interesting alternative theory of NI-adjectives that challenges this traditional view. Larson argues (see Davidson 1967) that all adjectives are predicates of events or individuals. Nominal predicates take individual arguments as well as event arguments. The I/NI distinction is then pragmatic: some adjectives can be felicitously predicated of individuals but not events; others can be felicitously predicated of events but not individuals (and some can be felicitously predicated of both). Rough schemata of Larson's proposal (employing relational evaluation predicate from Larson and Segal 1995) for the example in (5) is given in (6):

(5) a. *Olga is a beautiful dancer.*
b. **I-reading**: Olga is a dancer and Olga is beautiful.
c. **NI-reading**: Olga is beautiful as a dancer (i.e., Olga dances beautifully).

(6) a. Val(<x,e>, *dancer*) iff dancing(e,x)
b. Val(x, *beautiful*) iff beautiful(x, *C*) ("x is beautiful for a *C*")
c. Val(<x,e>, [NP AP NP]) iff Val(<x,e>, NP) ... Val(x, AP)
Val(<x,e>, [NP AP NP]) iff Val(<x,e>, NP) ... Val(e, AP)

In (6), the nominal *dancer* applies to pairs of individuals <x,e> such that x is the agent of e, where e is *dancing* in (6a). In (6b) the adjective *beautiful* is taken to be a predicate of things; i.e., *beautiful* is true of an individual x just in case x is beautiful relative to some comparison class *C*, which can be either given by context, or by an explicit for-PP. Finally, according to (6c), when an adjective combines with a noun denoting an event-individual pair, the adjective can be predicated of either the x parameter or the e parameter. It is therefore this possibility of being predicated of either x or e that Larson takes to underlie the I/NI ambiguity. (7) illustrates this:

(7) *Olga is a beautiful dancer.*
a. Qe[dancing(e, olga) ... beautiful(olga,C)] (Olga is beautiful)
b. Qe[dancing(e, olga) ... beautiful(e,C)] (Dancing is beautiful)

(7a) shows, for instance, that when the adjective is predicated of the x variable it is the subject Olga, the dancer, that is ultimately asserted to be beautiful. On the other hand, when the adjective is predicated of the e variable it is the event, the dancing, that is asserted to be beautiful, as shown in (7b). Certain adjectives then cannot be predicated of events (e.g., *aged*, *nude, portable, tall*; see Larson 1998). At the same time, an adjective like *former* applies strictly to events. Although Larson's analysis is very appealing, D&M (2011) point out a problem for it. In particular, certain gradable adjectives in Serbian that display I/NI ambiguity in the positive form

are limited to NI-reading in their suppletive comparative and superlative forms[2]. As shown in (8), while *dobar* 'good' has both readings, its suppletive comparative and superlative forms *bolji* 'better' and *najbolji* 'best' have only the NI-reading:

(8) a. *On je dobar lopov*
He is good thief
'He is a good thief.'
I-reading: He is a thief and he is good-as-a-person.
NI-reading: His stealing skills are good.
b. *On je bolji/najbolji lopov*
He is better/best thief
'He is a better/the best thief.'
I-reading: not available
NI-reading: He has better stealing skills /He has the best stealing skills.

I will limit my discussion here to Serbian, but note that the same contrast seems to hold in English as well, according to many native speakers (including a reviewer). Thus, observations and conclusions I present in this paper could have more general implications. Now, adjectives whose superlative and comparative forms are not suppletive are different: if they are ambiguous in the positive form, they are also ambiguous in the comparative/superlative form. There is no contrast between (9a), on the one hand, and (9b-c) on the other. To the extent that the I-reading (Peter is an intelligent person and a tennis player) and the NI-reading (Peter has high tennis IQ) are available in (9a), they are available in (9b-c) as well.

(9) a. *Petar je inteligentan teniser.*
Peter is intelligent tennis player
'Peter is an intelligent tennis player.'
b. *Petar je inteligentniji teniser.*
Peter is more-intelligent tennis player
'Peter is a more intelligent tennis player.'
c. *Petar je najinteligentniji teniser.*
Peter is most-intelligent tennis player
'Peter is the most intelligent tennis player.'

An extreme case comes from the adjective *zao* 'evil, bad', which only has the I-reading in the positive form, while its suppletive comparative and superlative forms have only the NI-reading:

(10) a. *On je zao šahista.*
He is evil chess-player
'He is evil and a chess-player.'
b. *On je gori/najgori šahista.*
He is worse/worst chess-player
'His chess-playing is worse than other people's chess-playing.'
'His chess-playing is the worst.'

[2] To the best of my knowledge, everything I discuss here regarding Serbian also holds for Bosnian, Croatian, Montenegrin and other varieties of the area.

Since the meaning connection between *zao* and *gori/najgori* is no longer transparent, many native speakers of modern-day Serbian associate these suppletive forms with the positive form of the adjective *loš* 'bad', whose NI-reading is very similar to *gori/najgori*. *Loš* 'bad' has its own, regular, comparative/superlative forms *lošiji* 'worse', and *najlošiji* 'worst' and for this reason it is generally treated as a separate lexical item, although its positive form is synchronically much closer in meaning to *gori/najgori* than *zao* is. However, *zao* and *gori/najgori* are clearly historically related, as indicated in traditional grammars (e.g., Stanojčić and Popović 1992: 88). The following idiomatic expression is still used colloquially to describe someone who is bad, in the moral sense, to some extreme degree. This shows that *zao* and *gori* once had a shared meaning, which is now lost.

(11) *Od zla oca i gore majke.*
from evil father and worse mother
'Of bad father and even worse mother.'

