

Possession and categorization in a degreeless language*

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1. Introduction

The grammar tied to *property concepts* – adjectives in some languages but nouns or verbs in others (Dixon 1982, Thompson 1989) – has been an area of longstanding study in the syntax (Bresnan 1973) and semantics (e.g., Kamp 1975, Creswell 1976) of familiar languages.

Recent cross-linguistic investigations of less-studied languages have however provided fertile ground for understanding both **morphosyntactic and semantic variation** in this domain.

Two recent, independent findings in this area point to variation in:

- 1 whether the meanings of property concepts are **built on a mass-type core**, with **some possessive semantics required** to turn them into predicates of individuals (Menon & Pancheva 2014, Francez & Koontz-Garboden 2017), as shown for Ulwa (Misumalpan, Nicaragua):

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|--|--|
| (1) <i>Ordinary possession</i>
Alberto pan -ka
Alberto stick- 3.POSS
'Alberto's stick.' | (2) <i>Property concept predication</i> (Green 1999)
Alas yûh- ka atrang.
s/he tallness- 3.POSS will.be
'S/he will be tall.' (lit: . . . 'have tallness') |
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- 2 whether their meanings are **built on degrees** (i.a. Beck et al. 2009, Bochnak 2015)

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|---|---|
| (3) <i>Degreeful</i> (Creswell 1976, a.o.)
$\llbracket \text{tall} \rrbracket$: $\lambda d_d \lambda x_e [\text{tall}(x) \geq d]$ | (4) <i>Degreeless</i> (Kamp 1975, Klein 1980), a.o.
$\llbracket \text{tall} \rrbracket^c$: $\lambda x_e [x \text{ counts as tall in } c]$ |
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Today's talk

The interaction of these points in Washo

- 1 Property concepts in Washo are morphologically complex, formed from acategorial roots by a **verbalizing *v* head that encodes a possessive semantics** (Menon & Pancheva 2014).
- 2 The analysis of possessive predication put forward by Francez & Koontz-Garboden 2017 extends to Washo in a way consistent with Bochnak's (2015) observation that it is **degreeless**.

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Broader view

- There is a previously unobserved interaction between degreefulness, possession, and mass semantics in the grammar of property concepts cross-linguistically.
- Washo provides morphologically overt evidence for the previous claim ([Menon & Pancheva 2014](#)) that verbal categorization introduces a possessive semantics to property concepts.

Outline

- §1: *Introduction*
- §2: *Background on Washo*
- §3: *Core data*
- §4: *Morphosyntactic proposal*
- §5: *Semantic proposal*
- §6: *Possessed property concepts in a degreeless language*
- §7: *Conclusion*

2. Background on Washo



- Severely endangered language spoken around Lake Tahoe in the United States
- ≤ 10 native speakers
- Isolate; has been linked to Hokan (see [Campbell 1997](#), [Mithun 1999](#))
- SOV word order with pro-drop and agglutinative verb morphology
- Uncited data in this talk: fieldwork in CA/NV communities between 2015-2020

3. Core data

The verbal suffix *-iʔ* in Washo

Termed the ‘attributive-agentive’ suffix by [Jacobsen \(1964\)](#).

“derives verbs expressing the possessor of the underlying noun.” [Jacobsen 1964: 555](#)

As Jacobsen notes, this suffix is used productively to express general **possession of an entity**:¹

- | | | | |
|-----|---|-----|---|
| (5) | di-gúšuʔ -iʔ -i
1-pet -ATTR -IND
‘I have a pet/pets.’ | (6) | ʔum-wí:git’áyab -iʔ -he:š-i
2-eyeglasses -ATTR -Q-IND
‘Do you have/wear glasses?’ |
|-----|---|-----|---|

Beyond ordinary possession however, the same suffix is also found in **property concept predication**:²

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|-----|---|-----|---|
| (7) | daláʔak ʔ-í:yel -iʔ -i
mountain 3-big -ATTR -IND
‘The mountain is big.’ | (8) | t’é:liwhu ʔil-káykay -iʔ -i
man 3.ATTR-tall -ATTR -IND
‘The man is tall.’ |
|-----|---|-----|---|

All of the above examples are verbal

- Mood marking is present: *-i* ‘independent’ mood (see [Bochnak 2016](#), [Hanink & Bochnak 2018](#)).
- Verbal agreement is present (prefixal, for person only).
- Washo lacks an adjectival category (see Appendix 1 for more on deverbal PCs).

