Possession and Nominalization in Dan: Evidence for a General Theory of Categories

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Abstract Dan, a Mandean language of the Ivory Coast, marks the alienable possessors of simple nouns differently from inalienable possessors: only the former occur with the particle *ɓa*. This difference also shows up in nominalizations. When a verb is nominalized, its theme argument is expressed like the possessor of an inalienably possessed noun, without *ɓa*, whereas when an adjective is nominalized, its theme argument is expressed like the possessor of an alienably possessed noun, with *ɓa*. We show that this generalization holds for both a lexical type of nominalization, in which the nominalizer combines directly with the root before that root combines with any arguments, and for a syntactic type of nominalization, in which the nominalizer combines with a larger phrase. We account for this difference between deverbal nominalization and deadjectival nominalization using Baker's (2003) theory of the lexical categories, according to which verbs intrinsically combine directly with a theme argument, whereas adjectives do not, but only become predicates of a theme argument with the help of a functional head like Pred. We also show that Baker's category theory correctly predicts that denominal nouns like 'childhood' pattern with deadjectival nominalizations in this respect. This study thus provides new empirical support for this particular theory of lexical categories, as opposed to ones which assume a stronger parallelism across the various lexical categories.

Keywords: possession, nominalization, inalienable possession, adjectives, Dan language, lexical categories

1. Introduction

Dan is a Niger-Congo language of the Mandean group, spoken in Eastern Ivory Coast; see Gondo (2016) for the first extended study of the Man dialect, which we consider here. One notable syntactic feature of this language is that its nominal syntax clearly distinguishes between alienable and inalienable possession. Inalienable possession is expressed simply by juxtaposing the possessor DP with the possessed noun, with the order possessor-noun. No connecting particle comes between them (Gondo 2016: 135-136, 202-203). This construction is used for canonical body parts and kin terms, as in (1), as well as a number of other relational concepts.

(1)   a.   Z̀ötá̋ gɔ̀
             Zota head
             'Zota's head'

         b.   Z̀ötá̋ gbɤ́
             Zota son
             'Zota's son'

Other, not intrinsically relational nouns can be possessed too, but the grammatical pattern is different. With them, the possessor must be connected to the possessed noun by the possessive particle *ɓa*, which

gets its tone by spreading from the last tone of the possessor (Gondo 2016: 136-138, 201-202).[1] This is illustrated in (2).

(2) a. Z̈tɛ́ ɓɛ́   nʌ́
        Zota POSS child
        'Zota's child'

     b. Z̈tɛ́ ɓɛ́   jɛ̌
        Zota POSS yam
        'Zota's yam'

Although it is not rare for a language to distinguish alienable and inalienable possession in some way or another, Dan is rather different from English and the other well-studied Western European languages in this respect. For example, in English *Chris's head* and *Chris's yam* look to be parallel.

   Like many other languages, Dan has derived nominal constructions as well as basic nominal constructions. For example, verbs can be productively nominalized by the morpheme *-su* to get event or fact denoting expressions (Gondo 2016: 211-212). This is possible with both intransitive (unaccusative) and transitive verbs, as shown in (3).

(3) a. Klà nū-sū   è   sʌ̄.
        Kla come-NMLZ 3.SG.PRS good.'
        'Kla's coming is good.'

     b. Klà zʌ̄-sū   è   já.
        Kla kill-NMLZ 3.SG.PRS bad.
        'Killing Kla is bad.'

Similarly, adjectives can be productively nominalized by the morpheme *dɛ̀* to get state, fact, or degree denoting expressions (Gondo 2016: 214-215), as seen in (4).

(4) Mű́s̈ ɓä   zɔ̄ɔ̄zɔ̏ɔ̏-dɛ̀   è   gbɪ̃́.
     Muso POSS foolish-NMLZ 3.SG.PRS big.
     'Muso's foolishness is great.'

   There is, however, a striking structural difference between deverbal nominalizations and deadjectival nominalizations in Dan, which can be seen in Gondo's (2016) examples, but which he does not discuss explicitly. The theme argument of a deverbal nominalization is unmarked, like the inalienable possessors in (1). In contrast, the theme argument of an adjectival nominalization must be marked by the possessive particle *ɓa*, like the alienable possessors in (2). This grammatical difference is not expected from the point of view of English and other familiar European languages, where the arguments of a deverbal nominal and a deadjectival nominal are marked in the same ways, as shown in (5).

(5) a. John's arrival, the arrival of John
     b. the city's destruction, the destruction of the city
     c. Mary's foolishness, the foolishness of Mary

But then we already know that English is impoverished relative to Dan in not clearly distinguishing different types of possession, so it has fewer opportunities to show a difference between deverbal

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[1] Dan also has demonstratives that are segmentally *ɓa*, but these have fixed tones of high or superhigh, whereas the POSS head receives tone from its specifier via tone spreading.

nominalizations and deadjectival nominalizations. Dan does distinguish the different possessor types, and it is interesting that different types of nominalization are treated differently in this respect.

The primary question to be considered in this paper, then, is why are the themes of deverbal nominalizations treated as inalienable possessors, whereas the themes of adjectival nominalizations are treated as alienable possessors. We claim that this is not an arbitrary grammatical choice, but can be explained in terms of the theory of lexical categories in Baker (2003) (and similar approaches), in which theme arguments are direct arguments of verbs, but they are only indirect arguments of adjectives.

The paper is structured as follows. First we sketch a very simple account of possessed nominals in Dan (section 2). Then we briefly review the relevant parts of Baker's (2003) theory of the verb-adjective distinction (section 3). Next we show how this theory can give a straight-forward explanation for the asymmetry in question—one that works regardless of whether nominalization takes place lexically or syntactically (section 4). Then we deepen our description a bit, arguing that in fact Dan uses a kind of syntactic nominalization for verbs, whereas lexical nominalization is available for adjectives and verbs both (section 5). We then extend our account to the nominalization of nouns (e.g. expressions like 'John's childhood'), showing that a prediction derived from Baker's category theory that these should pattern with deadjectival nominalizations rather than with deverbal nominalizations is correct (section 6). Section 7 offers some conclusions and discussion.

2. Possession in Dan

First, then, we sketch a simple theory of the two types of possession in Dan, shown in (1) and (2). This provides a baseline for our understanding of derived nominalizations.

We follow the classic generative treatments of Vergnaud and Zubizarreta (1992) and Barker (1995) by assuming that the fundamental difference is simply that inalienable nouns like body part nouns and kinship terms take an internal argument, whereas alienable nouns do not. There is no standard label for the thematic role that a body part or kinship noun assigns to its argument, so we just call it X. The argument structures of selected basic nouns in Dan then look something like this:

(6)   a.   *gɔ̀* 'head' <X>, *gbɤ́* 'son' <X>, …
         b.   *nʌ́* 'child' < > , *jǎ* 'yam' < >, ….

Other nouns in the (6a) class besides obvious kin terms and body parts include *wɛ̃̀ɛ̃́* 'place where one usually sits', *tɛ̃́ɛ̃́dō* 'friend', *jàjóó* 'neighbor', *gɔ̀mɛ̀* 'boss' (literally 'head-man'), *ɓɛ̄* 'fruit' (of a tree), *gā* 'seed' (of a tree), *slɔ́ŋ̀* 'injury', *níí* 'life' and *slɔ̀ɔ̀-pʌ̀* 'wages, earnings'. Most or all of these are naturally relational. For example, *gbɤ́* 'son' and *nʌ́* 'child' are a near minimal pair. We might often use "X's son" and "X's (male) child" almost interchangeably, but 'son' is an intrinsically relational concept, so it is inalienable, whereas 'child' is not intrinsically relational—it just applies to a human in a certain age range, regardless of their relationships—and it is alienable. Similarly, it seems peculiar that 'wife' and 'husband' are treated as alienable possession (*Klà ɓà dēɓɔ̄* 'Kla POSS wife', *Zötǎ ɓǎ gɔ̄* 'Zota POSS husband). One can start to tell a story that spousehood is a derived kinship relation, not an intrinsic one, and it does not hold across one's whole lifespan, but *ɓá* 'in-law' takes an inalienable possessor (*Klà ɓá*, 'Kla's in-law'), and that is presumably as much a derived relations as 'wife' is. More to the point is the fact that *dēɓɔ̄* actually means 'woman, female' and *gɔ̄* is 'man, male', so like 'child' these are not intrinsically relational, even if they are often used to refer to a spouse. Even so, the exact borderline between the alienable class and the inalienable seems to be somewhat lexically idiosyncratic. For example, *ŋ̄ slɔ́ŋ̀* 'my injury'(female) follows the inalienable pattern, whereas *m̄-ɓā jwǎ* 'my disease' follows the alienable pattern. This situation is not significantly different from what we see with the argument structure of verbs and its relationship to the intrinsic lexical semantics of a verb: the argument structure is largely predictable from the verb's lexical semantics, but not always entirely so, at least to the extent that we know how to independently assess a verb's lexical semantics. It is similar for the distinction between the two classes of nouns in Dan.