D&M (2011) argue, in a nutshell, that accounting for these suppletion facts within Larson's approach is not easy, since on that approach the main source of ambiguity is the noun. These facts are, however, expected within Siegel-like analyses, on which adjectives create the I/NI ambiguity. On such analyses, the I/NI distinction, though somewhat constrained by pragmatics, is essentially lexical, and often cannot be predicted from independent pragmatic principles. D&M (2011) argue that an ambiguous adjective like *dobar* 'good' has two entries, which I adopt here.[3] *Good*-d* in (12) is like *blonde* (three-legged, Italian, carnivorous etc.), while *good**-d* in (13) is like *former*:

(12) a. $[\![good^*\text{-}d_2]\!]^{w,C}$ = [λx∈D: context C supplies an assignment, g_C, and a scale of "goodness", $GOOD_{C,w}$. the ranking of x on $GOOD_{C,w}$ is at least $g_C(2)$].
(When free, $[\![d_2]\!]^{w,C}$ = Standard($GOOD_{C,w}$).)

b. $GOOD_{C1,w}$ – a scale that ranks men according to their "goodness" in w.
$GOOD_{C2,w}$ – a scale that ranks thieves according to their "goodness" in w.

c. Whenever defined, [[*John is a* [[$_{Adj}$ *good*-d*$_2$] [$_N$ *thief*]]]]^{w,C} = [λx∈D. [[*good*-d*$_2$]]^{w,C}(x) = True and [[*thief*]]^{w,C}(x) = True](John)

(13) a. $[\![good^{**}\text{-}d_2]\!]^{w,C}$ = [λP∈$D_{<s,<e,t>>}$. λx∈D: context C supplies an assignment, g_C, and a scale, $S_{P,w}$, that ranks individuals by their P-skills in w . the ranking of x in w on $S_{P,w}$ is at least $g_C(2)$]

b. Whenever defined, [[*John is a* [[$_{Adj}$ *good**-d*$_2$] [$_N$ *thief*]]]]^{w,C} = [[*good**-d*$_2$]]^{w,C}([λw'∈W. [[*thief*]]$^{w',C}$])(John) = True iff John's ranking in w on $S_{[\lambda w'.\lambda y.\ y \text{ is a thief in } w'],w}$ is at least $g_C(2)$.

*Good** is of type <e,t> and *good*** is of type <<s,<e,t>>, <e,t>>. Both of them depend on a contextually supplied scale (see Siegel 1976; Larson 1983, 1998; Chierchia & McConnell-Ginet 2000 and references therein). *John is a good thief* can therefore have more than one I-reading: John can be good-as-a-person for a thief or for a man. *Good*** is special in that its contextually supplied scale is also semantically restricted by its nominal argument. But the question now is

[3] I adopt (12) and (13) here for simplicity, but these are not essential for the main proposal of this paper presented in the next section. That is, other lexical entries for gradable adjectives ambiguous between intersective and non-intersective readings could work as well, as long as it is assumed the adjective is the source of ambiguity.

how we should characterize the relationship between *good** (*good*^{I} or *good*$^{<e,t>}$) and *good*** (*good*^{NI} or *good*$^{<<s,<e,t>>,<e,t>>}$), on the one hand, and the morphology of suppletion, on the other.[4] Recall from Section 1 that *predictable regularity* is the semantic criterion for suppletion. The problem is that suppletive comparative and superlative forms of ambiguous adjectives are restricted to the NI-reading. I address this question in the next section.

3 Morphology of root suppletion and the I/NI distinction

In order to fully understand implications of these data it would be useful to go over Bobaljik's (2012) analysis of comparative morphology and some of his major findings. Bobaljik discusses a number of striking cross-linguistic generalizations in the domain of comparative suppletion. I focus here on the Comparative-Superlative Generalization (CSG), given in (14), which is most relevant for the purposes of this paper (Bobaljik 2012: 2):

(14) a. *The Comparative-Superlative Generalization, part 1(CSG1):*
If the comparative degree of an adjective is suppletive, then the superlative is also suppletive (i.e., with respect to the positive).
b. *The Comparative-Superlative Generalization, part 2(CSG2):*
If the superlative degree of an adjective is suppletive, then the comparative is also suppletive (i.e., with respect to the positive).

The CSG requires that adjectives which are suppletive in gradation must be suppletive in both the comparative and superlative forms. This is illustrated for English in (15a) and Latin in (15b):

(15)		positive	comparative	superlative		
	a.	*good*	*better*	*best*	**goodest*	
	b.	*bonus*	*melior*	*optimus*	**bon(iss)imus*	'good'

Thus, not all patterns of comparative suppletion are allowed, as shown in (16b). For instance, the hypothetical pattern *good – better – goodest* (i.e., ABA) is unattested. Bobaljik contends: "… that the framework of Distributed Morphology (DM) has the right general architecture to support the assumptions needed to derive these generalizations. It is not clear that competing morphological frameworks do." (Bobaljik 2012: 7)

(16) a. attested: **A A A** "regular" (English *big*)

[4] Note that *dobar* can be used in the predicative position and have the NI-reading, which is somewhat unexpected given its semantic type (strictly NI comparative and superlative forms behave similarly). Thus in (i) (adopted from Larson 1998) *good* is interpreted as "playing well" both in Serbian and English. Larson suggests that *good* in such examples has an implicit *at*-complement specifying an activity, so that (i) is interpreted as *This cellist is good at playing*. The PP would then satisfy the first argument of the NI *dobar*. Alternatively, since a language like Serbian allows ellipsis of NP to the exclusion of AP, it could also be the case that *dobar* in the predicative position modifies *čelista* 'cellist', which is elided under identity with the first instance of *čelista* (i.e., *Ovaj čelista je dobar* ~~*čelista*~~).

