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Factivity and two types of embedded clauses in Washo*

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1. Introduction

This paper contributes novel data from Washo, a highly endangered Hokan/isolate language spoken around Lake Tahoe in the United States, to the literature on the embedding strategies of attitude predicates. In particular, it has been widely shown through a range of studies that factive and non-factive predicates behave differently with respect to how they embed their complements (Kiparsky & Kiparsky 1970; Zubizarreta 1982; Adams 1985; Rooryck 1992; Abrusán 2011, 2014; i.a.). Building on this line of inquiry, Kastner (2015) argues in recent work that these behaviors are explained by selectional differences. According to Kastner, factive complements are selected for by either a covert or overt D head before composing with the factive predicate itself, while non-factive complements lack a DP-layer and are selected directly by the matrix verb.

We provide novel evidence for a proposal along these lines from the behavior of embedded clauses in Washo. In Washo, factive complements are formed through clausal nominalization by the overt D head *-gi/ge*, as shown in (1).[1]

(1) [$_{DP}$ [$_{CP}$ ∅-há:biʔ-**i**-š]-**ge**] l-í:gi-yi
3-rain-SR-REL 1-see-IND
'*I saw that it rained.*'

*We would like to thank Adele James and the late Ramona Dick for the Washo data here. We also thank Karlos Arregi, Julian Grove, Itamar Francez, Itamar Kastner, Jason Merchant, and the audiences at NELS 47 and LSA 91 for their helpful discussion of this project. This work was partially funded by awards to Emily Hanink from the Rella Cohn Research Funds from the University of Chicago and The Jacobs Funds of the Whatcom Museum in Washington.

[1]Glossing: ATTRibutive; CAUSative; DEPendent mood; INCHoative; INDependent mood; INT.FUT: intermediate future; NEGation; NMLZR: nominalizer; REFLexive; RESTrictive; SR: switch reference; REC.PST: recent past; RELative marker. The orthography adopted is from Jacobsen-Jr. (1964); symbols deviating from the IPA are: L: [l̥]; M: [m̥]; š: [ʃ]; y: [j]. Unless otherwise noted, data come from field work conducted by the authors.

Non-factive complements, on the other hand, are bare clauses without a nominalizer.

(2) Béverli [$_{\text{MOODP}}$ démlu di-begúweʔ-é:s-**aʔ**] ∅-hámu-yi
Beverly food 1-buy-NEG-DEP 3-think-IND
'*Beverly thinks I didn't buy the food.*' Washo Archive

As the previous examples reveal, the difference in the size of the embedded complement correlates with the choice of mood marker in the clause. Factive complements surface with the 'independent' mood marker *-i* (allomorph *-yi*), while non-factive complements surface with the 'dependent' marker *-aʔ* (allomorph *-yaʔ*).

The main aim of this paper is show that the observed syntactic differences in Washo complement clauses lends evidence to an account along the lines of Kastner's proposal. Secondary aims are to account for the distinction in choice of mood marker and to assimilate this choice to the distribution of mood elsewhere in the language. As we show, the mood markers in the two constructions reflect differences in the semantics of the embedded clause, and mirror the pattern observed in non-embedded clauses as well.

The outline of this paper is as follows. In §2 we present the data in question from two types of embedded clauses in Washo. In §3 we introduce the ingredients of our analysis, briefly summarizing previous work on attitude verbs and clausal embedding. In §4 we present our analysis, and §5 concludes.

2. Two types of embedded clauses in Washo

2.1 Type 1: clausal nominalizations

Clausal nominalizations in Washo are formed through the suffixes *-gi/ge*, analyzed as a simplex head D by Peachey (2006). Elsewhere, this morpheme occurs as an independent third-person pronoun with both a nominative (3) and non-nominative form (4).

(3) **gí:**-kʼeŋ pú:lul rí:no-ya de-yéʔeš-ha kʼ-éʔ-i
3.SUBJ-REST car Reno-toward NMZLR-go-CAUS 3-be-IND
'*He always drives to Reno.*' Washo Archive

(4) gum-Lilélb-i-da-šiʔ **gé:**-ya gum-cʼéwš-aʔ
REFL-gather-IND-there-from 3.OBJ-about REFL-scheme-DEP
'*They called a gathering and they schemed about it.*' Ang Story

The crucial use of clausal nominalizations that we are interested in here is their use in the formation of complements of factive verbs in Washo. The following examples demonstrate that complements of *see*, *know*, *forget*, and *remember* follow this strategy (see Kastner (2015) and the works cited therein for a typology of attitude verbs):[2]

[2]As we can see, many antonym pairs for attitude predicates are not lexicalized; rather, one member is lexicalized, and the other is marked with negation *-é:s*. See e.g., (6) and (8).