Moving from argument structure to syntax, we derive simple nominal structures like those in (7). An inalienable noun can combine with a DP to form an NP, assigning that DP a thematic role, as in (7a). In contrast, if an alienable noun is merged directly with a DP, that DP will not receive a thematic role, so (7b) is ruled out by the Theta Criterion.

(7)

```
          NP                              NP   *by θ-criterion
         /  \                            /  \
       DP    N                         DP    N
        |    |                          |    |
      Zota  head<X>                   Zota  child<->
            son <X>                          yam <->
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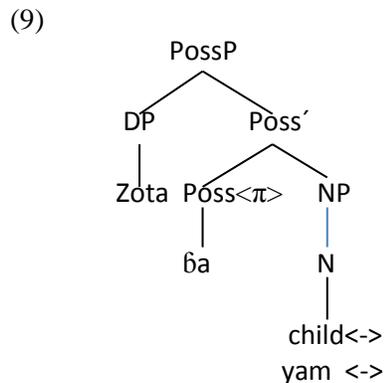
Note that we assume that the inalienable possessor of a noun is the complement of the noun, not its specifier. This is in accordance with Chomsky's (1995) bare phrase structure theory, given that there is nothing else that obviously merges with the noun before the possessor does. It is also forced on us by Baker's (2003) category theory, according to which nouns can take complements but not specifiers, by definition (see section 3 below). This is consistent with what we know about word order in Dan, which, like other Mandean languages (cf. Koopman 1992 on Bambara). has interesting mixed word order properties. Theta-role assigning lexical heads like verbs and Ps take NP/DP arguments to the left, whereas core verbal functional heads like C and T/Aux take complements to their right. Inalienable Ns presumably form a natural class with the former. However, we do not take a stand here on the nature of this mixed word order in Mandean languages. It is possible that some movement process preposes the DP complement in (7a) (and also the objects of Vs and Ps), as would be the case in Kayne's (1994) antisymmetry theory, but if so, we abstract away from that here.

Alienable nouns cannot merge directly with a DP, but they can have a possessor if the particle *ɓa* is present. We assume that this is a Poss head (perhaps a subtype of D) which takes an NP complement and a DP specifier, to which it assigns an intrinsic possession thematic role <π> (cf. Barker 1995: ch.2)—just as *'s* (or a null D head) does in English. This is stated in (8). [2]

(8)   *ɓa* Poss (D), Subcategorization [NP__], argument structure <π>

Therefore, the structure in (9) is well-formed, in contrast with (7b), since the possessor DP is theta-marked by *ɓa* (not by N). Note that, as a functional head, *ɓa* comes before its complement, as do C and T/Aux (for T/Aux, see for example (13a)).

(9)

```
              PossP
             /    \
           DP      Poss´
            |      /    \
          Zota  Poss<π>  NP
                  |       |
                 ɓa       N
                          |
                        child<->
                        yam <->
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_____

[2] It is n   P complement of Poss should count as an argument of Poss or not, in the technical sense of the Theta Criterion. If it does, one could attribute a second theta-role to Poss for it to assign to its NP complement.

This gives us the core structures in (1) and (2), along with a reason why *ɓa* is needed with one class of nouns but not the other.

One other structure that could be possible within this domain is one in which *ɓa* combines with an NP headed by an inalienable N as its complement. Formally, the thematic and selectional conditions are satisfied, and indeed this seems to be possible in special cases like (10), where the same noun has both an inalienable and an alienable possessor.[3]

(10) a. Dàvīīdʌ̀ ɓà   gɔ́lìàtʌ̀ gɔ̀
          David   POSS Goliath head
          'David's head of Goliath'

     b.
```
              PossP
             /     \
           DP       Poss′
           |       /     \
         David  Poss<π>    NP
                   |      /   \
                  ɓa   (DP)    N
                        |      |
                     Goliath  head
                               <X>
```

Note also that there is evidently no case theory problem with having two possessor DPs inside a nominal, as in (10). One can take various views about this: either the Case filter does not apply at all in Dan (cf. Diercks 2012 on Bantu languages), or both N and Poss are case assigners in Dan, or any DP can get case by default in Dan. For our purposes in this paper, any of these views will do, and we do not concern ourselves much with case assignment in Dan nominals here.[4]

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[3] It also seems possible for a noun like 'head' to have an alienable possessor without any overt inalienable possessor in the right context, for example *David ɓà gɔ̀* is possible for a situation in which David is parading around with the severed head of his enemy. This is not surprising, given that body parts and kin terms do not require an overt possessor in Dan, in examples like (i)

(i) a. gbjɤ́ (gbã) è   klɤ̀ɤ̀.
          arm (all) 3.SG.PRS   short
          'The arm/all the arms is/are short.'

     b. Klà jā   wlɤ̃ nǎ-tǎ.
          Kla 3.SG.PST fly grandmother-over
          'Kla flew over the grandmother.'

We leave open whether the argument of inalienable nouns is formally optional, or whether some kind of null DP complement is present in these cases. See also note 11 for the same issue with nominalizations of unaccusative verbs.

[4] Note that not even pronouns that are complements to nouns show any special case form (e.g."genitive") in Dan. Apart from the possibility of weak nominative pronouns that fuse with the tense auxiliaries, Dan has a single set of pronouns used as complements of Vs, Ps, Ns, and specifiers of PossP, as well as for focused subjects. A

3. The theory of categories

Now that we have an idea of how simple nominal structures work in Dan, we can work our way toward a theory of nominalizations in Dan. Our goal is to account for why the nominalizations of adjectives are systematically different from the nominalizations of verbs. Therefore, we want a theory of what the core difference is between verbs and adjectives before they are nominalized, which we can apply to this Dan-specific issue. In fact, much of the generative literature has been more interested in the cross-categorical similarities of nominal, verbal, and adjectival structures than in their differences. However, a theory of the core differences that is suitable for our purposes is that of Baker (2003). The basic axioms of his category theory are summarized in (11).

(11)   a. A noun is a lexical category that introduces a referential index.
        b. A verb is a lexical category that has a specifier (as well as a complement).
        c. An adjective is a lexical category that has neither an index nor a specifier.
        d. Reference Predication Constraint: No syntactic node can both introduce an index and license a specifier.

Most important for our purposes here is (11b) versus (11c): the claim that verbs license specifiers and adjectives (and nouns) do not. This means that there is room inside VP for two arguments: a PP or AP complement expressing a path/goal/resulting state, and a theme argument as specifier of VP (at least if the result argument is present). In contrast, an adjective phrase might have a PP complement (e.g. *John is [AP good at swimming]*), but it has no room for anything like a theme argument. Another way of expressing the basic intuition is that verbs are intrinsic predicates, whereas adjectives are not. Of course, adjectives and APs are often used predicatively, but Baker's claim (with many precedents, including Bowers 1993, and in a very different framework Croft 1991) is that this is only possible when the AP gets support from a functional head, called Pred. (12) compares an unaccusative verb, where the "subject" originates inside VP ((12a)), with a canonical adjective, where the subject originates outside AP in Spec PredP ((12b)). This difference often shows up (directly or indirectly) in the fact that some sort of copula or predicational particle is often needed in predicative adjective constructions, like *be* in English (*John is happy*), but not in verbal constructions (*John fell, *John was fall*)—although the precise distribution of particular copular elements can be complex in particular languages (e.g., factors like tense marking also play a role; see Baker 2003: section 2.4 for discussion).