(i) *Ovaj čelista je dobar.*
This cellist is good
'This cellist is good.'

	A	**B**	**B**	"suppletive"	(English *good*)
	A	**B**	**C**	"doubly-suppletive"	(Latin *bonus*)
b. unattested:	***A**	**B**	**A**		
	***A**	**A**	**B**		

The lack of the ABA pattern is derived in Bobaljik (2012) via: (i) the way competition and blocking are defined in DM (i.e., the *Elsewhere Condition*), and (ii) the assumption in (17), according to which superlative always embeds comparative. Bobaljik (2012: 31) shows that this kind of embedding is transparent in the overt morphology in many languages.

(17) *The Containment Hypothesis*
The representation of the superlative properly contains that of the comparative (in all languages that have morphological superlatives).

(18) [[[ADJECTIVE] COMPARATIVE] SUPERLATIVE]

Given the structures in (19) and rules in (20), the ABB pattern arises for an adjective that has two rules, namely, a context-sensitive rule applying in the comparative (Rule 2 in (20)), alongside the default, context-free rule. In such a case, the comparative root will necessarily be used for both the comparative and the superlative; this rule wins out over the default in both contexts as it is more highly specified, and it is compatible with both contexts.

(19) a. positive adjective [ADJ]
b. comparative degree [[ADJ] -CMPR]
c. superlative degree [[[ADJ] -CMPR] -SPRL]

(20) Rule 3 √ADJ → C / [[__ CMPR] SPRL]
Rule 2 √ADJ → B / [___ CMPR]
Rule 1 √ADJ → A / <elsewhere>

How do then Serbian adjectives *dobar* 'good' and *zao* 'evil', and their suppletive comparative and superlative forms fit into this system? Recall that *dobar* displays the I/NI ambiguity, whereas *bolji* 'better' and *najbolji* 'best' are limited to the NI-reading. *Zao*, unlike *dobar*, has only the I-reading, whereas *gori* 'worse' and *najgori* 'worst' have only the NI-reading. Crucial to Bobaljik's analysis of competition in suppletion is that rules of exponence must apply to roots as well as to grammatical morphemes. *Good* and *bett-* are manifestations of a single abstract root:

(21) a. √GOOD → be(tt)- /___] CMPR
b. √GOOD → good
c. √BIG → big

Since these rules apply at PF, the question is how they can be allowed to affect interpretation, given the Y-model of grammar assumed in DM. I propose that ambiguous adjectives are associated with different semantic subtypes, which I label here as "I" (intersective) and "NI" (non-intersective). Rules of exponence responsible for suppletion may be specified for just one of these subtypes. Now, I believe that there are (at least) two possible ways of formally implementing this. First, it could be the case that different semantic subtypes are properties of roots (this is similar to Harley's 2005 proposal about basic ontological types of roots; see also

Anagnostopoulou and Samioti 2014 etc.) Thus, √DOBAR can be specified for diacritics I and NI, as shown below (e.g., $\sqrt{\text{DOBAR}}^{\mathbf{I}}$ and $\sqrt{\text{DOBAR}}^{\mathbf{N\text{-}I}}$). This would essentially be a DM implementation of Siegel's approach to adjectives.

(22) a. $\sqrt{\text{DOBAR}}^{\mathbf{N\text{-}I}}$ → bol- /___] CMPR
b. √DOBAR → dobar
c. COMP → -ji
d. SUPERL → naj-

Because of (22b) we have ambiguity with *dobar* in the positive form. The comparative rule in (22a), however, targets $\sqrt{\text{DOBAR}}^{\mathbf{N\text{-}I}}$; suppletion is thus restricted to a version of √DOBAR marked with the NI diacritic. This is extended to the superlative as well, given the Containment Hypothesis in (17). But the context-free rule in (22b) (i.e., the positive form) does not have to target the general root √DOBAR. That is, with the diacritics I and NI in the system, such a rule could directly target a √ROOT carrying one of the diacritics. I propose that this is the case with √ZAO, where we see quite a radical split in meaning. (23a/b) thus make sure that that there is no form of the general root √ZAO which would be both I and NI.[5,6]

(23) a. $\sqrt{\text{ZAO}}^{\mathbf{N\text{-}I}}$ → gor- /___] CMPR
b. $\sqrt{\text{ZAO}}^{\mathbf{I}}$ → zao
c. COMP → -ji
d. SUPERL → naj-

Alternatively, we could assume that different semantic subtypes are properties of the category-assigning head *a*. Assuming the structure like (24), the relevant rules of exponence responsible for suppletion would look as in (25)-(26) (see Merchant 2015, for instance).

(24) [[[[√ROOT] -$a^{(\text{I/NI})}$] -CMPR] -SPRL]
(25) a. √DOBAR → bol- / ___ $a^{N\text{-}I}$ CMPR

[5] As for the diacritics I and NI, I take them simply to be markers of the two relevant semantic sub-types (<e,t> and <<s,<e,t>>, <e,t>>, respectively). They are visible to morpho-phonology and may be referred to by morpho-phonological rules. Diacritics of this type are not ad hoc and are independently needed in a theory like DM. I and NI are not dissimilar from diacritics often assumed to mark declension classes in languages that have grammatical gender. In a language like Serbian, for instance, nouns denoting female individuals in general belong to the so-called *Second Declension*, meaning that they must have a particular type of case endings and trigger a particular type of agreement. But properties of second declension are not completely predictable from semantic properties of the root (i.e., the real-world sex) because second declension also has quite a few irregular (male-denoting) nouns as well as many inanimate nouns. Thus, for each noun the learner must eventually learn its declension (represented formally via diacritic) and the mapping between the noun's semantic properties and its declension (see Despić 2017) for a detailed discussion; see also Bobaljik (2012: 164) for a proposal how the distribution of analytic versus synthetic adjectives in English is grammatically regulated by a diacritic).

