

Two types of deverbal nominalization in Northern Paiute*

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November 25, 2013

Abstract

Why do nominalizations mean what they do? I investigate two deverbal nominalizers in Northern Paiute (Uto-Aztecan, Numic: Western United States), *-na* and *-di*, which create nominalizations that describe either an event (like the POSS-ing gerund in English) or an individual (like agent nominalizations with *-er*). I propose a syntax and semantics for these deverbal nominalizations that accounts for their interpretive variability. On the syntax side, I argue that *-na* and *-di* overtly realize the nominal functional head that canonically assigns case to possessors when this head takes a vP complement. On the semantics side, I propose that Northern Paiute has operators that abstract over a variable inside nominalizations. This accounts for the meanings that deverbal nominalizations in Northern Paiute have, and it highlights their relationship to nominalization patterns in other languages.

1 Introduction

Northern Paiute—a Uto-Aztecan language belonging to the Numic branch spoken across the western United States—has two types of deverbal nominalization that describe either events or individuals. When the nominalizer suffixes *-na* or *-di* attach to a verb, they create nominalizations that

*I thank Grace Dick, Leona Dick, Morris Jack, Elaine Lundy, Edith McCann, Meg McDonald, and Madeline Stevens for teaching me about their language. I am grateful to two anonymous reviewers for comments that greatly improved the paper and to Greg Carlson for his editorial guidance. I am also grateful to Rebecca Cover for our early discussions of the Northern Paiute data, as well as to Rajesh Bhatt, Annahita Farudi, Andrew Garrett, Michael Houser, Kyle Johnson, Line Mikkelsen, Tom Roeper, Andrés Salanova, Tim Thornes, and audiences at Cornell University, McGill University, the Massachusetts Institute of Technology, Stanford University, the University of California (Berkeley, Los Angeles, and Santa Cruz), the University of Massachusetts, Amherst, and the University of Ottawa for their very helpful questions and suggestions.

The fieldwork for this paper was supported by an American Council of Learned Societies New Faculty Fellowship, as well as a Jacobs Research Fund Grant (Whatcom Museum Foundation, Bellingham, Washington), Phillips Fund Grant (American Philosophical Society, Philadelphia), a Grant in Great Basin Studies from the Sven and Astrid Liljeblad Endowment Fund (University of Nevada, Reno), and a grant from the Survey of California and Other Indian Languages (University of California, Berkeley). This research was also assisted by a New Faculty Fellowship from the American Council of Learned Societies, funded by the Andrew W. Mellon Foundation.

can refer to the event described by the verb, as in 1a and 2a. But when one of the verb's arguments is gapped, they create nominalizations that describe that individual, as in 1b and 2b.¹

- (1) a. Nii **a=bbauma-wini-na** naka.
 1SG.NOM 4.GEN=rain-IMPV-NMLZ hear
 ‘I hear **it raining**.’ (elicitation, MS, BP37-1-s, 6)
- b. **I=saa-na** ne-hu.
 1SG.GEN=cook-NMLZ burn-PRFV
 ‘**What I was cooking** burned.’ (elicitation, EM, BP32-9-s, 15)
- (2) a. Nii **pauma-wini-di** naka.
 1SG.NOM rain-IMPV-NMLZ hear
 ‘I hear **it raining**.’ (elicitation, MS, BP37-1-s, 5)
- b. **Su=kutsu** **patsa-di** mia-hu.
 DEF.NOM=cow kill.SG-NMLZ go-PRFV
 ‘**The one who killed the cow** left.’ (elicitation, EM, BP37-1-s, 16)

In 1b, the patient of the verb *saa* ‘cook’ is gapped, and the nominalization describes the thing that the speaker cooks. In 2b, the agent of the verb *patsa* ‘kill (sg.)’ is gapped, and the nominalization describes the person who kills the cow.

¹The data in this paper comes primarily from my own fieldwork on the variety of Northern Paiute spoken at Mono Lake in eastern California (Lee Vining, California) and immediately to the north in Bridgeport and Coleville, California and Sweetwater, Nevada. In addition to the Mono Lake dialect, there are several other closely related dialects spoken across, and immediately adjacent to, the Great Basin. These dialects are all mutually intelligible; the variation amongst them is primarily phonological and lexical (see Babel et al. 2012 and Babel et al. 2013 for details). To a lesser extent, I have also drawn on data from the Burns, Oregon variety (Thornes 2003).

Northern Paiute is severely endangered. For all dialects, there are probably no more than 300 fluent speakers today (Golla 2011:174). For the Mono Lake dialect specifically, there are around five speakers, with varying levels of proficiency. The fieldwork data I present here comes entirely from the two oldest, most fluent speakers of the Mono Lake variety. At the time of writing, Edith McCann was 88 years old and Madeline Stevens was 92 years old. They learned Northern Paiute as their first language and were introduced to English when they started school. Both trace their ancestry to Bridgeport, though they also have family from Mono Lake (Lee Vining) and Sweetwater. There are only a few differences in their speech; these consist entirely of very small lexical differences that reflect minor historical variation amongst the communities in the Mono Lake dialect area (e.g. *tiba’a* ‘pinenut’ in Lee Vining, but *tiba* elsewhere).

Examples from other sources receive the usual parenthetical citation. Examples from my own fieldwork are annotated with relevant metadata: (i) how the data was collected: in a dialogue, through elicitation, in a narrative, or in a prompted narrative, (ii) the initials of the speaker who uttered the example or provided a judgement for the example (EM or MS), (iii) a number (starting with BP) identifying the source recording for the example, and (iii) the example’s location in the source recording (either a line number in the corresponding transcription of the recording or a timestamp). The source recordings and transcriptions are not currently available to the public, at the request of the speakers, because they contain culturally sensitive content.

I use the following abbreviations: ACC = accusative, APPL = applicative, DEF = definite, DEM = demonstrative, DIM = diminutive, DUR = durative, EMPH = emphatic particle, EXCL = exclusive, FOC = focus prefix, GEN = genitive, IMPV = imperfective aspect, INCH = inchoative, INCL = inclusive, IND = indicative, IP = instrumental prefix, IRR = irrealis, LOC = locative postposition, MOD = modal particle, MOT = motion suffix, NEG = negation, NMLZ = nominalizer, NOM = nominative, NSP = nonspecific patient, PASS = passive, PL = plural, PLUR = pluractional, PRF = perfect aspect, PRFV = perfective aspect, PRO = resumptive pronoun, PROSP = prospective aspect, PTC = discourse particle, REFL = genitive reflexive anaphor, SBJ = subject, SBJV = subjunctive, SEQ = sequential marker, SG = singular, TNS = ‘general tense’ (Thornes 2003:398).

This semantic variability is surprising when we compare the nominalization patterns in 1a–b and 2a–b to structurally similar ones in English. The POSS-ing gerund, in Abney’s (1987) terms, must describe an event (3a); it cannot refer to the individual corresponding to an agent (3b) or patient (3c) argument.

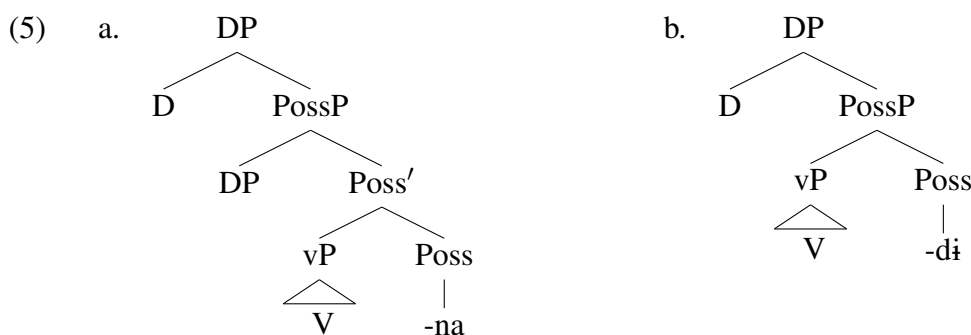
- (3) a. I witnessed **Caesar’s burning the city**.
 b. ***Burning the city** was arrested.
 Intended: ‘The one who burnt the city was arrested.’
 c. ***Caesar’s burning** was rebuilt within the year.
 Intended: ‘What Caesar burnt was rebuilt within the year.’

Instead, English uses a different series of nominalizers to describe individuals. For instance, the *-er* suffix creates nominalizations that pick out the external argument of the verb, as in 4a (Rappaport Hovav & Levin 1992). It is not able to create event-denoting nominalizations (4b).²

- (4) a. **The seller of counterfeit stock** was jailed.
 b. *I witnessed **the seller of counterfeit stock**.
 Intended: ‘I witnessed the selling of counterfeit stock.’

Why do the two types of deverbal nominalization in Northern Paiute permit both an event and an individual interpretation, when their correlates in English do not? I give a syntax and semantics that accounts for this interpretive variability in Northern Paiute.

I start by exploring the syntax of deverbal nominalization in Northern Paiute. Assuming that they contain a verbal projection embedded inside a nominal one (Bresnan 1997, Borsley & Kornfilt 2000), I propose in §2 that the nominalizers *-na* and *-di* realize the nominal functional category that canonically assigns case to possessors when it embeds a vP:



²The exception is derived nominals that exhibit the process-result ambiguity (Grimshaw 1990:46–63). A derived nominal like *destruction* can describe an event of destruction, or it can describe the result of that event. Observe, however, that the result is not itself an argument of the verb *destroy*—it describes not the thing destroyed but the effects of the destruction. In addition, as Borer (2003) observes, the so-called result interpretation is not always so easily characterized as the result of an event. For instance, under their ‘result’ meanings, *obstruction* describes something like the causer of an event, *administration* the agent, and *entrance* a location. The precise nature of the result interpretation depends on a variety of factors, including the Aktionsart of the nominalized verb and whether it is a verb of creation (Asher 1993:150–159, Pustejovsky 1995:170f.).

This is very different from the semantic variability exhibited by the two types of deverbal nominalization I describe in Northern Paiute, which I will show always describe an argument of the embedded verb, under their individual interpretations.

This nominal head, which I call Poss, is the analogue of T(ense) in the verbal domain (Szabolcsi 1983, 1987, 1994, Cardinaletti 1998, Alexiadou et al. 2007:556–575). Since these nominalizations do not contain T, nominative case is not available inside them. The *-na* nominalizer does make an additional genitive case available to the DP in the specifier position it projects. The *-di* nominalizer, however, is defective and does not project a specifier position or assign genitive case, leaving one case too few in the nominalizations it creates.

With these structures in hand, I then turn to the semantics of deverbal nominalization in Northern Paiute. In §3, I show that the event interpretation of nominalizations with *-na* comes for free in a certain way. Since the nominalizer makes available a genitive case to the highest argument of the verb, all of its individual-type arguments can be saturated. Assuming that the verb also takes an event argument (Davidson 1967), only this event argument will be left unsaturated, so that the nominalization describes an event. On the other hand, the individual interpretation arises because Northern Paiute has operators inside the DP that can abstract over the variable contributed by a (sometimes null) resumptive pronoun. These pronouns are projected syntactically, creating a gap in direct object position, as in 2a, or in the argument position of a postposition, as in 6.

- (6) **Ika i=naa’a pi-kuba kati-na nīi t̄imi-dua.**
 DEM.ACC 1SG.GEN=father PRO-LOC sit-NMLZ 1SG.NOM buy-IRR
 ‘I will buy **that one my father is sitting on.**’ (elicitation, MS, BP34-5-s, 6)

Because of the antilocality property of resumptive pronouns (Borer 1984, McCloskey 1990), nominalizations with *-na* can describe any individual that is not the highest argument of the embedded verb (the surface subject, in other words).

In contrast, when nominalizations created by *-di* describe an individual, they invariably describe the highest argument of the verb. This might be the agent, as in 2b above, though it can also be the patient of a passive or unaccusative verb, as in 7a–b, or the sole argument of a stative predicate, as in 7c.

- (7) a. **Su=na-gw̄itama-di** wadzi-mia-hu.
 DEF.NOM=PASS-lock.up-NMLZ hide-go-PRFV
 ‘**The one who should be locked up** ran away.’ (elicitation, EM, BP34-4-s, 26)
- b. Ka=idz̄iggwi **ka=kwo-pika-wini-di** nīi ki’a.
 DEF.ACC=blanket DEF.ACC=shiver-IMPV-NMLZ 1SG.NOM give.DUR
 ‘I gave the blanket to **the one who is shivering.**’ (elicitation, MS, BP34-3-s, 28)
- c. Su=nana **ka=patsiponoa-di-na** kati-’yu.
 DEF.NOM=man DEF.ACC=be.round-NMLZ-LOC sit-DUR
 ‘The man is sitting on **the thing that is round.**’ (elicitation, EM, BP34-3-s, 34)

In §4, I propose that because these nominalizations do not contain nominative case—and because genitive case is also not available—the highest argument of the verb must be realized as a phonologically null argument (PRO) that is abstracted over by an operator, in order to derive the individual interpretation. Moreover, the only time nominalizations with *-di* can describe an event is when the verb does not take any individual arguments at all.

In §5, I explore why the English nominalizations in 3–4 do not exhibit the same semantic variability that nominalizations with *-na* and *-di* in Northern Paiute do. The POSS-ing gerund in fact

has much the same structure as a nominalization with *-na*. Yet, it only has an event interpretation, I argue, because English lacks the system of operators and resumptive pronouns found in Northern Paiute. As for the other nominalization pattern, the *-er* suffix in English might at first glance resemble *-di*, but its syntax and semantics are actually quite different. The nominalizer itself closes off the verb’s event argument, so the nominalizations it creates never have an event interpretation.

2 Two deverbal nominalizers in Northern Paiute

Deverbal nominalizations share properties of both nouns and verbs. They have the external distribution of a nominal category. The nominalizations created by *-na* and *-di* in Northern Paiute can, for instance, serve as the argument of a verb, as in 8a–b, or as the argument of a postposition, as in 9a–b.

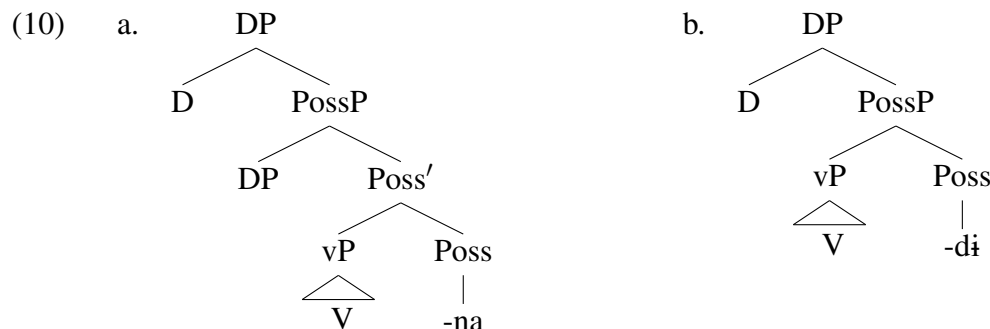
- (8) a. **Su=nana patsa-na oo hapi.**
 DEF.NOM=man kill.SG-NMLZ there lie.DUR
 ‘The thing the man killed is lying over there.’ (elicitation, EM, BP37-1-s, 18)
- b. **Su=kutsu patsa-di mia-hu.**
 DEF.NOM=cow kill.SG-NMLZ go-PRFV
 ‘The one who killed the cow left.’ (elicitation, EM, BP37-1-s, 16)
- (9) a. **Su=pa’mogo ka=nana ti-batsa-na-gguba kati.**
 DEF.NOM=frog DEF.ACC=man NSP-kill.SG-NMLZ-LOC sit
 ‘The frog is sitting on what the man killed.’ (elicitation, EM, BP32-7-s, 14)
- b. **O-no’ona-ggwe nimmi ka=kutsu patsa-di-ggwe**
 3SG-LOC-LOC 1PL.EXCL.NOM DEF.ACC=cow kill.SG-NMLZ-LOC
 mo’o.
 walk.DUR.PL
 ‘We walked around the one who killed the cow.’ (elicitation, MS, BP34-3-s, 38)

At the same time, deverbal nominalizations have the internal structure of a verbal category. Looking just at the nominalizations in 8a–b and 9a–b, we can say that they must at least contain a verb, *patsa* ‘kill (sg.)’.³

Within a phrase-structural theory of syntax, the mixed nature of nominalizations can be represented with structures that are, as Bresnan (1997:4) puts it, ‘partitioned into two categorially uniform subtrees such that one is embedded as a constituent of the other.’ The verb-like properties of a nominalization come from the verbal projection embedded inside the nominal projection (Kornfilt 1984, Borsley & Kornfilt 2000, Kornfilt & Whitman 2011). For Northern Paiute, I propose that *-na* and *-di* are both realizations of a nominal functional head, which I will call Poss, when it takes a vP complement:⁴

³Northern Paiute, like other Numic languages, has a robust system of consonant mutation. The first consonant of any morpheme can take up to three different forms—lenis, fortis, or voiced fortis—depending on what the preceding morpheme is. For instance, the initial consonant in *patsa* ‘kill (sg.)’ is realized as a lenis stop (*b*) when it is preceded by the nonspecific patient prefix *ti-* in 9c, but as voiced fortis stop (*bb*) when it is preceded by the accusative second-person singular proclitic pronoun: that is, *i=bbatsa* ‘kill you (sg.)’. See Babel et al. 2012 for details.

⁴If the *-na* and *-di* nominalizers are terminal nodes in the syntax, they must somehow appear as suffixes on the verb. I remain agnostic about how precisely this happens. In a strongly lexicalist framework, such as Lexical Functional



The Poss head canonically assigns case to possessors (Szabolcsi 1983, 1987, 1994, Cardinaletti 1998, Alexiadou et al. 2007:556–575), and in possessive descriptions it would, of course, take a nominal complement.⁵ I contend, however, that Poss can also take a vP complement in deverbal nominalizations in Northern Paiute. The Poss head that projects a specifier to which it assigns genitive case is realized overtly as the nominalizer *-na* when its complement is a vP. I assume that if Poss is obligatorily present in the extended nominal projection, there must also be a defective version of the head, which does not project a specifier or assign case. This defective Poss would show up in DPs that are not possessive descriptions, and it is realized overtly as *-di* in deverbal nominalizations.

In the early literature on nominalization, nominalizers were taken to be members of a lexical category, not a functional category, as I am proposing. The *-ing* suffix in POSS-ing gerunds, for instance, was analyzed as an N that takes a verb phrase complement (Horn 1975, Jackendoff 1977:222f.). This is problematic for a couple of reasons. First, if nominalizers were themselves Ns, they would not have the same type of meaning as other members of this category. We are used to thinking of common nouns as describing a set of entities, but it is clear that nominalizers do not mean this. More importantly, we would expect to be able to substitute a regular noun in the same phrase-structural position as a nominalizer. But Ns do not take verb phrase complements.

The syntax that I am proposing for the two types of deverbal nominalization in Northern Paiute has three important components, which I provide evidence for below:

- The *-na* and *-di* nominalizers embed a verbal constituent that is the size of a vP, and not one that is larger or smaller. In §2.1, I show that the nominalizations they create must contain at least a vP because: i) the direct object receives accusative case, ii) they can contain negation, and iii) they can contain adverbs that occur at the left edge of the verb phrase. They do not, however, contain a larger constituent because they cannot contain elements associated with higher verbal projections like TP and CP.

Grammar (LFG) or Head-Driven Phrase Structure Grammar (HPSG), there are technically distinct ways of treating nominalization, which conceptually end up being quite similar (see, for instance, Bresnan 1997 and Malouf 2000a,b). It should be possible to translate the insights of the current proposal into a lexicalist framework.

⁵The Poss head is sometimes realized overtly in possessive descriptions. In Hungarian, for instance, the possessed noun in a possessive description bears an agreement suffix:

- (i) a Péter kalap-ja
the Peter hat-3SG
‘Peter’s hat’ (Szabolcsi 1987:171)

Szabolcsi (1987) argues that this agreement suffix is the overt realization of Poss, which agrees in person and number with the possessor in its specifier. (See Abney 1987:37–53 for discussion of similar languages.)