(12)   a.   b.   c.
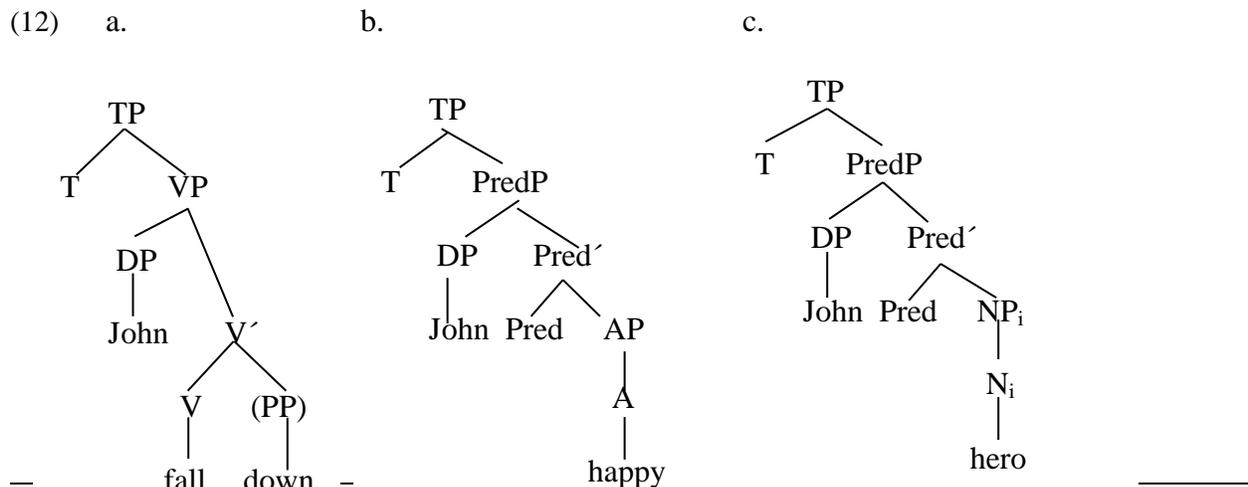
consequence of this is that one cannot tell by inspection whether the complement of a deverbal nominalization is accusative or genitive—i.e. if the constructions in (3) are more like gerunds of derived nominals in this respect.

We also note in passing that nouns are more like adjectives than like verbs in this respect: they too disallow a specifier and often need a copular element to be used as a predicate in the same environments that adjectives do (*John is a hero*). This remains in the background for now, but we take it up in section 6. Baker (2003) attempts to derive many of the observable differences between verbs and adjectives from this simple proposal, but we do not review his alleged evidence further here.

Not all languages have a robust distinction between verbs and adjectives; in particular plenty of African languages do not. Dan however does seem to have the distinction, although this has not been studied in great depth yet. There is no marked difference between the two categories in predicate position: words of both categories normally follow a tense-marking auxiliary, verbs as well as adjectives.

(13) a. nʌ́   è   gā.
          child 3.SG.PRS die
          'The child dies.'

      b. nʌ́   è   zɔ̄ɔ̄zɔ̈ɔ̈.
          child 3.SG.PRS foolish
          'The child is foolish.'

But one clear difference is that adjectives can modify nouns directly, whereas verbs cannot; rather, verbs need to appear in a relative clause type structure (cf. Baker 2003: sec 4.2 for general discussion).

(14) a. mɛ̄   zɔ̄ɔ̄zɔ̈ɔ̈
          person foolish
          'the foolish person'

      b. nʌ́   ɤ́   gā ɓā   (*nʌ́   gā)
          child REL die DEM   child   die
          'the child that died'

It is also possible to derive an adjective from a verb by suffixing *-sɯ*, an adjectivizing affix which also attaches to nouns and bare roots to form adjectives (*dîi-sɯ* 'dirt-ADJ'= 'dirty', *gbɤŋ-sɯ* 'intelligence-ADJ'= 'intelligent').[5] The derived adjective can then modify a noun directly, as expected.

(15) nʌ́   gā-sɯ̄   (ɓa),   gbɔ̄ pɤ̄-sɯ̄
      child die-ADJ DEM   pot fall-ADJ
      'the dead child', 'the fallen pot'

It would be rather weird to say that a language had a deverbal adjectiving suffix if it did not have an adjective-verb distinction. Moreover, the very fact that verbs and adjectives are nominalized by different affixes, *-sɯ* and *-dɛ̀* respectively, also testifies to there being a distinction.

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[5] Note that the adjective forming suffix is, curiously, homophonous with the deverbal nominalizing suffix *-sɯ*. We assume that this is a coincidence, perhaps explicable historically (both could be grammaticalizations of the verb *sɯ* 'take' along different paths?), and we do not envision a unified analysis. When attached to a verb root, local ambiguities can arise: the string *nʌ ga-sɯ* can mean 'the dead child' (adjectival *-sɯ*) or 'the child's death' (nominalizing *-sɯ*). However, one expression is headed by 'child' and refers to a person, and the other is headed by 'death' and refers to an event, so larger structures are usually not ambiguous.

The deadjectival nominalizer -dɛ̀ also has homophones in Dan—notably the affix that derives place-denoting nominals from verbs; see (39). Here a unified synchronic analysis is a bit easier to imagine, since both are NP forming elements. However, we do not know how to derive the fact that *dɛ̀* means 'place' with verbs but not with adjectives without ascribing different lexical meanings to different instances.

It seems that these diagnostic properties correlate well. For example, looking at (16a), one might wonder whether *swʊ* is an adjective 'afraid' or a verb 'fear'. In fact, it behaves consistently as a verb: it cannot modify a noun except by relativization or adjectivization ((16b-c)), and for nominalization it follows the verbal pattern, bearing the suffix -*su* ((16d))—and crucially there is no Poss marker *ɓa*.

(16)   a.   Klà è   swʊ̀
             Kla 3.SG.PRS fear?/afraid?
             'Kla fears; Kla is afraid.'

        b.   * nʌ́   swʊ̀
             child fear
             'the scared child'

        c.   nʌ́   ɤ̍   swʊ̀   (also nʌ́   swʊ́-sʉ́)
             child REL fear   child fear-ADJ
             'the child who fears'   'the fearful child'

        d.   Klà swʊ́-sʉ́   è   sʌ̄.
             Kla fear-NMLZ 3.SG.PRS good
             'Kla's being afraid is good.'

In practice, most of the basic vocabulary items that correspond to adjectives in English are also adjectives (possibly derived) in Dan. We take it, then, the distinction between adjectives and verbs is relatively unproblematic in Dan.

        We can already see how our basic observation about nominalization in Dan might relate to Baker's hypothesis about the core difference between verbs and adjectives. Baker (2003) says that simple verbs combine directly with their core argument, whereas adjectives can only do so indirectly, with help of a functional head that may (or may not) be overt. Dan shows us that nominalized simple verbs combine directly with their core argument, whereas nominalized adjectives can only do so indirectly, with the help of a functional head *ɓa*, which is helpfully overt. There is a clear parallel here that we can hope to endow with explanatory force. That is the task of the next section.

4. Nominalization

What, in general terms, is a nominalization? Crosslinguistically and theoretically, there are (potentially, at least) two kinds of constructions that are worthy of this label (see Alexiadou et al. 2007 for a fairly recent overview). First, a nominalizing morpheme can combine directly with a lexical head, before the lexical head combines with any of the arguments (or adjunct modifiers) that it would normally appear with. This could be combination in the lexicon, prior to the syntax, as in the traditional lexicalist hypothesis, with roots in Chomsky (1970). But it could also be direct merger of a root with a noun head in the syntax, a possible treatment within Distributed Morphology. We have no need to distinguish these two variants, and will refer to both as *lexical* nominalization, although the term is somewhat misleading when applied to the DM-style version.

        The other major sort of nominalization is one in which the nominalizing morpheme combines with a verb or adjective after the verb or adjective has already combined with at least some of its arguments or modifiers. This is another type of DM-style account, pioneered by Marantz (1997) for derived nominals with genitive complements, and more traditional and broadly held for gerund constructions with accusative complements.[6] In effect, nominalization applies to a phrase in this version,

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[6] We take some expositional liberty here, since in fact Marantz (1997) denies that the roots which the nominalizing morpheme combines with have any category such as verb or adjective. We are distinguishing here between

not to a "word" (terminal node). For convenience, we refer to this as *syntactic* nominalization, since the nominal morpheme combines with an internally complex, distinctively syntactic object—although this this term could also be slightly misleading:

These two types of nominalization often exist side by side, even in a single language. Indeed, the very same morpheme can participate in both types of construction. This seems to be true for the English nominalizing morpheme *-ing*, for example. This morpheme is found in both the "action nominal" construction in (17a) and the "gerund" construction in (17b). In the action nominal, the theme complement is marked with genitive *of*, and the nominalization as a whole can be introduced with an ordinary determiner *the*. The overall structure is uniformly nominal in these respects, with *the killing of the goat* parallel to *the picture of the ocean* or *the leg of the table*. In contrast, in the gerund construction, the theme complement is a bare accusative DP, and the construction cannot be introduced by the article *the*. However, the gerund construction is nominal in that it (like the action nominal) can take a subject marked with genitive *'s*, and it can appear in DP-selecting positions, like direct object, subject, and object of preposition. Therefore, the gerund constructions has a combination of verbal and nominal properties, consonant with the claim that *-ing* is a noun that combines with a full verb phrase in this case.

(17)   a.   Mary witnessed {the/John's} killing of the goat.
        b.   Mary was upset by {John's/∅/*the} killing the goat.

