

Internally headed relatives and event nominalizations in Washo*

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1 Introduction

Washo is a highly endangered Hokan/isolate language spoken in the Lake Tahoe region of California and Nevada.¹ The aim of this paper is to examine the syntax and interpretation of a certain type of clausal nominalization in Washo formed through the final suffixation of a third person pronoun (1). The nominalized structures to be examined below exhibit an apparent mismatch at the syntax-semantics interface in that they are systematically ambiguous between individual (relative clause, (1)) and eventive interpretations (2):

- (1) [t' é:liwɰ ʔ-íšim-i-š-ge] l-í:gi-yi
man 3-sing-IND-DS-NM 1/3-see-IND
'I saw the man who was singing.' Washo Archive
- (2) [t' é:liwɰ ʔ-íšim-i-š-ge] di-dámal-i
man 3-sing-IND-DS-NM 1/3-hear-IND
'I heard the man's singing.' Washo Archive

In (1), reference to an individual who is the agent of a singing event is made, while in (2), the reference made is to the singing event itself, of which the man is the agent. The suffixes on these nominalizations come in either the subject form of the independent third-person pronoun (3a) or the non-subject form (b). It is important to note that because Washo is massively pro-drop, the use of the pronoun in this construction is exceptional in the language.

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¹All uncited data come from the author's own fieldwork in Woodfords, CA during September 2015. Glosses: 1/2/3 = 1st/2nd/3rd person; CAUSative; DEP: dependent mood; DIST.FUT: distant future; DS: different subject; DUR: durative; IND: independent mood; INST: instrumental; OBL: oblique; MIR: mirative; MOD: modal; NEG: negation; NC: negative concord; NM: nominalizer; PL: plural; SS: same subject REST: restrictive; UN: unexpressed object. The orthography adopted is from Jacobsen (1964); symbols deviating from the IPA are: L: [l̥]; š: [ʃ]; y: [j]. Morphemic glosses for mood and tense follow conventions from Bochnak (To appear).

2 The syntax of clausal nominalizations

In this section I show that the nominalizations observed in Washo are full clauses (following Peachey (2006)), and give a syntax for this construction. The *-gi/ge* suffixes seen in (1) are treated as nominalizers, more specifically here as D heads that select for full CPs.

Evidence that the nominalizations under discussion are full clauses comes first from the fact that they host tense/mood information above the *vP*-layer. Washo does not require verbal tense marking, but does require mood markings to be present on every verb (see Bochnak (to appear)).² Additional tense suffixes are employed to express more articulated tense/aspect information, as below, where the *distant future* suffix is employed, here inside an event nominalization whose matrix verb is the copula *-eʔ*, argued by Bochnak (2015) to be an underspecified modal verb that is available for use in generic statements:³

- (6) [DP_{[CP} béverli wá:t l-í:gi-**gab**-i-š]-gi] k'-éʔ-i
 Beverly tomorrow 1/3-see-DIST.FUT-IND-DS-NM 3-be-IND
'I'm going to see Beverly tomorrow.'
 Approximately: *'My seeing Beverly tomorrow exists.'* Washo Archive

Second, nominalizations must house switch reference markers where applicable, which indicate that the subject of an embedded verb is different from that of the matrix verb. Switch reference markers are argued to occupy a high position in the clause, e.g. C under Finer's (1985) treatment. In (7), the switch reference marker on the verb *sing* indicates that its subject is different from that of *see*, which occupies the matrix clause:

- (7) [DP_{[CP} t'é:liwhu ʔ-íšim-i-š]-ge] l-í:gi-yi
 man 3-sing-IND-DS-NM 1/3-see-IND
'I saw the man who was singing.' Washo Archive

Both of these pieces of evidence indicate that the nominalized constituent is a fully-specified CP, which has no restrictions about what kinds of TAM suffixes can be encoded in the left periphery (cf. Northern Paiute, whose nominalizations are *vPs* (Toosarvandani 2014)).⁴

Note that the appearance of the switch reference marker inside the relative clause indicates that the verb it contains belongs to a subordinate clause. As Jacobsen (1964) points out, relative

²I make no explicit claims about the syntax of the left periphery in Washo.

³It is unclear why constructions of this type require a nominalization, though this is a commonly-employed strategy in the language.

⁴Toosarvandani's (2014) analysis is concerned with the following contrast between (1) and (2), in which the nominalization in (1) refers to an individual, while the one in (2) refers to an event. Both involve the nominalizer *-na*, which assigns genitive case and selects for a *vP* under Toosarvandani's analysis (in contrast to the nominalization of full clauses in Washo, where no such case effects are observed).

- (1) Nii ka=i=na'a saa-**na** tika.
 1.SG.NOM DEF.ACC=1.SG.GEN=father cook-NMZLR eat
'I ate the thing that my father cooked.' (Toosarvandani (2014): 803)
- (2) Nii ka=i=bia hubia-du-**na** naka.
 1.SG.NOM DEF.ACC=1.SG.GEN=mother song-make-NMZLR hear
'I hear my mother singing.' Toosarvandani (2014: 802)

clauses are obligatorily fronted in the language; we see the same behavior in the analogous event nominalizations. Thus, while Washo is a strict SOV language, we observe apparent word order violations in examples like (8), where the subject of the matrix verb, *woman*, usually appear after its object, *heron*, resulting in an exceptional OSV word order:

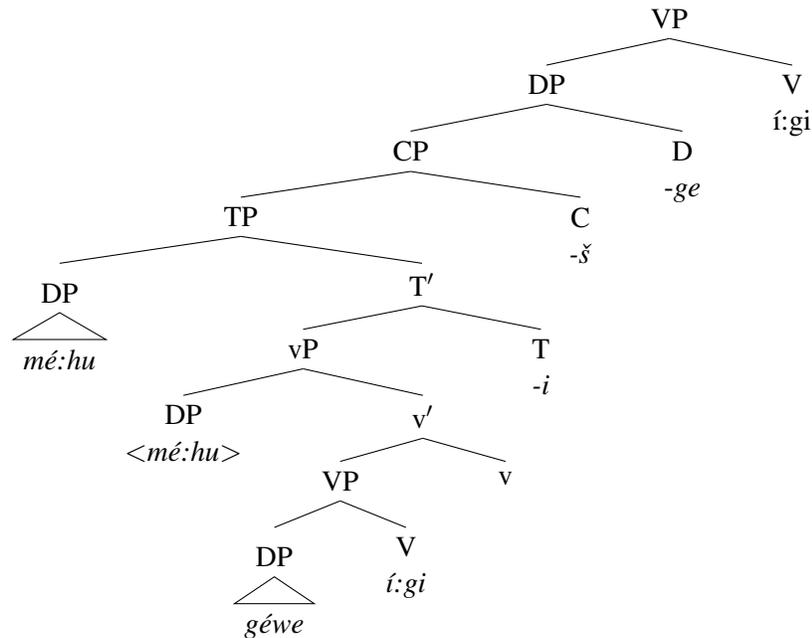
- (8) (daʔmóʔmoʔ) [DP_{[CP} k'á:k'aʔ dá: gé:gel-i-š]-ge] (daʔmóʔmoʔ) yá:m-aʔ
 woman heron there 3.sit-IND-DS-NM woman 3/3.speak-DEP
 'The woman spoke to a heron who was sitting there.' adapt. Jacobsen (1998)

Such movement of CPs is common cross-linguistically and can be treated simply as clause-fronting, though more work is needed in order to determine the conditions under which constituents may front in Washo.

Below I give the structure in (9b) that I propose for a nominalization like (9a), building on Peachey 2006. In this structure, the nominalizer is a head D, occupied by the suffixal pronoun *-ge*, which selects for the embedded clause. The matrix verb *see* then selects for this DP as its nominal complement:

- (9) a. [DP_{[CP} mé:hu géwe ʔ-í:gi-yi-š]-ge] lé:-saʔ l-í:gi-yi
 boy coyote 3/3-see-IND-DS-NM 1.PRO-also 1/3-see-IND
 'I saw the same coyote as the boy.'

b.



In order to account for the suffixation of this D head (i.e., the fact that it appears as part of the morphology on the subordinate verb), I propose that the morpheme *ge* occupying D *lowers* to the C head for which it selects. *Lowering* is the process by which heads in a complement sequence are rebracketed to form a complex head (Embick and Noyer 2001) in the framework of Distributed Morphology (Halle and Marantz 1993), as schematized in (10):

- (10) *Lowering of X⁰ to Y⁰*
 $[_{XP} X^0 \dots [_{YP} \dots Y^0 \dots]] \rightarrow [_{XP} \dots [_{YP} \dots Y^0 + X^0 \dots]]$

Once *-gi/-ge* has lowered, it can undergo fusion with the morpheme to its left to spell out as a single morphological word. The case alternation observed on the suffixes *-gi/-ge* moreover indicate whether the individual/event denoted by the nominalized relative clause is the subject or non-subject of the matrix verb. The presence of *gi* indicates that the DP has been assigned nominative case (11); the presence of *ge* indicates that the DP has been assigned non-nominative case, as in (12).

- (11) $[_{DP}_{CP} \text{ má?ak t'í:yeli-lu } \text{ ge-yúli-ha-yi-š }]\text{-gi}$ gilga-yi
 stick large-INST 3/3.UN-die-CAUS-IND-DS-NM break-IND
 ‘The big stick he killed it with broke.’

The use of the non-nominative suffix *ge* includes not only accusative objects (12a; repeated from 9a), but also extends to its use with postpositions, which may themselves select for the matrix DP containing the relative clause (b):

- (12) a. $[_{DP}_{CP} \text{ mé:hu géwe } \text{ ?-í:gi-yi-š }]\text{-ge}$ lé:-sa? l-í:gi-yi
 boy coyote 3-see-IND-DS-NM 1.PRO-also 1/3-see-IND
 ‘I saw the same coyote as the boy.’
 b. $[_{DP}_{CP} \text{ séwit } \text{ ge-sé?š-uwe?i }]\text{-ge}$]-lu ga-Lók’aš-ha
 porcupine IMP-take-hence-IND-REL-INST IMP-scare-CAUS
 ‘Take a porcupine and scare him with it.’ Jacobsen (1998)

In the next section I move on to derive the ambiguity in the interpretation of nominalized clauses.

3 The interpretation of clausal nominalizations

The core of the semantic analysis is that the suffixes *ge/ge* that nominalize a CP have essentially the semantics of a Strawsonian definite article, as below:

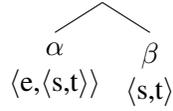
- (13) $[[gi/ge]]: \lambda P_{\langle e,t \rangle} \iota x_e [P(x)]$

As the semantics of this nominalizer involves binding by an ι -operator, we can capture the systematic ambiguity between individual and event readings through the proposal that the type of variable bound by this operator can vary. Following Toosarvandani (2014), I propose that the individual reading in relative clauses arises when an *individual* variable is bound by this ι -operator, while the event reading arises when an *event* variable is bound.

While this is all that is needed to derive the event analysis, the individual reading requires additional explanation. In the semantic analysis below, I propose that there are two other pieces required to achieve this reading: i) internally headed relatives, but not event readings, involve a relative operator high in the CP which binds the ‘semantic head’ of the relative clause; and ii) the semantic head of the relative clause is a Heimian indefinite, which contributes a restricted variable that becomes available for binding by the ι -operator (Basilico 1996).