(5) di-tugí:b-uweʔ-i-š-da [$_{DP}$ [$_{CP}$ ∅-há:biʔ-**i**-š]-**ge**] l-í:gi-yi
1-look.around-hence-IND-SR-there 3-rain-SR-REL 1-see-IND
'*I looked around outside and I saw that it rained.*'

(6) [$_{DP}$ [$_{CP}$ Emily t'-íšim-aŋaw k'-éʔ-i-š]-**ge**] l-ášaš-é:s-šemu-yi
Emily NMZLR-sing-well 3-be-IND-SR-REL 1-be.ignorant-NEG-really-IND
'*I really know that Emily is a good singer.*'

(7) [$_{DP}$ [$_{CP}$ ∅-háʔaš-i-š]-**ge**] di-hámu-p'áy-i
3-rain-IND-SR-REL 1-feel-nonsense-IND
'*I forgot that it rained.*'

(8) [$_{DP}$ [$_{CP}$ Adele daláʔak ʔ-í:gi-yi]-**ge**] ∅-hámu-p'ay-é:s-i
Adele mountain 3-see-IND-SR-REL 3-feel-nonsense-NEG-IND
'*Adele remembers that she saw the mountain.*'

Outside of factive complements, nominalizations are also used to form internally-headed relative clauses (Jacobsen-Jr. 1981), as in (9), and event nominalizations (Hanink 2016), as in (10).

(9) [$_{DP}$ [$_{CP}$ mé:hu géwe ʔ-í:gi-yi-š]-**ge**] lé:-saʔ l-í:gi-yi
boy coyote 3-see-IND-SR-REL 1-also 1-see-IND
'*I also saw the coyote that the boy saw*.' Hanink (2016)

(10) [$_{DP}$ [$_{CP}$ t'é:liwhu ʔ-íšm-i-š]-**ge**] di-dámal-i
man 3-sing-IND-SR-REL 1-hear-IND
'*I heard the man's singing*.' Washo Archive

Clauses that participate in nominalization always surface with the mood marker *-**i***. We call this the 'independent' mood, following Bochnak (2016), which acts the default in matrix contexts (11). This use stands in contrast to the 'dependent' mood marker *-aʔ*, which is discussed in §3.

(11) béverli lélew di-Méʔeš-**i**
Beverly beside 1-lie.down-IND
'*I'm lying next to Beverly*.'

2.2 The structure of clausal nominalizations

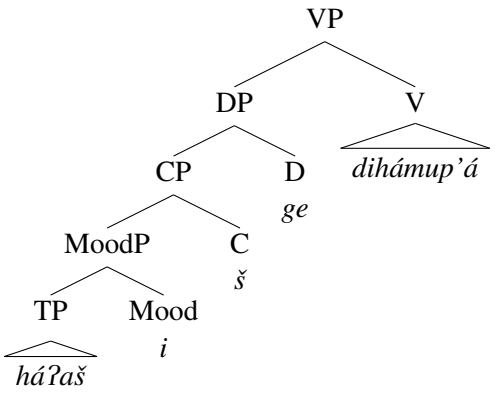
We build on work by Peachey (2006) and Hanink (2016) in our assumptions about clause structure in Washo. First, we assume that the nominalizer *-gi/ge* is a D head that selects for a CP. Second, we assume that the switch reference marker *-š*, which surfaces on non-matrix verbs and tracks subject identity across clauses, is housed in C, following Finer (1985). We

innovate here that the morpheme *-i* is a mood marker, housed in a projection MoodP below CP, (following, e.g., Giannakidou 2009 for Greek).[3]

Given these assumptions, the structure for a factive complement such as (12a) will be that in (12b).

(12) a. [$_{DP}$ [$_{CP}$ ∅-háʔaš-i-š]-**ge**] di-hámu-p'áy-i
3-rain-IND-SR-REL 1-feel-nonsense-IND
'*I forgot that it rained.*'

b.



2.3 Type 2: Bare clausal embedding

In contrast to factive verbs, non-factive verbs embed a bare clausal complement without a nominalizer. Examples below include the verbs *think*, *say*, *dream*, and *believe*. As a preview of the structural analysis to follow, these clauses are marked in the examples below with the structure of 'MoodP.'

(13) Béverli [$_{MOODP}$ démlu di-begúweʔ-é:s-**aʔ**] ∅-hámu-yi
Beverly food 1-buy-NEG-DEP 3-think-IND
'*Beverly thinks I didn't buy the food.*' Washo Archive

(14) [$_{MOODP}$ di-p'áyt'i-gim-uweʔ-t'-**aʔ**] ʔ-í:d-i
1-play-go.out-hence-INT.FUT-DEP 3-say-IND
'*She said I could go play.*' Washo Archive

(15) [$_{MOODP}$ di-yéʔeš-**aʔ**] di-gum-suʔúʔuš-iʔ-i
1-fly.forward-DEP 1-REFL-dream-ATTR-IND
'*I dreamt that I was flying.*' Washo Archive

(16) ∅-mitgí:bil-é:s-i [$_{MOODP}$ dí:meʔ ʔil-léleg-iʔ-etiʔ-**aʔ**]
3-not.believe-NEG-IND water ATTR-red-ATTR-INCH-DEP
'*He believes the water turned red.*' Washo Archive

[3]Washo lacks obligatory tense morphology (though is not completely tenseless either). See Bochnak (2016) for more details on tense in Washo.