Given the existence and close association of these two types of nominalization construction, a thorough explanation of the nominalization asymmetry we have seen in Dan should come in two parts. Part one is explaining why lexical nominalization treats deadjectival constructions differently from deverbal constructions, and part two is explaining why syntactic nominalization treats deadjectival constructions differently from deverbal constructions. If both parts go through, then we have a robust explanation for the asymmetry that we observed in section one. We consider the lexical type of nominalization construction first, and then go on to the syntactic type of nominalization.

4.1 Lexical nominalization

Consider first the possibility that a nominal morpheme combines directly with a verbal or adjectival root, before that root combines with any arguments (or adjuncts). Still the root is associated with an argument structure (we assume—perhaps largely deducible from its lexical semantics). A key question, then, is what is the argument structure of the derived noun, and how does it relate to the argument structure of the base word?

The classical and default assumption about this is that (all things being equal) the argument structure of [[X]+NMLZ] is the same as the argument structure of X itself. The derived nominal simply inherits the arguments of the root essentially unchanged, hence the parallelism between a clause like *Rome destroyed Carthage* and a nominalization like *Rome's destruction of Carthage* (Chomsky 1970, etc.). We adopt this view too, at least as a starting point, and for the sake of argument.

What then are the argument structures of verbal and adjectival roots? Unaccusative verbs take at least a theme argument (and perhaps also a PP/resulting state argument, not considered here). So do transitive verbs like 'kill'. Traditionally these also take an agent argument, but we assume that this argument is more precisely added by a v or Voice head, as in Hale and Keyser (1993), Chomsky (1993), Kratzer (1996) and others. However, adjectives do not take a theme argument according to Baker's (2003) theory; rather that argument is added by a functional head Pred in some contexts. The argument structures are thus as in (18).
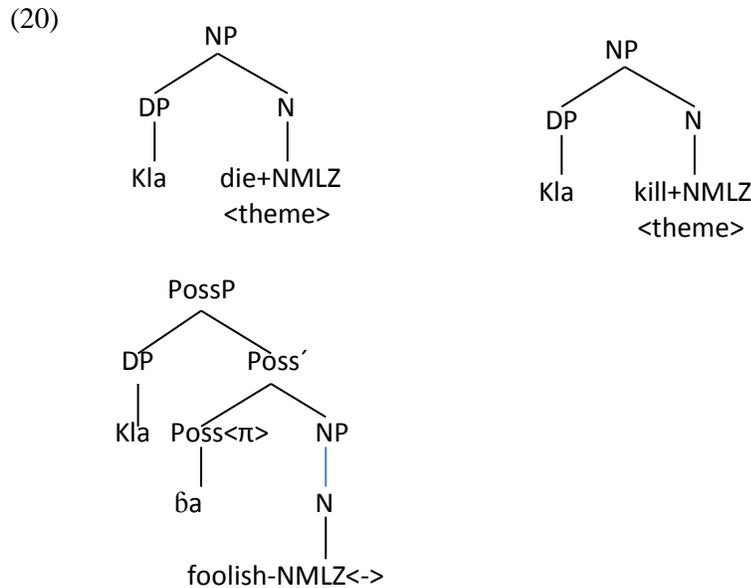
(18)   a.   die <theme>

Marantz's claim that nominalization may be syntactic, which we accept, from the claim that roots of are intrinsically without category, which we do not. (For some criticism of this aspect of Marantz's view, see Baker 2003: 265-271.)

b. kill <theme>   (agent addable by v/Voice)
c. foolish < >   (theme addable by Pred)

If we start with these argument structures and then nominalize the roots, passing on the arguments in accordance with the default assumption, the results are in (19).

(19) a. gā-sū <theme>   ('dying')   like an inalienable noun
      b. zā̄-sū <theme>   ('killing')   like an inalienable noun
      c   zɔ̄ɔ̄zɔ̈ɔ̈-dɛ̀ <>   ('foolishness')   like an alienable noun

Notice that the deverbal nouns have argument structures that are essentially like those of the inalienable nouns in (6a), in that they take a single internal argument. In contrast, the deadjectival noun has a null argument structure, which is essentially like that of the alienable nouns in (6b). The larger structures that can be constructed using these heads are also parallel, as shown in (20).

(20)

NP
├── DP
│   └── Kla
└── N
    └── die+NMLZ
        <theme>

NP
├── DP
│   └── Kla
└── N
    └── kill+NMLZ
        <theme>

PossP
├── DP
│   └── Kla
└── Poss´
    ├── Poss<π>
    │   └── ɓa
    └── NP
        └── N
            └── foolish-NMLZ<->

So it is easy to explain the observed asymmetry in nominalization along these lines. Basically, Baker's distinction between verbs taking a true internal argument and adjectives taking an analogous external argument carries over directly to the derived nominals. There it is clearly made manifest by the fact that arguments internal to NP and arguments external to NP are marked quite differently in Dan.
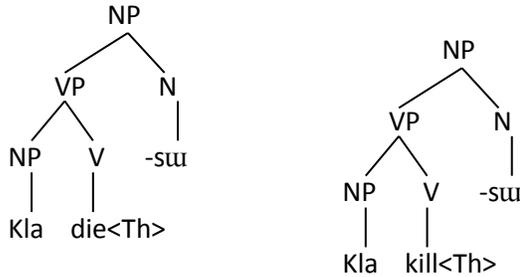
4.2 Syntactic nominalization

Next we entertain the possibility of deverbal and/or deadjectival nominalizations of the syntactic type, where the nominal head combines with a phrase, not just with a root. What sort of overall structures should these have?
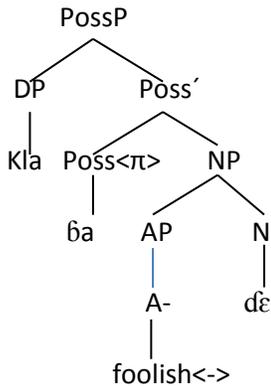
Along this line, the simplest assumption that that the nominalizing morphemes are noun heads that take an XP complement, where X is a lexical head, verb or adjective. In this sphere, the crucial difference is that the VP complement of the N will have a theme argument inside it, but an AP complement of the N will not have a theme argument inside it, since themes are never generated inside AP proper, according to Baker. This is a straightforward transfer of the core structural difference in (12a,b) to the situation where VP and AP are complements of N rather than constituents in a finite clause. On these assumptions, the structures will look like (21) and (22). Note in particular that a DP inside AP in

(22) will not be theta marked. The only way to include it is to embed the NP headed by *dɛ* inside a PossP headed by *ɓa*, so the DP can be theta-marked by this Poss head.

(21)

```
            NP                              NP
          /    \                          /    \
        VP      N                       VP      N
       /  \     |                      /  \     |
     NP    V   -sɯ                   NP    V   -sɯ
      |    |                          |    |
    Kla  die<Th>                    Kla  kill<Th>
```

(22)

```
            PossP
          /       \
        DP         Pòss´
        |         /      \
      Kla   Poss<π>       NP
              |          /    \
             ɓa        AP      N
                       |       |
                      A-      dɛ
                       |
                   foolish<->
```
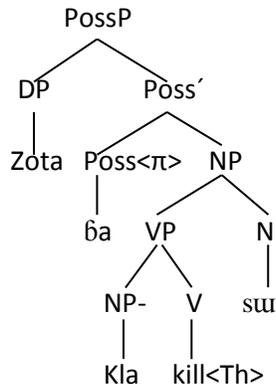
So the asymmetry presented in section 1 follows naturally from Baker's proposal about the fundamental difference between verbs and adjectives along this line too.

Rounding out the picture, there is another, more fully articulated possibility for the nominalization of transitive verbs. These can have a theme as the internal argument of VP inside the nominalization, and then an agent in Spec PossP, theta-marked by Poss. This is a grammatical possibility in Dan too, as shown in (23a), with the structure in (23b).

(23) a. Zötǎ ɓǎ   Klà zₓ̄-sɯ̄   è   já.
          Zota POSS Kla kill-NMLZ 3.SG.PRS bad.
          'Zota's killing Kla is bad.'

      b.

```
            PossP
          /       \
        DP         Pòss´
        |         /      \
      Zota   Poss<π>       NP
               |          /    \
              ɓa        VP      N
                       /  \     |
                     NP-   V   sɯ
                      |    |
                    Kla  kill<Th>
```

Here again *ɓa* is required, as it is with adjectives. This is expected within our theory, since agents are not true arguments of verbs, just as themes are not true arguments of adjectives. Rather, both are theta-

marked by higher functional heads: v/Voice for the agent of a verb, and Pred for the theme of an adjective. These functional heads are not present as such in the nominal constructions, on the hypothesis that the nominalizer head takes a lexical phrase as its complement. Therefore, these arguments need to be introduced in a PossP structure, if they are present at all. The overall structure of the transitive nominalization in (23) is parallel to that of the doubly possessed inalienable noun 'head' in (10). (We give (23b) in the syntactic nominalization format, but it could also arise in the lexical nominalization format. The only difference is that 'Kla' would be the complement of kill+NMLZ rather than the complement of 'kill' itself.)