[6] It is tempting to try to include the adjective *loš* 'bad' in these rules, and assume, for example, that it realizes $\sqrt{\text{ZAO}}^{\text{N-I}}$ in the positive form. Although this might be possible and perhaps desirable, I do not do it here because there are some differences in meaning between these elements which strongly suggest that they are separate lexical items (instead of just being separate realizations of a single item). In particular, *zao* is stronger in meaning than the comparable reading of *loš*; e.g., *zao čovek* 'evil man' and *loš čovek* 'bad man' are, as the English translation suggests, similar but not identical. Note that there is no such contrast between two versions of *dobar*; i.e., $dobar^{\boldsymbol{I}}$ is identical in meaning to $dobar^{\boldsymbol{NI}}$ when it applies to the property *čovek* 'man' ($dobar^{\boldsymbol{I}}$ *lopov* 'good thief' translates as "*dobar čovek* 'a good man' and *lopov* 'a thief'", while this is not quite the same with *zao* and *loš*).

b. √DOBAR → dobar

(26) a. √ZAO → gor- / ___ $a^{N\text{-}I}$ CMPR

b. √ZAO → zao /___ a^{I}

This set of assumptions would essentially give us the same results. The difference is that the context for insertion of *bol-* in (25a), for instance, would be more complex; in particular, it would make reference to both the category-assigning head *a* and the comparative morpheme. It is difficult at this point to find conclusive empirical evidence that would make one of these approaches more preferable than the other (although see section 5 for some discussion). But what is crucial is that in both of them the I/NI distinction is encoded in syntax proper. Consequently, this kind of information would be simultaneously visible to both PF and LF. It is then not unexpected on this kind of approach that at least some types of suppletion would be associated with particular semantic properties.

4 Some implications

A natural question that arises at this point is if adjectives like *dobar* and *zao* can be specified for I/NI diacritics why is it the case that $\sqrt{\text{ZAO}}^{\mathbf{I}}$ and $\sqrt{\text{DOBAR}}^{\mathbf{I}}$ do not have any comparative/superlative forms (I will for ease of exposition continue to mark roots with the I/NI diacritics, but as shown in (24)-(26) these diacritics could also be a property of the category assigning head *a*)? In other words, why don't we have in addition to suppletive NI forms, "regular" comparative forms, which would have strictly I-readings?

(27)

	positive	comparative	superlative
a. $\sqrt{\text{DOBAR}}^{\mathbf{I}}$	*dobar*	**dobriji*	**najdobriji*
b. $\sqrt{\text{ZAO}}^{\mathbf{I}}$	*zao*	**zliji*	**najzliji*

I propose that the reason for this is simply that Serbian resists comparative/superlative doublets; i.e., *dobar* (or any other adjective) in Serbian cannot have more than one *morphological* comparative/superlative form. As discussed in Bobaljik (2012), some languages allow multiple comparative/superlative forms, but many languages do not. For instance, Old Church Slavonic had a one-to-many pattern, with suppletive and regular comparatives (Bobaljik 2012: 44), but all of its daughter languages (including Serbian) have single comparative forms.[7] According to this ban then, no [√ROOT–*a*] combination in Serbian can have more than one morphological comparative. In the case of [√DOBAR–*a*], the one possible morphological comparative will necessarily (i) be limited to NI interpretation and (ii) have suppletive form, given the rules in (22a)/(25a) (regardless of whether the NI diacritic is located on the root or the *a* head). It is not clear at this point why such a constraint would be active in some languages, but as far as Serbian is concerned it has two additional consequences.[8] First, comparative interpretation of the

[7] In addition to suppletive comparative and superlative forms, the adjective 'good' in Swedish, for instance, has a regular triple *god–god-are–god-ast*, which means 'pleasant-tasting' (see Bobaljik 2012: 46, 109).

[8] One may wonder here whether the unambiguous comparative forms of ambiguous adjectives are always limited to the NI reading. In other words, are there languages in which suppletive comparatives/superlatives of ambiguous adjectives are strictly I? This question of course requires a thorough cross-linguistic research and I have to leave it open here. But perhaps it is relevant to note in this context that for strictly I-comparison the denotation of the noun doesn't seem to be quite relevant; e.g., in the case of *good*^{I} we are talking about the scale/degree of moral goodness which comes directly from the adjective. In the case of NI-comparison, however, the adjective and the noun both

intersective *dobar* will be available only through the analytic comparative construction, since the rules in (22)-(26) are restricted to morphological/synthetic comparatives (see Bobaljik 2012 for extensive discussion of typological difference between morphological and periphrastic comparatives). This is indeed true, as shown by the following example from the Internet:

(28) *Dolazimo do Jovana Kristitelja, on je garant bio više dobar od Avrama i Davida.*
We come to John Baptist he is certainly was more good than Abraham and David
'We come to John the Baptist, he was certainly more good that Abraham and David.'
(https://www.hriscanskamreza.net/dobrodosli-u-hriscanstvo-2-novorodjenje/)

As should be obvious from the context, we are dealing here with the intersective (moral) reading of 'good', not the non-intersective one. Thus, the I-version of *dobar* is also scalar, but we can observe that only with periphrastic comparatives, since the morphological comparatives are necessarily suppletive and non-intersective, due to (22a)/(25a). This also show that the lack of comparative intersective forms of *dobar* cannot be explained by assuming that the I-version of *dobar* is non-scalar (like *mrtav* 'dead', for instance) and therefore semantically incompatible with comparatives/superlatives. In other words, the unavailability of comparative/superlative forms with the I-version of *dobar* cannot be attributed to the lack of scalar meaning in the positive form: the I-version of *dobar* is scalar, which is particularly clear when we compare it to *mrtav* 'dead', a typical non-scalar adjective. *Mrtav* is infelicitous in comparative contexts, regardless of whether we are dealing with analytic or synthetic forms. Compare (29) to (28):

(29) *#Ovaj pas je više mrtav od onog psa.*
This dog is more dead than that dog
'This dog is more dead than that dog.'