Further, following Toosarvandani’s (2014) semantic treatment of Northern Paiute, I adopt Kratzer’s (1996) Neo-Davidsonian event semantics and assume *Event Identification*, a compositional rule that combines two predicates of events by abstracting over both of their event arguments:

$$(14) \quad \lambda x \lambda e (\alpha(x)(e) \ \& \ \beta(e)): \langle e, \langle s, t \rangle \rangle$$



In the following sections I explain the analysis for both readings in greater detail.

3.1 The individual reading

The individual reading arises when the semantics of the nominalized clause is interpreted as that of an internally-headed relative. Note that Washo relative clauses are analyzed as internally-headed because a clause-internal argument can become the semantic head of a relative clause (Jacobsen 1964; Jacobsen 1998). Thus, the following relative clause is ambiguous between two meanings:

$$(15) \quad [_{DP} [_{CP} \text{mé:hu géwe } \text{ʔ-í:gi-yi-š }]\text{-ge}] \quad \text{lé:-saʔ} \quad \text{l-í:gi-yi}$$

boy coyote 3-see-IND-DS-NM 1.PRO-also 1/3-see-IND

Interpretation 1: ‘I saw the same coyote as the boy.’

Interpretation 2: ‘I saw the same boy that saw the coyote.’

The so-called *semantic head* of the relative clause refers to the argument that acts like the selected argument of the matrix verb. On interpretation 1, the *coyote* is both the object of the matrix clause and subordinate clause, while on interpretation 2, the *boy* is both the object of the matrix clause and the subject of the subordinate clause.

I show below that we arrive at the correct semantics for Washo relative clauses by treating the semantic head of the relative clause as a restricted variable (along the lines of Williamson 1987; Basilico 1996) that becomes bound by the ι -operator denoted by *-gi/ge*. I repeat this function in (16), which takes a property as its argument and returns the unique individual of whom that property holds.

$$(16) \quad [[\text{gi/ge}]]: \lambda P_{\langle e, t \rangle} \iota x_e [P(x)]$$

The ι -operator in this function will ultimately bind the semantic head of the relative clause, which means that this head needs to have the meaning of a variable in order to be bound. While Williamson (1987) and Basilico (1996) first imposed this necessity, their analyses do not make precise how a restricted variable should be represented. I give in (17) the denotation I assume for an indefinite like *man*, which represents a restricted variable in that it can only be assigned a value by the assignment function if the variable is a subset of the property *man*:

$$(17) \quad [[x_{man}]]^g = g(x) \text{ iff } g(x) \in [[\text{man}]]$$

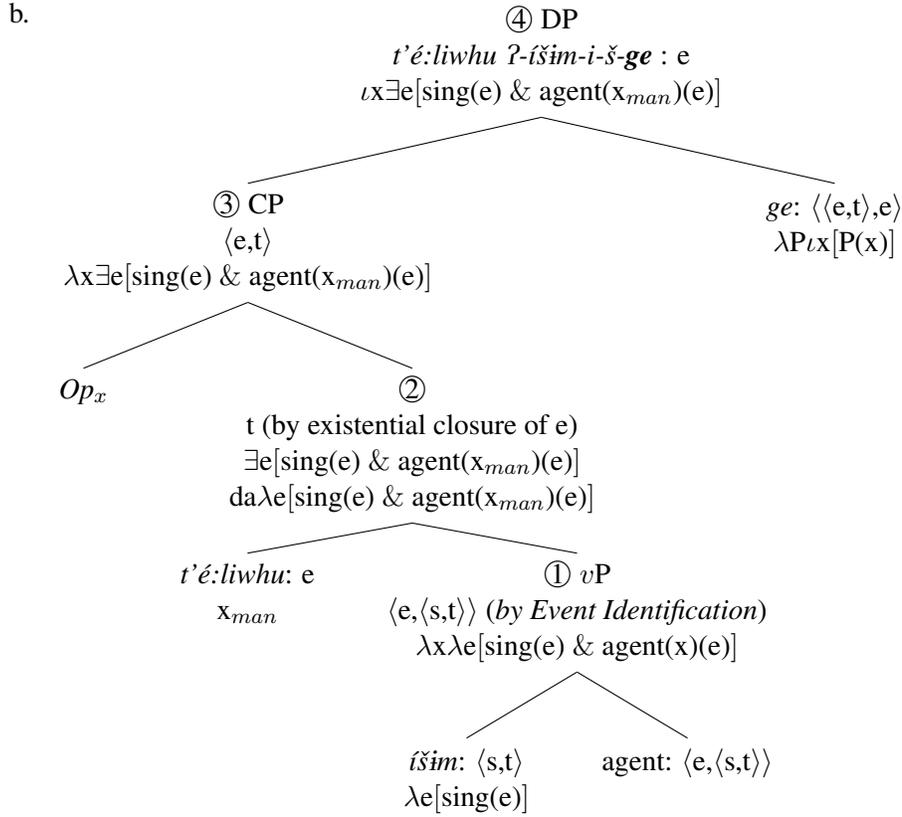
With this in mind, I walk through the derivation for a relative clause like (18a) in (b):

$$(18) \quad \text{a. } \text{t'é:liwlu } \text{ʔ-íšim-i-š-ge} \quad \text{l-í:gi-yi}$$

man 3-sing-IND-DS-NM 1/3-see-IND

‘I saw the man who was singing.’⁵

⁵Here I do not include the step of movement of the subject out of the *vP*.