- The two nominalizers in Northern Paiute realize the Poss head. This predicts that nominalizations with *-na* and *-di* should be able to contain any of the categories located above Poss in the extended nominal projection. In §2.2, I show that both types of nominalization can occur under a determiner (D) and markers of number.
- The *-na* nominalizer projects a specifier to which it assigns genitive case—like the possessor in a possessive description—while *-di* does not. In §2.3, I show that nominalizations with *-na* always do contain a possessor. Then, in §2.4, I show that nominalizations with *-di* never do.

If this proposal is on the right track, there is no construction in English with a structure that is completely identical (though there might be some very similar ones, as I discuss in §5). Consequently, if we want to give translations of Northern Paiute sentences that are grammatical in English, we have to use a variety of different syntactic structures. Often this will involve a relative clause (8a) or a free relative (1b), both of which resemble deverbal nominalizations in Northern Paiute in one significant way. They enable a verbal category to have the distribution of a nominal category.

Why could deverbal nominalizations in Northern Paiute not be given the same syntactic analysis as relative clauses or free relatives in English? At a very superficial level, this question is easy to answer. By definition, a relative clause is a clause that modifies a head noun (Andrews 2007:206), but in both types of nominalization in 1–2, there is no overt head noun. Nor can they be assimilated to free relatives, which are relative clauses marked by a relative pronoun that occurs without a head (van Riemsdijk 2006:340). There is no relative pronoun in either type of nominalization in 1–2.

Like relative clauses or free relatives, however, these nominalizations do describe an individual when they contain a gap. So, the question above can be restated in a different way: Does the same mechanism that derives the interpretation of relative clauses and free relatives in English also derive the individual interpretation of deverbal nominalizations in Northern Paiute? I will address precisely this question when we get to the semantics of deverbal nominalization in §3.3 and §4.1, respectively. For now, though, I turn to the evidence for the syntax of deverbal nominalization in Northern Paiute that I am proposing.

2.1 The verbal structure of deverbal nominalizations

Since at least Chomsky 1970, it has been known that deverbal nominalizations form a heterogeneous class whose members can be more or less verb-like (a fact also recognized in the typological literature; see Comrie 1976, Koptjevskaja-Tamm 1993:6f., Comrie & Thompson 2007:343–376). Some nominalizations, such as the POSS-ing gerund in 3a, resemble a clause to a much greater degree than others, such as the agent nominalization in 4a. If deverbal nominalizations contain a verbal projection embedded inside a nominal one, the ‘verbiness’ of a nominalization depends on how large the verbal projection it contains is (Kornfilt 1984, Borsley & Kornfilt 2000, Panagiotidis & Grohmann 2009, Kornfilt & Whitman 2011).

The two types of deverbal nominalization in Northern Paiute exhibit some properties of a clause, but not others. I will argue they embed only a vP, because they are able to contain elements associated just with this verbal projection but not larger projections, such as TP or CP.

2.1.1 The two nominalizers embed a vP

There are three pieces of evidence that nominalizations with *-na* and *-di* embed a verbal constituent that is at least as big as a vP.

First, direct objects of the verb are realized exactly as they would be in a clause, since *v* is present to assign them accusative case (Chomsky 2000:123f.). This means that *i=gwana'a* ‘my younger brother’ in 11a and *ka=toogga* ‘the dog’ in 11b can appear as direct arguments of the verb without the mediation of an adposition.

- (11) a. *Ni i=bidzi'i i=gwana'a kia-hu-na*
 1SG.NOM 1SG.GEN=mother 1SG.GEN=younger.brother give-PRFV-NMLZ
o=ddidiha-hu.
 3SG.ACC=steal-PRFV
 ‘I stole the thing that my mother gave to my brother.’ (elicitation, EM, BP34-3-s, 50)
- b. *Su=ka=toogga patsa-di wadzi-mia-hu.*
 DEF.NOM=DEF.ACC=dog kill.SG-NMLZ hide-go-PRFV
 ‘The one who shot the dog ran away.’ (elicitation, MS, BP34-3-s, 45)

Moreover, the definite determiners of the direct objects in 11a–b bear accusative case and are realized as *ka=*, rather than the nominative *su=*. Accusative case in Northern Paiute is also manifested morphologically on pronouns. The direct object of each nominalization in 12a–b is the first-person singular accusative proclitic pronoun *i=*.

- (12) a. *Ni siddobbu'i ka=naatsi'i i=diikwi-na.*
 1SG.NOM know.DUR DEF.ACC=boy 1SG.ACC=tell-NMLZ
 ‘I believe what the boy told me.’ (elicitation, EM, BP35-4-s, 15)
- b. *Su=i=gwoti-hu-di mia-hu.*
 DEF.3SG=1SG.ACC=shoot-PRFV-NMLZ go-PRFV
 ‘The one who shot me left.’ (elicitation, MS, BP35-4-s, 21)

Second, negation can occur inside both types of nominalizations. In Northern Paiute, negation appears either in sentence-initial position, as in 13a, or following the subject at the left edge of the verb phrase, as in 13b (Thornes 2003:328).

- (13) a. **Kai** *ni mmi wiupui-gga yaa.*
 NEG 1PL.EXCL.NOM buckberry-have there
 ‘We have no buckberries this time.’ (dialogue, MS, BP23-1-t1, 3)
- b. *Su=natizuabi kai togi i=ma-nimma.*
 DEF.NOM=medicine NEG correct 1SG.ACC=IP.hand-feel
 ‘The medicine doesn’t make me feel quite right.’ (elicitation, Thornes 2003:328)

If we assume that negation adjoins either to TP or to vP—the two positions where negation is attested cross-linguistically (Laka 1990:9–85)—it should be possible inside nominalizations when it adjoins to vP. As shown in 14a–b, this is indeed the case.

- (14) a. I=dua **kai** tika-na pisa kamma-di.
 1SG.GEN=son NEG eat-NMLZ good taste-NMLZ
 ‘What my son didn’t eat is good tasting.’ (elicitation, MS, BP43-2-s, 1)
- b. Nii ka=**kai** mia-di sita-ggi-ti.
 1SG.NOM DEF.ACC=NEG go-NMLZ bad-APPL-TNS
 ‘I am angry at the one who won’t leave.’ (elicitation, EM, BP37-1-s, 24)

I will return to the question of whether high negation is possible inside nominalizations shortly.

Finally, adverbs that occur at the left edge of the verb phrase can appear inside both types of nominalization. This includes *pidi* ‘just’ (15a–b) and the manner adverb *obida* ‘slowly’ (16a–b).

- (15) a. I=bia **pidi** saa-na pisa kamma.
 1SG.GEN=mother **just** cook-NMLZ good taste
 ‘What my mother just cooked tastes good.’ (elicitation, EM, BP34-4-s, 14)
- b. Su=**pidi** kati-di oo ya’i-hu.
 DEF.NOM=**just** sit-NMLZ there die-PRFV
 ‘The one who just sat down died there.’ (elicitation, EM, BP35-2-s, 5)
- (16) a. Nii ka=mogo’ni **obida** ti-madabbui-na timi-hu.
 1SG.NOM DEF.ACC=woman **slowly** NSP-cook-NMLZ buy-PRFV
 ‘I bought what the woman made slowly.’ (elicitation, EM, BP37-3-s, 30)
- b. Nii ka=**obida** mia-di nagi-gga’a.
 1SG.NOM DEF.ACC=**slow** go-NMLZ chase-MOT
 ‘I will chase the one who is running away slowly.’ (elicitation, MS, BP34-4-s, 16)

Assuming that *pidi* ‘just’ and manner adverbs like *obida* ‘slowly’ adjoin to vP, then their presence inside these nominalizations is expected if they embed a vP.⁶

2.1.2 The nominalizers do not embed a CP

But how do we know *-na* and *-di* do not embed a verbal constituent larger than vP? Northern Paiute has an inventory of clitics expressing various modal categories that occur in second position following the first major sentence constituent (Thornes 2003:336–341). The modal clitic =*sakwa*,

⁶Aspectual morphology is also possible inside deverbal nominalizations in Northern Paiute. In (i–ii), this is the perfective aspect suffix *-hu*, which encodes that the event described is ‘bounded, that is, whether or not either the initial or terminal endpoint is expressed or understood’ (Thornes 2003:407).

- (i) Nii timi-hu ka=i=naa’a ka=tihidda pi-ma-mma patsa-**hu**-na.
 1SG.NOM buy-PRFV DEF.ACC=1SG.GEN=father DEF.ACC=deer PRO-LOC-LOC kill.SG-**PRFV**-NMLZ
 ‘I bought what my father killed the deer with.’ (elicitation, MS, BP34-3-s, 48)
- (ii) Usu i=doogga wati-**hu**-di wadzi-mia.
 DEM.NOM 1SG.GEN=dog shoot-**PRFV**-NMLZ hide-run
 ‘The one who shot my dog ran away.’ (elicitation, EM, BP34-3-s, 46)

If aspectual information is generally conveyed by functional heads located roughly between v and T (Cinque 1999), we might actually want to say that the nominalizers *-na* and *-di* embed a slightly larger verbal projection below T. For our purposes, though, the simpler assumption that these nominalizers embed vP suffices.

for instance, can occur after the subject (17a), a fronted direct object (17b), or a sentence-initial adverb (17c).

- (17) a. **İi=sakwa** pida.
2SG.NOM=**MOD** start.fire
'You should start the fire.' (elicitation, EM, BP33-5-s, 47)
- b. **Himma=sakwa** tammi madabbui.
thing=**MOD** 1PL.INCL make
'We might make something.' (elicitation, EM, BP34-2-s, 17)
- c. **Mu'a=sakwa** tammi t̥iba'a hani-ga-kwi.
tomorrow=**MOD** 1PL.INCL pinenut do-MOT-PROSP
'Tomorrow, we are going to go get pinenuts.' (elicitation, EM, BP33-5-s, 51)

The modal clitic =*sakwa* is ungrammatical when it is the second element in a nominalization with *-na*, as in 18a. It is likewise ungrammatical in the second position of a nominalization with *-di*, such as 18b, where it would follow the direct object *t̥iba* 'pinenut'

- (18) a. ***N̥i** ka=i=dua=**sakwa** t̥ika-na huna-ggwa wokwoti.
1SG.NOM DEF.ACC=1SG.GEN=son=**MOD** eat-NMLZ outside-LOC throw
Intended: 'I threw out what my son should have eaten.' (elicitation, EM, BP37-1, 58:14)
- b. ***Su=t̥iba=sakwa** hani-di oo siggwi kat̥i.
DEF.NOM=pinenut=**MOD** do-NMLZ there just sit
Intended: 'The one who should be cleaning pinenuts is just sitting over there.' (elicitation, EM, BP37-1, 49:14)

Assuming that modal clitics occupy C—like the highest auxiliary or main verb in verb-second Germanic languages (Koster 1975, among others)—the nominalizations created by *-na* and *-di* cannot embed a verbal constituent as large as CP.

2.1.3 The nominalizers do not embed a TP

There is also evidence that the nominalizers in Northern Paiute do not embed a TP. The T head itself is not obviously realized overtly in the language by auxiliaries or markers of tense and finiteness.⁷

⁷The so-called irrealis suffix *-dua* in Northern Paiute is unable to occur inside nominalizations with *-na* and *-di*:

- (i) ***N̥i** ka=nana patsa-**dua**-na t̥imi-hu.
1SG.NOM DEF.ACC=man kill.SG-**IRR**-NMLZ buy-PRFV
Intended: 'I bought the one that the man will kill.' (elicitation, EM, BP43-2, 9:34)
- (ii) ***I=kutsu** kwati-**dua**-di kwana'a nobi-ka-'yu.
1SG.GEN=cow shoot-**IRR**-NMLZ far house-have-NOM
Intended: 'The one who will shoot my cow lives far away.' (elicitation, EM, BP43-2, 7:50)

Thornes (2003:406) writes that its function '... falls under the broad functional domain of *irrealis*. That is, the event is "hypothetical, possible, and uncertain" (Givón 1984) [original emphasis]. If the irrealis suffix realizes T, it would provide more direct evidence that nominalizations in Northern Paiute do not embed TP.

But recall from 13a above that negation in Northern Paiute can occur to the left of the subject in sentence-initial position. Assuming that it is adjoined to TP, nominalizations with *-na* do not embed a TP because they cannot contain high negation:

- (19) * Su=**kai** i=dua tika-na pisa kamma.
 DEF.NOM=NEG 1SG.GEN=son eat-NMLZ good taste
 Intended: ‘What my son didn’t eat tastes good.’ (elicitation, MS, BP43-2, 2:36)

Unfortunately, negation is not as useful for probing the structure of nominalizations with *-di* since they do not contain an overt subject—see §4.

More indirectly, though, we can see that neither type of nominalization in Northern Paiute embeds a TP, since they do not contain nominative case. In a normal clause, the subject receives nominative case, which in 20 is realized on the first-person singular nominative pronoun *ni* ‘I’.

- (20) Kai **ni** oi-tu tika-’yu.
 NEG 1SG.NOM there-LOC eat-DUR
 ‘I didn’t eat any there.’ (narrative, EM, BP24-1-t1, 33)

In nominalizations with *-na*, though, the highest argument of the embedded verb receives—not nominative case—but genitive case, like the possessor in a possessive description. Both the external argument of the *-na* nominalization in 21 and the possessor of the possessive description in 22 are realized as the genitive proclitic pronoun *i*= ‘my’.

- (21) I=saa-na ne-hu.
 1SG.GEN=cook-NMLZ burn-PRFV
 ‘What I was cooking burned.’ (elicitation, EM, BP32-9-s, 15)
- (22) I=babi’i oo habi-nimmi.
 1SG.GEN=older.brother there lie-around
 ‘My older brother is lying over there.’ (elicitation, MS, BP32-4-s, 54)

Nominalizations with *-di*, too, do not contain nominative case. It is ungrammatical for the highest argument of the verb to be realized overtly as the first singular nominative pronoun *ni* ‘I’ in 23.

- (23) * Su=mogo’ni **ni** na-dika-di natiina-hu.
 DEF.NOM=woman 1SG.NOM PASS-eat-NMLZ take.away-PRFV
 Intended: ‘The woman took away what was being eaten by me.’ (elicitation, EM, BP43-2, 13:13)

Of course, as I will show later in §2.4, nominalizations with *-di* are not able to realize the highest argument of the verb overtly at all. For these reasons, I conclude that nominalizations in Northern Paiute only embed a vP.

We should consider the possibility, however, that they embed a TP headed by a defective T head. Such an analysis has been proposed for so-called indicative nominalizations in Turkish, illustrated in 24a–b.

- (24) a. Hasan uşag-ın oda-yı temizle-diğ-in-i söyle-di.
 Hasan servant-GEN room-ACC clean-NMLZ-3SG-ACC say-PAST.3SG
 ‘Hasan said that the servant cleaned the room.’

- b. Hasan **uşağ-ın** **oda-yı** **temizle-me-sin-i** söyle-di.
 Hasan **servant-GEN** **room-ACC** **clean-NMLZ-3SG-ACC** say-PAST.3SG
 ‘Hasan said **that the servant should clean the room.**’ (Kornfilt & Whitman 2011:1300)

Kornfilt & Whitman (2011:1300ff.) propose that these nominalizations embed an entire TP because they express a tense contrast between future (24b) and nonfuture (24a). Crucially, however, Kornfilt & Whitman give three reasons that the head of this TP is DEFECTIVE. First, it is only able to convey a restricted range of tense interpretations: future and nonfuture, but not present or past. Second, the verb does not show any signs of ϕ -agreement. Third, the subject fails to receive nominative case, and instead it bears genitive case. In addition, Kornfilt & Whitman (2012:44) argue that the T head must be defective because adverbs, which do not surface preceding the subject, cannot adjoin to the TP embedded inside the nominalization.

If a defective T head does not assign nominative case — and, if it can block negation from adjoining to TP, just as it can an adverb — then it might be possible that the nominalizations in Northern Paiute embed a defective TP. But as far as I know, there is no evidence for this analysis over my proposal that they embed just a vP. Unlike Turkish, Northern Paiute does not have tense (Thornes 2003:396), and there is no tense contrast inside nominalizations. Fortunately, this analytical uncertainty does not affect the larger claim of the paper. Regardless of whether deverbal nominalizations in Northern Paiute embedded a vP or a defective TP, they would not contain nominative case. It is this property, and not the size of the verbal projection itself, that gives rise to the range of event and individual interpretations they can have.

2.2 The nominal structure of deverbal nominalizations

If the nominalizers *-na* and *-di* are realizations of the Poss head when it takes a vP complement, then any functional categories above Poss in the extended nominal projection should be able to occur outside of a nominalization.

Following much recent work, I assume that Poss is located below D(eterminer) and above N in the extended verbal projection:

$$(25) \quad D > \text{Poss} > N$$

In this hierarchy, Poss is treated as the analogue of T(ense) in the verbal domain (Szabolcsi 1983, 1987, 1994, Cardinaletti 1998, Alexiadou et al. 2007:556–575). This is clearly inspired by the DP Hypothesis, proposed by Abney (1987:54–85) and Horrocks & Stavrou (1987) for English. But D is treated as the nominal correlate of C, rather than the nominal correlate of T. This parallelism between DP and CP was in some ways foreseen by Horrocks & Stavrou, who analyze Spec-DP in Greek as an A'-position that functions as an escape hatch for movement, just like Spec-CP (see also Szabolcsi 1983, 1989 on Hungarian).

The position of Poss below D is needed to account for the location of possessors in a number of different languages, including Northern Paiute. For instance, in Italian, weak and clitic possessive pronouns receive case in Spec-PossP, with the weak possessive pronouns surfacing there as well; the clitics subsequently move even higher to D (Cardinaletti 1998). In Hungarian, both pronominal and nonpronominal possessors can occur below the determiner in Spec-PossP (Szabolcsi 1983,

1987, 1994). In Northern Paiute, too, possessors can surface below D in Spec-PossP. Full DP possessors, as in 26a, and genitive strong pronouns, as in 26b, occur to the right of a determiner.

- (26) a. Su=**nana** tua wadzi-mia.
 DEF.NOM=**man** son hide-go
 ‘The man’s son ran away.’ (elicitation, MS, BP32-3-s, 6)
- b. Su=nana ka=**nika** puggu patsa-hu.
 DEF.NOM=man DEF.ACC=**1SG.GEN** horse kill.SG-PRFV
 ‘The man killed MY horse.’ (elicitation, EM, BP32-3-s, 23)

We have already seen that, as predicted, deverbal nominalizations in Northern Paiute can be embedded under D. The nominalizations in 27 and 28a, repeated from 8a and 9a above, both occur with overt determiners. It does not matter whether the possessor in nominalizations with *-na* is a full DP, as in 28a, or a strong genitive pronoun, as in 28b.

- (27) Su=kutsu patsa-di mia-hu.
 DEF.NOM=cow kill.SG-NMLZ go-PRFV
 ‘The one who killed the cow left.’ (elicitation, EM, BP37-1-s, 16)
- (28) a. Su=pa’mogo ka=nana ti-patsa-na-gguba kat̃i.
 DEF.NOM=frog DEF.ACC=man NSP-kill.SG-NMLZ-LOC sit
 ‘The frog is sitting on what the man killed.’ (elicitation, EM, BP32-7-s, 14)
- b. Su=naatsi’i ka=**nika** saa-na kai pisapi.
 DEF.NOM=boy DEF.ACC=**1SG.GEN** cook-NMLZ NEG like.DUR
 ‘The boy doesn’t like the thing I cooked.’ (elicitation, EM, BP37-2-s, 13)

There is another nominal category found in Northern Paiute that is not included in the hierarchy in 25: number. Some nouns can be marked for plural number with the suffix *-mi* (e.g. *tua* ‘son’ ~ *tuami* ‘sons, children’) (Thornes 2003:100). For a small number of nouns—mostly ones referring to humans—plural number can be marked through reduplication (e.g. *moko’ni* ‘woman’ ~ *mommoko’ni* ‘women’), or suppletion (e.g. *siadimi* ‘young woman’ ~ *sisia’a* ‘young women’) (Thornes 2003:103). Neither of these instantiations of number tells us much about the hierarchical position of the nominalizers, because they are realized on the noun itself.