At the same time, adverbs like *veoma* 'very', which indicate some high degree of property denoted by the adjective, are perfectly fine with the I-version of *dobar* (see (30a)), while they are infelicitous with *mrtav* (of course, both (29) and (30b) become felicitous in special contexts which allow different degrees of "being dead", like, say, in zombie stories[9]).

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matter; i.e., the [AP+NP] combination establishes the relevant scale/degrees (the scale/degree of "successfulness" in stealing, playing a cello etc.) Thus, it might not be unexpected that the NI-reading would prevail in suppletive comparatives, given that on many semantic analyses of comparatives (e.g., Heim 2000), the comparative morpheme (or DegP containing it) scopes over the adjective and the noun modified by the adjective.

[9] One has to keep in mind the potential effect of different contexts in these situations. To control for this effect, all of the speakers I have consulted about differences in the I/NI meanings of *dobar* and *(naj)bolji* (a total of 7) considered only 'out-of-the-blue' contexts and found these contrasts in meaning in such contexts quite clear. One of the reviewers suggests that in the following context *najgori* 'worst' can in fact have the I-reading, which I don't disagree with: "Doctors are in general very moral and so a bad (zao) doctor is a rare thing. Peter, however, was the worst (najgori) doctor ever." However, the first sentence in this context appears to direct the reader to interpret the noun *doctor* in the second sentence as "a person licensed to practice medicine *and* a moral being". It seems to me that the NI-adjective *najgori* 'worst' here simply applies via standard function application to the contextually imposed property 'a moral being' and generates an I-like reading (much like the phrase *najbolji čovek* 'best man' has an I-like (moral goodness) meaning, which is in fact generated via NI modification). A separate question is how this should be formally implemented (which I cannot go into here), but the very fact that special contexts are required to have an I-like reading of *(naj)bolji* or *(naj)gori* (unlike in the case of *inteligentan* 'intelligent' in (9)) strongly indicates that the original empirical generalization of this paper is on the right track.

(30) a. *Jedan veoma dobar lopov je sav novac od pljačke banke poklonio dečijoj bolnici.*
One very good thief is all money from robbery bank gave children's hospital
'One very good thief gave all the money from the bank robbery to a children's hospital.'
b. #*Jedan veoma mrtav pas leži na putu.*
One very dead dog lies on road
'One very dead dog is lying on the road.'

The second consequence is that we predict that no morphologically complex word containing the form *dobar* can have comparative meaning, since such an expression would arguably include the comparative morpheme, which in turn would automatically require the suppletive form *bolji* (again via (22a)/(25a)). Evidence for this comes from the behavior of change-of-state verbs derived from *dobar* and *zao*. Bobaljik investigates change-of-state verbs as well and proposes the following *Comparative Change of State Generalization* (Bobaljik 2012:171):

(31) *The Comparative-Change of State Generalization (C△G)*:
If the comparative degree of an adjective is suppletive, then the corresponding change-of-state verb is also suppletive (i.e., with respect to the positive adjective).

(32)

POS	*CMPR*	*VERB*
good	***bett****-er*	***bett****-er*

Bobaljik argues that just as the representation of superlatives must always contain that of the comparative, so too must the representation of deadjectival change-of-state verbs always contain the comparative, even where that relation is not transparent in the overt morphology. The symbol $V_{\triangle}$ in (33) is used as a shorthand for the deadjectval verbalizing operator(s).

(33) a. [[[ADJECTIVE] COMPARATIVE] $V_{\triangle}$]
b.*[[ADJECTIVE] $V_{\triangle}$]

Thus (33a) is possible, but (33b) is not. Alternatively, the structure may resemble (33b), but $V_{\triangle}$ node must be internally complex, crucially containing the comparative. A seemingly problematic set of examples for (31) comes from Serbian. As shown in (34), there are deadjectival change-of-state verbs which are based on suppletive forms of *dobar* and *zao*, as expected given (33).

(34)

	POS	*CMPR*	*SUPRL*	*VERB*
'good'	*dobar*	*bolji*	*najbolji*	*poboljšati (se)*
'bad'	*zao*	*gori*	*najgori*	*pogoršati (se)*

But alongside the expected forms in (34), the forms *pro**dobr**-iti (se)* and *pro-**zl**-iti (se)* are acceptable to many speakers, and occur in various contexts. Speakers who accept *prodobriti se* nevertheless do not accept a comparative other than *bolji*. Now, although these forms are on the face of it problematic for the generalization in (31), they have exceptional meanings, which make them irrelevant. Specifically, only the forms in (34) have scalar/gradable meaning, while *prodobr-iti (se)* and *pro-zl-iti (se)* do not, which directly support the analysis proposed here.

Consider first the examples in (35). If a thief gets better at being a thief, only the verb built on the suppletive form is possible (35a). The sentence in (35b), with the verb derived from

the positive form, means that the thief became good in the moral sense. It is not therefore surprising that *prodobriti se* in general combines with [+human] subjects (see (36)).[10]

(35) a. Ovaj lopov se po-**boljš**ao.
This thief REFL PRF-betterM.SG.
'This thief got better (more adept).'
b. Ovaj lopov se pro-**dobr**io.
This thief REFL PRF-goodM.SG.
'This thief became (morally) good.'