In ①, the subordinate verb *sing* composes with the agent through Event Identification, returning a function of type $\langle e, \langle s, t \rangle \rangle$. The external argument of the verb, here the restricted variable x_{man} , saturates the individual argument of this function. In ②, the resulting $\langle s, t \rangle$ function undergoes Existential Closure of the event variable, returning a proposition of type t . In ③, the relative operator in CP λ -abstracts over the restricted variable, returning the property meaning canonically assumed for relative clauses. Note that this operator acts essentially as an unselective binder, binding any free variable available within its scope. Now that the CP is property-denoting, the function denoted by the suffix *-ge* takes this property and returns the unique individual for whom this property holds. This gives us precisely the desired semantics: the matrix verb now selects for a nominal argument, whose meaning is that of an individual who is the agent of a singing event, i.e. *the man who sang* in (18b).

3.2 The event reading

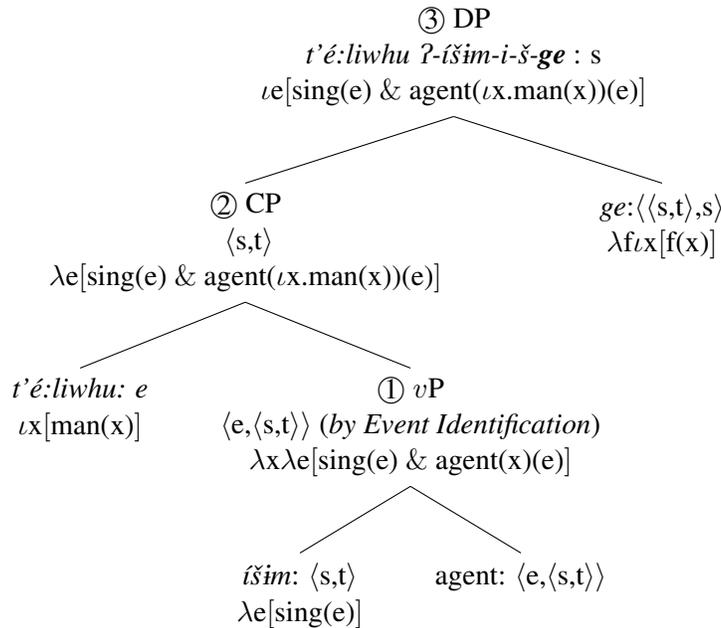
The first difference in the event reading is that \exists -closure of the event variable does not apply, leaving the event variable unsaturated. Second, there is no relative operator required to bind a restricted variable. Third, the function denoted by D now ranges over sets of events, not properties (Toosarvandani 2014), with the effect that the ι -operator can now bind an event variable, rather than an individual variable:

$$(19) \quad \llbracket gi/ge \rrbracket: \lambda f_{\langle s, t \rangle} \iota x_s [f(x)]$$

Composition of an event interpretation like (20a) then proceeds as in (20b):

- (20) a. t'é:liwlu ʔ-íšim-i-š-ge di-dámal-i
 man 3-sing-IND-DS-NM I/3-hear-IND
 'I heard the man's singing.'

b.



In ①, the subordinate verb *sing* again composes with the agent through Event Identification, just as in the individual reading. In ② however, there is no existential closure of the event variable, resulting in a CP whose denotation is a function from events to truth values. Finally, in ③, the event variable is ι -bound, returning an individual event. This is again precisely the meaning we want for the DP, which now denotes a unique singing event whose agent is some salient *man*. The object of the matrix verb *hear* is now correctly the event of singing, rather than the individual who sang.

4 Washo and the indefiniteness restriction

The discussion of internally headed relatives above leads to a question about the interpretation of strong determiners in this construction. It has been widely demonstrated that internally-headed relative clauses in many languages are subject to an indefiniteness restriction. This restriction requires that the semantic head of the relative be *indefinite*, to the exclusion of *strong* determiners such as definite determiners or quantifiers (Williamson 1987 for Lakhota; Basilico 1996 for Digueño, Mojave, Mooré, and Northern Athabaskan). Basilico (1996) proposes that this restriction is explained if the relative operator needs a free variable to bind: following Heim (1982), indefinites introduce restricted variables which can serve precisely this function. In this section I show that Washo violates this restriction, and propose an analysis that can account for this fact. In a nutshell, the proposal is that demonstrative determiners in Washo, like indefinites, house a restricted variable that can be bound by the relative operator.

In the analysis presented above, the variable bound in a relative clause is contributed by a Heimian indefinite. However, we do see strong determiners in internally headed relatives in Washo,

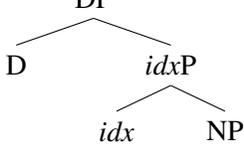
namely demonstratives:

- (21) **wí:diʔ/hádigi** t'ánu ʔ-í:biʔ-i-š-ge l-í:gi-yi
 this/that person 3-come-IND-DS-NM 1/3-see-IND
 'I saw this/that person that came.'

Examples such as (21) demonstrate that Washo violates the indefiniteness restriction observed across many other languages with internally-headed relatives.⁶ The problem such examples pose to the current treatment of relative clauses is as follows. The individual reading as derived in §3.1 requires an indefinite to be the semantic head of the relative clause, so that a restricted variable can be bound by the ι -operator in the nominalizing head *gi/ge*. The demonstrative above should have a definite interpretation, involving no such variable. The question that arises is then how a semantic head containing a demonstrative can give rise to an individual interpretation. Below I propose an analysis according to which demonstratives likewise contain an unbound variable, making them suitable as semantic heads in Washo relative clauses.