There is, however, another more productive realization of plural number, the prenominal proclitic *mi=*. Thornes (2003:131) analyzes the proclitic as a definite determiner, but I do not adopt this analysis since *mi=* is not in complementary distribution with other definite determiners. As shown in 29, it occurs immediately below the accusative definite determiner *ka=*.

- (29) Su=hudziba ka=**mi=**naa’atsi’i-gguba-ggwe yodzi-huka.
 DEF.NOM=bird DEF.ACC=**PL=boy**.PL-LOC-LOC fly-INCH.DUR
 ‘The bird flew over the boys.’ (elicitation, MS, BP32-4-s, 51)

Instead, I assume that *mi=* is the realization of a Num(ber) head located immediately below D. Nominalizations with *-na* and *-di* can show up embedded under the *mi=* plural marker:

- (30) a. **Mi=i**=yadua-na yaa aataa-di.
PL=1SG.GEN=talk-NMLZ there sit.PL-NMLZ

‘The ones I was talking to are the ones sitting over there.’ (elicitation, EM, BP32-7-s, 27)

- b. Su=nana ka=**mi**=aataa-di yadu’i.
NOM=man DEF.ACC=**PL**=sit.PL-NMLZ talk.to.DUR

‘The man is talking to the ones who are sitting.’ (elicitation, EM, BP37-2-s, 7)

Just as we would expect if the nominalizers *-na* and *-di* realize Poss, the nominalizations they create can be embedded both under a determiner (D) and under the plural marker (Num).

2.3 An obligatory possessor in nominalizations with *-na*

Though the two nominalizers are similar in many ways, I proposed that they differ in one important way. While *-na* projects a specifier to which it assigns genitive case, just as the Poss head does in possessive descriptions, *-di* does not.

This makes two predictions. First, nominalizations with *-na* should always contain a DP in Spec-PossP. Indeed, when the embedded predicate is a zero-place predicate—such as the weather verb *tiiggwa* ‘snow’—the expletive proclitic pronoun *a=* is obligatory:

- (31) Ni*i* *(a=)ddiiggwa-wini-na punni.
1SG.NOM 4.GEN=snow-IMPV-NMLZ see.DUR
‘I see it snowing.’ (elicitation, EM, BP37-3, 1:14:26)

Second, since Spec-PossP is the position where possessors get genitive case, the DP that occupies this position in a nominalization with *-na* should have the same realization as a possessor. As I show below, this is indeed the case.

2.3.1 Genitive pronouns

When the possessor in a possessive description is a full DP, it bears no special morphology. In 26a above, the possessor DP *nana* ‘the man’ is a bare noun. When the possessor is a pronoun, however, it receives a special realization. As shown in Table 1, there are two series of genitive pronouns in Northern Paiute, in addition to nominative and accusative pronouns.⁸ The genitive strong pronouns are morphologically independent and are used when the possessor is focused, as in 32a, repeated from 26b above. Otherwise, the genitive proclitic pronouns are used, which select the noun heading the possessive description as their host, as in 32b.

- (32) a. Su=nana ka=**nika** puggu patsa-hu.
DEF.NOM=man DEF.ACC=**1SG.GEN** horse kill.SG-PRFV
‘The man killed MY horse.’ (elicitation, EM, BP32-3-s, 23)
b. Su=nana **i**=buggu patsa-hu.
DEF.NOM=man **1SG.GEN**=horse kill.SG-PRFV
‘The man killed my horse.’ (elicitation, EM, BP32-3-s, 24)

⁸The third-person singular pronouns are simply demonstrative pronouns: proximate *i-*, distal *u-*, and topical *ma-*.

	NOMINATIVE	ACCUSATIVE		strong	genitive proclitic
		strong	proclitic		
1sg.	<i>nɪi</i>	<i>nika</i>	<i>i=</i>	<i>niga (nika)</i>	<i>i=</i>
2sg.	<i>ii</i>	<i>imi</i>	<i>i=</i>	<i>iga (imi)</i>	<i>i=</i>
3sg.	<i>isu, usu, masu</i>	<i>ika, uka, maka</i>	<i>u=</i>	<i>iga, uga, maga</i> (<i>ika, uka, maka</i>)	<i>u=</i>
1dl.	<i>ta</i>	<i>taka (ta)</i>	<i>ta=</i>	<i>taga (ta)</i>	<i>ta=</i>
1pl. incl.	<i>tammi</i>	<i>tammika (tammi)</i>	<i>ti=</i>	<i>tammiga (tammi)</i>	<i>ti=</i>
1pl. excl.	<i>nɪmmi</i>	<i>nɪmmika (nɪmmi)</i>	<i>ni=, mi=</i>	<i>nɪmmiga (nɪmmi)</i>	<i>ni=, mi=</i>
2/3pl.	<i>imi</i>	<i>umi</i>	<i>mi=</i>	<i>umiga (umi)</i>	<i>mi=</i>
4			<i>a=</i>		<i>a=</i>

Table 1: Nominative, accusative, and genitive pronouns in Northern Paiute (Thornes 2003:155–169); parenthetical forms from the Mono Lake dialect

As an aside, observe that while the strong pronouns can cooccur with a determiner (32a), the proclitic pronouns are in complementary distribution with the determiner (32b). This is not an uncommon pattern crosslinguistically. To derive the same complementarity for genitive clitic pronouns in Italian, Cardinaletti (1998:17) proposes that they receive case in Spec-PossP but then undergo head movement to D. Assuming that head movement is substitution, if genitive proclitic pronouns in Northern Paiute raise to D, then they will be in complementary distribution with determiners.⁹ They will occupy D instead of an overt determiner. (Ultimately, though, the genitive proclitic pronouns must be realized with the noun heading the possessive description as their host.)

In nominalizations with *-na*, the highest argument of the verb can be realized as a genitive pronoun, either a strong pronoun (33a) or a proclitic (33b).

- (33) a. Su=naatsi'i ka=**nika** saa-na kai pisapi.
DEF.NOM=boy DEF.ACC=**1SG.GEN** cook-NMLZ NEG like.DUR
‘The boy doesn’t like what I cooked.’ (elicitation, EM, BP37-2-s, 13)
- b. **I**=saa-na ne-hu.
1SG.GEN=cook-NMLZ burn-PRFV
‘What I was cooking burned.’ (elicitation, EM, BP32-9-s, 15)

Note that no other case realization is possible for the highest argument of the verb. Specifically, it cannot receive nominative case—the canonical case realization for subjects—as shown in 34.

- (34) ***Nii** saa-na ne-hu.
1SG.NOM cook-NMLZ burn-PRFV
Intended: ‘What I was cooking burned.’ (elicitation, EM, BP43-2, 11:14)

But how do we know that these arguments are not being assigned accusative case? As Table 1 shows, the proclitic pronouns are identical in both the genitive and accusative cases. Moreover, in the Mono Lake dialect of Northern Paiute, from which most of my data comes, the distinction between the accusative and genitive pronouns has been neutralized completely in both the proclitic

⁹See van Riemsdijk 1998 for discussion of head movement as substitution vs. adjunction.

and strong pronoun series. Unfortunately, in the resources available to me on other varieties of Northern Paiute, there are no attested examples of a nominalization with *-na* where the highest argument is a strong pronoun. From the examples in 33–34, all we can conclude, then, is that there is no nominative case inside these nominalizations, and that it is POSSIBLE that they contain a possessor.

Fortunately, however, all varieties of Northern Paiute have a genitive reflexive anaphor *tɨ=*, which Thornes (2003:175) calls ‘[t]he most important distinction between the possessor proclitics and transitive object proclitics ...’ In 35, the anaphor is the possessor of the noun *toogga* ‘dog’. Crucially, as shown in 36, it is ungrammatical in direct object position.

- (35) Su=naatsi’i₁=bino’o ka=**tɨ=**₁ddoogga haani; kuyaa o=dda-yaggwine’e-hu
 DEF.NOM=boy=PTC DEF.ACC=**REFL**=dog scold far 3SG.ACC=IP.foot-kick-PRFV
 tabbu’a.
 look.like
 ‘The boy₁ is scolding his₁ dog, and then he kicks him to go away.’ (prompted narrative, MS, BP24-1-t3, 41)
- (36) *Su=naatsi’i₁ **tɨ=**₁bbunni.
 DEF.ACC=boy **REFL**=see.DUR
 Intended: ‘The boy₁ sees himself₁.’ (elicitation, EM, BP37-2, 36:35)

This anaphor, which only functions as a possessor, can be the highest argument of a nominalization with *-na*:

- (37) Oo uu ka=**tɨ=**₁tɨ-patsa-na usu idza₁ pɨi owi manai
 there thusly DEF.ACC=**REFL**=NSP-kill.SG-NMLZ DEM.NOM coyote 3SG there do
 čaisi u-ma koggwi-u.
 then that-LOC take.away-PRFV
 ‘So it was of his₁ kill, that Coyote₁, he took it over then and took it away.’ (narrative, Thornes 2003:484)

In 37, the agent of the nominalized verb *patsa* ‘kill (sg.)’ is projected as the genitive reflexive anaphor and corefers with the subject *usu idza* ‘that Coyote’.

2.3.2 Case on adjectives

The case realization of adjectives shows more indirectly that nominalizations with *-na* contain a possessor. When a possessor contains an adjective, it receives the case—either nominative or accusative—of the ENTIRE possessive description:

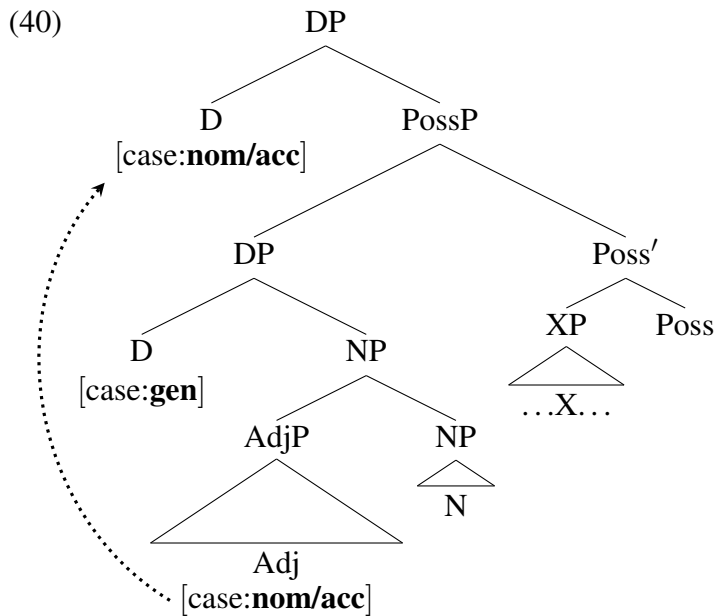
- (38) a. [DP [DP **Miitsi-’yu** nana] dua] habi-hu.
 short-NOM man son lie-PRFV
 ‘The short man’s son fell down.’ (elicitation, EM, BP32-3-s, 18)
- b. Nɨi [DP ka=[DP **miitsi-ggu** nana] toogga] pisapi.
 1SG.NOM DEF.ACC=**short-ACC** man dog like.DUR
 ‘I like the short man’s dog.’ (elicitation, EM, BP37-2-s, 18)

The adjective *miitsi* ‘short’ gets the nominative case suffix *-’yu* in a possessive description that is the subject (38a), and the accusative case suffix *-ggu* in a possessive description that is the direct object (38b). When the highest argument in a nominalization with *-na* contains an adjective, it exhibits the same pattern of case marking:

- (39) a. [DP Su=[DP **miitsi-’yu** nana] saa-na] pisa kamma.
 DEF.NOM=**short-NOM** man cook-NMLZ good taste
 ‘What the short man cooked tastes good.’ (elicitation, EM, BP37-2-s, 19)
- b. Nii [DP ka=[DP **waha-ggu** momoko’ni] saa-na] pisapi.
 1SG.NOM DEF.ACC=**two-ACC** women cook-NMLZ like.DUR
 ‘I like what the two women cooked.’ (elicitation, EM, BP32-8-s, 9)

An adjective (or numeral) is realized with nominative case in 39a when it modifies the highest argument of a nominalization in subject position, and it is realized with accusative case in 39b when it modifies the highest argument of a nominalization in direct object position.

Without doubt, this pattern of case concord is somewhat unusual, since the adjective does not agree with the closest case-bearing head. Assuming that DPs get case by valuing a case feature on D, when an adjective is contained within a possessor, the closest D that can value the adjective’s own case feature should be the one that heads the possessor DP. But as we have seen, an adjective contained within the possessor does not agree in genitive case:



I suspect that this pattern might arise because adjectives are formally deficient in Northern Paiute. Say that the case feature on an adjective can only have certain values. Specifically, it can be valued as either nominative or accusative, but not genitive. When an adjective occurs inside a possessor, then, the closest head bearing a case feature that it can agree with will not be the D heading the possessor DP. Rather, it will be the D heading the entire possessive description.¹⁰

¹⁰Deal (2013:409–413) argues for Nez Perce that genitive case is assigned at PF to DPs that lack nominative or accusative case for some reason. Assuming that Northern Paiute works the same way, even if the entire possessor

2.3.3 Possessor extraction and pied-piping

Possessors in Northern Paiute do not obey the Left Branch Condition. They can be extracted through wh-movement to sentence-initial position, as in 41a. Wh-possessors can also optionally pied-pipe the rest of the possessive description along with them, as shown in 41b.

- (41) a. **Haga**₁ **ii** [_{DP} **t**₁ **kaadzi**] **pisapi**?
who.GEN **2SG.NOM** **car** **like.DUR**
 ‘Whose car do you like?’ (elicitation, EM, BP33-5-s, 19)
- b. [_{DP} **Haga** **kaadzi**]₁ **ii** **t**₁ **pisapi**?
who.GEN **car** **2SG.NOM** **like.DUR**
 ‘Whose car do you like?’ (elicitation, EM, BP33-5-s, 18)

The highest argument in nominalizations with *-na* exhibits the same pattern. When it is a wh-phrase, it can be extracted by itself (42a) or the rest of the nominalization can raise with it to sentence-initial position (42b).

- (42) a. **Haga**₁ **su=nana** [_{DP} **t**₁ **ti-batsa-na**] **tidiha-huka**?
who.GEN **DEF.NOM=man** **NSP-kill.SG-NMLZ** **steal-INCH.DUR**
 ‘Whose kill did the man steal?’ (elicitation, EM, BP33-5-s, 15)
- b. [_{DP} **Haga** **ti-batsa-na**]₁ **su=nana** **t**₁ **wadzi-hani-huka**?
who.GEN **NSP-kill.SG-NMLZ** **DEF.NOM=man** **hide-do-INCH.DUR**
 ‘Whose kill did the man take away?’ (elicitation, EM, BP33-5-s, 13)

This optional pied-piping of nominalizations is expected if the wh-phrase in 42a–b is a possessor.

2.4 No possessor in nominalizations with *-di*

If *-di* realizes the Poss head when it does not project a specifier, then the nominalizations it creates should NEVER contain a possessor. Indeed, adding a possessor to the nominalization in 43a is ungrammatical, regardless of whether it is a genitive pronoun (43b), a nominative pronoun (43c) or a full DP (43d).

- (43) a. **Su=mogo’ni** **ka=na-dika-di** **natiina-hu**.
DEF.NOM=woman **DEF.ACC=PASS-eat-NMLZ** **take.away-PRFV**
 ‘The woman took away what was being eaten.’ (elicitation, MS, BP37-2-s, 29)
- b. ***Su=mogo’ni** **i=na-dika-di** **natiina-hu**.
DEF.NOM=woman **1SG.GEN=PASS-eat-NMLZ** **take.away-PRFV**
 Intended: ‘The woman took away what was being eaten by me.’ (elicitation, EM, BP37-2, 57:04)

does receive genitive case later on, at the point in the derivation when nominative or accusative case is assigned, there would be no intervening case feature for adjectives. Consequently, they would be assigned the same case as the entire possessive description.

- c. * Su=mogo'ni **nii** **na-dika-di** natiina-hu.
 DEF.NOM=woman **1SG.NOM PASS-eat-NMLZ** take.away-PRFV
 Intended: 'The woman took away what was being eaten by me.' (elicitation, EM, BP43-2, 13:13)
- d. * Su=mogo'ni **ka=nana** **na-dika-di** natiina-hu.
 DEF.NOM=woman **DEF.ACC=man PASS-eat-NMLZ** take.away-PRFV
 Intended: 'The woman took away what was being eaten by the man.' (elicitation, EM, BP37-2, 1:01:17)

It does not make a difference if the nominalization describes an event as opposed to an individual. The nominalization in 44a becomes ungrammatical when a genitive proclitic pronoun is added, as shown in 44b.

- (44) a. **Nii** **ka=tiiggwa-di** punni.
 1SG.NOM **DEF.ACC=snow-NMLZ** see.DUR
 'I see it snowing.' (elicitation, EM, BP37-2-s, 32)
- b. * **Nii** **a=ddiiggwa-di** punni.
 1SG.NOM **4.GEN=snow-NMLZ** see.DUR
 Intended: 'I see it snowing.' (elicitation, EM, BP37-2, 1:04:03)

Unlike the parallel nominalization with *-na* in 31, the nominalization with *-di* in 44b is ungrammatical because it contains a possessor.

I have argued that the deverbal nominalizers *-na* and *-di* realize Poss—the nominal functional head that canonically assigns case to possessors—when it takes a vP complement. This accounts for the noun-like external distribution of the nominalizations they create, as well as their verb-like internal structure. In addition, I argued that while *-na* projects a specifier to which it assigns genitive case, *-di* is defective and does not project a specifier position at all. With this syntax for the two types of deverbal nominalization in Northern Paiute, I now go on to show how they are able to describe both events and individuals.

3 The interpretation of nominalizations with *-na*

Some basic examples of nominalizations with *-na* are presented again below. They can describe an event (45a–c) or an individual participating in an event (46a–b).

- (45) a. **Su=nana** **ka=toogga** **patsa-na** idzi'i.
 DEF.NOM=man **DEF.ACC=dog kill.SG-NMLZ** yesterday
 'The man's killing the dog happened yesterday.' (elicitation, MS, BP32-4-s, 29)
- b. **Nii** **ka=Grace** **hubia-du-na** pisapi.
 1SG.NOM **DEF.ACC=Grace song-make-NMLZ** like.DUR
 'I like Grace's singing.' (elicitation, EM, BP32-9-s, 7)
- c. **Nii** **ka=mogo'ni** **tiba'a** **saa-na** ikwi.
 1SG.NOM **DEF.ACC=woman pinenut cook-NMLZ** smell
 'I smell the woman cooking pinenuts.' (elicitation, EM, BP32-7-s, 35)

- (46) a. Nii ka=i=naa'a saa-na tika.
 1SG.NOM DEF.ACC=1SG.GEN=father cook-NMLZ eat
 'I ate the thing that my father cooked.' (elicitation, EM, BP37-2-s, 35)
- b. Ika i=naa'a pi-kuba kati-na nii timi-dua.
 DEM.ACC 1SG.GEN=father PRO-LOC sit-NMLZ 1SG.NOM buy-IRR
 'I will buy that one my father is sitting on.' (elicitation, MS, BP34-5-s, 6)

The nominalizations in 46a–b clearly refer to individuals, since the matrix verbs are predicates that can only hold of individuals. The ones in 45a–c, however, deserve a bit more scrutiny.