Distinct from possessive morphology in the nominal domain

Third person nominal possession in Washo is expressed by prefixal agreement on the possessum:

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|-----|--|------|--|-------------------|--------------------|
| (9) | Adele gúšuʔ
Adele 3POSS.pet
‘Adele’s pet’ | (10) | <i>pro</i> da -gúšuʔ
<i>pro</i> 3.POSS-pet
‘her pet’ | (overt possessor) | (covert possessor) |
|-----|--|------|--|-------------------|--------------------|

⇒ The attributive suffix is a *verbal* suffix, not linked to nominal possession, cf. Ulwa (repeated):

- | | | | |
|------|--|------|--|
| (11) | Alberto pan -ka
Alberto stick- 3.POSS
‘Alberto’s stick.’ | (12) | Alas yûh- ka atrang.
s/he tallness- 3.POSS will.be
‘S/he will be tall.’ (lit: . . . ‘have tallness’) |
|------|--|------|--|

(This is what deters [Bochnak 2013](#) from analyzing Washo PCs as involving possession.)

¹Glosses: ATTR: attributive; DEP: dependent mood; DS: different subject; IND: independent mood; NEG: negation; POSS: possessive; Q: interrogative suffix. We use the standardized orthography for Washo adopted in [Jacobsen 1964](#), which follows the IPA with the following exceptions in our examples: L [l̥], š [ʃ], and y [j]. Uncited data come from Hanink’s fieldwork.

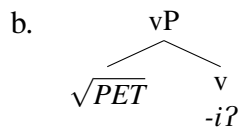
²Certain property concepts do not require the attributive suffix, e.g., *di-yák’aš-i* ‘I am warm’. Others (see (8)) additionally require the prefix *ʔil-* as well as reduplication of the stem ([Yu 2012](#)). We take the former to be verbal in nature; the latter pose an additional layer of complexity that we do not address in this talk.

The attributive suffix *-iʔ* is a categorizing v head

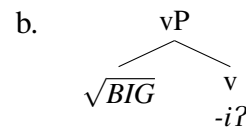
(13) aval **nalla**-val aanə
 she **having.goodness**-F.SG EQ.COP
 ‘She is good.’ ([=‘She is one having goodness.’])

Menon & Pancheva 2014: 292

(14) *Ordinary possession*
 a. di-gúšúʔ-iʔ-i
 1-PET-ATTR-IND
 ‘I have a pet/pets.’



(15) *Property concept predication*
 a. daláʔak ʔ-í:yel-iʔ-i
 mountain 3-BIG-ATTR-IND
 ‘The mountain is big.’



- ### Evidence for $-i?$ as a categorizer:

- (16) *daláʔak ʔ-í:yel-i
 mountain 3-*BIG*-IND
 Intended: ‘The mountain is big.’

- (17) *Ø-gúšúʔ-i
3-*PET*-IND
Intended: ‘It’s a pet.’

(18) gúšuʔ k'-éʔ-i
pet 3-be-IND
'It's a pet.'

- 4

- | | |
|--|---|
| (19) t'á:gim di-sáʔ-i
pinenut 1/3- have -IND
'I have pinenuts.' Washo Archive | (20) *t'á:gim di-ʔíʔ-i
pinenut 1/3-ATTR-IND
Intended: 'I have pinenuts.' |
|--|---|

Broader view:

Washo lends cross-linguistic evidence to the claim that **v** may introduce a possessive semantics (à la Menon & Pancheva 2014, and contra Francez & Koontz-Garboden 2017).

⇒ Potentially constitutes a new 'flavor' of **v** (Folli & Harley 2005).

5. Interpretation

***-iʔ* denotes a function mapping properties to relations between individuals and properties**

We assign *-iʔ* the meaning in (21), whose first argument is a root denoting a property of individuals:

- (21) $\llbracket -iʔ \rrbracket: \lambda P_{\langle e,t \rangle} \lambda x_e \exists y [P(y) \ \& \ \mathbf{have}(x,y)]$ (based on Francez & Koontz-Garboden 2017)

Ordinary Possession

The root composes with *-iʔ* to return a characteristic function of individuals having pets:

- (22) a. $\llbracket \sqrt{PET} \rrbracket: \lambda x_e [\mathbf{pet}(x)]$
 b. $\llbracket -iʔ \rrbracket (\llbracket \sqrt{PET} \rrbracket): \lambda x_e \exists y [\mathbf{pet}(y) \ \& \ \mathbf{have}(x,y)]$

When predicated of an individual, (22) yields a true proposition iff that individual has a pet:

- (23) a. di-gúšuʔ-iʔ-i
 1-*PET*-ATTR-IND
 'I have a pet/pets.' =(14a)
 b. $\exists y [\mathbf{pet}(y) \ \& \ \mathbf{have}(\mathbf{speaker}, y)]$

Property concept predication

We follow Francez & Koontz-Garboden in the proposal that **PC roots have a mass-type meaning**, partially ordered by a mereological relation (Link 1983).

Following Parsons (1990), Baglini (2015), Wellwood (2015, 2019) and others, we depart from Francez & Koontz-Garboden 2017 on the proposal that these entities are **Davidsonian states** (which are standardly assumed to be mereologically ordered; Champollion 2017: 27).³

Property concept roots denote sets of states (24) that are ordered not only by the mereological relation, but also by a size-relation like that assumed by Francez & Koontz-Garboden to capture gradability.