Complements of non-factive verbs surface with the dependent mood marker, **-aʔ**. Outside of such complements, *-aʔ* surfaces mainly in adjuncts, as in (17).

(17) [$_{CP}$ l-émlu-**yaʔ**-š] ʔ-íːmeʔ-leg-**i**
1-eat-DEP-SR 3-drink-REC.PST-IND
'*While I was eating, he was drinking.*' Jacobsen (1964)

It is remarkable that we do not see the switch reference marker (*-š́*) in the complements of non-factive verbs; while this marker shows up as expected in (17) (where the subjects of the two clauses differ from one another) it is curiously absent in (13), (14), and (16). In (16) for example, the matrix subject is *he*, while the embedded subject is *water*. We therefore expect the switch reference marker to occur, but it does not:

(18) ∅-mitgíːbiɬ-éːs-i [$_{MOODP}$ díːmeʔ ʔil-léleg-iʔ-etiʔ-**aʔ**]
3-not.believe-NEG-IND water ATTR-red-ATTR-INCH-DEP
'*He believes the water turned red.*'

Given the assumption that the switch reference marker is located on C, its absence indicates that the complements of non-factive verbs lack a C layer (while adjuncts do not). This is notably the only construction in the language where the switch reference marker *-š́* cannot surface where it is expected to do so.[4]

2.4 The structure of bare clausal embedding

Given what we know about the complements of factive verbs, we propose that such complements are in fact smaller than CPs. One piece of evidence for this comes from the fact that they lack a switch reference marker, as we have just seen. Another piece of evidence for this claim is that the complements of non-factive verbs remain clause-internal (19), unlike clausal nominalizations, which must prepose to the front of the matrix clause (20) despite the default SOV order of the language:

(19) Béverli [$_{MOODP}$ démlu di-begúweʔ-éːs-**aʔ**] ∅-hámu-yi
Beverly food 1-buy-NEG-DEP 3-think-IND
'*Beverly thinks I didn't buy the food.*'

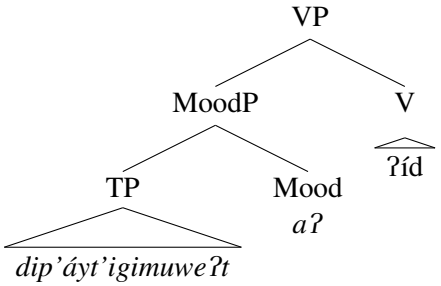
(20) (*daʔmóʔmoʔ) [$_{DP}$ [$_{CP}$ kʼákʼaʔ dáː ∅-géːgel-**i**-š]-**ge**] (daʔmóʔmoʔ)
woman heron there 3-sit-IND-SR-REL woman
∅-yáːm-aʔ
3-speak-DEP
'*The woman spoke to a heron who was sitting there.*' Jacobsen (1981)

[4]The two types of embedding observed thus far have involved the selection of DP, and CP, respectively. Work on clausal restructuring has shown that there are a variety of preferences cross-linguistically with regard to the size of embedded clauses (Wurmbrand (2001), i.a.). The fact that Washo does not seem to be able to embed a CP under a matrix verb warrants further investigation into restructuring effects in the language.

The ability of *-aʔ* complements to remain clause-internal is consistent with a smaller structure. Taking together these pieces of evidence, we propose a smaller structure for non-factive complements, as in (21).

(21) a. [di-p'áyt'i-gim-uweʔ-t-**aʔ**] ʔ-íːd-i
1-play-go.out-hence-INT.FUT-DEP 3-say-IND
'*She said I could go play.*'

b.



2.5 Interim summary

The following table summarizes the generalizations introduced in the previous sections. Factive complements in Washo are full CPs nominalized by *-gi/ge*, and surface with the independent mood *-i*. Non-factive complements on the other hand are bare MoodPs that surface with the dependent mood marker *-aʔ*. Stepping back to compare these constructions with others found in the language, factive complements resemble relative clauses and event nominalizations, while non-factive complements look more like adjuncts.

(22) *Factive vs. non-factive embedded clauses*

	nominalizer	mood marker	clause size
Factive	*-gi/ge*	*-i*	CP
Non-factive	—	*-aʔ*	MoodP

3. Background and ingredients of the analysis of factivity

We account for the factivity and mood contrast in Washo by borrowing a couple of key elements from recent work on the structure and interpretation of complement clauses.