There are two arguments that nominalizations created by *-na* do, in fact, describe events. First, they can serve as the argument to a predicate of events. In 45a, for instance, the nominalization in subject position is being predicated of the temporal adverb *idzi'i* 'yesterday'. Accordingly, the sentence entails that an event of the man killing the dog occurred during a certain time interval. (Note that Northern Paiute is a null copula language, so the adverb can function as a predicate without an overt verb.) In addition, in 45c, the nominalization is the direct object of the perception verb *ikwi* 'smell', so the sentence entails that the speaker perceives an event of the woman cooking pinenuts through smell. This is truth-conditionally distinct from simply perceiving one of the individuals participating in the event. If you perceive an event of the woman cooking pinenuts through smell, you do not necessarily perceive either the woman or the pinenuts.

How do we know that the nominalization in 45c really is the direct object of the perception verb? It is not obviously impossible that the accusative determiner *ka=* in 45c might be parsed

with the possessor *mogo'ni* 'woman'?¹¹ Recall from §2.3.1 that genitive clitic pronouns are in complementary distribution with overt determiners. When the possessor in 45c is replaced with a genitive clitic pronoun, the accusative determiner cannot be overt, as shown by the contrast between 47a and 47b.

- (47) a. Nii i=hubia-du-na naka.
1SG.NOM 2SG.GEN=song-make-NMLZ hear
'I hear you singing.' (elicitation, EM, BP48-1-s7)
- b. *Nii ka=i=hubia-du-na naka.
1SG.NOM DEF.ACC=2SG.GEN=song-make-NMLZ hear
Intended: 'I hear you singing.' (elicitation, EM, BP48-1, 13:46)
- c. Nii ka=i=bia hubia-du-na naka.
1SG.NOM DEF.ACC=1SG.GEN=mother song-make-NMLZ hear
'I hear my mother singing.' (elicitation, MS, BP48-1-s8)

¹¹For this reason, we might think that the possessor *mogo'ni* 'woman' is itself an object of *ikwi* 'smell'. If perception verbs in Northern Paiute were raising-to-object predicates, 45c would have the following structure:

- (i) Nii [DP ka=mogo'ni]₁ [DP t₁ tība'a saa-na] ikwi.
1SG.NOM DEF.ACC=woman pinenut cook-NMLZ smell
'I smell the woman cooking pinenuts.'

The subject of the nominalization would raise—here, string vacuously—into an object position of the perception verb. There are three pieces of evidence, however, that 45c is not in fact a raising-to-object construction.

First, if the subject of the nominalization raised to be an object of the verb, when it is a proclitic pronoun, you might expect it to cliticize to the perception verb. In fact, a proclitic pronoun attaches to the nominalized verb, as shown in (ii), just as if it were its possessor.

- (ii) Nii ka=toogga i=ggwiba-na naka.
1SG.NOM DEF.ACC=dog 2SG.GEN=hit-NMLZ hear
'I hear you hitting the dog.' (elicitation, MS, BP37-1-s, 9)

This might not be a problem for the raising-to-object analysis if proclitic pronouns are constrained by locality and hence cannot raise out of the nominalization. There are, however, languages that do allow pronominal clitics to raise into a higher verbal domain, for example, in possessor raising.

Second, a raising-to-object analysis incorrectly predicts that 46c should be ungrammatical. The subject of this nominalization, *i=bia* 'my mother', is a possessive description whose possessor is a genitive clitic pronoun. If this DP did raise to be an object of the verb, it should not be able to bear the accusative determiner—contrary to fact. As we have seen, genitive clitic pronouns cannot cooccur with overt determiners. More generally, such an analysis would not be able to explain the complementary distribution of the determiner in 46a–c.

Third, if the subject in 45c were the raised object of the verb *ikwi* 'smell', it would occur in the wrong linear position. Derived objects, such as the beneficiary added in an applicative construction, as in (iii), occur immediately before the verb, to the right of the underlying direct object (Thornes 2003:307).

- (iii) Nii ka=huba i=bia saa-ggi-ti.
1SG.NOM DEF.NOM=soup 1SG.GEN=mother cook-APPL-TNS
'I cooked soup for my mother.' (elicitation, EM, BP34-2-s, 35)

In contrast, the hypothetical raised object in (i) would occur farther to the left, preceding the nominalization inside which it originated.

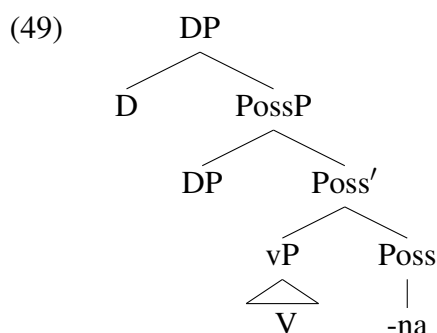
Of course, when the subject is a full DP, the accusative determiner can be overt, as shown by 47c or by the original example in 45c. This distribution follows straightforwardly if the accusative determiner forms a constituent with the entire nominalization, which is serving as the direct object of the perception verb.

The second argument that the nominalizations in 45a–c do indeed describe events comes from the fact that the nominalizer *-na* can apply to zero-place predicates, such as the weather verb *pauma* ‘rain’:

- (48) Nii **a=bbauma-wini-na** naka.
 1SG.NOM 4.GEN=**rain-IMPV-NMLZ** hear
 ‘I hear it raining.’ (elicitation, MS, BP37-1-s, 6)

Assuming that this predicate does not take any individual-type arguments, the nominalization in 48 must describe an event, because the speaker perceives an event of raining through hearing.

Whether they describe an event or an individual, nominalizations with *-na* have the same basic structure, shown schematically in 49. The nominalizer overtly realizes Poss when it takes a vP complement, and it projects a specifier position to which it assigns genitive case.



Before getting to the interpretation of nominalizations with *-na*, I start by showing in §3.1 that the possessor is always interpreted as an argument of the nominalized verb. Consequently, I propose that it originates inside the embedded vP and raises to Spec-PossP to get case. Then, moving on to the event interpretation in §3.2, I demonstrate that it comes for free, in a manner of speaking, when all of the embedded verb’s individual-type arguments are saturated. In contrast, the individual interpretation arises as a special case, when one of the verb’s arguments is saturated by a resumptive pronoun. I argue in §3.3 that because Northern Paiute has operators that can abstract over the variables contributed by these pronouns, nominalizations created by *-na* describe an individual. Moreover, the antilocality property of resumptive pronouns accounts for why nominalizations with *-na* only describe individuals that are NOT the highest argument of the verb.

3.1 The possessor in deverbal nominalizations

The possessor bears the theta role of the highest argument of the verb. For instance, in 50, repeated from 45a above, the possessor is the agent of the transitive verb *saa* ‘cook’.

- (50) Nii **ka=mogo’ni** **tiba’a** **saa-na** ikwi.
 1SG.NOM DEF.ACC=**woman** **pinenut** **cook-NMLZ** smell
 ‘I smell the woman cooking pinenuts.’ (elicitation, EM, BP32-7-s, 35)

This interpretation is obligatory. In the context in 51, where the possessor *i=naa'a* ‘my father’ does not satisfy the agent entailments of the transitive verb *patsa* ‘kill (sg.)’, the sentence is infelicitous.

- (51) Context: My father was driving along when he sees a dead deer along the side of the road. He picks it up and brings it home.

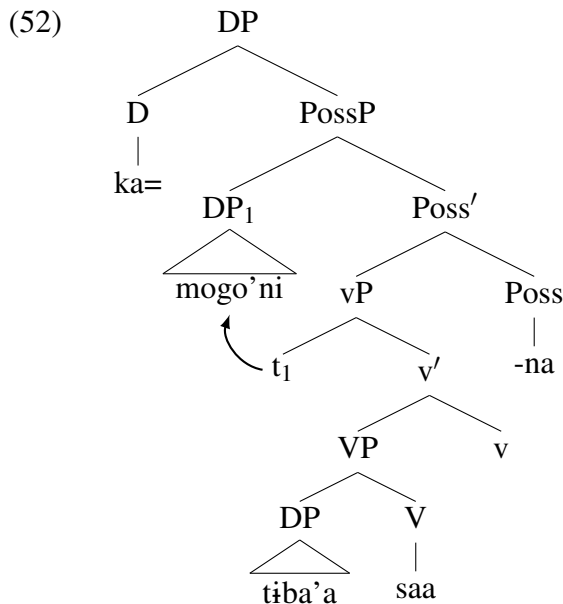
Mu'a tammi **i=naa'a** **ti-batsa-na** tika-kwi.
tomorrow 1PL.INCL **1SG.GEN=father** **NSP-kill.SG-NMLZ** eat-PROSP

‘Tomorrow we are going to eat what my father killed.’ (elicitation, EM, BP33-5, 44:59)

[EM: ‘That wasn’t true. He just telling lie, I guess. Just fooling them or something.’]

The native speaker reported that the sentence is not true in the context given, because the speaker’s father is not the agent of the killing event. The deer is already dead when he finds it.

This property of nominalizations with *-na* follows straightforwardly if the possessor originates inside the embedded vP as an argument of the verb. The event nominalization in 50, for instance, has the structure in 52.



Because *saa* ‘cook’ is transitive, *v* assigns accusative case to the direct object. The possessor DP *mogo'ni* ‘woman’ originates in Spec-vP, where it receives the agent theta role from the embedded verb *saa* ‘cook’. Since the nominalization does not contain T, and hence does not contain nominative case, the possessor can only get case by raising to Spec-PossP, where it is assigned genitive case.

This movement takes place overtly. The possessor in nominalizations with *-na* occurs to the left of adverbs that themselves occur at the left edge of the verb phrase:

- (53) I=bia **obida** ka=tiba'a sa'a.
1SG.GEN=mother **slowly** DEF.ACC=pinenut cook.DUR
‘My mother cooked the pinenuts slowly.’ (elicitation, EM, BP37-1-s, 20)

- (54) I=bia **obida** saa-na nii tika.
1SG.GEN=mother **slowly** cook-NMLZ 1SG.NOM eat
‘I ate what my mother cooked slowly.’ (elicitation, EM, BP37-1-s, 21)

In a basic SOV sentence like 53, the manner adverb *obida* ‘slowly’ occurs to the left of the direct object, at the left edge of the verb phrase. Assuming that manner adverbs adjoin to vP (Pollock 1989:366), the agent of the nominalization in 54 must have raised to Spec-PossP, since it appears to the left of *obida*.

While the possessor is the agent in 50, under my account it need only be the HIGHEST argument of the verb. Indeed, when *-na* embeds an unaccusative or passive verb, the possessor bears a different theta role:

- (55) a. **Su=toogga akwisiyai-na** i=masia-hu.
 DEF.NOM=dog sneeze-NMLZ 1SG.ACC=scare-PRFV
 ‘The dog’s sneezing scared me.’ (elicitation, EM, BP33-3-s, 7)
- b. **I=bia na-bida-ggi-na** nai-hu.
 1SG.GEN=mother PASS-make.fire-APPL-NMLZ burns-PRFV
 ‘The fire that was built for my mother burned.’ (lit. What was fire-built for my mother burned.) (elicitation, EM, BP34-2-s, 43)

In 55a, the possessor is the patient of *akwisiyai* ‘sneeze’; in 55b, it is the beneficiary *i=bia* ‘my mother’, which is added by the applicative suffix before the predicate is passivized. Since these predicates lack an external argument, accusative case is not assigned, in accordance with Burzio’s Generalization. It is consequently an internal argument of the verb that lacks case and raises to Spec-PossP.

We might wonder, if the highest argument in a deverbal nominalization occupies Spec-PossP, whether it also has the semantics of a possessor. Of course, the possession relation in possessive descriptions is notoriously variable. The possessor can stand in a variety of superficially different semantic relations to the possessee, determined in part by the noun that heads the possessive description. In 56a, for instance, the possessor *Kaabidzi* ‘Kaabidzi’ is interpreted as the spouse of the possessee, because the noun *nodikwa* ‘wife’ is inherently relational.

- (56) a. **kaabidzi nodikwa**
 Kaabidzi wife
 ‘Kaabidzi’s wife’ (Thornes 2003:145)
- b. Context: My younger brother and sister each have a frog.
I=gwana’a pa’mogo isikwidda-di.
 1SG.GEN=younger.brother frog be.brown-NMLZ
 ‘My younger brother’s frog is brown.’ (elicitation, EM, BP34-5, 17:40)
- c. Context: I go out hunting with my father and my younger brother. Only I have a gun. My father and younger brother each see a different deer at the same time.
Nii i=naa’a tihidda patsa-hu.
 1SG.NOM 1SG.GEN=father deer kill.SG-PRFV
 ‘I shot my father’s deer.’ (elicitation, MS, BP37-3, 1:13:46)

For nouns that are inherently nonrelational, the possession relation is context dependent and varies with the context of utterance. In 56b, an ownership relation holds between the speaker’s younger brother and the frog; in 56c, a seeing relation holds between the speaker’s father and the deer.

To account for this variability, I assume, following Szabolcsi (1994), that the Poss head itself does not contribute the content of the possession relation. When the possessee is an inherently relational noun, the possessor in Spec-PossP stands in whatever relation is described by the noun itself (or is added by a nominal functional head on par with *v* in the verbal domain; Valois 1991:15f., Sportiche 1998:216–230, Carstens 2000, Radford 2000, Bowers 2011).¹² For deverbal nominalizations in Northern Paiute—which are parallel to inherently relational nouns, because the semantic relationship between the possessor and the verb is constant and does not vary—Poss would consequently not add any additional meaning. The possessor receives the theta role of the highest argument of the verb, as it starts out inside the *v*P and then raises to Spec-PossP where it receives case.

If the Poss head in nominalizations with *-na* obligatorily projects a specifier but does not itself impose any semantic requirements on it, then it should be possible for that position to be filled by an expletive pronoun. In a normal clause, zero-place predicates, such as the weather verb *tʰiggwa* ‘snow’ in 57, do not require an overt subject. But when the same verb is nominalized with *-na*, as in 58, the expletive *a=* is obligatory.

- (57) *Tʰiggwa-winni.*
snow-IMPFV
‘It’s snowing.’ (elicitation, MS, BP32-4-s, 13)
- (58) *Niʰi *(a=)ddiʰiggwa-wini-na punni.*
1SG.NOM 4.GEN=snow-IMPFV-NMLZ see.DUR
‘I see it snowing.’ (elicitation, EM, BP37-3, 1:14:26)

In its contentful use, the fourth-person genitive proclitic pronoun *a=* identifies an indefinite antecedent. In its expletive use, it fills Spec-PossP and checks genitive case when there is no DP that can raise there.

Before moving on, I should address the issue of where the context-dependent possession relation comes from with nonrelational nouns. To some degree, we do not have worry about this here, since the possession relation in deverbal nominalizations with *-na* is determined entirely by the embedded verb. But as I understand Szabolcsi (p. 197), when the possessee is a nonrelational noun, the context-dependent possession relation is introduced by a process of derivational morphology that takes an inherently nonrelational noun and turns it into a relational noun. A similar idea is found in the semantics literature, where the context-dependent possession relation is introduced through a type-shifting operation that applies to nonrelational nouns (Pustejovsky 1993, Jensen & Vikner 1994, Partee & Borschev 1998). This permits a uniform syntax and semantics for possessors, both when the possessee is inherently relational and nonrelational, as well as in deverbal nominalizations.¹³

¹²Szabolcsi still takes the Poss head to be the formal theta-assigner for the purposes of the Theta Criterion. The content of the theta role assigned to the possessor in Spec-PossP must then somehow be transmitted from the possessee when it is an inherently relational noun. I do not have too much to say here about formal theta role assignment—if it exists at all—except to observe, as Szabolcsi herself does (p. 192f.), that this would require abandoning the assumption that theta roles are always assigned to DPs in their base-merged position (at D-structure), since the possessor originates low and raises to Spec-PossP.

¹³However, such an approach might not be able to derive the contrast between relational and nonrelational nouns when the possessor occurs AFTER the noun in the Norman *of*-genitive: for example, *a child of John* vs. **a firetruck of John* (Partee 1997:465, Barker 1995:9). See Partee & Borschev 2002 and Barker 2011 for discussion of precisely this

3.2 The event interpretation

Since *-na* projects a specifier position to which it assigns genitive case, all of the embedded verb's individual-type arguments can be saturated, even though there is no nominative case inside the nominalization. The event interpretation of *-na* follows straightforwardly from this syntax, once some additional assumptions are in place about how verb phrases are interpreted.

Since Davidson 1967, it is frequently assumed that predicates take an event argument in addition to their regular complement of individual-type arguments. It is this event argument that Kratzer (1996) argues holds the verb phrase together semantically. In her neo-Davidsonian event semantics, both *V* and *v* denote relations between individuals and events. *V* relates the internal arguments to an event, and *v* relates the external argument to an event. These predicates of events are combined by a rule of Event Identification, which Kratzer defines (p. 122) as follows:¹⁴

(59) Event Identification

$$\lambda x \lambda e (\alpha(x)(e) \wedge \beta(e)) : \langle e, \langle s, t \rangle \rangle$$

$$\begin{array}{cc} \alpha : & \beta : \\ \langle e, \langle s, t \rangle \rangle & \langle s, t \rangle \end{array}$$

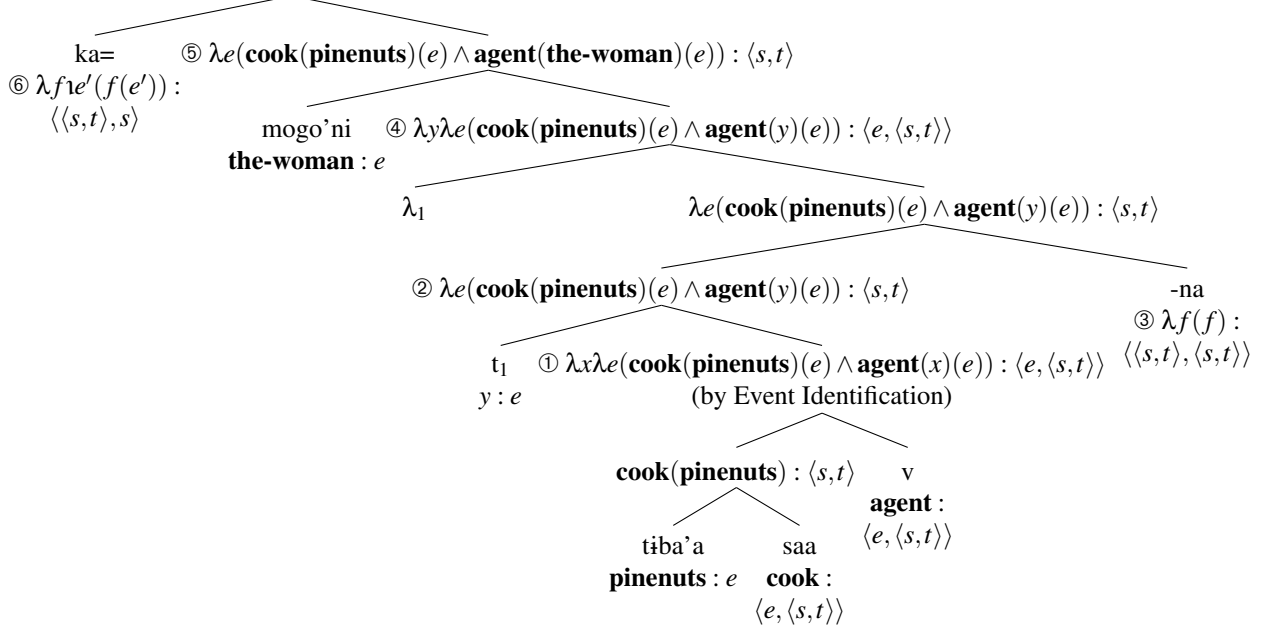
Event Identification takes one function of type $\langle e, \langle s, t \rangle \rangle$ (a function from individuals to functions from events to truth values) and another function of type $\langle s, t \rangle$ (a function from events to truth values) and returns a function of type $\langle e, \langle s, t \rangle \rangle$. In other words, Event Identification combines two predicates of events by abstracting over both of their event arguments.

The semantic composition of the event nominalization in 50 can then proceed as follows:

question.