4.3 Interim conclusion

In summary, we have seen that the asymmetry between deverbal nominalization and deadjectival nominalization in Dan is explicable regardless of whether Dan has lexical nominalizations or syntactic nominalizations. The structures are a bit different according to the two hypotheses, but the underlying causal factor is recognizably the same. A verb combines directly with its theme argument, so it either does so before combining with the nominalizing morpheme (syntactic nominalization) or it passes on its direct argument-taking property to the nominalized version (lexical nominalization). Either way, the result looks like an inalienable possession construction, in which a noun combines directly with a possessor DP. In contrast, an adjective cannot combine directly with a theme argument, but needs the help of a functional head. Therefore, it cannot take a theme argument before functioning as the complement of NMLZ (syntactic nominalization) and/or it cannot pass a direct argument-taking capacity on to a nominalized version (lexical nominalization). Either way, a theme argument is only possible if it is theta-marked by a distinct head 6a, as is also true for inalienably possessed nouns. Thus, we have the robust explanation for the nominalization asymmetry in Dan which we were aiming for.

And that is good, because the asymmetry is empirically robust. So far, we have given only one canonical example of each type, but it is easy to extend the list. (24) gives further examples of nominalizing unaccusative-type intransitive verbs; the theme argument is systematically bare. (We give a relatively large number of examples, because Dan data is not widely available, and because this topic verges on lexical semantics, where one needs to be on guard for lexical idiosyncrasies.)

(24) a. tɤ̄ɤ̄   (*6a)   pɤ̀-sɯ̀   è   já.
          basket (*POSS) fall-NMLZ 3.SG.PRS bad
          'The basket's falling was bad.'

      b. Mɯ́sö gā-sɯ̄   è   já.
          Muso die-NMLZ 3.SG.PRS bad
          'Muso's dying is bad.'

      c. Zötä́ (*6a)   dɔ́-sɯ́   è   sā̄
          Zota (*POSS) go-NMLZ 3.SG.PRS good
          'Zota's departure is good.'

      d. gbɔ̄ wɯ̄-sɯ̄   è   já.
          pot break-NMLZ 3.SG.PRS bad
          'The breaking of the pot is bad.'

      e. ŋ̄ 6là-sɯ̀   è   já
          me swell-NMLZ 3.SG.PRS bad
          'My swelling up is bad.'

Example (25) gives further examples of nominalizing transitive verbs. The theme argument is always bare, although if an agent argument is present, it is marked with *ɓa*.

(25) a. (Klà ɓà)   ɓá̋á̋ ɓɤ̀-sɯ̀   è   sā̃.
          Kla POSS rice eat-NMLZ 3.SG.PRS good
          '(Kla's) eating rice is good.'

      b. gɔ́   swɤ́-sɯ́   è   já.
          kola spit-NMLZ 3.SG.PRS bad
          'Spitting kola nuts is bad.'

      c. dɯ̋ɯ̋ dʉ̀ŋ-sɯ̀   è   sā̃.
          tree count-NMLZ 3.SG.PRS good
          'Counting trees is good.'

      d. Klà ɓà   nʌ́ kṵ́-sɯ́   è   já
          Kla POSS child catch-NOM 3.SG.PRS bad
          'Kla's catching the child is bad.'

      e. Klà ɓà   vɪ˝ dɔ̄-sɯ̄   è   sā̃.
          Kla POSS fish buy-NMLZ 3.SG.PRS good
          'Kla's buying fish is good.'

In contrast to both of these, state-denoting adjectives systematically need *ɓa* with their erstwhile theme argument, as shown in (26).

(26) a. mā   pɯ̋ɯ̋-dɛ̋   è   gbɪ̋.   (mā= ɴ̄+ɓa, * ŋ)
          I.POSS white-NMLZ 3.SG.PRS big
          'My whiteness is much.' (i.e. 'I am very white.')

      b. mā   zɪ̄ɪ̄-dɛ̃̀   è   já.
          I.POSS old-NMLZ 3.SG.PRS bad
          'My oldness is bad.'

      c. ä-*(ɓà)   gblɛ̰́ɛ̰́-dɛ̀   è   sā̃.
          3.SG-POSS tall-NMLZ 3.SG.PRS good
          'His tallness is good.'

      d. Zòtá̋ *(ɓá̋) glɤ̀ŋ-dɛ̃̀   è   sā̃.
          Zota POSS intelligent-NMLZ 3.SG.PRS good
          'Zota's intelligence is good.'

      e. ɓé̋é̋ ɓá̋ kpɛ̋ɛ̋-dɛ̋   è   sā̃.
          shirt POSS dry-NMLZ 3.SG.PRS good
          'The dryness of the shirt is good.'

      f. nʌ́ ɓá dɪ̃̀ɪ̃̀-(sɯ̈)-dɛ̃̀   è   já.
          child POSS dirt-ADJ-NMLZ 3.SG.PRS bad
          'The dirtiness of the child is bad.'

So the asymmetry is robust, and well worth having an explanation for.

13

A further empirical question that arises at this point is what happens when an unergative verb—one with an agentive subject but no object argument—is nominalized in Dan. The answer is that we are not sure that Dan has any basic unergative verbs. The most prototypical unergative verbs in Dan turn out to be transitive constructions consisting of a light verb plus some kind of idiomatic or cognate object. Thus, 'sing' is really 'song+pick/harvest', 'sleep' is 'sleep+kill', 'swim' is 'water+do', 'walk' is 'walk+do' and so on. It is not surprising, then, that these predicates nominalize like transitive verbs: the agent is in Spec PossP headed by *ɓà*, and the cognate object is bare and adjacent to the nominalized light verb, as in (27). There is nothing really new to be learned from this pattern.

(27) a. Klà *(ɓà) tá̰-ɓō-sū̄   è   sā̄.
          Kla POSS song-pick-NMLZ 3.SG.PRS good
          'Kla's singing is good.'

      b. mā̄   jī-zā̄-sū̄   è   sā̄.
          I.POSS sleep-kill-NMLZ 3.SG.PRS good
          'My sleeping is good.'

      b. mā̄   jǐ-kā̄-sū̄   è   sā̄.
          I.POSS swim-do-NMLZ 3.SG.PRS good.
          'My swimming is good.'

There are a few less canonical unergative predicates that are simple verbs, not syntactically complex constructions. When nominalized, these have subjects that are not marked with Poss head *ɓà*, as shown in (28).

(28) a. Klà (*ɓà) pè-sù̀   è   já.
          Kla POSS vomit-NMLZ 3.SG.PRS bad
          'Kla's vomiting is bad.'

      b. bō̄ō̄ (*ɓā̄)   wlǐ̀-sù̀ è   sā̄
          owl (*POSS) fly-NMLZ 3.SG.PRS good
          'The flying of the owl is good.'

The structure of these examples seems to be no different from that of unaccusative nominalizations, as in (24). Indeed, we are not sure that these are not really unaccusative verbs. After all, vomiting is not something that one usually does on purpose, and 'fly' can be considered a verb of directed motion (hence unaccusative) as well as a verb of manner of motion (canonically unergative) in many languages. Until independent diagnostics of unaccusativity are found for Dan to shed more light on this, we tentatively assume that the language has no simple unergative verbs, but they are all syntactically transitive constructions, similar to what Hale and Keyser (2002: 117, 140) claim for Basque and Tanoan.[7]

5. Choosing among the structures

We have boasted about being able to explain why theme arguments of deverbal nominalizations are expressed differently from theme arguments of deadjectival nominalizations in terms of fundamental

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[7] If this turns out not to be the case, and the verbs in (28) are genuine unergatives, something will need to be added to account for why the subject is not in Spec PossP in these examples, given that unergative Vs do not assign theta roles. One possibility is that v counts as a semi-lexical head, such that vP with the agent in its Spec can be the complement of NMLZ—like VP and AP but different from PredP. A similar distinction between vP and PredP plays a role in some of the gory details of Baker's (2003) theory.

principles, regardless of whether nominalization in Dan is "lexical" or "syntactic". Nevertheless, the two types of structure are distinct, especially in the case of deverbal nominalizations: the theme argument is in a different position in (20a,b) from where it is in (21a,b). Therefore, from a descriptive point of view, one would like to know which structures Dan does in fact allow. We consider this question next.