3.1 Decomposing attitudes

A classical Hintikkan semantics for propositional attitudes can be formulated along the lines of (23) below (Hintikka 1969). Under this view, the attitude verb takes a complement clause p, the object of the attitude, as an argument. The relation between the attitude complement and the attitude holder x is directly encoded in the attitude predicate. In the case of *believe*, the subject x believes p in world w if and only if p is true in all the worlds compatible with x's beliefs in w.

(23) $[\![\textit{believe}]\!]^w = \lambda p \lambda x. \forall w' [w' \in \text{Dox}_x(w) \rightarrow p(w') = 1]$

Recent work by Kratzer (2006) and Moulton (2009, 2015) revises this classical analysis of propositional attitudes. Under their view, propositional attitudes simply denote properties of events, as in (24).

(24) $[\![\textit{believe}]\!]^w = \lambda s.\textbf{believe}_w(s)$

The content of belief is not a lexical argument of the attitude verb *believe*, so we must find another way of composing attitude ascriptions syntactically and semantically. Here we follow most closely the proposals by Moulton (2009, 2015) and Elliott (2016a,b).

A key insight from Moulton is that complement clauses (or rather, *that*-clauses more generally) do not directly denote propositions. Evidence for this position in English comes in part from so-called content nouns like *idea*, *rumor*, etc., which can appear in equative predications as in (25).

(25) The idea/story/rumor/fact is that Bob is a fraud. (Moulton 2015)

Moulton's insight is that the content noun should not be equated with the *proposition* that Bob is a fraud, but rather with something else. As Moulton says: "Stories can be long and boring. But propositions can't be. Rumors can be mean; they can be spread by people. But you can't spread sets of possible worlds, nor can worlds be mean" (Moulton 2015, p. 311). Instead, *that*-clauses should denote sets of individuals, namely individuals whose content is a certain proposition. The clause *that Bob is a fraud* is given the semantics in (26a), where the function CONT is defined as in (26b).

(26) a. $[\![\textit{that Bob is a fraud}]\!]^w = \lambda x.\text{CONT}_w(x) = \lambda w'.$Bob is a fraud in w'

b. $\text{CONT}_w(x) = \{w' : w'$ is compatible with the intentional content determined by x in w$\}$ (Moulton 2015, p. 312)

Assuming that the sentence *Bob is a fraud*, embedded or not, still denotes a proposition, we need some semantic glue to arrive at the denotation for the *that*-clause in (26a). According to Kratzer (2006), this is the role of the complementizer *that*. As we will see later, we do not want to associate this meaning with the complementizer head in Washo. We will instead package this meaning in a function F_{PROP}, defined in (27), which relates a proposition p to an individual x whose content is p (cf. Moulton 2009, Elliott 2016a).

(27) $F_{\text{PROP}}(w) = \lambda p \lambda x.\text{CONT}_w(x) = p$

Now, under this view, the attitude verb in (24) does not semantically select for complement clause argument of the sort in (26a), so we need some other way for these to compose. Following Elliott (2016a), we assume no type distinction between events and individuals, which then makes it possible for the meanings in (24) and (26a) to combine via Predi-

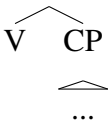
cate Modification (Heim & Kratzer 1998). The *that*-clause then denotes the propositional content of the event that the attitude verb names, as shown in (28).

(28) [[*Abby believes that Bob is a fraud*]]^{w}
= ∃s[**believe**$_{w}$(s) & **agent**$_{w}$(s) = Abby & CONT$_{w}$(s) = λw′.Bob is a fraud in w′]

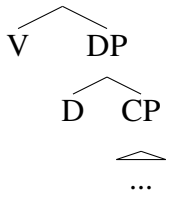
3.2 Presuppositional complement clauses

The second main ingredient of our analysis comes from recent work by Kastner (2015), who proposes that complements of factive and non-factive verbs come in different sizes. Specifically, non-factive verbs embed CPs directly as in (29a), while factive verbs embed a DP layer, which in turn embeds a CP, as in (29b).

(29) a. *non-factive verbs*:



b. *factive verbs*:



Kastner further proposes that interpretation reflects syntactic structure. Complements of factive verbs receive their factive presupposition from the D head, which presupposes a familiar entity in discourse.[5] Meanwhile, CP complements lacking a D-layer have no familiarity restrictions, and these are interpreted as non-factive. Although in English this difference in structure is not visible, Kastner shows that in Hebrew, the presence of the proximal demonstrative *ze* requires a factive interpretation of the complement clause, and is impossible after the verbs *xašav* 'thought' and *amar* 'say'. He thus treats *ze* as an overt D within a structure like (29b).

Previewing our analysis for Washo, we will propose that the nominalizing morphology *-gi/-ge* that appears in factive complements occupies a D head above an embedded CP, yielding a structure like in (29b) for factive complements. Beyond the Washo facts, there appears to be other cross-linguistic evidence for making this move. For instance, in recent work, Bogal-Allbritten & Moulton (2016) also argue for a notion of familiarity implicated in nominalized clauses in Korean and Navajo.