¹⁴I assume a type-theoretic, compositional, extensional semantics that has, in addition to other rules defined in the text, a rule of Function Application used for interpreting complex constituents (Heim & Kratzer 1998:49). The truth conditions of a sentence, and the contribution that subparts of a sentence make to those truth conditions, are represented by a predicate logic metalanguage with the lambda calculus. Constants are bolded. I use *x*, *y*, *z*, *x'*, *y'*, and *z'* as variables over individuals (type *e*); *e*, *e'*, and *e''* as variables over events (type *s*); and, *p*, *q*, and *r* as variables over truth values (type *t*). The only higher-order variables are *f*, *g*, and *h*, which range over functions from either individuals or events to truth values (type $\langle e, t \rangle$ or $\langle s, t \rangle$).

(60) ⑦ $1e'(\text{cook}(\text{pinenuts})(e') \wedge \text{agent}(\text{the-woman})(e')) : s$



Event Identification combines the predicates of events expressed by the VP and v to produce a predicate of events whose sole individual argument is the external argument (①). Assuming that traces are interpreted as variables, this argument is saturated by the trace left behind by the DP *mogo'ni* ‘the woman’ when it raises to Spec-PossP.

This leaves only the predicate’s event argument unsaturated (②). In clauses, the event variable is existentially bound, so that the sentence has a truth value as its extension. I assume that this operation applies at the vP level through an optional operation of Existential Closure. In a nominalization where all individual-type arguments have been saturated, Existential Closure cannot apply. Existentially binding the event argument would produce a type mismatch, since the embedded vP must still combine with the remainder of the noun phrase.¹⁵

In particular, the determiner calls for a set of entities as its argument (Barwise & Cooper 1981). I assume that the nominalizer *-na* itself denotes the identity function, because it does not contribute anything to the semantics of nominalization (③). It takes a set of entities and returns a set of entities. Following λ -abstraction over the trace in Spec-vP (④), the DP in Spec-PossP saturates this argument to produce the set of events of the woman cooking pinenuts (⑤). The definite determiner *ka=* takes this set and returns its unique member (⑥). The entire DP refers to the event of the woman cooking pinenuts (⑦).¹⁶

The event interpretation arises, then, because the determiner requires a set of entities to apply to. By making an additional case available inside nominalizations, *-na* permits all of the embedded predicate’s individual arguments to project. Once the individual arguments have all been saturated,

¹⁵Alternately, following Hacquard (2010), it might be possible for the event argument to be saturated at the vP level by an event variable. For the nominalization to compose successfully, this event variable would still not be existentially bound. Instead, it would be abstracted over to create a set of events that is able to combine with the determiner. While this would make the composition of event nominalizations more parallel to the composition of individual nominalizations—see §3.3 below—I can think of no empirical reason to favor it.

¹⁶I have assumed a Davidsonian conception of events. But there might be advantages to thinking of events as minimal situations. See Portner 1992:88–145 and Zucchi 1993 for discussion specifically related to nominalization.

only the event argument is left open. Consequently, nominalizations with *-na* describe an event. This interpretation comes for free, in some sense, because of the syntax of *-na* itself. It embeds a vP, and it projects a specifier to which it assigns genitive case.

3.3 The individual interpretation

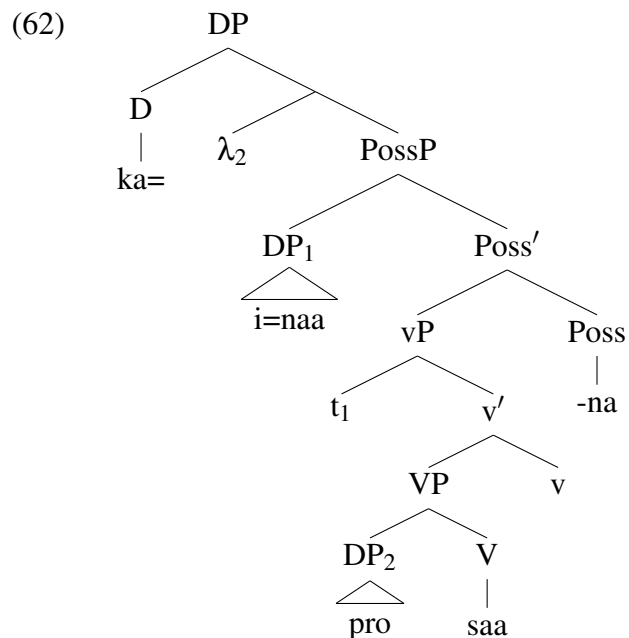
Leaving open the embedded predicate's event argument is not the only way to fashion a set of entities. There can also be a gap in the position of an individual argument, as in 61, repeated from 46 above. When this happens, the nominalization describes an individual.

- (61) a. Nii **ka=i=naa'a** **saa-na** tika.
 1SG.NOM DEF.ACC=1SG.GEN=father cook-NMLZ eat
 'I ate the thing that my father cooked.' (elicitation, EM, BP37-2-s, 35)
- b. Ika **i=naa'a** **pi-kuba** **kati-na** nii timi-dua.
 DEM.ACC 1SG.GEN=father PRO-LOC sit-NMLZ 1SG.NOM buy-IRR
 'I will buy that one my father is sitting on.' (elicitation, MS, BP34-5-s, 6)

In 61a, there is no overt DP projected as the internal argument of the verb *saa* 'cook'; and, in 61b, the argument of the postposition *-kuba* is projected as the pronominal element *pi*.

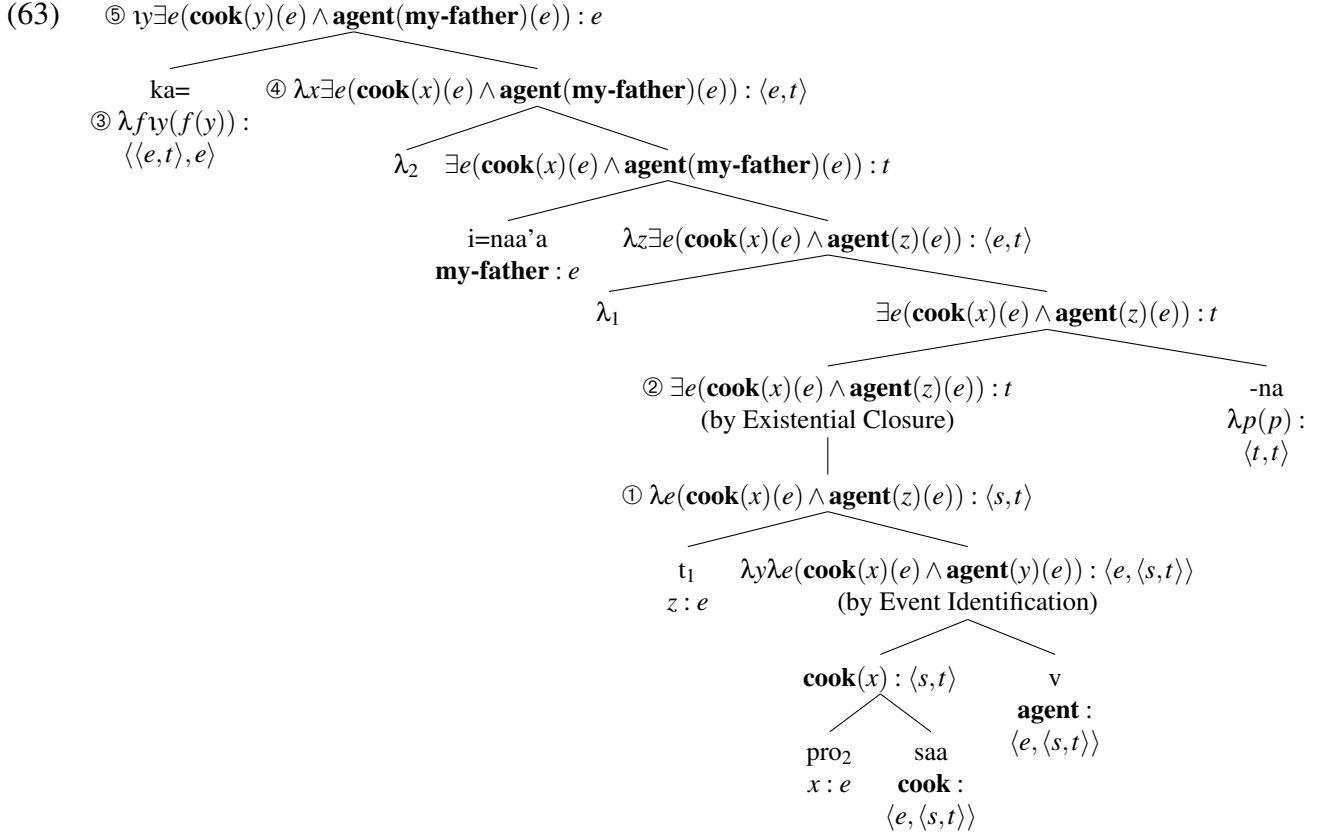
The nominalizations in 61 are reminiscent of relative clauses, which contain an individual argument gap and denote a set of individuals. This kind of configuration is usually taken to arise from an A'-dependency holding between an operator and an expression in argument position that semantically contributes a variable. In relative clauses in English, this variable, which is bound by the operator, is introduced by the A'-trace of the operator itself (Chomsky 1977:87). I will assume that the individual interpretation for nominalizations with *-na* also arises from an A'-dependency of some kind. But it does not arise through movement, as in English relative clauses. Rather, I will present evidence that the A'-dependency arises when a λ -operator binds a resumptive pronoun, which contributes the variable.

Under my proposal, the nominalization in 61a has the structure in 62; a null pronoun occupies the direct object position.



The resumptive pronoun enters into an A'-dependency with a λ -operator, which is adjoined to the complement of D for semantic reasons. The determiner requires a set of entities as its argument, which its complement can provide only if there is a λ -operator to bind the variable contributed by the pronoun in its scope. The nominalization in 61b with a gap in an oblique position has a parallel structure, except that the pronoun is realized overtly as *pi*.

The composition of the individual-denoting nominalization in 61a starts off much like the event-denoting nominalization in §3.2. But one of the predicate's individual-type arguments is saturated by the free variable introduced by the pronoun, as shown in the following parsetree:



Once the predicate's individual-type arguments are saturated, the vP denotes a predicate of events (①). In this nominalization, however, the event argument is existentially bound by Existential Closure (②). This does not trigger a type mismatch since there is a pronoun inside vP. The determiner requires a set of entities as its argument (③), which is created when the λ -operator abstracts over the pronoun (④). In the end, the DP refers to the individual that is cooked by the speaker's father (⑤).¹⁷

Do these null resumptive pronouns have to be licensed in some way?¹⁸ In fact, nothing special needs to be said, since resumptive pronouns are formally identical to nonresumptive pronouns.

¹⁷Note that the determiner can be an overt demonstrative or definite determiner, as in 61a, or it can be phonologically null. When the determiner is null, it picks out the unique (nonatomic) individual, much like a free relative (Jacobson 1995, Caponigro 2003). This can give rise to a universal-like interpretation:

- (i) 'Having got there, we picked a lot [of chokecherries] at that place. Everyone, we picked along with our mother. Later on we, having picked a lot, we came back again.'

Mi=ti-dzapoka-na nimmi ni=hi-kwai-ku nimmi, oo
1PL.EXCL.GEN=NSP-pick-NMLZ 1PL.EXCL.NOM 1PL.EXCL.GEN=what-LOC-LOC 1PL.EXCL.NOM so
 tia' nimmi tsa-čakwi-na...
 thusly 1PL.EXCL.NOM IP.fist-do-NMLZ

'What we picked we carried in our whatchamacallit (bag) like so ...' (narrative, Thornes 2003:523)

In (i), the speaker is talking about ALL of the chokecherries that were picked, not just a (unique) individual chokecherry.

¹⁸In particular, because the null pronouns in 64a–b are referential, we might think that they must be both licensed and identified, as in Rizzi's (1986) theory of *pro*. That is, do the null pronouns have to check all the ϕ -features (both person and number) of their governing category? Since Northern Paiute has neither subject nor object agreement, there are no morphologically realized ϕ -features on the verb for the null pronouns to check, just as in Mandarin Chinese.

McCloskey (2006:96) states that he ‘know[s] of no report of a language that uses a morphologically or lexically distinct series of pronouns in the resumptive function.’ At least for null pronouns, this generalization holds in Northern Paiute.¹⁹ When an argument is previously given in the discourse, it can be realized as a null pronoun in direct object position (64a), as well as in subject position (64b).

- (64) a. **Pa’mogo**₁=bino’o ka=hanno=sabbi mia-hu. Kai nii **pro**₁ punni.
 frog=PTC DEF.ACC=where=PTC go-PRFV NEG 1SG.NOM see.DUR
 ‘And the frog₁ went, I don’t know where. I don’t see it₁.’ (prompted narrative, MS, BP24-1-t3, 58–59)
- b. Obina-ggwe yaisi **mi=nigga-di**₁=bino’o ka=paaskiti pibo’a. Yaisi
 after-LOC PTC **PL=dance-NMLZ**=PTC DEF.ACC=basket throw.DUR PTC
 oo’ni yaisi na-ma-maggwi-hu-si, yaisi **pro**₁ tika...
 later PTC PASS-PLUR-finish-PRFV-SEQ PTC eat
 ‘Afterwards the dancers₁ throw the basket. Then, after it is finished, they₁ eat ...’
 (narrative, MS, BP13-4-t2, 12–13)

All null pronouns in Northern Paiute can thus be licensed formally in the same way. Outside of an individual-denoting nominalization, they refer to an individual. But in an individual-denoting nominalization, a null pronoun in the scope of a λ -operator can be bound and the free variable it contributes abstracted over.²⁰

Perhaps, as Rizzi suggests (p. 545f.), the identification condition on null pronouns is vacuously satisfied in these languages without overt agreement.

¹⁹The resumptive pronoun *pi* that appears in oblique position might be unusual in this respect. It is potentially unique to nominalizations with *-na*, since it does not appear as the argument of a postposition elsewhere in the language. There might be some relationship between *pi-* and the so-called emphatic pronoun *pii*. Since independent words in Northern Paiute must be bimoraic in length, it would not be implausible for *pi-* to lengthen to *pii* when standing on its own.

A semantic connection between the two forms is somewhat more difficult to identify. The emphatic pronoun, as its name suggests, lends emphasis to a DP, either by itself (i) or when it is supported by the enclitic *=su* (ii) or by *=simi* ‘alone, only’ (iii).

- (i) Oka **pii** yaa su=toogga-tsi puni-kati.
 3SG.ACC PRO there DEF.NOM=dog-DIM see-DIM
 ‘Now that’s what the dog was looking at, sitting there.’ (prompted narrative, EM, BP25-2-t1, 7)
- (ii) Su=naatsi’i **pii=su** tika.
 DEF.NOM=boy PRO=EMPH eat
 ‘The boy himself is eating.’ (elicitation, EM, BP37-2-s, 16)
- (iii) Su=nana **pii=simi** oo siggwi kati.
 DEF.NOM=man PRO=alone there just sit
 ‘The man is just sitting there by himself.’ (elicitation, MS, BP33-3-s, 18)

In (i), for instance, *pii* emphasizes the third-person singular object of the verb, as reflected in the English translation, which is a reverse pseudocleft. In (ii–iii), the emphasis is realized in the English translations in the emphatic use of reflexive anaphors—that is, *the boy himself* and *the man ... by himself*. Further investigation is clearly needed to determine whether or not the emphatic pronoun can be identified with the resumptive pronoun.

²⁰If a null pronoun does not depend on the presence of a λ -operator, then it should be possible for a λ -operator to occur without a pronoun, as long as it is able to find something to bind. I argue elsewhere (Toosarvandani 2011) that it is also possible to bind the variable contributed by a Heimian indefinite.

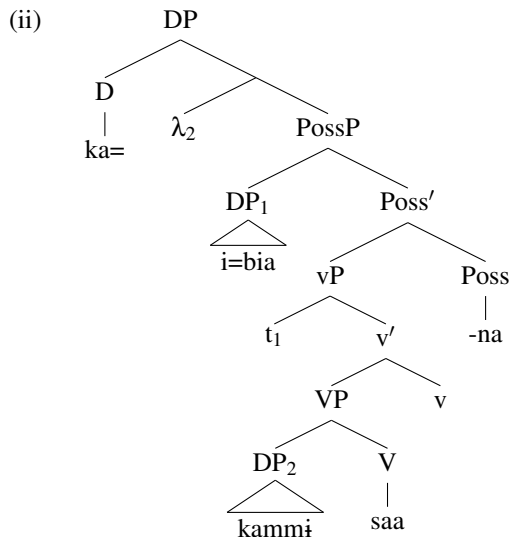
There is independent evidence that the individual interpretation of nominalization with *-na* does not arise through A'-movement. Resumptive pronouns have a number of properties that distinguish them from A'-traces: i) absence of weak crossover effects, ii) insensitivity to constraints on movement, and iii) failure to license parasitic gaps.²¹ In what follows, I show that the resumptive pronouns inside individual-denoting nominalizations with *-na* do not exhibit weak crossover (§3.3.1) and that they do not obey the standard constraints on extraction, insofar as they can be tested in Northern Paiute (§3.3.2). The third property above—the failure of resumptive pronouns to license parasitic gaps—is of little use because Northern Paiute has null arguments. Instead, I

As in many other languages (Langdon 1977, Culy 1990), internally headed relative clauses in Northern Paiute, such as (i), are built from nominalizations, specifically nominalizations with *-na*.

- (i) Kai niɪ ka=i=bia kammi saa-na tika-kwi.
 NEG 1SG.NOM DEF.ACC=1SG.GEN=mother rabbit cook-NMLZ eat-PROSP
 'I won't eat the rabbit my mother cooked.' (elicitation, EM, BP32-4-s, 78)

Basilico (1996) shows for a diverse set of languages (Lakhota, Mojave, Mooré, and Northern Athabaskan) that the interpretation of such internally headed relative clauses arises through abstraction over an indefinite DP, which under Heim's (1982) theory introduces a restricted free variable.

If this analysis can be extended to Northern Paiute, the nominalization in (i) would have a structure completely parallel to the individual-denoting nominalizations in 61a–b:



Instead of binding a pronoun, the λ -operator binds a free variable introduced by a Heimian indefinite. This is the object of the verb *saa* 'cook', which is the bare indefinite *kammi* 'rabbit'. After combining with the definite determiner, the entire nominalization has the correct individual-denoting meaning:

- (iii) $\lambda x(\text{rabbit}(x) \wedge \exists e(\text{cook}(x)(e) \wedge \text{agent}(\text{my-mother})(e))) : e$

The nominalization in (i) describes an individual—the rabbit cooked by the speaker's mother—even though there is no obvious gap in the patient argument.

²¹There are languages, such as Swedish (Engdahl 1985) and Vata (Koopman 1992), that have resumptive pronouns which do behave, for all intents and purposes, like the gap created by A'-movement. These might be analyzed as the overt realization of an A'-trace. Other languages, such as English, only allow an 'intrusive' resumptive pronoun when extraction is not possible (Chao & Sells 1983, Sells 1984). I will not be concerned with these types of resumptive pronouns.

provide an additional argument based on the antilocality property of resumptive pronouns (§3.3.3).

3.3.1 Weak crossover effects

While resumptive pronouns show strong crossover effects, just like the traces of A'-movement, they do not exhibit weak crossover effects (Sells 1984:69–84, McCloskey 1990:236f.). In Northern Paiute, wh-movement does exhibit weak crossover, as shown in 65.