4.1 The interpretation of demonstratives

In order to explain why demonstratives should make suitable semantic heads in Washo relative clauses, I follow Elbourne's (2005) proposal that D heads in English select not only for an NP, but also for a bindable index (see also Elbourne 2008; Schwarz 2009). The denotation of a DP then involves identity to an unbound variable, i.e., is equivalent to the result of *trace conversion* (Fox 2002), according to which a variable is inserted into definite descriptions for purposes of binding. In Elbourne's system, this is not an extra step required for binding; the index starts out as an argument of D from the beginning. Hanink (to appear) builds on Elbourne (2005, 2008) as well as Schwarz' (2009) proposal that an index is encoded in the structure of certain definite descriptions and argues for the following syntax, which I will assume for the remainder of the analysis:⁷

- (22) a. 
- b. For any i and assignment g , $[[\text{the } idx_i \text{ NP}]]^g = \iota x: x \in D_e \text{ such that } P(x) = 1 \ \& \ x = g(i)$.

This meaning is achieved through the following denotation for *idx*, which denotes the property of being identical to some restricted variable:

- (23) $[[idx]]^g: \lambda x[x = g(i)]$

Given this property denotation, the meaning of *idx* composes with a noun phrase through Predicate Modification (Heim and Kratzer 1998) before composing with D. Crucially, the variable denoted by

⁶This is also the case in Navajo, according to Grosu (2009). It is worth noting that relative clauses in Navajo are also formed through the suffixation of a 3rd-person pronoun to an entire clause.

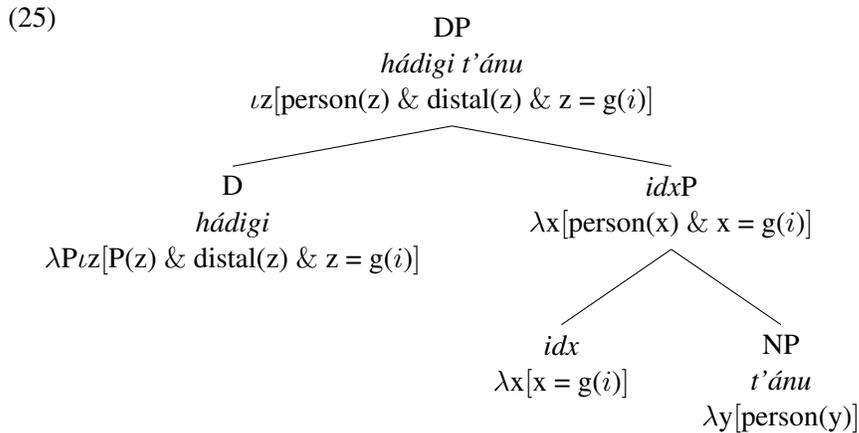
⁷For arguments in favor of this syntax, see Hanink (to appear).

the index remains free and is available for binding at the DP level. The index associated with this variable can then be assigned a value by some assignment function g .

Elbourne (2008) expands on the proposal that definite descriptions involving *the* contain extra structure by proposing that demonstratives likewise contain an index, differing only in that a deictic component (i.e. proximal *this* or distal *that*) is always present.⁸ To model this feature here, I treat proximal/distal specifications as properties encoded by D, though I abstain from giving any proposal as how to these features enter the derivation:

- (24) a. $[[\text{that}]]: \lambda P \iota x [P(x) \ \& \ \text{distal}(x)]$
 b. $[[\text{this}]]: \lambda P \iota x [P(x) \ \& \ \text{proximal}(x)]$

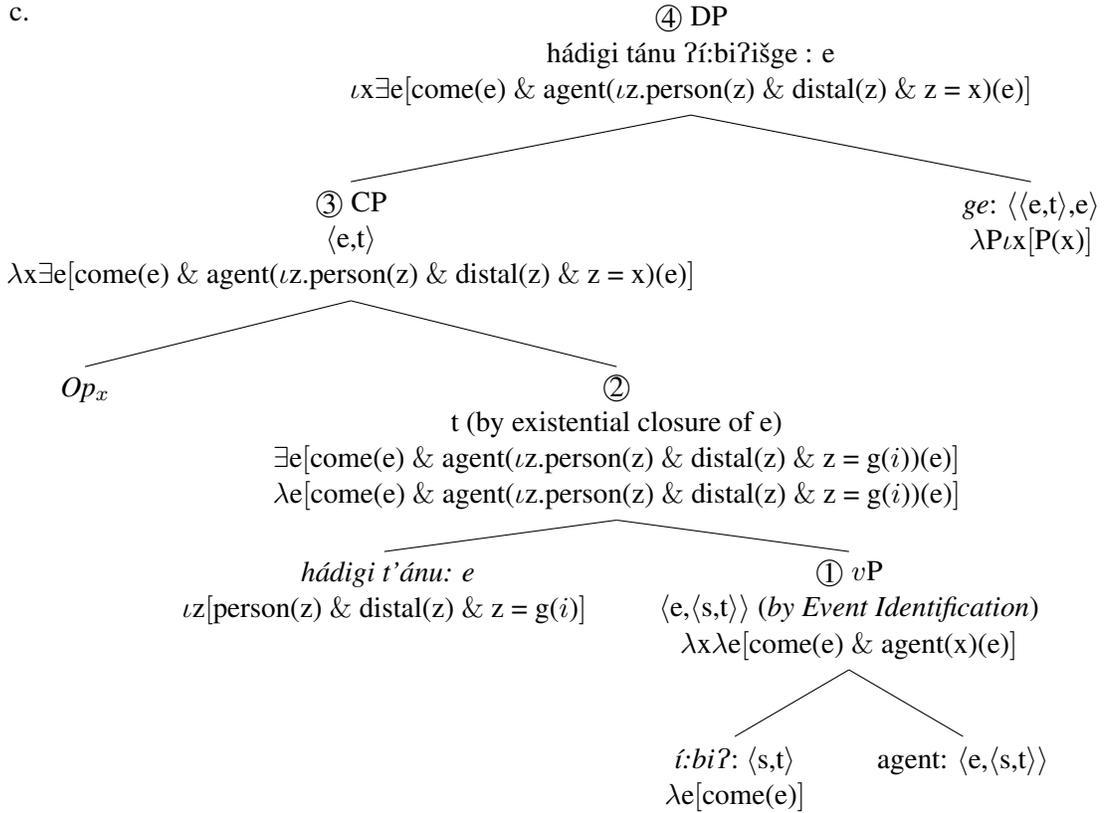
Assuming (24) for Washo demonstratives like those in (21), the structure and interpretation of *hádigí t'ánu* (*that person*) will be as in (25):



I propose that this analysis provides us with just the unbound variable we need to allow for binding by the relative operator in CP. In (26) I walk through the derivation for an internally-headed relative whose semantic head contains the demonstrative *hádigí* (*that*).