3.3 Interim summary

Moving forward, we make use of the following elements in our analysis of clausal complements in Washo:

[5]Kastner suggests that the contributed presupposition is one of familiarity, though he does not give a formal semantics. We diverge from this treatment in that the nominalizing D-head in Washo contributes a presupposition of uniqueness, rather than familiarity directly.

i. a Kratzer/Moulton/Elliott analysis a attitude verbs:

   - a neo-Davidsonian semantics for attitude verbs:
     $[\![believe]\!]^w = \lambda s.\textbf{believe}_w(s)$
   - a function F_{PROP} that relates propositions and individuals with content:
     $F_{PROP}(w) = \lambda p \lambda x[\text{CONT}_w(x) = p]$

ii. a Kastner-style analysis of the structural differences between factive and non-factive complements:

   - D head contributes a presupposition of existence/uniqueness.
   - Lack of D head results in no uniqueness presupposition.

Our specific implementation of these proposals follows in the next section.

4. Our proposal

In the proposal to follow, we give an analysis of factivity of Washo that relies on both syntactic and semantic differences between two types of embedded clauses. First, the syntax of the two constructions reflects the role of the nominalizing D-head in factive complements, which contributes a presupposition of uniqueness to the embedded clause. Non-factive complements lack this D head and carry no such presupposition. In addition to these differences, the mood markers found in both clauses have different meanings that reflect the roles these complements play in combining propositional meanings.

4.1 Deriving the difference in mood markers

In a nutshell, we treat the independent mood marker *-i* as the default mood, while the dependent mood marker *-aʔ* is a clausal coordinator. This amounts to the proposal that the independent mood marker, used in nominalizations, has no special meaning and simply denotes the identity function.

(30) $[\![\text{-}i]\!]$: $\lambda x_\alpha[x]$

The fact that this mood marker acts as the default in matrix contexts is explained by the lack of this marker's special meaning. On the other hand, we assign the dependent mood marker the meaning of *Predicate Modification* (i.e., conjunction).

(31) $[\![\text{-}aʔ]\!]$: $\lambda P_{\langle e,t\rangle} \lambda Q_{\langle e,t\rangle}.\lambda x_e[P(x) \,\&\, Q(x)]$

Given this meaning, composition of *-aʔ* clauses proceeds essentially as suggested by Elliott (2016). The lack of appearance in simplex matrix clauses is explained by the fact that clauses with this marker cannot stand alone.

4.2 Factive complements

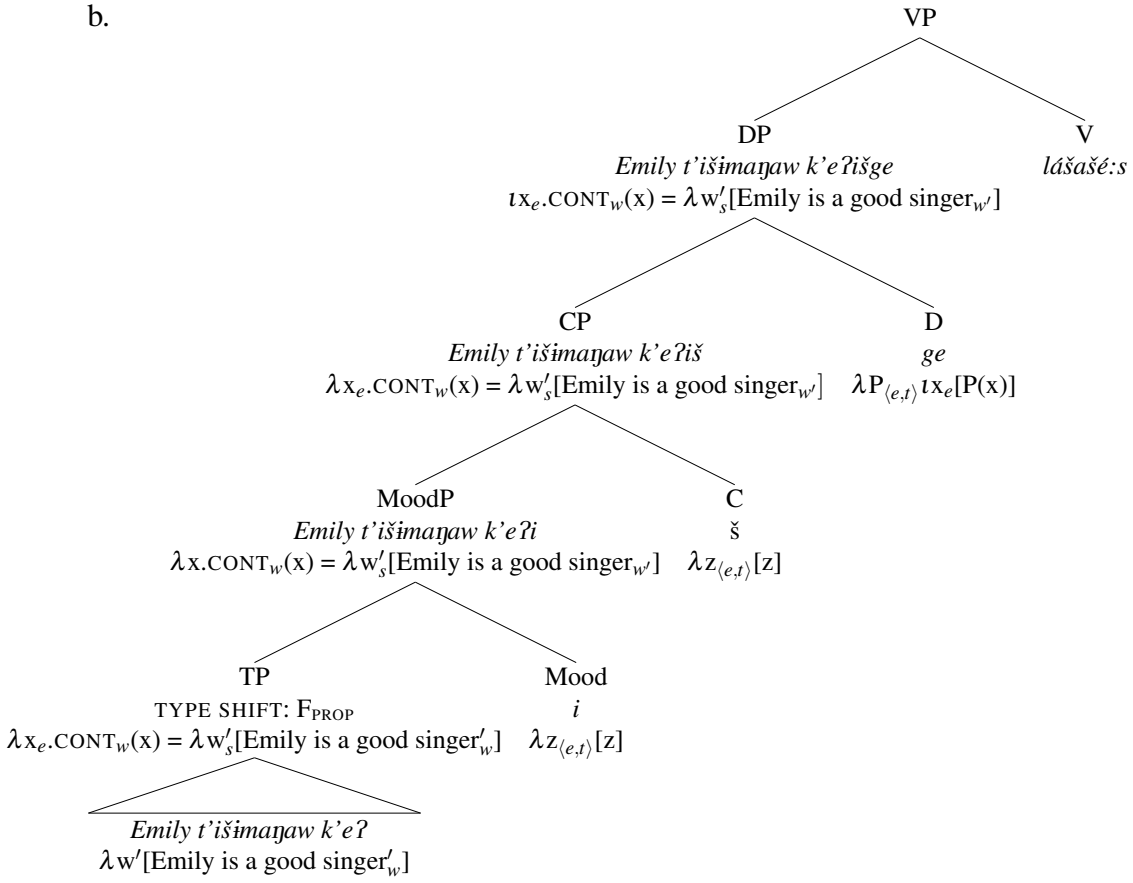
In the analysis to follow, we diverge from previous treatments and implement F_{PROP} as an optional type-shift, rather than as an obligatory syntactic node in the clausal periphery.