(36) Vreme se ✓po-**boljš**alo/* pro-**dobr**ilo.
Weather REFL PRF-betterN.SG/PRF-goodN.SG.
'The weather got better.'

At the same time, the prefix *pro-* in *pro-dobr-iti se* is an inceptive prefix, indicating the start of a state/event (there is a sense of 'sudden onset'); e.g., in (37a) *pro-hodati* 'start walking' describes an inceptive event: the transition is from a state of not being able to walk to a state of being able to walk. Thus, a continuation that implies that Marko was always able to walk is infelicitous.

(37) a. Marko je pro-hodao kad je imao 2 godine.
Mark is PRF-walk M.SG when is had 2 years
'Mark started walking when he was two.'
…# ali je hodao i otkako se rodio
but is walked and since REFL born
'… but he walked even since he was born.'

(38a-b) show that while *prodobrio se* resembles 'start to walk', *poboljšao se* does not: the former is incompatible with a situation where Marko already had some degree of (moral) goodness; the latter is compatible with a situation where the actor already had some degree of goodness (acting skill). All of this clearly suggests that *pro-dobriti se* and *po-boljšati se* have different structures, perhaps as in (39):

(38) a. Marko se pro-**dobr**io otkako se zaposlio
Marko REFL PRF-goodM.SG since REFL employed
'Marko became good (a good person) since he got a job.'
…#ali bio je dobar i pre toga
but was is good and before that

[10] Note that for a few speakers I consulted (35b) might also have the NI-reading in special contexts (i.e., the thief (suddenly) became good in stealing), which in principle shouldn't be surprising given that the basic form *dobar* is ambiguous between the two readings. I suspect that the reason why this reading is marginal is that the verb *poboljšati (se)* in (34) can always be used to clearly express the NI-reading. The verb *pro-zl-iti (se)*, on the other hand, is always strictly intersective for all speakers I consulted, which is expected since the basic form *zao* is also strictly intersective. Thus, the example (i) below must be interpreted as "the thief (suddenly) became evil/bad as a person" and not as "the thief (suddenly) became bad in stealing".

(i) Ovaj lopov se pro-zlio
This thief REFL PRF-evilM.SG.
'This thief became evil/(morally) bad.'

'… but he was good (a good guy) even before that.'
b. Ovaj glumac se po-**boljš**ao otkako je napustio Holivud.
This actor REFL PRF-betterM.SG since is left Hollywood
'This actor improved since he left Hollywood.'
…ali je bio veoma dobar i dok je bio u Holivudu.
but is was very good and while is was in Hollywood
'… but he was really good while he was in Hollywood as well.'

(39) a. [[[ADJECTIVE] COMPARATIVE] $V_{\triangle}$] *po-**boljš**-ati se*
b. [INCEPTIVE [[ADJECTIVE]V_{STATE}]] *pro-**dobr**-iti se*

The adjective in (39b) is √DOBAR$^{\mathbf{I}}$ (as reflected in the meaning); since there is no comparative morpheme in (39b), *pro-**dobr**-iti se* (as well as *pro-**zl**-iti se*, which has identical behavior) falls outside the scope of (31). In other words, the adjective combines with the comparative morpheme only in the case of the change-of-state verb *po-boljš-ati se* in (39a), which has comparative/gradable meaning and, given the rule in (22a)/(25a), obligatorily includes the suppletive form *bolj-*. *Pro-dobr-iti se*, on the other hand, lacks comparative meaning, which indicates that it lacks the comparative morpheme. It is therefore expected that its root should be non-suppletive. This conclusion is further supported by the fact that only the verbs based on comparatives can combine with the secondary imperfective suffix (and are compatible with atelic adverbials), while *prodobriti se* and *prozliti se* are necessarily perfective. This is completely unsurprising given the standard assumption that perfective verbs in Serbian (and Slavic) in general denote events which are in some sense "complete", while imperfective verbs denote events which are "in progress" and may involve some kind of an on-going change in degree.

(40) a.	*po-**boljš**-ati se*	✓*po-**boljš**-<u>av</u>-ati se*
	PRF-better-INF REFL	PRF-better-<u>IMPRF</u>-INF REFL
b.	*pro-**dobr**-iti se*	* *pro-**dobr**-<u>av</u>-ati se*
	PRF-good-INF REFL	PRF-good-<u>IMPRF</u>-INF REFL
c.	*po-**gorš**-ati se*	✓*po- **gorš**-<u>av</u>-ati se*
	PRF-worse-INF REFL	PRF-worse-<u>IMPRF</u>-INF REFL
d.	*pro-**zl**-iti se*	* *pro-**zl**-ij<u>av</u>-ati se*
	PRF-evil-INF REFL	PRF-evil-<u>IMPRF</u>-INF REFL

At this point I would like to show how the analysis proposed here may shed some light on an interesting puzzle posed by the Serbian definite adjectival inflection. Serbian predicative adjectives have two kinds of inflection: definite/specific (pronominal or long form) and indefinite (nominal or short form), as shown in (41) (see Aljović 2002, Despić 2011 etc.) Interestingly, when *dobar* takes the definite form, it becomes limited to the I-reading:[11]

[11] The alternation between long and short forms is available only with predicative adjectives (i.e., adjectives that can be used in copular constructions). In such cases the long form indicates definiteness and the short form indefiniteness. This alternation is not possible with non-predicative adjectives of any type, including strictly non-intersective adjectives like *bivši* 'former'. In these cases the long form does not indicate (in)definiteness. In Despić 2011, I argued that the long-form ending is an elsewhere element, which is supported by the fact that the short form is paradigmatically compromised across Slavic (e.g., Sussex and Cubberley 2006: 454). For instance, in modern Serbian the short form is no longer productively used in non-nominative cases. Instead, the long form endings are used with non-nominative adjectives in both definite and indefinite contexts. There are even predicative adjectives (e.g., *mali* 'small') which exclusively have long-form endings. See Despić 2011 and Aljović 2002 for more details.