In fact, there is a simple syntactic consideration that shows that the deverbal nominalizer *-su* must permit the syntactic nominalization structure in (21), and cannot be only a lexical nominalizer. Recall that, like other Mandean languages, Dan has a somewhat unusual word order in verbal clauses: Subject-Aux-Object-Verb-PP/goal/AP/Adv. In other words, the true theme object of a verb comes before the verb, but other kinds of complements and adjuncts come after it. This is illustrated in (29).

(29) a. Klà ë　　　　ɓǎá nǔ　Zòtǎ dɛ̌.
　　　　　Kla 3.SG.PRS rice give Zota to
　　　　　'Kla gives rice to Zota.'

　　 b. Klà jà　　　　dǒ　plɤ̀ɤ̀.
　　　　　Kla 3.SG.PST go　village
　　　　　'Kla went to the village.'

　　 c. Klà jà　　　　jǐ　kᴧ̄　sɛ̈ɛ̈.
　　　　　Kla 3.SG.PST water make cold
　　　　　'Kla made the water cold.'

Suppose, then, that we try nominalizing a verb that goes along with a post-verbal constituent. The striking result is that in this situation *-su* need not suffix to the verb at all; rather it can come after the post-verbal constituent, as shown in (30). This is true for a rather wide range of postverbal elements, including directional PPs ((30a)), the directional bare nominal complement of 'go' ((30b)), resultative adjectives ((30c)), other PP complements ((30d)), and even adjunct PPs ((30e)) and adverbs ((30f)).

(30) a. ɓǎá nū nᴧ́ dɛ̌ sǜ　è　　　　sᴧ̄.
　　　　　rice give child to NMLZ 3.SG.PRS good
　　　　　'Giving rice to a child is good.'

　　 b. Klà dò plɤ̄ɤ̄　sǖ　è　　　　sᴧ̄.
　　　　　Kla go village NMLZ 3.SG.PRS good
　　　　　'Kla going to the village is good.'

　　 c. jǐ　kᴧ̀　sɛ̈ɛ̈ sǜ　è　　　　sᴧ̄
　　　　　water become cold NMLZ 3.SG.PRS good
　　　　　'The water's being/becoming cold is good.'

　　 d. Klà wì Zötǎ ká　sú̀　è　　　　sᴧ̄.
　　　　　Kla speak Zota with NMLZ 3.SG.PRS good
　　　　　'Kla's greeting Zota is good.'

　　 e. Zötǎ ɓǎ　tᴧ̌-ɓō　Klà gú̀ sú̀　è　　　　sᴧ̄.
　　　　　Zota POSS song-pick Kla in NMLZ 3.SG.PRS good
　　　　　'Zota's singing in Kla is good.' (a case of spirit possession by a sorcerer: Zota takes over Kla and sings through him.)

　　 f. mlɛ̀ɛ̀ tà vᴧ̌vᴧ̌dɤ̀ - sú̀　è　　　　sᴧ̄.
　　　　　snake go quickly　NMLZ 3.SG.PRS good

'The snake's going along quickly is good.'

This is clear evidence for the syntactic nominalization structure in (31). The syntactic nominalization structure has room for a PP or AP complement inside VP.[8] It is also possible for an adjunct PP or adverb to adjoin to the right of VP, with the resulting complex VP serving as the complement of NMLZ.

(31)
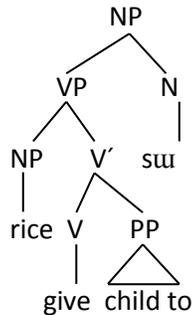
In contrast, a lexical nominalization analysis would not work for these examples, since V clearly combines with something before it combines with -*suɯ*, and that is our definition of a syntactic nominalization structure as opposed to a lexical nominalization structure.

The fact that -*suɯ* can combine with a fully formed VP, as in (31), does not entail that it must do so. This is consistent with the view that -*suɯ* can combine with either V or VP, as -*ing* does in English. In fact, there is a second version of the nominalizations in (30) in which -*suɯ* does appear affixed directly to the verb root, and the PP, AP or adverb follows -*suɯ*, connected to the nominalized verb by the linking particle ɤ́. Examples of this second form of nominalization are given in (32).

(32) a. [Klà ɓà   ɓáá̋ nū-sū   *(ɤ́) Zötä̋ dɛ̋] è   sꞮ̄
          [Kla POSS rice give-NMLZ REL Zota to] 3.SG.PRS good
          'Kla's giving of rice to Zota is good.'

      b. [Klà ɓà   ɓáá̋ ɓɤ-sū   ɤ́ jí´ ká] è   sꞮ̄.
          [Kla POSS rice eat-NMLZ   REL water with] 3.SG.PRS good
          'Kla's eating of rice with water is good.'

      c. [jí̋ kʌ-süɯ   ɤ sɛ̈ɛ̈] - è   sꞮ̄.
          water become-NMLZ REL cold 3.SG.PRS good
          'The water's being/becoming cold is good.'

      d. [mlɛ̰̀ɛ̰̀ tä̋-süɯ̋   ɤ́ vɤ̰̋vɤ̰̋dɤ̃ è   sꞮ̄.
          snake go-NMLZ   REL quickly 3.SG.PRS good
          'The snake's going along quickly is good.'

This linking particle is otherwise used when a locative PP is adjoined to an ordinary morphologically simple noun, and to connect a relative clause to its nominal head, and as seen in (33). So putatively lexical nominalizations are not different from ordinary nouns in this respect.

(33) a. nʌ̰̀ŋ *(ɤ́)   tɔ̀   gúɯ è   tꞮ̋tꞮ̋

---

[8] Note that the exact internal structure of the VP is not crucial here. It is possible that particles like *dɛ̃̋* and *ká* are not true Ps, but fossilized Vs (e.g. from an old serial verb construction), or even categoryless particles of some kind. Exactly what they are is not important, but only that they are inside VP and come between V and NMLZ.

chair *(REL) kitchen in   3.SG.PRS small
'The chair in the kitchen is small.'

    b.   nʌ́   ɣ̍   gā ɓā   (=(14b))
        child REL die DEM
        'the child that died'

We interpret this second pattern as being the result of *-su* being a lexical nominalizer as well as a syntactic nominalizer. As such, it combines with the verb root before the verb combines with any arguments or adjuncts. What is special about a verb like *nū* 'give' is that it has two arguments, as in (34a). All things being equal, we would expect the lexical nominalization *nū-sū* 'giving' to inherit both arguments, by default assumptions. However, all things are not equal in this case, because according to Baker's (2003) category theory, nouns cannot license a specifier as well as a complement, by the Reference-Predication Constraint in (11d). Therefore, the derived noun can only inherit one of the arguments of the base verb, the theme argument, as in (34b) (presumably because this argument is obligatory, and more fundamental to the core meaning of the verb than the goal argument).

(34)   a.   *nū* 'give' <Theme, Goal>
        b.   *nū-sū* 'giving' <Theme>   (not: * <Theme, Goal>)

The result is that the theme argument can be a complement of the nominalized verb, as with simple transitive verb bases, but there is no room for a goal argument or other third argument inside the core NP. This is where the linking particle comes in: it is a piece of structure that creates a new position where the orphaned argument or adjunct can be attached (on linking particles of various sorts, see den Dikken 2006, among others). [9] So our tentative syntactic structure for an example like (32a) is (35). [10]

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[9] We thank Shiori Ikawa (personal communication) for suggesting this view of ɣ to us. We note, however, that ɣ is probably not necessarily a predicative particle, such that its complement is predicated of its subject in all cases. In particular, a goal PP cannot be predicated of a subject headed by 'giving' in a matrix clause in Dan, nor can a resultative AP be predicated of a subject headed by 'becoming', as shown in (i). We leave open exactly how a structure like (35) is interpreted by compositional semantics in the general case.

(i)   a.   *Klà ɓà   ɓáá́ nū-sū   è/jā   nʌ́ dɛ̃́.
        Kla POSS rice give-NMLZ PRS/PST child to
        'Kla's giving of rice is/was to the child.'

    b.   *jǐ   kā̄-sū   è   sɛ̈ɛ̈́.
        water become-NMLZ 3.SG.PRS cold
        'The water's becoming is cold..'

[10] Here we assume that the inheritance of the referential index from the NP headed by 'eat-NMLZ' up through PossP to LkP is enough to capture the fact that LkP has the distribution of a nominal and refers to an event of eating. An equally good (and more intuitive) possibility is that the top node in (35) is labeled PossP rather than LkP.