(32) *F_{PROP} type-shift*: $P_{\langle s,t\rangle}$ SHIFT $\lambda x_e[\text{CONT}(x) = P]$

The derivation of a factive complement will proceed as in (33). First, the embedded proposition undergoes the F_{PROP} type-shift. After this type-shift has applied, the resulting property meaning is ι-bound by the D head *-gi/ge*, which has the meaning of a Strawsonian definite article. This will return the unique individual whose content is the embedded presupposition, which can then be selected for by the matrix factive verb. Note that C and Mood both denote the identity function in this case, and have no effect on the derivation.

(33) a. Emily t'-íšim-aŋaw k'-é?-i-š-ge l-ášaš-é:s-šemu-yi
Emily NMZLR-sing-well 3-be-IND-SR-REL 1-be.ignorant-NEG-really-IND
'*I really know that Emily is a good singer.*'

b.



The resulting meaning of both clauses is as in (34), according to which there is a knowing event by the speaker, and whose theme is the proposition that *Emily is a good singer*.[6]

(34) [[*Emily t'išɨmaŋaw k'eʔišge lašašé:sšemuyi*]]^{w}:
$\exists s[\text{knowing}_w(s) \wedge \text{HOLDER}_w(s) = \text{speaker} \wedge \text{THEME}_w(s) = \iota x[\text{CONT}_w(x) = \lambda w'[\text{Emily is a good singer}_{w'}]]]$

4.2.1 The connection to relative clauses

Given the account that we've just proposed, the connection to relative clauses becomes easily explainable. As we have argued above, the presence of the nominalizer in factive complements is to ι-bind the property formed through F_{PROP}. This is on a par with what has been argued by Hanink (2016) for relative clauses and event nominalizations in Washo: the nominalizer, with the meaning of a Strawsonian definite article, is present to ι-bind the semantic head of the relative. The derivation for a relative clause like (35) then proceeds as in (36), below.

(35) [$_{DP}$ [$_{CP}$ mé:hu **géwe** ʔ-í:gi-yi-š]-**ge**] lé:-saʔ l-í:gi-yi
boy coyote 3-see-IND-SR-REL 1-also 1-see-IND
'*I also saw the coyote that the boy saw*.'

(36) a. [[*mé:hu géwe ʔi:giyiš*]]:
$\exists e[\text{see}(x_{coyote})(e) \,\&\, \text{AGENT}(\iota z.\text{boy}(z))(e)]$ *embedded clause*

b. [[*mé:hu géwe ʔi:giyiš*]]:
$\lambda x \exists e[\text{see}(x_{coyote})(e) \,\&\, \text{AGENT}(\iota z.\text{boy}(z))(e)]$ *unselective binding*

c. [[*mé:hu géwe ʔi:giyišge*]]:
$\iota x \exists e[\text{see}(x_{coyote})(e) \,\&\, \text{AGENT}(\iota z.\text{boy}(z))(e)]$ *ι-binding by -ge*

The nominalizer *-gi/ge* turns the embedded clause into an individual-denoting expression. This can then be selected for directly by the matrix verb, for instance as the object of the matrix verb *see* in (36). This mirrors what we see in factives, where a factive predicate likewise selects for an individual-denoting expression rather than a property directly.