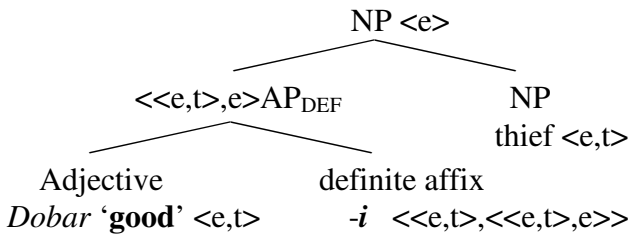
(41) a. Mlad-**i** /Mlad-∅ čovek je stigao.
Young-DEF Young-INDEF man is arrived
'The/A young man has arrived.'

(42) a. (Jedan) Dobar-∅ lopov je opljačkao predsednikovu kuću.
Some Good-INDEF thief is robbed president's house
'A good thief has robbed the president's house.'
b. **NI-reading**: ==> A thief with good stealing skills has robbed the president's house.
c. **I-reading**: ==> A person who is a thief and a good individual has robbed the president's house.

(43) a. Dobr-i lopov je opljačkao predsednikovu kuću.
Good-INDEF thief is robbed president's house
'The good thief has robbed the president's house.'
b. Only **I-reading**: ==> A person who is a thief and a good individual has robbed the president's house.

I believe that this disambiguation is expected on the proposed analysis, given the following natural assumptions. We can assume that the definite suffix *–i* has a definite article-like interpretation and is of type <<e,t>,<<e,t>,e>>. As shown in (44), it combines with an adjectival stem to yield a restricted definite determiner. *dobri*, the product of $dobar^{I}$+*-i*, is of type <<e,t>,e> and is interpreted as in (45). It yields an individual when it combines with *thief* (itself of type <e,t>). Therefore, *dobri* has an I-reading, but cannot have a NI-reading: $dobar^{NI}$ cannot combine with *–i* because of a type-mismatch.[12,13] These facts then provide additional support for the idea than an adjective like *dobar* comes in two semantic subtypes (I and NI).

(44)



(45) $[\![\text{dobr-i}]\!]^{w}$ = [λg∈$D_{<e,t>}$: there is a unique x∈C such that the degree of x's Goodness in w is at least the relevant standard, and g(x)=1 . the unique y∈C such that the degree of y's Goodness in w is at least the relevant standard, and g(y)=1] (where C is a contextually salient subset of D_e)

Finally, I want to briefly discuss an attractive alternative approach to suppletive adjectives in Serbian, which is based on Arregi and Nevins (2014). Arregi and Nevins (2014) observe that although in English the adjective *bad* has the suppletive form *worse* in the comparative, in certain uses of *bad* which refer to a positively evaluated sense of this adjective (e.g. Michael

[12] Alternatively, one could argue that the definiteness effects of these adjectives come from the pronominal nature of the definite suffix (which is historically developed from a cliticized pronoun). However, even on this kind of analysis the NI-reading would be excluded (see Despić 2011 for more details)

[13] Note that it is possible to have multiple adjectives with definite inflection, which is not problematic for this analysis if we assume that NPs in Serbian may undergo type shifting from type e to type <e,t> (e.g., via Partee's (1987) *ident*). That is, the NP of type e in (44) could be type shifted to type <e,t> before it combines with another definite adjective of type <<e,t>,e> (see Despić 2011 for details). See Zlatić (1997: section 3.4.2), for an alternative couched in HPSG, according to which multiple definite adjectives display morpho-syntactic concord in definiteness.

Jackson's *I'm Bad*, etc.), the comparative and superlative forms are *badder* and *baddest*. They argue that this positively evaluated use of *bad* in complimentary, anti-hero contexts involves the same root as the one which gives rise to *worse* and *worst*, but that it has an additional evaluative element, similar to diminutive suffixes in Romance languages, in which adjectives receive a distinct (often speaker-oriented) positive or negative evaluation in addition to their normal adjectival meaning. The argument is that the suppletive comparison requires a local configuration, as in (46a), which is then disrupted in the case of *badder* and *baddest*, by the additional evaluative head which is located between the root and the CMRP head (as in (46c)):

(46) a. √BAD → wors- /___] CMPR
b. √BAD → bad
c. [√BAD – EVAL – CMPR] (*badder)*

This is in many ways similar to the facts discussed here and one may wonder whether this kind of analysis can be developed for *dobar* and *zao*. I think that this could be done in the following way. We can assume that in the case of *dobar*, the root itself is actually strictly NI and that the comparative morpheme combines with it in a local configuration, which makes the suppletive form possible (see (47a)). Consequently, suppletive forms *bolji* and *najbolji* will also be strictly NI. In the case of the I-version of *dobar*, on the other hand, it could be (following Arregi and Nevins 2014) that the strictly NI root combines with a separate functional head MORAL (similar to EVAL in (46c)), which is of type <s,<e,t>> and roughly means something like "moral individual/entity" (see (47b)). The combination of the strictly NI root with this functional head would create a type <e,t> (an intersective adjective), which would mean something like "successful at being a moral individual given some contextually supplied scale."