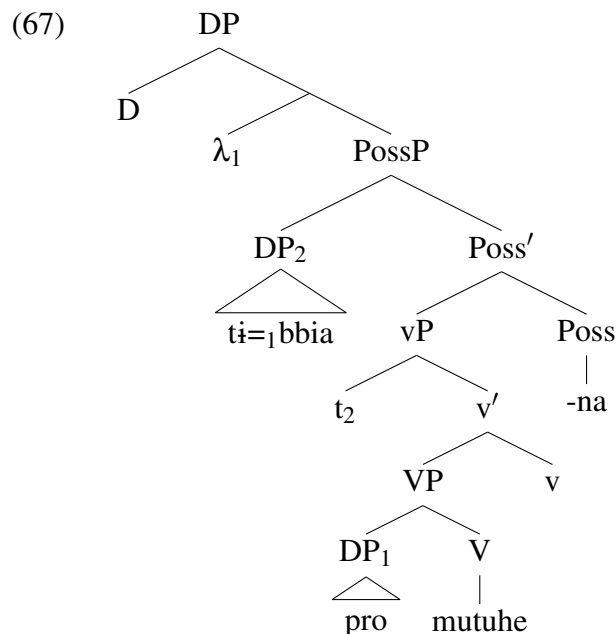
- (65) a. Haga₁ t₁ ti=ddua tika-ggi-ti?
 who REFL=child eat-APPL-TNS
 ‘Who₁ fed their₁ child?’ (cf. *Who₁ t₁ fed their₁ child?*) (elicitation, EM, BP37-3-s, 13)
- b. *Haga₁ ti=bbia t₁ tika-ggi-ti?
 who REFL=mother eat-APPL-TNS
 Intended: ‘Who₁ was fed by their₁ mother?’ (cf. **Who₁ did their₁ mother feed t₁?*) (elicitation, EM, BP37-3, 32:38)
- c. *Haga₁ u=bbia t₁ tika-ggi-ti?
 who 3SG.GEN=mother eat-APPL-TNS
 Intended: ‘Who₁ was fed by their₁ mother?’ (cf. **Who₁ did their₁ mother feed t₁?*) (elicitation, EM, BP43-2, 30:10)

In 65a, the genitive reflexive anaphor *ti=* can be bound by a subject wh-phrase when it occurs inside the object. But when the anaphor appears inside the subject, as in 65b, it cannot be bound by an object wh-phrase that has A'-moved past it. The ungrammaticality of 65b cannot be attributed solely to a violation of Principle A, since the nonreflexive possessive pronoun in 65c is also ungrammatical in the same crossover configuration.

In contrast, when the genitive reflexive anaphor occurs as the possessor in a nominalization, it can be bound by the operator that binds the (null) resumptive pronoun inside the embedded vP:

- (66) Ti=bbia mutuhe-na yaka.
 REFL=mother kiss-NMLZ cry.DUR
 ‘The one₁ kissed by their₁ mother is crying.’ (cf. **The one who₁ their₁ mother kissed t₁ is crying.*) (elicitation, EM, BP37-3-s, 15)

The nominalization in 66 describes the individual who was kissed by the individual’s mother. Its structure is shown below.



This is a weak crossover configuration, since the λ -operator that binds the resumptive pronoun inside the vP also has the genitive reflexive anaphor *ti=* in its scope.²² Such a configuration is ruled out for operators that undergo A'-movement, but it is grammatical for the operators that bind resumptive pronouns.

3.3.2 Constraints on movement

Unlike the trace of A'-movement, resumptive pronouns also do not obey standard restriction on extraction. Unfortunately, we cannot show this with island constraints in Northern Paiute. The language does not obey the Left Branch Condition (see §2.3.3). In addition, it is not possible to construct the syntactic configurations necessary to test the other islands, a fact that I discuss more extensively in the Appendix.

There is, however, one constraint on A'-movement that is available. Wh-phrases cannot be extracted from within a PP—that is, postpositions must be pied-piped, as *-kuba* is in 68a. Stranding the postposition, either by itself (68b) or with the pronominal element *pi* as its host (68c), is ungrammatical.

- (68) a. **Hi-kuba**₁ **ii** ka=wih ₁ **ti** **iki**?
what-LOC 2SG.NOM DEF.ACC=knife put.DUR
 'What did you put the knife on?' (elicitation, MS, BP11-5-s, 20)
- b. ***Hi**₁ **ii** ka=wih ₁ **-kuba** **ti** **gi**-hu?
what 2SG.NOM DEF.ACC=knife **-LOC** put-PRFV
 Intended: 'What did you put the knife on?' (elicitation, EM, BP37-3, 19:57)

²²How can the genitive reflexive anaphor *ti=* be licensed in 66, if it is subject to a constraint like Principle A? It is not inconceivable that the λ -operator itself counts as a binder for the purposes of Principle A. In the end, though, a more complex solution will probably be necessary. Even in English there are free occurrences of anaphors inside DPs: for example, *John*₁ *was going to get even with Mary. That picture of himself*₁ *in the paper would really annoy her* ... (Reuland 2006:277). Unfortunately, binding in Northern Paiute will have to await future investigation.

- c. * **Hi**₁ **ii** ka=wihi **pi-₁kuba** tigi-hu?
what 2SG.NOM DEF.ACC=knife **PRO-LOC** put-PRFV
 Intended: ‘What did you put the knife on?’ (elicitation, EM, BP37-3, 20:45)

Of course, in nominalizations with *-na*, a preposition can be stranded. That is how they are able to describe an individual that is projected as an oblique argument. Consider, again, the sentence in 69, repeated from 61b above.

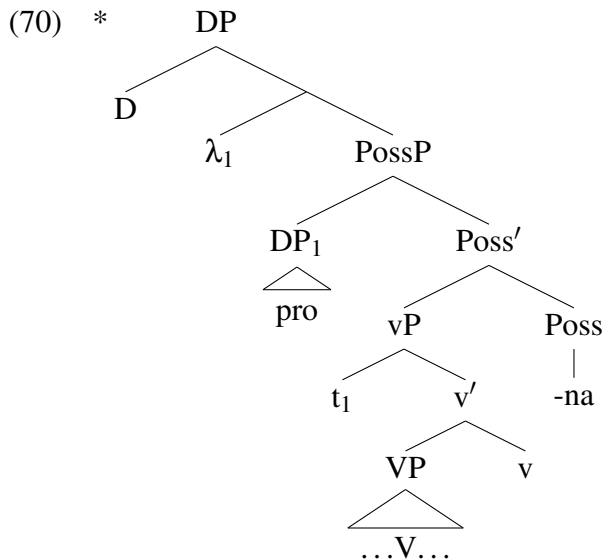
- (69) Ika i=naa’a **pi-kuba** kati-na nii timi-dua.
 DEM.ACC 1SG.GEN=father **PRO-LOC** sit-NMLZ 1SG.NOM buy-IRR
 ‘I will buy that one my father is sitting on.’ (elicitation, MS, BP34-5-s, 6)

The nominalization describes the argument of a locative postposition, which is stranded inside the vP. Since a postposition must be pied-piped when its argument has been extracted, the gap in this nominalization must be produced by a resumptive pronoun.

3.3.3 The highest subject restriction

Resumptive pronouns exhibit what McCloskey (1990:210) calls the HIGHEST SUBJECT RESTRICTION. They cannot occupy a subject position immediately subjacent to their binder. The proper analysis of this phenomenon remains controversial, though often it is related to the more general antilocality property of (nonreflexive) pronouns embodied in Principle B (Borer 1984, McCloskey 1990; see McCloskey 2006 for additional discussion and references). I will not attempt to provide a theory of why resumptive pronouns should obey this constraint. I will simply use it to argue that the gap in individual nominalization with *-na* is created by a resumptive pronoun.

First, we need to figure out how the highest subject restriction applies in the nominal domain. The DP that corresponds to the subject of a clause sits in Spec-PossP. The highest subject restriction states, then, that a resumptive pronoun is not able to occupy this position when the resumptive pronoun’s binder is located within the same subjacency domain. In other words, the following configuration is ruled out:



A nominalization with the structure in 70 would describe the highest argument of the embedded verb. However, such nominalizations with a gap in the position of the POSSESSOR are not attested in Northern Paiute:

- (71) * *Ni* **ka=ti=naa'a** **tona-hu-na** mutuhe-hu.
 1SG.NOM DEF.ACC=REFL=father punch-PRFV-NMLZ kiss-PRFV
 Intended: 'I kissed the one who punched my father.' (elicitation, EM, BP37-3, 58:00)

That is, when nominalizations with *-na* describe an individual, this must be an argument of the embedded verb that is not the highest argument.

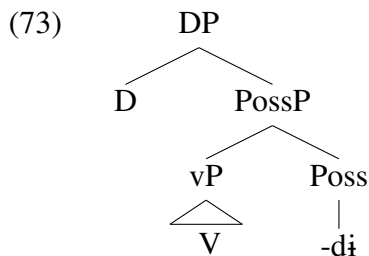
4 The interpretation of nominalizations with *-di*

Nominalizations that describe the highest argument of the verb are created with the *-di* nominalizer, regardless of the thematic role of this argument:

- (72) a. **Su=kutsu** **patsa-di** mia-hu.
 DEF.NOM=cow kill.SG-NMLZ go-PRFV
 'The one who killed the cow left.' (elicitation, EM, BP37-1-s, 16)
- b. **Su=na-gwitama-di** wadzi-mia-hu.
 DEF.NOM=PASS-lock.up-NMLZ hide-go-PRFV
 'The one who should be locked up ran away.' (elicitation, EM, BP34-4-s, 26)
- c. **Ka=idziggwi** **ka=kwopika-wini-di** *ni* ki'a.
 DEF.ACC=blanket DEF.ACC=shiver-IMPV-NMLZ 1SG.NOM give.DUR
 'I gave the blanket to the one who is shivering.' (elicitation, MS, BP34-3-s, 28)
- d. **Su=nana** **ka=patsiponoa-di-na** kati-'yu.
 DEF.NOM=man DEF.ACC=be.round-NMLZ-LOC sit-DUR
 'The man is sitting on the thing that is round.' (elicitation, EM, BP34-3-s, 34)

The nominalization in 72a describes the agent of the transitive verb *patsa* 'kill (sg.)'; the one in 72b the patient of the passive verb *nagwitama* 'be locked up'; the one in 72c the patient of the unaccusative verb *kwopika* 'shiver'; and, the one in 72d the sole argument of the stative verb *patsiponoa* 'be round'.

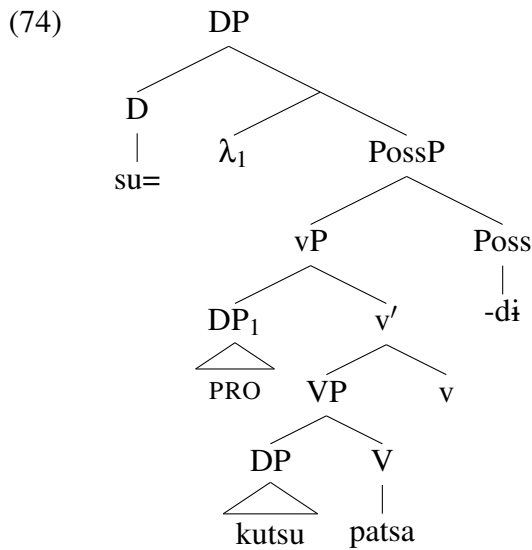
The nominalizations in 72a–d all have the following schematic structure, where *-di* is the realization of a Poss head that takes a vP complement:



Since there is no T head inside these nominalizations and *-di* does not project a specifier, there is one case too few. In particular, as I discuss in §4.1, there is no case (nominative or genitive) to license an overt DP in the highest argument position of the embedded verb. Consequently, as I show in §4.2, this position is occupied by a phonologically null argument (PRO) that does not need case. It is bound by a λ -operator, giving rise to the individual interpretation.²³ The event interpretation of nominalizations with *-di* is restricted to zero-place predicates. This follows from the current account, as I show in §4.3, because the verb's event argument can only be left unsaturated when it takes no individual-type arguments.

4.1 The individual interpretation

The individual nominalization with *-di* in 72a has the following structure:

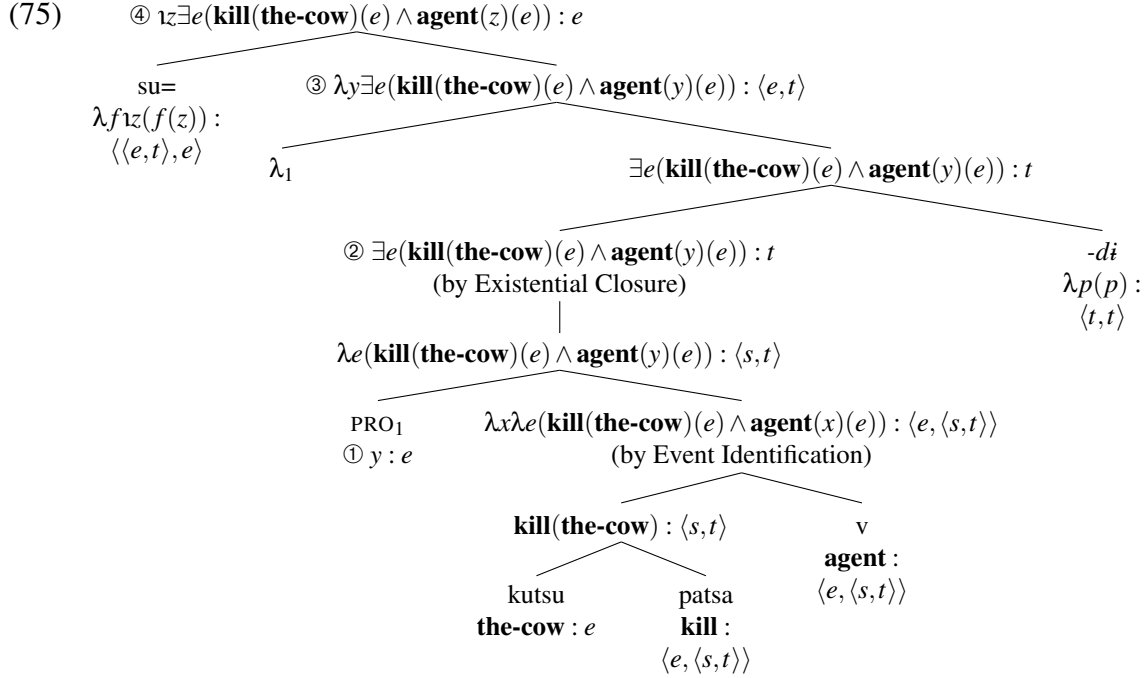


The direct object *kutsu* ‘cow’ gets accusative case from *v*. A DP in Spec-vP, however, would be unable to get case. There is no T inside the nominalization, and since *-di* does not project a specifier into which the DP can raise and get genitive case, there is simply no case to assign it. Consequently, this argument of the verb in 74 is projected as a phonologically empty argument that does not need case (PRO; Chomsky 1981).

This nominalization with *-di* describes an individual because PRO is abstracted over by the same λ -operator found in nominalizations with *-na*.²⁴ The semantic composition of 72a is shown below.

²³Krause (2001) makes a similar proposal for reduced relative clauses, where the highest argument of a verb raises to be the head of a reduced relative clause because it cannot get nominative case.

²⁴Why must PRO be bound in nominalizations with *-di*? In this syntactic context, it cannot receive an arbitrary interpretation, as it can in other contexts (e.g. 95). One possibility is that there must be a λ -operator obligatorily adjoined inside nominalizations, a requirement that not implausibly could be imposed by D. If vacuous binding is not allowed, it would have to find something to bind, which in an individual-denoting nominalization with *-di* can only be the PRO in subject position. But then the question is what happens in event-denoting nominalizations with both *-na* and *-di*, which I have argued do not contain an additional λ -operator. If the predicate's event argument is always saturated by a free variable—an idea that I discuss in fn. 15—then even in event-denoting nominalization, the λ -operator will have something to bind.



The null argument contributes an individual-type variable (①), which saturates the verb's external argument. The event argument is existentially bound by Existential Closure at the vP level (②). (Again, I assume that the nominalizer *-di* denotes the identity function, since it does not contribute to the meaning of the nominalization.) Then, the variable contributed by PRO is abstracted over by a λ -operator that adjoins to the sister of D (③). The resulting set of individuals serves as the argument for the determiner, so that the entire DP refers to the individual who is the agent of the event of killing the cow (④).

The interpretations of the nominalizations in 72b–d, where *-di* applies to an unaccusative, passive, or stative verb, arise in a similar fashion. These nominalizations are also missing one case, since by Burzio's Generalization *v* cannot assign accusative case if it does not assign an external argument theta role. In an ordinary clause, the internal or stative arguments of these verbs would raise to subject position. But in a nominalization with *-di*, they are realized as PRO, so that the nominalization describes the internal or stative argument.

4.2 Evidence for PRO

We might consider an alternative to PRO. Say that, when the highest argument of the verb is unable to get case, it is simply not projected at all. This would leave that argument of the predicate unsaturated, yielding the same interpretation as λ -abstraction over PRO. There is evidence from the binding of reflexive and nonreflexive pronouns, however, that the highest argument in a nominalization with *-di* is, in fact, syntactically projected.²⁵

In Northern Paiute, the genitive reflexive anaphor *ti=* obeys a constraint like Principle A: it

²⁵Baker & Vinokurova (2009:548) use the same argument to support the presence of PRO in so-called agent nominalizations in Gikūyū (Niger-Congo, Bantu: Kenya). Like the *-di* nominalizer in Northern Paiute, the *-i* suffix turns a verb into a nominal that describes the verb's highest argument, for example, the agent (i). (The numbers in the interlinears for the Gikūyū examples represent noun class, not person.)

must be bound (76a–b). In contrast, the (nonreflexive) genitive proclitic pronoun *u=* obeys something like Principle B: it must be free in its binding domain (76c).

- (76) a. **Su=nana₁** ka=**ti=**₁ ggutsu kwati-hu.
 DEF.NOM=**man** DEF.ACC=**REFL=**cow shoot-PRFV
 ‘The man₁ shot his₁ cow.’ (elicitation, EM, BP37-3-s, 32)
- b. ***Su=nana₁** ka=**ti=**₂ ggutsu kwati-hu.
 DEF.NOM=**man** DEF.ACC=**REFL=**cow shoot-PRFV
 Intended: ‘The man₁ shot his₂ cow.’ (elicitation, MS and EM, BP48-1, 26:22)
 [MS: ‘Must be the man’s cow.’ EM: ‘He shot his own cow.’]
- c. ***Su=nana₁** **u=**₁ ggutsu kwati-hu.
 DEF.NOM=**nana** 3SG.GEN=cow shoot-PRFV
 Intended: ‘The man₁ shot his₁ cow.’ (elicitation, EM, BP37-3, 1:20:20)

The genitive reflexive anaphor and nonreflexive proclitic pronoun have the same referential possibilities in nominalizations with *-di*:

- (77) a. **Ni** ka=**ti=**bbia mutuhe-di pisa pisapi.
 1SG.NOM DEF.NOM=**REFL=**mother kiss-NMLZ good like.DUR
 ‘I like the one₁ who is kissing his₁ mother well.’ (elicitation, EM, BP37-3-s, 36)
- b. ***Ni** **u=**bbia mutuhe-di pisapi.
 1SG.NOM 3SG.GEN=mother kiss-NMLZ like.DUR
 Intended: ‘I like the one₁ who is kissing his₁ mother.’ (elicitation, EM, BP37-3, 1:37:02)

This should only be possible if there is another DP inside these nominalizations to bind them. The sentence in 77a is grammatical, since *ti=* is bound by a PRO in Spec-vP. Similarly, the sentence in 77b is ungrammatical under the intended interpretation, since *u=* is not free. It is c-commanded by, and coreferential with, PRO in Spec-vP.²⁶

-
- (i) **A-thñj-í** **mbūri** **úúru** **acio** ní-má-á-tūm-a tū-caamb-e.
 2-slaughter-NMLZ 10goats badly 2DEM FOC-2.SBJ-PRF-make-IND 2.SG.SBJ-bad.reputation-SBJV
 ‘Those (people) who slaughter goats badly have given us a bad reputation.’ (Mugane 2003:237)

They argue (p. 547f.) that these nominalizations do not contain nominative case, so that the highest argument of the verb is realized as PRO. It is able to license a reflexive pronoun (realized as an *i-* prefix on the verb) in the two nominalizations in (ii).