- (26) a. hádigí t'ánu ʔ-í:biʔ-i-š-ge 1-í:gi-yi
 that person 3-come-IND-DS-NM 1/3-see-IND
 'I saw that person that came.'
 b. $[[\text{hádigí t'ánu}]]^g: \iota z [\text{person}(z) \ \& \ \text{distal}(z) \ \& \ z = g(i)]$

⁸Elbourne (2008) also makes use of an R variable that serves as a relational component between the property meaning of the noun and the index, though this more articulated structure is not necessary for the composition here.



Above in ①, we see again that the verb composes with the agent via Event Identification. The external argument, *hádigí t'ánu*, which houses an unbound variable, saturates the individual argument denoted by *vP*. In ②, the property from events to truth values undergoes existential closure of the event variable to return a proposition. In ③, the relative operator λ -abstracts over the only free variable in this function to return a property of individuals. Finally in ④, the ι -operator binds this variable to return the unique individual whose distance is distal, and who is the agent of the coming event. We therefore arrive at the desired individual meaning which can then compose with the matrix verb (*see*) to form a proposition.

4.2 Structurally-encoded indices and cross-linguistic variation

Elbourne's analysis of demonstratives allows us to explain why demonstratives are viable semantic heads in Washo relative clauses, explaining their ability to be interpreted relative-clause internally. This of course raises an obvious question, however: if demonstratives house a variable that can be bound by a relative operator, then it is unclear why we should observe such a robust cross-linguistic restriction on strong determiners in internally-headed relatives. While I cannot offer a concrete solution to this puzzle, I propose that the presence of the index in demonstratives is a point of variation across languages. Essentially, if there is evidence that definite descriptions in a given language house an index, then I predict that that language should allow for definite determiners inside internally-headed relatives.

While evidence for the presence of indices varies across languages (see e.g. Schwarz (2009),

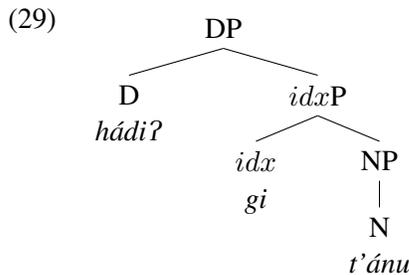
who gives evidence for the presence of an index in German anaphoric definites), there is a clue shown by the morphology of Washo demonstratives that suggests that this analysis is on the right track. Remember that Elbourne’s (and Hanink’s (to appear)) claim about definite descriptions is that definite determiners select for two arguments: an index and a noun phrase. I argue that the morphology of the Washo demonstrative *hádigí* transparently reveals this structure. I argue that this determiner is in fact comprised of both a demonstrative head as well as a pronoun. First, there is evidence from earlier speakers of the language that the demonstrative used to be simply *hádi?*.⁹

- (27) **há:di?** wí:di? bedíli? ʔ-íšil-i
 that this matches 3/3-give-IND
 ‘That one is giving this one matches.’ (Jacobsen 1964)

Second, the third-person nominative pronoun is the form *gi*:

- (28) **gí-k’ej** pú:lul rí:no-ya de-yéʔeš-ha k’-éʔ-i
 he-REST car Reno-OBL NMLZ-fly-CAUS 3-be-IND
 ‘He always drives to Reno.’ Washo Archive

Putting both of these elements together, we arrive at precisely the syntax of demonstratives shown in (25), schematized below in a more articulated structure. In (29), the demonstrative *hádi?* serves as the D head, while the pronoun *gi* occupies *idx* – consistent with the fact that pronouns have the same interpretation as *idx* in a definite description.¹⁰



I therefore argue that the morphology of *hádigí* provides transparent evidence that an index is available for binding in Washo demonstratives. The status of demonstratives in languages respecting the indefiniteness restriction however remains to be explored. In the next section I show that in addition to explaining the interpretation facts, the ability of definite determiners to house a bindable index in Washo extends a puzzling fact about the restrictive semantics of these relative clauses when they are stacked.

4.3 Relative clause stacking

In this section I show that the analysis of Washo demonstratives presented in §4.1 immediately extends to a puzzle about Washo relative clauses: they can stack. In a nutshell, I argue that, because

⁹In fact, some speakers still use this form.

¹⁰The case on *gi* however is invariant in that the demonstrative cannot not surface as *hádigí* even in non-nominative contexts. This implies that the nominative *hádigí* has become the fixed, default form of the demonstrative.

the suffix *gi/ge* essentially has the semantics of the definite article, the denotation of this nominalizer likewise houses a restricted variable which makes stackability possible.

According to Grosu's (2009) typology (inter al.), restrictive relative clauses – as opposed to *maximalizing* relative clauses found in Japanese or Korean (Hoshi 1995; Shimoyama 1999) – should be stackable with a restrictive semantics. This prediction is borne out by Washo relative clauses:

- (30) [DP_{[CP} [DP_{[CP} mé:hu baŋáya ʔ-éʔ-i-š]-ge] Alan bóŋi-yi-š]-gi] p'ášug-é:s-i
 boy outside 3-be-DS-NM Alan 3/3.call-IND-DS-NM 3.enter-NEG-IND
 'The boy that was outside that Alan called didn't come in.'