(47) a. √DOBAR → bol- / ___ CMPR *NI*
b. [√DOBAR-MORAL] *I*

But just in the case of English *badder* this additional functional head would block suppletion, since it would disrupt the local conditions on suppletion. In fact, since Serbian disallows comparative doublets (as discussed above), the non-suppletive, strictly I forms, *dobriji* and *najdobriji*, would be entirely blocked (in contrast to English *badder/badest*). *Zao* and *gori/najgori* would work in exactly the same way, with one additional restriction: the root for *zao* would be realized only in the context of CMPR, where it would have the suppletive form *gor-* (and the strictly NI meaning), or in the context of MORAL where it would have the form *zao* (and the strictly I reading). This would effectively block the NI positive form of *zao*, as desired.

Now, recall also that adjectives like *inteligentan* 'intelligent', which are ambiguous between I and NI readings in the positive form, are also ambiguous in their standard comparative and superlative forms. Thus, the analysis sketched here for *dobar* and *zao* doesn't seem plausible for *inteligentan*, given that comparative doublets are disallowed in Serbian. That is, in the case of *inteligentan*, CMPR would combine both with the strictly NI root and with the combination of the root and a separate functional head (responsible for the I reading), which would create massive duplication of comapartive forms. It seems more plausible at this point that roots of adjective like *inteligentan* are themselves ambiguous and that this ambiguity is maintained in the comparative forms as well. This would mean that *dobar* and *inteligentan* have entirely different sources of the I/NI ambiguity, which is perhaps correct, but we would expect this difference to be reflected in their meaning. I leave investigating this possibility to future research.

5 Concluding remarks

Comparative and superlative suppletion in Serbian seems to be systematically associated with certain changes in meaning; i.e., suppletive forms are limited to NI-readings. Such facts seem to lend support to the traditional analysis of NI-modification (e.g., Siegel 1976), on which the I/NI distinction is taken to be mainly lexical. As shown in Section 4 the behavior of definite adjectives also supports this view. These facts, however, raise certain questions about the formal analysis of suppletion. I have proposed that in the case of ambiguous adjectives, which are associated with different semantic subtypes (I vs. NI), rules of exponence responsible for suppletion may be specified for just one of the available subtypes. This can then create the semantic split that we see with *dobar* and *zao*. I have also shown that the behavior of verbs based on these adjectives and their suppletive forms supports my proposal. Finally, I have also illustrated how Arregi and Nevins's (2014) analysis of disuppletive roots (e.g., *worse/badder*), according to which the suppletive allomorphy is conditioned by the presence or absence of additional functional heads in the structure, can deal with the facts presented in this paper.

I have also left it open whether the I and NI diacritics are located on the roots themselves (i.e., (22)-(23)), or on the category assigning head *a* they combine with (i.e., (25)-(26)). I would like to end the paper with a piece of evidence that the former might be on the right track. The distinction between I and NI readings is usually associated with adjectives, but it is relevant for certain nouns as well. Consider nouns like *dobrota* 'goodness' and *inteligencija* 'intelligence', usually assumed to be deadjectival nouns: when they are modified with an adjective like *košarkaška* 'of basketball-kind', only the latter can have what we would call an NI-reading. For example, *košarkaška inteligencija* 'basketball intelligence' refers to 'intelligence in playing basketball', i.e., a person with basketball intelligence is intelligent in playing basketball, even though s/he may not be intelligent by some general standards. *Košarkaška dobrota* 'basketball goodness', on the other hand, clearly lacks this kind of interpretation: it *cannot* mean 'a property of being good in basketball'. In other words, *dobrota* is limited to interesective (moral) goodness, and *košarkaška dobrota* thus means something like 'a moral goodness that is characteristic of basketball players/basketball'. This is somewhat surprising given that *dobar košarkaš* 'good basketball player' can, of course，have the NI-reading. What seems to be the case then is that the nominalizer *–ota* in *dobr-ota* must combine with the I-version of *dobar*.[14] Now, the question is then whether it directly combines with the root as in (48a) or with the root and the *a* head, as in (48b). In other words, is *dobrota* a deadjectival noun, or a noun directly based on the root?

(48) a. $\sqrt{\text{DOBAR}}^{I} - n$
b. $\sqrt{\text{DOBAR}} - a^{I} - n$

It is difficult to answer this question with nouns like *dobr-ota* 'goodness' or *lep-ota* 'beauty' because the roots in these cases are indistinguishable from corresponding adjectives (disregarding the adjectival inflectional morphology); the *a* head is in both cases null (e.g., *lep* 'beautiful'). But when the *a* head is overt, it does not appear between the root and the

[14] Nominalizers like *–ota* would of course have their own semantic type, which would in combination with the root/adjective like *dobar* create an appropriate semantic type for the whole noun (presumably, type <e,t>) Characterizing the exact nature of this semantic composition is something I have to leave for future work. But, what is crucial here is that even nominalizers like *-ota* can be sensitive to the I/NI properties of *dobar*, so that *dobr-ota* 'goodness' is limited to the I-reading of *dobar* (roughly "a state of being morally good").

nominalizer *–ota*. Consider the root √SRAM 'shame' in (49a). It can combine either with the null nominalizer, as in (49b), or with the nominalizer *–ota*, as in (49c). To derive the adjective 'shameful', the root must combine with the overt *a* head *–an* (49d). Notice that this suffix does not appear in (49c) between the root and *–ota* (e.g., *sram-ota*, not **sram-an-ota*). This indicates that *–ota* attaches directly to the root. To the extent that this conclusion is true for *dobr-ota* as well, we might have some evidence that the I and NI diacritics are actually located directly on roots and not on functional heads they combine with. I leave further inquiry of this topic to future research.

(49) a. √SRAM

b. √SRAM – *n*(∅)	*sram*	'shame'
c. √SRAM – *n*(-ota)	*sramota*	'shame'
d. √SRAM – *a*(-an)	*sraman*	'shameful'

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