- (ii) **Andú** ma-ti-thū-íre **mū-í-end-i** ta **mū-í-yamb-i**.
 2people 2.SBJ-NEG-hate-PRF 1-REFL-like-NMLZ like 1-REFL-pride-NMLZ
 ‘People don’t hate one who likes him/herself as much as one who is full of him/herself.’ (Mugane 2003:239)

Baker & Vinokurova write (p. 548) that they ‘suspect that this sort of nominalization [in Gĩkũyũ] is relatively rare.’ But if it has the same syntax and semantics as nominalizations with *-di* in Northern Paiute, perhaps it is not so rare after all.

²⁶We might wonder whether 77b is ruled out independently by the i-within-i constraint, which bans the coindexation of an element with a phrase that contains it: * $[\dots\alpha_1\dots]_1$ (Chomsky 1981:212). On the face of it, this is problematic because the i-within-i constraint would also undesirably rule out 77a, which is grammatical with exactly the same

We should be careful here to distinguish syntactic binding from semantic binding. Under standard assumptions, the distribution of reflexive and nonreflexive pronouns is mediated by SYNTACTIC binding, which Binding Theory defines as a relation between DPs (based on c-command and coreference). In contrast, semantic binding is a relation between a λ -operator (or other operator) and a variable. Both reflexive and nonreflexive pronouns can be semantically bound, but only a reflexive pronoun must be syntactically bound. Consequently, even though PRO is semantically bound by a λ -operator in nominalizations with *-di*, we can use syntactic binding and the distribution of reflexive and nonreflexive pronouns to provide evidence for its presence.²⁷

4.3 The event interpretation

When the verb embedded by *-di* takes one or more individual-type arguments, the highest one cannot get case and must be realized as PRO. By abstracting over the variable it contributes, the nominalization describes an individual, and the verb's event argument is existentially bound. Say, though, that every individual-type argument were to get case. A nominalization with *-di* would then describe the verb's event argument, which would be its highest (and only) argument.

This happens in exactly one circumstance, when the embedded verb takes NO individual arguments. If zero-place predicates like weather verbs only take an event argument, then when the *-di* nominalizer applies to *tiiggwa* 'snow' or *pauma* 'rain', the resulting nominalizations can describe an event:²⁸

- (78) a. Nii ka=tiiggwa-di punni.
 1SG.NOM DEF.ACC=snow-NMLZ see.DUR
 'I see it snowing.' (elicitation, EM, BP37-2-s, 32)

indexation pattern. Moreover, there are prominent exceptions to the constraint even in English, as Chomsky himself observes (p. 229 fn. 63). For instance, the translations of both nominalizations in 77a–b are grammatical even though they violate the i-within-i constraint: [_{DP} *the one who is kissing his₁ mother*]₁. We need a much better understanding of the constraint in English, as well as of binding in Northern Paiute more generally.

²⁷There have been some attempts to collapse syntactic binding into semantic binding (Reinhart 1983a,b, Heim 1998). If these are successful, we might think that the data in 77 would not show anything about the presence of a PRO in nominalizations with *-di*. A reflexive pronoun could, for instance, always be licensed by a λ -operator adjoined to the sister of D. While this would account for the presence of a reflexive pronoun inside a nominalization with *-di*, it would not derive the correct interpretation for 77a. If the external argument of the verb were not projected syntactically, it would remain unsaturated and not be available for (semantic) binding. Consequently, a λ -operator would only be able to bind the reflexive pronoun. This would not give rise to the interpretation in 77a, in which the external and internal arguments corefer.

²⁸Observe that 78a forms a near minimal pair with the event nominalization of a weather verb by *-na* in 48. Under my proposal, they should have the same truth conditions. I do not know, however, whether there are any differences—semantic or pragmatic—between the two types of deverbal nominalization.

I will point out that English also has multiple ways of describing the same event. A perception verb can take as its internal argument a bare infinitival complement (i), a POSS-ing gerund (ii), or an ACC-ing gerund (iii).

- (i) I saw him eat the cake.
- (ii) I saw his eating the cake.
- (iii) I saw him eating the cake.

There is probably some sort of difference amongst these three constructions, even though superficially they appear to have the same truth conditions. I leave this question for future investigation.

- b. **Pauma-di** tiinaha-hu.
rain-NMLZ stop-PRFV
 ‘The raining stopped.’ (elicitation, EM, BP33-2-s, 27)
- c. Su=nana **ka=pauma-di**-ggwe nika-’yu.
 DEF.NOM=man **DEF.ACC=rain-NMLZ**-LOC dance-DUR
 ‘The man is dancing during the raining.’ (elicitation, EM, BP32-4-s, 25)

The nominalization in 78a describes an event of snowing that is perceived by the speaker, and the one in 78b an event of raining that ends. The nominalization in 78c is the argument of the postposition *-ggwe*, which has a temporal sense that locates the raining event described by the nominalization at the same time as the dancing event.

We might wonder whether the nominalizations in 78a–c actually describe individuals. Chomsky (1981:325), for instance, treats the subject of a weather verb as a ‘quasiargument’ that bears a θ -role but does not refer. There are, however, other zero-place predicates, for which this issue do not arise. For instance, in Northern Paiute, (unergative) intransitive verbs can be passivized, as shown for *wohi* ‘bark’ in 79a–b.

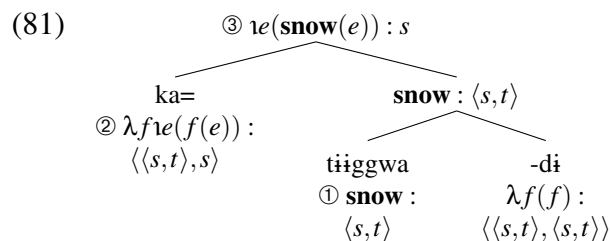
- (79) a. Toogga wohi.
 dog bark
 ‘A dog is barking.’ (elicitation, EM, BP48-1-s14)
- b. Na-wohi.
 PASS-bark
 ‘There is barking.’ (elicitation, EM, BP48-1-s11)

The passive prefix *na-* removes the sole (agent) argument of *wohi* ‘bark’. (Consequently, the subject position is empty or is filled by a null expletive pronoun.) This leaves only the verb’s event argument open. As predicted, when the nominalizer *-di* applies to passivized intransitive verbs, as in 80a–b, the resulting nominalizations denote an event.

- (80) a. **Su=na-wohi-di** paba-’yu.
DEF.NOM=PASS-bark-NMLZ big-NOM
 ‘The barking is loud.’ (elicitation, MS, BP48-1-s13)
- b. Ni **ka=na-wohi-di** naka.
 1SG.NOM **DEF.ACC=PASS-bark-NMLZ** hear
 ‘I hear the barking.’ (elicitation, MS, BP48-1-s12)

The sentence in 80a entails that an event of barking is loud. And, the sentence in 80b entails that the speaker perceives an event of barking through hearing.

The semantic composition of the event nominalizations in 78a–c and 80a–b starts out in a nearly identical fashion to the individual nominalizations. This is illustrated for 78a in the following parsetree:



The verb denotes a set of events (①). In a clause, the event argument would be existentially bound, but since the definite determiner *ka=* requires a set of entities as its argument (②), the Existential Closure operation does not apply. The entire DP thus refers to the event of its snowing (③).

The nominalizer *-di* does not project a specifier and does not make an additional genitive case available. This consequently produces an individual interpretation when the highest argument of the verb is realized without case as a null argument that is abstracted over (PRO). It can only have an event interpretation when the verb takes no individual-type arguments.

5 How English is (not) like Northern Paiute

While deverbal nominalizations in Northern Paiute can have either an event or an individual interpretation, why do parallel nominalization patterns in other languages not exhibit the same variability? Consider the two English nominalization patterns from the introduction: the POSS-ing gerund, illustrated in 82a, and agent nominalizations with *-er*, illustrated in 82b.

- (82) a. I witnessed **Caesar's burning the city**.
 b. **The seller of counterfeit stock** was jailed.

The POSS-ing gerund can only describe an event—never an individual—while the agent nominalization can only describe an individual. Below I explore why English is different from Northern Paiute in this respect.

The POSS-ing gerund, I argue in §5.1, has the same basic structure as a nominalization with *-na*. But it only describes events because English lacks the system of operators and resumptive pronouns that gives rise to the individual interpretation in Northern Paiute. In contrast, while the *-er* nominalizer in English might bear a passing similarity to *-di* in Northern Paiute, I show in §5.2 that its syntax and semantics are actually quite different. An event interpretation is never possible since the verb's event argument is closed off by the nominalizer suffix itself.

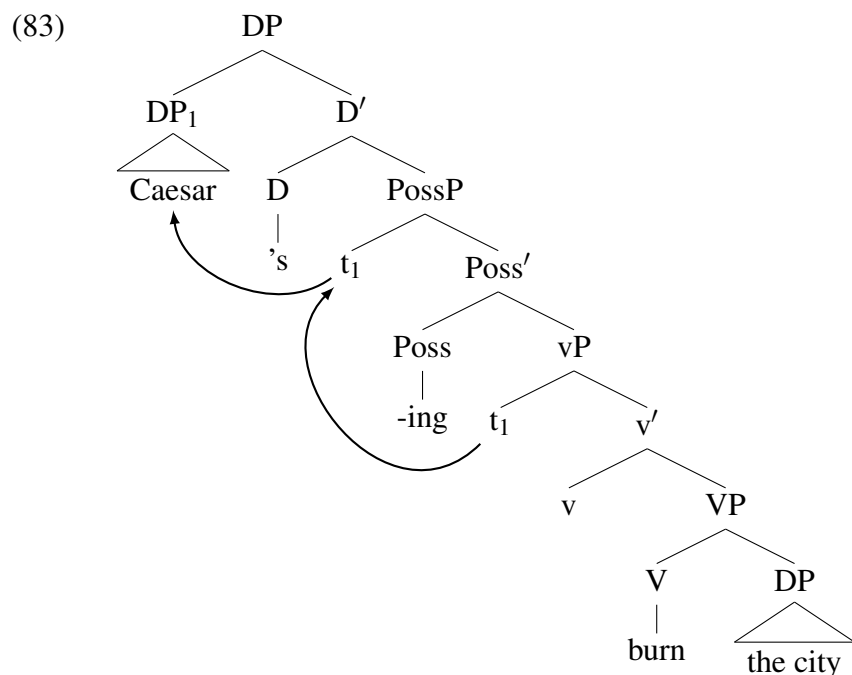
5.1 The POSS-ing gerund

Though there are many analyses of the POSS-ing gerund in English, most generative approaches take the *-ing* suffix to realize some kind of head in the extended nominal projection.²⁹ Early accounts assumed that it was an N that takes a verb phrase complement (Horn 1975, Jackendoff 1977:222f.). This seems unlikely, though, since *-ing* does not have the right kind of meaning for a

²⁹There are alternatives. For instance, gerunds could not be endocentric (Schachter 1976, Pullum 1991), or they could have the features of both nouns and verbs (Malouf 2000a,b, Hudson 2003), or the *-ing* suffix (or some abstract correlate of it) could be adjoined to a verb phrase (Abney 1987:241–244, Yoon 1996). For reasons of space, I set these possibilities aside.

noun; it does not denote a set of entities like a common noun. Instead, we might think that *-ing* is a D. But Abney (1987:193–209) rejects this possibility because it is able to cooccur with the Saxon genitive *'s*, which is in complementary distribution with other determiners.

Baker (2005) proposes that the *-ing* suffix in POSS-ing gerunds realizes a nominal functional head somewhere between N and D that is the nominal equivalent of T (or Infl) (see the earlier work of Baker 1985 and Milsark 1988 as well). Since this is precisely the position and function of the Poss head, I propose that *-ing* realizes the Poss head when it takes a vP complement. Like *-na* in Northern Paiute, it projects a specifier where possessors are assigned case. Under this analysis, the POSS-ing gerund in 82a has the following structure:



The external argument of the embedded verb raises to Spec-PossP, where it receives case, before raising to its surface position in Spec-DP, as Abney (1987:79) proposes. Just as we would expect if the POSS-ing gerund contains a vP, it assigns accusative case to the direct object, and it can include verbal modifiers such as manner adverbs (*Caesar's quickly burning the city*) (Abney 1987:182). Yet, the POSS-ing gerund does not assign nominative case to the highest argument of the base verb—what would be the subject in a clause—which is instead realized as a possessor.

If *-ing* is indeed the overt realization of the Poss head, POSS-ing gerunds should have the same properties that we saw nominalizations with *-na* do: i) they should be able to contain nominal categories located above Poss; ii) they should take an obligatory possessor; and, iii) they should have an event interpretation. Below, I show that POSS-ing gerunds have all three properties.

It is important to note that I am proposing the structure in 83 only for the POSS-ing gerund. It is not necessarily suitable for other deverbal nominalizations created by the *-ing* suffix, such as the ACC-ing gerund in 84 or the derived nominal in 85.

(84) I witnessed **Caesar burning the city**.

(85) I witnessed **Caesar's burning of the city**.

There have been attempts to unify the ACC-ing gerund and derived nominals with the POSS-ing gerund. For example, Abney (1987:222–230) proposes that the same *-ing* suffix creates all three nominalization patterns. The two gerunds would embed a somewhat larger verbal constituent, while derived nominals would embed a smaller one, possibly just the verb (though see Alexiadou 2001 and Borer 2003). Except for some tentative suggestions in footnote 31 towards assigning the ACC-ing gerund the structure in 83, I set these other nominalization patterns aside to focus just on the POSS-ing gerund.

5.1.1 Other nominal categories inside POSS-ing gerunds

If *-ing* realizes the Poss head, POSS-ing gerunds should be able to contain functional categories located above Poss in the extended nominal projection. The two main candidates are Num and D, both of which can appear inside a possessive description:

- (86) John's dogs scared me.

Num is realized as the plural *-s* suffix on the head noun, and D as the Saxon genitive *'s* (Abney 1987:79).

It is not possible for the plural suffix—and hence Num—to appear inside a POSS-ing gerund:

- (87) *I witnessed Caesar's burnings the city.

But this restriction arises for independent reasons. Borer (2005:239–245) shows that other event nominalizations can only bear plural marking when the embedded predicate is telic:

- (88) a. the pilot's crossings of the Pacific
b. #the team's swimming of laps

The predicate *cross the Pacific* has an inherent end point, while *swim laps* has no inherent end point. While derived nominals inherit the telicity of the embedded predicate, Alexiadou et al. (2010:552–556) argue that POSS-ing gerunds are always atelic.³⁰ Consequently, they do not allow plural marking for independent reasons, and the ungrammaticality of 87 tells us nothing about the structure of the POSS-ing gerund.

Assuming that *'s* is a determiner, we have already seen that D can appear inside POSS-ing gerunds. But this is the only determiner that can appear inside possessive descriptions in English, and hence also in POSS-ing gerunds. This contrasts with Northern Paiute, which allows the definite determiners *su=* and *ka=* inside both its possessive descriptions and its nominalizations with *-na* and *-di* (see §2.2).³¹

³⁰I leave for future research where this aspectual contribution comes from. Alexiadou et al. observe (p. 554 fn. 15) that it does not come from the *-ing* suffix itself. This makes sense if it realizes the Poss head, which I am arguing is semantically contentless.

³¹There might be one other determiner besides *'s* that appears inside nominalizations with *-ing*. In the ACC-ing gerund in (i), *'s* is absent, and when the external argument is a pronoun, it bears accusative case.

- (i) $\left\{ \begin{array}{l} \text{John} \\ \text{Him} \end{array} \right\}$ building the bridge ruined the company.

The traditional story, as told by Abney (1987:222–231), is that the POSS-ing gerund embeds a smaller constituent, such as a vP, while the ACC-ing gerund embeds a full clause, a TP.

5.1.2 An obligatory possessor inside POSS-ing gerunds

If *-ing* realizes Poss when it projects a specifier, then POSS-ing gerunds should always contain a possessor. This is indeed the case, as Abney (1987:183) observes. The possessor in a POSS-ing gerund cannot be omitted (89), unlike the possessor in either a possessive description (90a) or a derived nominal (90b).

- (89) I witnessed $\left\{ \begin{array}{c} \text{Caesar's} \\ *the \end{array} \right\}$ burning the city.
- (90) a. I witnessed $\left\{ \begin{array}{c} \text{John's} \\ the \end{array} \right\}$ will.
- b. I witnessed $\left\{ \begin{array}{c} \text{John's} \\ the \end{array} \right\}$ construction of the house.

It is tempting to attribute the ungrammaticality of the POSS-ing gerund without a possessor in 89 entirely to a failure of the embedded verb's external argument to project (a violation of the Theta Criterion). Baker (1985:7) observes, however, that predicates with no unsaturated arguments—such as a weather verb (91a) or a predicate like *be certain* that does not assign a theta role to its subject (91b)—can occur in a POSS-ing gerund.

- (91) a. I am disappointed by $\left\{ \begin{array}{c} its \\ *the \end{array} \right\}$ raining all day.
- b. I am disappointed by $\left\{ \begin{array}{c} its \\ *the \end{array} \right\}$ being certain that she'll quit. (Baker 1985:7)

There is some dispute about whether these examples are grammatical (Abney 1986:16, Abney 1987:208). But there are plenty of naturally occurring examples of both types:

- (92) a. The idea is said to have originated in **its raining on the day on which it was intended to remove his remains ...**³²
- b. Moreover, and this is part of Strawson's Point, indignation differs from **its seeming that a sanction would be desirable ...**³³

The predicates embedded in these POSS-ing gerunds in 91–92 take no arguments that need case. Nonetheless, they must have a possessor, even if it is nothing more than the expletive pronoun *its*.

Portner (1992:88–145) argues convincingly, however, that ACC-ing and POSS-ing gerunds do not embed different-sized verbal constituents. He attributes their differences in structure and interpretation to a contrast in DEFINITENESS. While the POSS-ing is headed by the definite determiner 's, the ACC-ing gerund is headed by a null indefinite determiner.

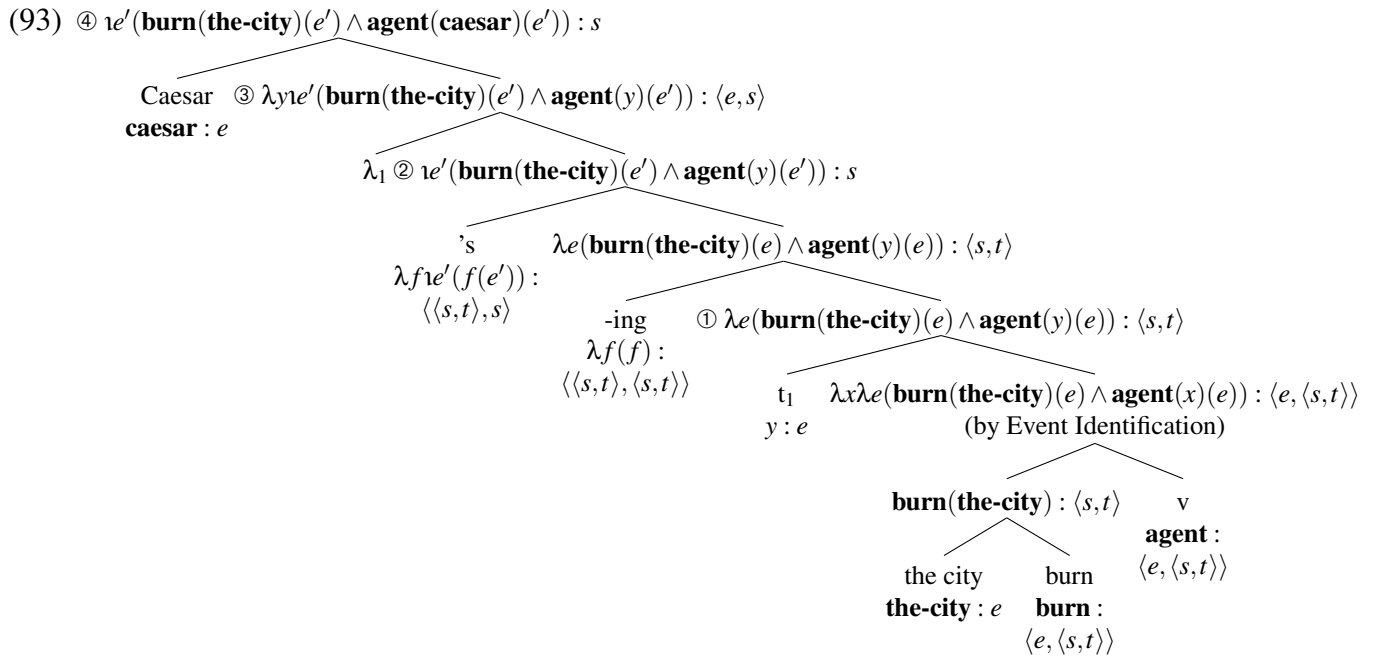
Translating Portner's insight into the current framework, we could say that both the POSS-ing and ACC-ing gerunds involve the same nominalizer, a Poss head realized as *-ing*. While it assigns genitive abstract case to the DP in its specifier, this is realized morphologically as (default) accusative case. In an ACC-ing gerund, the (indefinite) determiner is phonologically empty, so the subject looks like it has accusative case. In a POSS-ing gerund, the determiner is 's, which causes accusative pronouns to be pronounced as morphologically genitive pronouns: that is, *him's* → *his* (Hudson 2003:603).