In (30), the most deeply embedded DP is *the boy that was outside*, which is the object of the verb in the intermediate relative clause, *call*. The resulting intersective DP *the boy that was outside that Alan called* then becomes the subject of the higher matrix verb, *come in*.

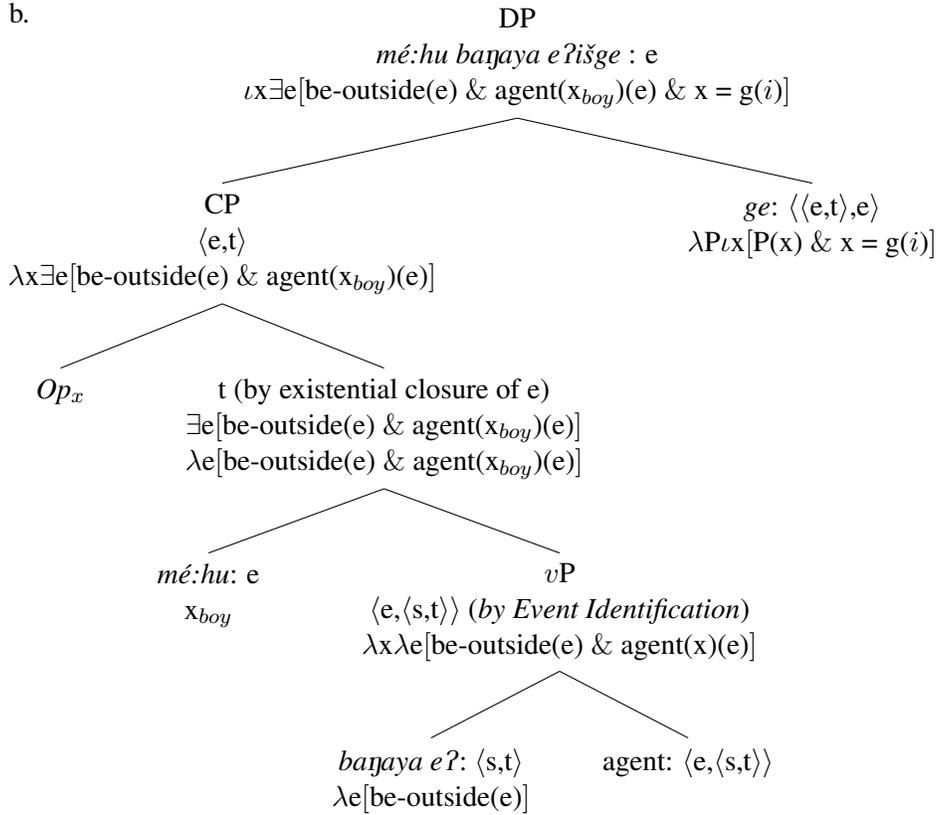
Such cases pose a problem for a semantic analysis that does not allow for unbound variables in definite descriptions in Washo. The problem is this: once the meaning of the relative clause is derived to form an individual, there is no longer any unbound variable contributed by an indefinite or otherwise that can be bound by the relative operator in the higher relative clause.

However, Elbourne's proposal that definites house a restricted variable immediately explains the stackability of relative clauses in Washo. Under this account, the bindable variable made available to the higher relative clause is provided by the nominalizer of the lowest relative clause itself. We can therefore revise the function denoted by the nominalizer *gi/ge* to the following:

- (31) $[[gi/ge]]^g: \lambda P_{\langle e,t \rangle} \iota x_e [P(x) \ \& \ x = g(i)]$

After this suffix selects for CP, it returns an individual that still has an unbound variable, which in turn can become bound by the higher relative operator. I walk through this in more detail below. I give in (32b) the denotation for the most embedded relative clause in (32a):

- (32) a. [DP_{[CP} [DP_{[CP} mé:hu baŋáya ʔ-éʔ-i-š]-ge] Alan bóŋi-yi-š]-gi] p'ášug-é:s-i
 boy outside 3-be-DS-NM Alan 3/3.call-IND-DS-NM 3.enter-NEG-IND
 'The boy that was outside that Alan called didn't come in.'



This gives us the correct denotation for stacking purposes: the resulting DP has an unbound variable that can become bound by the next-highest relative operator.

It is important to note here that Washo bare nouns in Washo are ambiguous between an indefinite and a definite reading; there is no overt form of the definite or indefinite form, as (33) illustrates:

- (33) a. **géwe** wáʔ ʔ-íyeʔ-áʔyiʔ-i
 coyote here 3-go-MIR-IND
 ‘A coyote was walking here.’ Washo Archive
- b. **géwe** t’ánu-ŋa ʔ-iʔw-é:s-i
 coyote person-NC 3-eat-NEG-IND
 ‘The coyote didn’t eat anyone.’ Washo Archive

However, while the definite article has no overt form in cases where a nominal restriction is present, the semantics I have assigned to the suffix *gi/ge* is essentially that of the definite article. This makes the suffix *gi/ge* the only overt realization of the definite article in Washo, which is however only observable in the context of CP-selection. This suggests that we can write a contextual rule for the definite article, whose vocabulary entry is generally null, but overt in the context of a CP. In the general case, the elsewhere form (34a) will override the more contextually specified insertion rules (34b-c), unless their contextual specifications are met.

- (34) a. [D] ↔ ∅
 b. [D] ↔ *ge/CP* ___

c. [D +nom] ↔ gi/CP__

The elsewhere form is null and surfaces in most environments (34a). The non-nominative form, *ge*, surfaces only in the context of a CP, as specified in the contextually-determined environment in (b). The most specified rule in (c) will only apply in case a nominative feature is present on the D head. The morphological connection between the definite article and third person pronoun in Washo warrants further investigation.