4.3 Non-factive complements

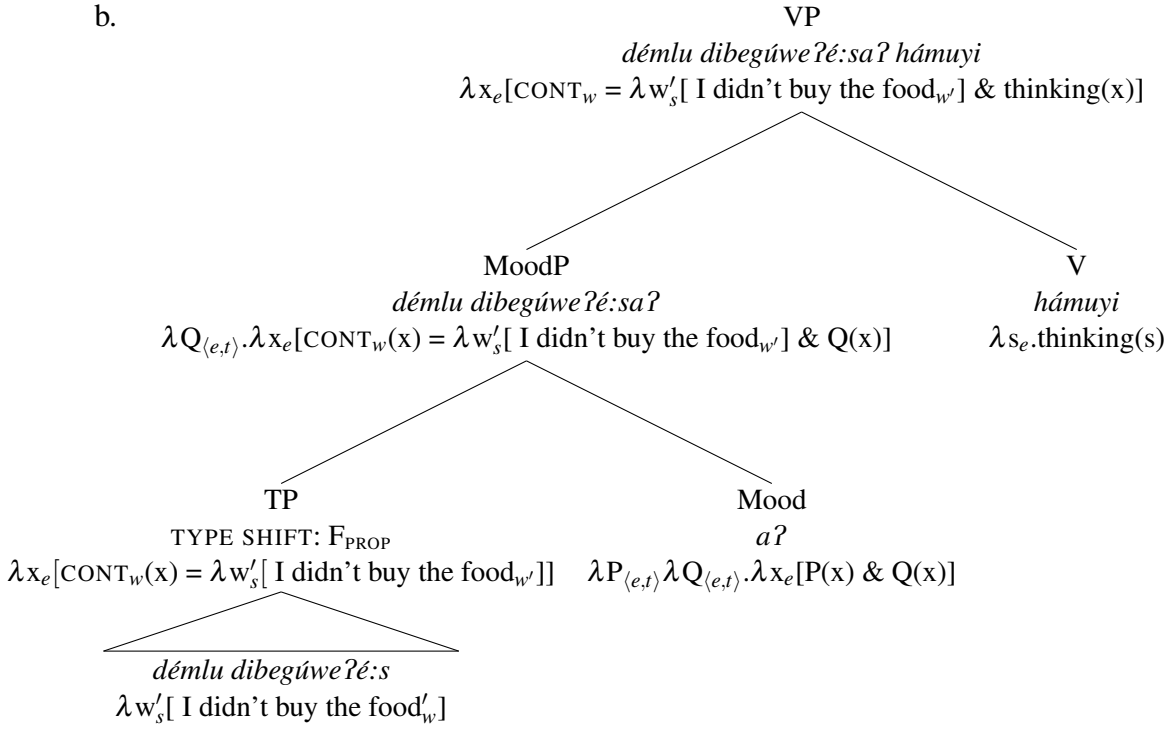
In non-factive complements, we again treat F_{PROP} as an optional type-shift. Unlike in factive complements however, the property formed through this type shift is not ι-bound by a nominalizer, but composes instead with *-aʔ* before composing with the matrix verb. Because there is no D head in the derivation, there is no contributed presupposition of the definite article like there is in non-factive comple-

[6] In Elliott's (2016) Neo-Davidsonian account, this argument is introduced as the specifier of the thematic role head THEME.

ment proceeds as in (37). First, the embedded proposition undergoes the F_{PROP} type-shift. After this type-shift has applied, the resulting property meaning saturates the first argument of the function denoted by *-aʔ*. This leaves one argument unsaturated, which is filled in by the meaning of the matrix verb. The result is therefore essentially the conjunction of the propositions denoted by each clause.

(37) a. Béverli démlu di-begúweʔ-é:s-aʔ ∅-hámu-yi
Beverly food 1-buy-NEG-DEP 3-think-IND
'*Beverly thinks I didn't buy the food.*'

b.



The final result after ∃-closure is as in (38), according to which there is some thinking event by Beverly, whose content is the proposition expressed by the embedded clause, namely, *I didn't buy the food*. Note the crucial difference here, as put forward by Elliott (2016): in factive complements, the embedded proposition is a true argument of the matrix verb, while in non-factive complements, it simply modifies it instead.

(38) [[*Béverli démlu dibegúweʔé:saʔ hámuyi*]]^w:
∃s[thinking$_w$(s) ∧ HOLDER$_w$(s) = Beverly ∧ CONT$_w$(s) = λw′[I didn't buy the food$_{w'}$]]

4.3.1 The connection to adjuncts

We are also now in a better position to explain the observed similarities between non-factive complements and adjuncts in Washo: The mood marker *-aʔ* is used in non-factive

embedded clauses and in adjuncts because its purpose in both is to introduce a modifying clause. As we just saw above, *-aʔ* allows for the introduction of a state that modifies the matrix verb in non-factive complements. In the case of adjuncts, the clause introduced through the presence of *-aʔ* modifies the matrix clause, as in (39).

(39) [l-émlu-**yaʔ**-š] ʔ-íːmeʔ-leg-**i**
1-eat-DEP-SR 3-drink-REC.PAST-IND
'*While I was eating, he was drinking.*'

5. Conclusion

We have provided novel evidence from Washo for a distinction in the syntactic form of factive and non-factive complements. Complements of factive verbs are CPs headed by an overt D element. Meanwhile, complements of non-factive verbs are MoodPs lacking a D layer. In this respect, we offer new cross-linguistic support for an analysis along the lines of Kastner (2015) whereby factive complements are larger than non-factive ones, and specifically that factive complements come with a DP layer.