(35)

```
                          LkP_i
                  _____|_____
                PossP_i            Lk´
              ____|____          ___|___
             DP     Poss´_i     Lk      PP
             |      __|__        |     __|__
            Kla   Poss  NP_i     ɣ́    DP    P
                   |    __|__           |    |
                   ɓà  NP    N_i       Zota  to
                        |     |
                       rice eat+sūū
                           <Theme>
```
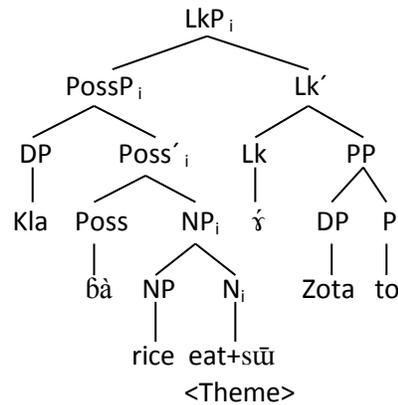
If this is on the right track, then, both lexical and syntactic nominalization structures are possible for deverbal nominalizations in Dan.[11]

Next we apply these same considerations to consider the syntactic status of deadjectival nominalizations involving -dɛ in Dan. This is complicated by the fact that it is not clear that adjectives ever take true PP complements in Dan, the way that some do in English. The best candidates that we have found are the expressions in (36).

(36)　a.　Klà ë　　　sā̰　tá̰-ɓō-sūū　　　gúú.
　　　　　Kla 3.SG.PRS　good song-pick-NMLZ in
　　　　　'Kla is good at singing.'

　　　b.　vǐ̱ è　　　já　Z̀ötá̰　gúú.
　　　　　fish 3.SG.PRS　bad　Zota　in
　　　　　'Fish is bad for Zota.'　('Zota dislikes fish.')

This sort of PP is never an argument with verbs (but only a modifier, as in (30e)), and the fact that it easily preposed to the front of the sentence (*Z̀ötá̰ gúú, vǐ̱ è já* 'Zota in, fish is bad') may indicate that it has the status of a PP modifier with adjectives as well. But whatever its status, it is clear that this sort of expression can never appear between the adjective and the nominalizer *dɛ*, whereas the PP can appear outside of the nominalized constituent, linked to it by *ɣ́*, as shown in (37).

(37)　a.　*Klà ɓà　　　sā̰　tá̰-ɓō-sūū　　　gúú dɛ̃　　è　　　　gbɛ́.
　　　　　Kla　POSS　good song-pick-NMLZ in　NMLZ 3.SG.PRS　big
　　　　　'Kla's goodness at singing is great.'
　　　　　OK is: [Klà ɓà　　sā̰-dɛ̀　　　ɣ́　tá̰ɓō-sūū　　　gúú] è gbɛ́.
　　　　　　　　Kla　POSS　good-NMLZ REL song-pick-NMLZ in　3.SG.PRS　big

　　　b.　*vǐ̱ ɓá̰　　já　Z̀ötá̰　gúú dɛ̃　　è　　　　gbɛ́

---

[11] One other consideration that might point to *-su* being a lexical nominalizer is the fact that a theme argument does not need to be expressed when an unaccusative verb is nominalized: *ga-su* 'dying' and *pɤ-su* 'falling' count as complete NPs by themselves. This might go with the well-known fact that arguments of nouns are generally not obligatory (whereas those of verbs often are). However, this consideration cuts both ways, because the theme argument of transitive verbs is obligatory in Dan nominalizations (unlike English): *(ɓaa) ɓɤ-su*, 'rice-eating' but not 'eating', *(mɛ) zʌ-su* 'person-killing' but not 'killing' This raises the issue of optional arguments versus null arguments in nominals, with goes beyond our discussion here.

fish POSS bad Zota in NMLZ 3.SG.PRS big
'The badness of fish for Zota is great.'
OK: [ví ɓá́   jàà-dɛ̀   ɤ́   Zötá̋ gúú] è   gbɛ́.
   fish POSS bad-NMLZ REL Zota in   3.SG.PRS big

This strongly suggests that -*dɛ̀* is only a lexical nominalizer in Dan. Even if PPs headed by *gu* count as adjuncts rather than complements, such phrases can appear inside of the verbal nominalizer -*su* in (30e) but not inside of the adjectival nominalizer -*dɛ̀* in (37)—a near minimal comparison.[12]

The fact that the verbal nominalizer -*su* can be a syntactic nominalizer, whereas the adjectival nominalizer -*dɛ̀* may only be a lexical nominalizer might seem to provide an alternative explanation for our central asymmetry in how theme arguments are coded in the two forms of nominalization. This could make Baker's (2003) hypothesis about the argument structure difference between verbs and adjectives superfluous. Then the idea would simply be that if the nominalizer combines with the head before it takes an argument, the argument is marked with *ɓa*, but if the nominalizer combines with the head after it takes its argument, the argument is unmarked. This may indeed be part of the story. However, taken by itself, we do not find this fully satisfactory. First, it is not at all clear, internal to Dan, why the hypothesis that arguments that combine with an already nominalized word should be marked with *ɓa*, since the argument of an inalienably possessed noun is not marked with *ɓa*. In other words, it is not clear why lexical nominalizations (of adjectives) should count as alienably possessed nouns rather than inalienably possessed nouns, especially since it makes sense to say that event and state denoting nouns are inherently relational.

Furthermore, even if we accept that deverbal nominalizations are syntactic, whereas adjectival nominalizations are lexical, we should still ask why there is *this* asymmetry in Dan, and why it could not just as well have been the other way around. And indeed there is some reason to think that something systematic is at work here. Dan has at least two other forms of deverbal nominalization that can be considered. One is the agentive nominalizer -*mɛ* (Gondo 2016: 212-213); another is the location-denoting nominalizer -*dɛ̀* (homophonous with the deadjectival nominalizer). Both of these additional nominalizers are like -*su* in two respects: the theme argument of the base verb is unmarked, with no *ɓa* particle, and a goal PP can intervene between the verb and the nominalizer.

(38) a. Klà (*ɓà)   zā̄-mē̄   jà   gā.
         Kla (*POSS) kill-AG.NMLZ 3.SG.PST die
         'Kla's killer died.'

     b. ví nū Klà dɛ̀ mɛ̀   jà   gā.
         fish give Kla to AG.NMLZ 3.SG.PST die
         'The giver of fish to Kla died.'

(39) a. Kl̀a è   kpạ̀ Zötá̋ gā-dɛ̰̄   ɓà.
         Kla 3.SG.PRS see Zota die-LOC.NMLZ PRT
         'Kla sees the place where Zota died.'

     b. Zötá̋ ɓá́   ɓá́á́ kpà-dɛ̰̀
         Zota POSS rice cook-LOC.NMLZ
         'the place where Zota cooks rice'

     c. ɓá́á́ gbɔ̀ɔ̀ mē̄-nū   dɛ̰̄ dɛ̰̀

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[12] Another logical possibility is that -*dɛ̀* can be a syntactic nominalizer, but (unlike -*su*) it is subject to an additional condition that it must encliticize onto the head of its complement. We don't know of anything distinctively in favor of this arguably more complex hypothesis, but it is a possibility to keep in mind.

rice give person-PL to LOC.NMLZ
'the place for giving rice to people (as charity)'

Thus it seems that all productive nominalization of verbs in Dan can be syntactic, as a significant generalization. Therefore some bias toward syntactic nominalization would be evident to a child learning Dan. The question would arise, then, why the child resists treating deadjectival nominalizations in an analogous way, especially given that obscure negative data like (37) may well not be available to them in the primary linguistic input. Baker's (2003) theory of categories provides the basis for an answer, creating the expectation that the argument structure of an adjective is different from that of a verb in a fundamental and relevant way.

6. A prediction: nominalizing nouns

Natural languages often allow even nouns to be nominalized to create state-denoting nominalizations similar to those derived from adjectives and stative verbs. English examples are in (40); note that the "subject" argument of the nominalized noun is expressed as an *of*-phrase or an *'s* genitive, just as the corresponding arguments of verbs and adjectives are (compare (5)).

(40)   a.   The childhood of John was good, John's childhood was good.
        b.   The leadership of Mary was good, Mary's leadership was good.

We can then ask for Dan whether similar nominalization of nouns is possible, and if so, whether the subject argument is marked with *ɓa* or not.
        Our analysis, based on Baker's category theory, makes a clear prediction about this. Baker argues that nouns are parallel to adjectives rather than verbs when it comes to their argument taking properties. Like adjectives, nouns do not license specifiers, so they are not intrinsic predicates, but only function as predicates when they combine with a functional head Pred; see (12) above. As a result, predicate nouns often need a copular verb or particle in many of the same environments that adjectives do (although nouns and adjectives may need different copulas, and one of those copulas may be phonologically null in some languages; see Baker 2003: sec 2.4). Therefore, if all goes as it should, we expect that nominalization of nouns should be like nominalization of adjectives in Dan: the subject/theme argument should need to be marked with *ɓa*.
        This prediction is correct. (41) gives a simple predicate nominal construction in Dan (note that the predicate nominal is marked by the postposition *ká* 'with' in this language; see Gondo 2016: 217).