Before moving on, I note here for the sake of completeness that stacking is likewise available for the event interpretation of nominalized clauses, as in (35):

- (35) [DP_{CP} [DP_{CP} Alan ʔ-íšim-i-š-ge di-dámal-gaʔlám-i]-ge] di-hámuguyú:k-iweʔ-é:s-i
 Alan 3-sing-IND-DS-NM 1/3-hear-want-IND-REL 1/3-think-stop-NEG-IND
 ‘I keep thinking about how I want to hear Alan’s singing.’
 Literally: ‘I keep thinking about my wanting to hear Alan’s singing.’

Such examples however do not pose any challenge for the semantic analysis presented above; the entire event-denoting DP is simply selected for as the object of the next-highest verb, whose own event variable is free to become bound by the *ι*-operator in D.

4.4 An open question: the interpretation of quantifiers

While I have shown that demonstratives can be interpreted inside of relative clauses due to the fact that they host a restricted variable, I have not discussed other types of determiners. According to the indefiniteness restriction, all so-called strong determiners are banned in relative clauses. While my fieldwork is still ongoing, there is preliminary evidence that certain quantifiers are allowed inside relative clauses, particularly coming from the universal quantifier *míʔleʔ*.

The quantifier *míʔleʔ* is akin to an ‘all’ - type quantifier (as opposed to an ‘every’-type quantifier). It takes a plural restriction, which can be observed in a fixed set of human nouns (non-human nouns show no plural morphology). The plural morphology in this noun set is seen for example in the reduplication of the final syllable in *mé:hu* and stress shift below (Yu 2005):

- (36) tánu **mehú:hu** míʔle-w gaʔlá:m-i
 person boy.REDUP all-PL 3/3.like-IND
 ‘Someone likes all the boys.’ Washo Archive

On the surface, it appears that the universal quantifier *all* does in fact appear relative-clause internally:

- (37) [DP_{CP} **míʔle-w** t’ánu ʔ-í:biʔ-i-š]-ge] l-í:gi-yi
 all-PL person 3-come-IND-DS-NM 1/3-see-IND
 ‘I saw all the people that came.’ (field notes)

The ability of the quantifier to appear inside the relative clause results in a syntax-semantics mismatch. As Grosu (2009) points out in his discussion of Navajo, the scope of the universal quantifier must be in the matrix clause, and not in the embedded clause in examples like (), taken from Faltz (1995):

- (38) Leechaa'i **t'aa-altso** ash-kii deishzashi-gii nidahal'in
 dog all boy bite-REL bark
 'All the dogs that bit the boy are barking.' Faltz (1995)

As Grosu notes, Faltz explains that this example cannot be interpreted with the paraphrased meaning in (39a), rather it must have the meaning in (b):

- (39) a. *all the contextually relevant dogs bit the boy.*
 b. *a subset of the relevant plurality of dogs bit the boy, and those dogs are barking.*

Likewise in the Washo example in (37), *miʔleʔ* quantifies over the set of *people who came*, not just *people*. In addition to the clause-internal position, nother strategy for quantification in such contexts is for the quantifier to occur overtly in the matrix clause (40), or to appear in both the matrix and embedded clause (41):

- (40) [DP_{[CP} mehú:hu bóŋi-yi-š]-gi] **míʔle-w** p'ím-eweʔ-i
 boy.REDUP 3/3.call-IND-DS-NM all-PL 3.come.out-hence-IND
 'All the boys whom she called came out.'

- (41) [DP_{[CP} **míʔle-w** hádigi ʔ-í:bi-ʔi-∅-]-gi] **míʔle-w** ʔ-émlu-yi
 all-PL those 3-come-IND-SS-NM all-HUMAN 3-eat-IND
 'All those people that came ate.'

It remains an open question as how to such quantifiers fit into the analysis presented here, as it is unclear how the semantic head of the internally-headed relative clause can be interpreted in their presence (which does away with the presence of any unbound variable). Relatedly, more work is needed to investigate other types of quantifiers in relative-clause internal positions.

5 Conclusion

The Washo clausal nominalizations investigated in this paper are formed through the suffixation of a third-person pronoun in either its nominative form (*gi*) or non-nominative form (*ge*). One and the same syntax gives rise to an ambiguous semantics: either the nominalization is interpreted as an individual in an internally-headed relative, or it can be interpreted as an event. I have argued here that this ambiguity arises through the ability of the suffix *gi/ge* to bind an individual variable in the former case as well as an event variable in the latter.

The work presented here on relative clauses situates Washo moreover with respect to the well-known indefiniteness restriction, which holds for many languages with internally-headed relatives. In the general case, the semantic head of the relative clause in Washo is contributed by a Heimian indefinite, which contributes a restricted variable available for binding. However, Washo also allows definites to be interpreted inside the relative clause in the form of demonstratives. I have shown that this fact follows if definite descriptions may house an unbound variable which becomes available for binding by the ι -operator. I have also shown that this analysis immediately and neatly accounts for the ability of relative clauses to stack: the suffix *gi/ge*, which has the semantics of a definite article, can itself contribute a restricted variable to be bound by higher relative operators. Remaining work is needed to investigate the interpretation of quantifiers inside the relative clause, though preliminary data show that at least universal quantification is allowed.

Broadly speaking, the work presented here contributes to the understanding of syntax-semantics mismatches in clausal nominalization structures. In Washo, we observe one syntactic construction that can give rise to two different interpretations, analyzed here as a flexibility in terms of binding. Further, this work contributes to our understanding of the encoding of indices inside definite descriptions cross-linguistically, providing support for claims along the lines of those in Elbourne (2005), Schwarz (2009), and Hanink (to appear) from Washo, an understudied isolate language.

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