³²Rev. Thomas Pruen. 1820. *An illustration of the liturgy*. London: W. Bulmer and W. Nicol, p. 146.

³³Stephen Darwall. 2006. *The second-person standpoint: Morality, respect, and accountability*. Cambridge, MA: Harvard University Press, p. 67.

5.1.3 An event interpretation for POSS-ing gerunds

If *-ing* realizes the Poss head in POSS-ing gerunds, then they should be able to describe an event. This is the interpretation that we saw in §3.2 comes for free when all the embedded predicate's individual arguments are saturated:



The embedded predicate of the POSS-ing gerund in (82a) only has its event argument left open (①). It would be existentially bound in a clause, but inside a nominalization the event argument is instead bound by the determiner (②). Abstraction over the trace of the external argument, which has raised to Spec-DP, creates a function from individuals to events (ignoring the intermediate trace in Spec-PossP) (③). This function applies to the external argument in Spec-DP, so that the gerund describes the event of Caesar burning the city (④).

The POSS-ing gerund does not have an individual interpretation like nominalizations with *-na* in Northern Paiute because English has no way of constructing the relevant kind of dependency inside nominalizations. It lacks true resumptive pronouns, as resumption is only used as a rescue strategy when movement is not possible (Chao & Sells 1983, Sells 1984). Consequently, it is not possible for an internal argument of the verb in a POSS-ing gerund to be gapped, regardless of whether this gap is null or overt:

- (94) *I witnessed $\left\{ \begin{array}{l} \text{Caesar's burning} \\ \text{Caesar's burning it} \end{array} \right\}$.
Intended: 'I witnessed what Caesar burnt.'

In addition, English also lacks the operators that would abstract over a resumptive pronoun. There are some variable-denoting expressions that can appear inside the POSS-ing gerund. The subject can be gapped, as in 95, yet no individual interpretation is possible.

- (95) **Finding oneself** is hard work.

Assuming that the external argument of the verb here is saturated by PRO (Abney 1987:168), the gerund would describe an individual if a λ -operator could bind it. But there must be no such operator in English, since PRO receives an arbitrary interpretation and the gerund describes an event.

In sum, the POSS-ing gerund has essentially the same structure as a nominalization with *-na* in Northern Paiute. It does not exhibit the same interpretive variability, though, because English does not have the system of resumptive pronouns and operators to bind them that would give rise to an individual interpretation. Consequently, the POSS-ing gerund only has an event interpretation.

5.2 The agent nominalization in English

At first glance, agent nominalizations with *-er* in English resemble nominalizations with *-di* in Northern Paiute. In fact, they diverge significantly in both their syntax and semantics.

The agent nominalizations created by *-er* are significantly less verb-like than the POSS-ing gerund in English: i) they cannot assign accusative case to the direct object (**the seller the counterfeit stock*); and, ii) they cannot be modified by adverbs (**the frequently seller of the counterfeit stock*). In contrast, nominalizations with *-di* pattern with the POSS-ing gerund in these respects—see §2.

Moreover, nominalizations with *-er* describe individuals bearing a restricted set of theta roles. In 96, repeated from 82b above, the nominalization describes the agent of the embedded verb.

(96) **The seller of counterfeit stock** was jailed.

Rappaport Hovav & Levin (1992) show that *-er* creates nominalizations that describe any external argument theta role, as shown in 97a–c. But they can NEVER describe an internal argument. The nominalizations of unaccusative verbs in 98 are all ungrammatical.

- (97) a. The banya as an institution struck me as one of the few great **levelers** of Soviet society.
 b. If you are the **holder** of a Visa or MasterCard charge card, you know they are accepted at hotels ...
 c. Jobs are the best **indicator** of a sound economy.

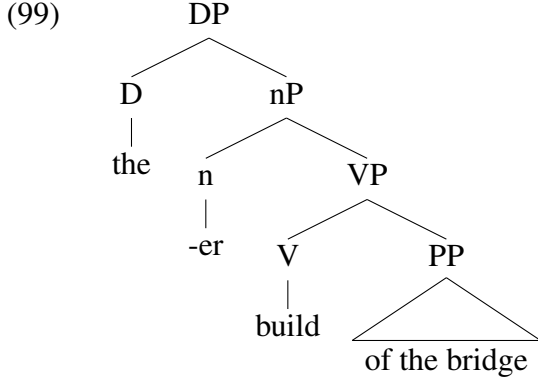
(Rappaport Hovav & Levin 1992:130f.)

- (98) *appearer, *collapser, *dier, *disappearer, *emanator, *ender, *exister, *happener, *laster, *occurrer, *transpirer, *waner, *wilter

(Rappaport Hovav & Levin 1992:148)

This contrasts strikingly with *-di*, which we saw in §4 applies to both unaccusative and passive verbs to create nominalizations that describe an internal argument.

To account for its properties, Baker & Vinokurova (2009) propose that *-er* realizes a nominal functional head, which I will call *n*, that introduces an external argument theta role (see also Bowers 2011:1200ff.):



The *-er* nominalizer realizes this *n* head when it takes a VP complement. This derives the syntactic properties of agent nominalizations. Since *v* is not present inside this nominalization, the internal argument must be projected inside a PP and there can be no left-edge adverbs.

Baker & Vinokurova's proposal accounts for why agent nominalizations only have an individual interpretation. Unlike both the *-na* and *-di* nominalizers in Northern Paiute and *-ing* in English, the *-er* suffix itself contributes the agent theta role (*G* is the generic operator):

$$(100) \quad \llbracket -er \rrbracket = \lambda f \lambda x G_e(f(e) \wedge \mathbf{agent}(x)(e)) : \langle \langle s, t \rangle, \langle e, t \rangle \rangle$$

Simplifying Baker & Vinokurova's lexical entry (p. 531) somewhat, the *-er* nominalizer takes a property of events and returns the set of individuals who are generic agents in those events.³⁴ The nominalization in 99 consequently describes the individual who is the agent of an event of building the bridge. It can never have an event interpretation because the event argument of the verb is closed off through generic quantification by the *-er* suffix itself.

6 Conclusion

Northern Paiute has two types of deverbal nominalization that have the internal structure of a vP and the external distribution of a DP. Unlike similar patterns of nominalization in English, these can describe either an event or an individual. I have proposed that this range of interpretations arises through the interaction between the syntax of the nominalizers themselves, on the one hand, and operators that can abstract over a variable, on the other hand.

If the *-na* and *-di* nominalizers in Northern Paiute realize Poss, the nominal functional head that canonically assigns genitive case, the event interpretation comes for free. In a Davidsonian event semantics, the verb takes an event argument that can remain unsaturated inside these nominalizations. In contrast, with agent nominalizations in English, no event interpretation can arise because the *-er* nominalizer itself binds the verb's event variable.

³⁴Baker & Vinokurova actually give the lexical entry for *-er* in (i), where \cap is Chierchia's nominalization operator. It is a function from properties of events to the individual correlate of the property of usually being the agent in such events:

$$(i) \quad \llbracket -er \rrbracket = \lambda f^{\cap} \lambda x G_e(f(e) \wedge \mathbf{agent}(x)(e)) : \langle \langle s, t \rangle, e \rangle$$

In this denotation, the *-er* nominalizer returns an individual correlate as opposed to a predicate. By bringing the property of being an agent down to its individual correlate with the \cap operator, the determiner would have to encode the inverse \cup operator to raise the individual correlate to a predicate again, in the way that Chierchia (1998) describes.

The individual interpretations for deverbal nominalizations in Northern Paiute arise because the language has operators inside the DP that can abstract over a variable-contributing expression. For nominalizations with *-na*, the variable is contributed by a pronoun, which can occur anywhere except as the highest argument of the verb. In POSS-ing gerunds, which otherwise have a nearly identical structure, only an event interpretation is possible because English lacks the operators and resumptive pronouns needed to construct an individual interpretation. For nominalizations with *-di*, the variable is contributed by a phonologically null element that does not need to be get case (PRO), which is projected as the highest argument of the verb.

Deverbal nominalizations have diverse structures and interpretations across languages. Despite this variation, there are patterns and regularities. Some of these, I have sought to capture in the syntax of nominalizers themselves and the semantic resources available in a language.

Appendix: Islands inside nominalizations in Northern Paiute

The syntactic contexts necessary for constructing most islands inside a nominalization are not possible in Northern Paiute. I show this below for the Coordinate Structure Constraint, the Sentential Subject Constraint, and the Complex NP Constraint.

Starting with the Coordinate Structure Constraint, Northern Paiute does not allow coordination structures inside nominalizations. There are no overt coordinators. The language instead juxtaposes clauses in a type of asyndetic coordination, (e.g. 35); discourse particles, such as *yaisi* ‘also, too’, are optional. If two VPs are coordinated in this way inside of a nominalization, it is indeed not possible to bind a variable contained within just one of them, as shown in 101a.

- (101) a. *Nii [DP λ_1 i=naa’a [[hubia-du] [yaisi pro₁ saa]]-na] tika-hu.
 1SG.NOM 1SG.GEN=father song-make PTC cook-NMLZ eat-PRFV
 Intended: ‘I ate what my father cooked while singing.’ (cf. **I ate what₁ my father sang and cooked t₁*.) (elicitation, EM, BP48-1, 20:31)
- b. *Nii [DP λ_1 i=bia [[hubia-du] [yaisi nigga]]-na] kai
 1SG.NOM 1SG.GEN=mother song-make PTC dance-NMLZ NEG
 pisapi.
 like.DUR
 Intended: ‘I don’t like my mother’s singing and dancing.’ (elicitation, EM, BP46-2, 8:47)
- c. *Nii [DP λ_1 i=naa’a [[pro₁ ti-batsa] [yaisi pro₁ saa]]-na] kai
 1SG.NOM 1SG.GEN=father NSP-kill.SG PTC cook-NMLZ NEG
 tika.
 eat
 Intended: ‘I didn’t eat what my father killed and cooked.’ (cf. *I didn’t eat what₁ my father killed t₁ and cooked t₁*.) (elicitation, EM, BP46-2, 13:44)

However, this does not constitute evidence against my proposal that the variable in nominalizations is contributed by a resumptive pronoun (pro₁), rather than the trace of A’-movement. Crucially, the parallel non-island-violating sentences are also UNGRAMMATICAL. In 101b, there is no variable

in either constituent that is abstracted over. In 101c, there is a variable contained inside each constituent in an across-the-board fashion. Yet, both 101b and 101c are rejected by speakers.

Northern Paiute simply does not allow asyndetic coordinations inside nominalizations. Plausibly, the language might lack a (covert) coordinator for combining constituents small enough to occur inside a nominalization. Such a gap in the syntactic categories that can be coordinated, while not common, is attested in other languages (Haspelmath 2004:12). For instance, in Tîrî, the coordinator *mê* ‘and’ can coordinate DPs or full clauses, but it cannot combine just verb phrases (Moyse-Faurie & Lynch 2004:458f.). This means that clausal juxtaposition in Northern Paiute may not even have the syntactic properties of coordination, an issue that will have to await future investigation.

It is similarly not possible to test the Sentential Subject Constraint. The only way to put a clause in subject position is through nominalization, since to my knowledge there is no way of embedding a bare clause. It is indeed ungrammatical for an operator (λ_1) to bind a variable inside a subject nominalization, as in 102a.³⁵

- (102) a. *Nîi [DP ka= λ_1 [DP λ_2 mogo’ni pro₁ pro₂ kia-na] tîba
 1SG.NOM DEF.ACC= woman give-NMLZ pinenut
 saa-na] tîka-hu.
 cook-NMLZ eat-PRFV
 Intended: ‘I ate what the woman gave to the one who cooked pinenuts.’ (cf. **I ate what₁ the one to whom₂ the woman gave t₁ t₂ cooked pinenuts.*) (elicitation, EM, BP46-4, 21:02)
- b. *Nîi [DP ka= λ_1 [DP λ_2 mogo’ni opo pro₂ kia-na] pro₁
 1SG.NOM DEF.ACC= woman round.basket give-NMLZ
 saa-na] tîka-hu.
 cook-NMLZ eat-PRFV
 Intended: ‘I ate what the one who the woman gave a round basket to cooked.’
 (cf. *I ate what₁ the one to whom₂ the woman gave a round basket t₂ cooked t₁.*)
 (elicitation, EM, BP46-4, 17:18)

But again the parallel non-island-violating sentence in 102b is also ungrammatical, even though each λ -operator binds a variable inside its own immediate nominalization. It appears that Northern Paiute simply does not allow the recursive embedding of nominalizations.

The same problem arises for the Complex NP Constraint. I have found no nouns in Northern Paiute that take clausal complements. But relative clauses can be formed by juxtaposing a nominalization to a noun: a nominalization with *-dî* for subject relative clauses or a nominalization with

³⁵So that both λ -operators have an argument to bind, the embedded verbs in 102a–b are ditransitive predicates. The ungrammaticality of these examples cannot be attributed to a ban on extracting, or otherwise abstracting over, a recipient argument. Recipients have the same morphological realization and syntactic status as canonical direct objects, and they are just as easily extracted:

- (i) Haga₁ isu nana ka=tonigapi t₁ kia-hu-tua?
 who DEM.NOM man DEF.ACC=flower give-PRFV-IRR
 ‘To whom will this woman give the flower?’ (elicitation, MS, BP11-5-s, 15)

In (i), just as the direct object *ka=tonigai* ‘the flower’ would be able to undergo A’-movement (data not shown), the recipient does.

-na for nonsubject relative clauses (see Toosarvandani 2011 for a more complete treatment). Both in subject relative clauses (103a) and in nonsubject relative clauses (103b), it is not possible for the operator (λ_1) of a nominalization to bind a variable inside the relative clause (pro_1).

- (103) a. *Nii [DP ka= λ_1 mogo'ni opo [DP ka=naatsi'i pro_1
1SG.NOM DEF.ACC= woman round.basket DEF.ACC=boy
tika-di] kia-na] timi-hu.
eat-NMLZ give-NMLZ buy-PRFV
Intended: 'I bought what the boy who the woman gave a round basket to ate.' (cf. *I bought what₁ the woman gave a round basket to the boy who ate t₁.) (elicitation, EM, BP47-5, 22:39)
- b. *Nii [DP ka= λ_1 mogo'ni opo [DP ka=naatsi'i₂ λ_2 nana
1SG.NOM DEF.ACC= woman round.basket DEF.ACC=boy man
 pro_1 pro_2 maka-na] kia-na] tima-hu.
feed-NMLZ give-NMLZ taste-PRFV
Intended: 'I tasted what the man fed to the boy who the woman gave a round basket to.' (cf. *I tasted what₁ the woman gave a round basket to the boy₂ to whom₂ the man fed t₁ t₂.) (elicitation, EM, BP47-5, 24:23)

But again, it is generally not possible to embed a relative clause inside a nominalization, as shown in 104a and 104b, for a subject and nonsubject relative clause, respectively.

- (104) a. *Nii [DP ka= λ_1 mogo'ni pro_1 [DP ka=naatsi'i tiba tika-di]
1SG.NOM DEF.ACC= woman DEF.ACC=boy pinenut eat-NMLZ
kia-na] timi-hu.
give-NMLZ buy-PRFV
Intended: 'I bought what the woman gave to the boy who ate pinenuts.' (cf. I bought what₁ the woman gave t₁ to the boy₂ who₂ t₂ ate pinenuts.) (elicitation, EM, BP47-5, 21:57)
- b. *Nii [DP ka= λ_1 mogo'ni pro_1 [DP ka=naatsi'i₂ λ_2 nana tiba
1SG.NOM DEF.ACC= woman DEF.ACC=boy man pinenut
 pro_2 maka-na] kia-na] timi-hu.
feed-NMLZ give-NMLZ buy-PRFV
Intended: 'I bought what the woman gave to the boy the man fed pinenuts to.' (cf. I bought what₁ the woman gave t₁ to the boy₂ to whom₂ the man fed pinenuts t₂.) (elicitation, EM, BP47-5, 23:29)

Again, we cannot use the Complex NP Constraint to test for the presence of resumptive pronouns, because embedding one nominalization within another is just not possible.

Why does Northern Paiute not allow the recursive embedding of nominalizations in this way? The crosslinguistic distribution of recursion is a complex topic, of course, which I cannot do justice here. But the first thing to note is that Northern Paiute does have recursion elsewhere in the grammar. A possessor, for instance, can easily be embedded inside another possessor:

- (105) Nii [DP uka [DP [DP nana] dua] puggu] patsa-hu.
1SG.NOM DEM.ACC man son horse kill-PRFV

‘I killed the man’s son’s horse.’ (elicitation, EM, BP32-3-s, 26)

It is nominalizations specifically that cannot be embedded inside one another. This property, while perhaps unfamiliar, is attested in other languages.

In Mēbengokre, for instance, Salanova (2011:58) documents that ‘[w]hen multiple subjects are present, multiple embedding is avoided,’ which he conjectures might arise, ‘because the resulting construction is inherently clumsy or difficult to process, as it would have several subjects in sequence separated from the predicates with which they belong.’ In other words, in languages with SOV word order, the recursive embedding of nominalization can result in multiple central embedding, which is unacceptable (though possibly not ungrammatical) in many languages, as in *The rat the cat the dog chased killed ate the malt* (Chomsky 1961). Superficially, this would seem to accurately characterize the infelicitous sentences in 102a–104b.

On the other hand, there is evidence from the literature on internally headed relative clauses that some languages do allow the recursive embedding of nominalization, Mojave (106) and Quechua (107), for instance. (See fn. 20 for the treatment of internally headed relative clauses as nominalizations.)

- (106) [DP [DP Tunay pi:pa₁ t₁ ?-u:yu:-n^y]₂ hatčoq t₂ k^yo:-n^y-č] poš ka?a:k-k.
yesterday person 1-see-DEM dog bite-DEM-SUBJ cat kick-TNS
‘The man I saw yesterday who the dog bit kicked the cat.’ (Munro 1976:202)

- (107) [DP Marya [DP Juan wawa-ta rikushka-ta] nishka] llugshirka.
Maria Juan child-ACC saw-ACC said left
‘The child that Maria said that Juan saw left.’ (Cole & Hermon 1994:249)

Notice, however, that the head of an internally headed relative clause in Mojave moves to the left edge of its nominalization (Basilico 1996), so that there ends up being no center embedding in 106. Similarly, while 107 looks like a case of center embedding on the surface, Cole & Hermon (1994:248f.) argue that in Quechua the head of the most deeply embedded internally headed relative clause—the object *wawata* ‘child (acc.)’—undergoes movement at LF to the right edge of the higher nominalization (after *nishka* ‘said’). This eliminates the center embedding in this language as well.

I leave the question of why overt or covert movement is not available to remedy center embedding in languages like Northern Paiute and Mēbengokre for the future.

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