(41)   Klà ë̀   nʌ́   ká.
            Kla 3.SG.PRS child with
            'Kla is a child.'

(42a) gives a nominalized version of this sentence, used as the subject of the predicate 'good'. Indeed, the subject (theme) argument of the predicate nominal must be marked with *ɓa*, as predicted. (42b,c) give parallel examples with other predicate nominals.

(42)   a   Klà ɓà   nʌ́-ɗɛ̌   è   sʌ̄.
            Kla POSS child-NMLZ 3.SG.PRS good.
            'Kla's childhood is good.'

        b   Klà *(ɓà) mē̄-ɗɛ̌   è   sʌ̄.
            Kla POSS person-NMLZ 3.SG.PRS good.
            'Kla's being/becoming a (great) person is good.'

c Klà *(ɓà) gbɛ́-dɛ̃́   è   já.
   Kla POSS dog-NMLZ 3.SG.PRS bad.
   'Kla's being (i.e., acting like) a dog is bad.'

This is again because a noun like 'child' does not have a theme argument itself. Therefore, it cannot pass on a theme argument to a derived noun (lexical nominalization), nor can it combine with the DP *Kla* inside the NP complement of a nominalizer head (syntactic nominalization). The only way a subject argument can appear in the structure is higher up, as a specifier theta-marked by the Poss head *ɓa*. Thus, our account generalizes properly to the third major lexical category in the category system, to its credit.

The nouns that are nominalized in (42) are all from the alienably possessed subcategory of nouns. One might also try nominalizing inalienably possessed nouns, like *John's sonship*, or *Mary's motherhood* in English. Such nouns can of course be used as predicate nominals, as in (43).

(43)   Klà ě   Zötä̌ gbɤ́ ká.
        Kla 3.SG.PRS Zota   son with
        'Kla is Zota's son.'

However, they cannot be nominalized on the same pattern as the nouns in (42). Thus (44) is bad in Dan.

(44)   *Klà ɓà   Zötä̌ gbɤ́-dɛ̃   è   sɑ̄.
        Kla   POSS Zota son-NMLZ 3.SG.PRS good
        ('Kla's being Zota's son is good.')

Instead, the meaning aimed at in (44) can only be expressed if a verbal copular/linking verb is present, which is nominalized by *-su*, as in (45b). This is a deverbal nominalization of the sort considered at length above, not a denominal nominalization. This second pattern is possible for inalienable nouns too; as in (45a), a construction with approximately the same meaning as (42a).

(45)   a. Klà kɑ̀   nɑ́-ká   sɯ́   è   sɑ̄.
            Kla be/become child-with NMLZ 3.SG.PRS good
            'Kla's being a child is good.'

        b. Klà kɑ̀   Zötä̌ gbɤ́-ká sɯ́   è   sɑ̄.
            Kla be/become Zota son-with NMLZ 3.SG.PRS good
            'Kla's being Zota's son is good.'

We are not sure why (44) is bad in Dan, but the same effect can be seen for some English speakers: a nominalization like *??John's fatherhood of Mary was good*, where the nominalization of a relational noun has both a possessor-subject and an internal argument, is pretty bad for some English speakers (including one of the authors), although not apparently for others. So whatever further principle(s) are at work to rule out (44) may not be specific to Dan.

7. Conclusion and final discussion

In this paper, we have shown that in the Dan language when a transitive or unaccusative verb is nominalized, its theme argument is expressed like the possessor of an inalienably possessed noun, whereas when an adjective or noun is nominalized, its theme (subject) argument is expressed like the possessor of an alienably possessed noun. This generalization holds true for both the lexical type of nominalization, in which the nominalizer combines directly with the lexical root before that root combines with any arguments or adjuncts, and for the syntactic type of nominalization, in which the nominalizer combines with a larger phrase, to the extent that Dan has both structures. We have explained

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this striking difference using Baker's (2003) theory of the differences among the lexical categories, according to which verbs intrinsically combine directly with a theme argument (as well as perhaps a goal/path argument), whereas adjectives and nouns do not, but can only be predicates of a theme argument with the help of a functional head like Pred. This study thus provides new empirical support for this particular theory of lexical categories, as opposed to others which emphasize a stronger parallelism across the various lexical categories and do not attribute to them any systematic difference in argument structure.

　　　This investigation raises interesting new questions for future research, including whether other languages show an analogous difference between deverbal nominalizations and deadjectival nominalizations to Dan's, and if not why not. These questions go beyond our goals here. However, we can offer a further remark about English in this respect. English does not show any clear distinction between deverbal nominalization and deadjectival nominalization analogous to the one in Dan, as mentioned in the introduction. For example, the theme arguments of unaccusative verbs, transitive verbs, and adjectives can all be expressed with a prenominal genitive DP, without any obvious distinction, as shown in (46a-c).

(46)　　a.　Pat's arrival, Pat's death
　　　　　b.　Pat's dismissal, Pat's promotion
　　　　　c.　Pat's foolishness, Pat's bravery
　　　　　d.　Pat's mother, Pat's leg
　　　　　e.　Pat's toy, Pat's car

To a large extent, this is expected simply because English often does not draw a clear distinction between alienable and inalienable possession, even with simple nouns, as seen in (46d,e). The so-called Saxon genitive can express this whole range of relationships (and more) without obvious distinction. This may be because English requires the use of some kind of determiner (including *'s* or the null head that assigns it) with all count nouns, and/or because DPs inside a nominal in English are required to receive genitive case. Since Dan does not have these interfering factors, a basic difference among categories is able to shine through more clearly, we claim. This is a typical illustration of the value of doing research on a wide range of languages.

　　　There is a bit of a distinction between alienable and inalienable possession elsewhere in English, however (see Barker 1995: 51, 76). Although the judgments can be somewhat clouded by issues of definiteness and animacy of the possessor, the structure [Det N *of* DP] is generally better when N is an inalienably possessed noun than when it is an alienably possessed noun. This is shown in (47).

(47)　　a.　the mother of the kitten/?Pat
　　　　　　　the leg of the table/?the child/??Pat
　　　　　b.　the toy of the ?*kitten/*Pat
　　　　　　　*the car of Pat

However, this contrast does not carry over into a distinction between deverbal nominalizations and deadjectival nominalizations; all of the examples in (48) are pretty much equally acceptable (cf. Barker 1995: 62-66).

(48)　　a.　the arrival of the train/the child/?Pat
　　　　　　　the death of the kitten/?Pat
　　　　　b.　the promotion of the candidate/?Pat
　　　　　　　the dismissal of the employee/Pat
　　　　　c.　the foolishness of the child/Pat
　　　　　　　the bravery of the child/?Pat

Why don't we see a difference here? The deverbal nominalizations in (48a,b) are parallel to the inalienably possessed nouns in (47a), as in Dan, so nothing special needs to be said about them. From the perspective of Dan, the surprise is why the deadjectival examples in (48c) are better than the ones with alienably possessed nouns in (47b). One possibility is that *-ness* and other deadjectival nominalizers in English are lexical nominalizers that—unlike in Dan—count as having an internal argument of their own, as a lexical property; they are like bound relational nouns, rather than like bound neutral nouns. As such, they would be a limited exception to the baseline expectation that the argument structure of a derived nominal is the same as that of the root it attaches too. So the English deadjectival nominalization could be compared to the Dan one as in (49).

(49)   a.   foolish < > +NMLZ = foolishness < >   (Dan)
        b.   foolish < > + NMLZ <X> = foolishness <X> (English)

Then the argument structure of a deadjectival noun in English would be like that of a deverbal noun or a simple relational noun, but for another reason. This is one possible account of English's lack of distinction among several.

The moral of the story is that what we can learn from Dan is that, if there is a distinction between deverbal nominalization and deadjectival nominalization, we expect it to go in the direction of deverbal nominalizations being like inalienable possession and deadjectival nominalizations being like alienable possession. However, we should not be surprised when we fail to see a distinction in various languages, because there are probably several factors about the syntax of DPs that can wash out the distinction.

Abbreviations

Abbreviations used in the glosses of examples include: 3, third person; ADJ, adjectivizing suffix; AG, agent; DEM, demonstrative; LOC, locative; NMLZ, nominalizer; POSS, possessive particle; PRS, present; PRT, particle; PST, past; REL, relative marker; SG, singular

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[To be added]

Competing interests

The authors have no competing interests to declare.

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