The composition of the embedded proposition with the matrix verb also differs in the two environments and is mediated by the choice of mood marker (independent mood *-i* vs. dependent mood *-aʔ*). Complements of factive verbs on the one hand are definite descriptions of the content of the embedded clause. In this case, independent mood *-i* surfaces as the default mood marker. Complements of non-factive verbs, on the other hand, are interpreted as properties which intersect with the matrix verb. In this case, the dependent mood marker *-aʔ* surfaces as the marker of clausal modification. We suggest that this treatment of mood markers in Washo can also explain their distribution in internally-headed relative clauses/event nominalizations (independent mood *-i*) and adjunct clauses (dependent mood *-aʔ*). We leave a more detailed investigation of this suggestion to further research.

Our study sheds light on the nature of syntactic versus semantic selection in building complement clauses of propositional attitudes. We build on Kastner's (2015) intuition that the syntax and semantics work together in deriving the difference between factive and non-factive complements. This stands in contrast to other recent accounts, which place all the heavy lifting in the semantics (e.g., Elliott 2016a,b). We believe the Washo facts lend overt morphological evidence to the idea that both syntax and semantics are at work in tandem. This suggests that accounts without a syntactic difference are not on the right track, or else we observe cross-linguistic variation in the syntax and semantics of clausal complementation.

References

Abrusán, Márta. 2011. Presuppositional and negative islands: a semantic account. *Natural Language Semantics* 19:257–321.

Abrusán, Márta. 2014. *Weak Island Semantics*. Oxford University Press.

Adams, Marianne. 1985. Government of empty subjects in factive clausal complements. *Linguistic Inquiry* 16:305–313.

Bochnak, M. Ryan. 2016. Past time reference in a language with optional tense. *Linguistics and Philosophy* 39:247–294.

Bogal-Allbritten, Elizabeth, & Keir Moulton. 2016. Nominalized clauses and reference to propositional content. Paper presented at *Sinn und Bedeutung 21*.

Elliott, Patrick. 2016a. Embedded declaratives as modifiers. Talk presented at Sinn und Beduetung 21, University of Edinburgh.

Elliott, Patrick. 2016b. Explaining DPs vs. CPs without syntax. To appear in *Proceedings of CLS 52*.

Finer, Daniel L. 1985. The syntax of switch-reference. *Linguistic Inquiry* 35–55.

Giannakidou, Anastasia. 2009. The dependency of the subjunctive revisited: Temporal semantics and polarity. *Lingua* 119:1883–1908.

Hanink, Emily. 2016. Internally headed relatives and event nominalizations in Washo. In *Proceedings of bls 42*, ed. E. Clem, V. Dawson, A. Shen, A.H. Skilton, G. Bacon, A. Cheng, & E.H. Maier, 119–134. UC Berkeley.

Heim, Irene, & Angelika Kratzer. 1998. *Semantics in Generative Grammar*. Blackwell.

Hintikka, Jaakko. 1969. Semantics for propositional attitudes. In *Philosophical logic*, ed. J.W. Davis, D.J. Hockney, & W.K. Wilson, 21–45. Dordrecht: Reidel.

Jacobsen-Jr., William. 1964. A Grammar of the Washo Language. *Doctoral dissertation, UC Berkeley* .

Jacobsen-Jr., William. 1981. Headless Relative Clauses in Washo. *Conference on the Syntax of Native American Languages, University of Calgary, March* .

Kastner, Itamar. 2015. Factivity mirrors interpretation: The selectional requirements of presuppositional verbs. *Lingua* 164:156–188.

Kiparsky, Paul, & Carol Kiparsky. 1970. Fact. In *Progress in Linguistics*, ed. M. Bierwisch & K.E. Heidolph, 143–173. Mouton.

Kratzer, Angelika. 2006. Decomposing attitude verbs. Talk given in honor of Anita Mittwoch. The Hebrew University Jerusalem.

Moulton, Keir. 2009. Natural selection and the syntax of clausal complementation. Doctoral dissertation, University of Massachusetts, Amherst, MA.

Moulton, Keir. 2015. CPs: copies and compositionality. *Linguistic Inquiry* 46(2):305–342.

Peachey, Robert M. 2006. On switch-reference and the internally-headed relative clause construction in Washo. *Ms. University of Chicago* .

Rooryck, Johan. 1992. Negative and factive islands revisited. *Journal of Linguistics* 28.2:343–374.

Wurmbrand, Susi. 2001. *Infinitives: Restructuring and clause structure*. Mouton de Gruyter.

Zubizarreta, Maria Luisa. 1982. Theoretical implications of subject extraction in Portuguese. *The Linguistic Review* 2:79–96.

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