- (24) $\llbracket \sqrt{BIG} \rrbracket: \lambda s_e [\mathbf{big}(s)]$

³Francez & Koontz-Garboden's (2017) proposal treats the size relation over mass entities as *portions*.

- States are a sort of the domain of eventualities, which are themselves in the domain of individuals.
- Like any other $\langle e, t \rangle$ predicate, (24) can compose with $-i?$ to create a predicate of individuals possessing some entity (here, a state) in the denotation of the root (25):

$$(25) \quad \llbracket -i? \rrbracket (\llbracket \sqrt{BIG} \rrbracket): \lambda x_e \exists y [\mathbf{big}(y) \ \& \ \mathbf{have}(x, y)]$$

When predicated of an individual, (25) is true iff that individual has a state of bigness:

- (26) a. $\text{dalá?ak} \quad ?\text{-í:yel-i?}-i$
 mountain 3-*BIG*-ATTR-IND
 ‘The mountain is big.’ =(15a)
- b. $\exists y [\mathbf{big}(y) \ \& \ \mathbf{have}(\text{mountain}, y)]$

$-i?$ plays the same role in ordinary possession and in possessive predication.

6. Possessed property concepts in a degreeless language

Washo has been argued to be a **degreeless** language (Bochnak 2013, 2015)

- Washo lacks any degree morphology, and fails semantic tests for degreefulness.
- This behavior suggests degreelessness in the sense of Beck et al. 2009.
- Bochnak adopts an approach in which PCs are contextually-sensitive sets of individuals (Klein 1980).

$$(27) \quad \llbracket \text{tall}_{\text{Washo}} \rrbracket^c: \lambda x_e [x \text{ counts as tall in } c] \quad \text{Bochnak 2015: 4}$$

Washo’s degreelessness raises questions for previous analyses of possessed property concepts, as they are designed to account for Ulwa and Malayalam, which are not argued to be degreeless.

- Our Davidsonian analysis does not make recourse to degrees (in the absence of degree morphology).
- Our proposal for possessive predication, based on Francez & Koontz-Garboden 2017 but couched in this Davidsonian analysis, handles the Washo facts.

6.1. Positive Contexts

Analyses of the positive form need to account for the fact that they are *vague*.

- (28) Maria is 5’8”/173 cm tall.
- a. *Context: a group of women of average height*
 Mary is tall.
- b. *Context: a group of women in the WNBA*
 #Mary is tall.

(29) daláʔak ʔ-í:yel -**iʔ** -i
 mountain 3-BIG -ATTR -IND
 ‘The mountain is big.’ =(7)

(30) t’é:liwhu ʔil-káykay -**iʔ** -i
 man 3.ATTT-TALL -ATTR -IND
 ‘The man is tall.’ =(8)

- (36) a. daláʔak ʔ-í:yel -iʔ -i
 mountain 3-BIG -ATTR -IND
 ‘The mountain is big.’ =(29)
 b. $[[(36a)]]: \exists y[\text{big}(y) \ \& \ \text{have}(\text{mountain}, y)]$

6.2. Comparatives

Our analysis of the positive form extends directly to the comparative.

Comparatives in Washo are implicit (in the sense of Kennedy 2007), consisting of conjoined positive constructions:⁴

- (37) t'é:liwhu de-ʔil-káykay-iʔ k'-éʔ-i
 man 3.POSS-ATTR-TALL-ATTR 3-be-IND
 daʔmóʔmoʔ de-ʔil-káykay-iʔ-é:s k'-áʔ-a-š
 woman 3.POSS-ATTR-TALL-ATTR-NEG 3-be-DEP-DS
 ‘The man is taller than the woman.’
 =‘The man is tall, the woman is not tall.’ Bochnak 2015: 10

Relevant is that these comparatives fail to give rise to crisp judgments (see Kennedy 2007), which involve comparison of two objects that are very close in measurement.

- (38) *Context:* Comparing two ladders, where one is only slightly taller than the other.
 #wí:diʔ ʔitmáŋa de-ʔil-káykay-iʔ k'-éʔ-i
 this ladder 3.POSS-ATTR-TALL-ATTR 3-be-IND
 wí:diʔ de-ʔil-káykay-iʔ-é:s k'-áʔ-a-š
 this 3.POSS-ATTR-TALL-ATTR-NEG 3-be-DEP-DS
 Intended: ‘This ladder is taller than that one.’
 =‘This ladder is tall, that one is not tall.’ Bochnak 2015: 12

Degreeless accounts predict the infelicity of crisp judgements (though see Deal & Hohaus 2019, Bowler 2020).

Degree-based accounts:

The vagueness of gradable predicates is captured by composition with silent POS.

Vagueness goes away with presence of COMP: no vagueness built into the meaning of the PC itself.

- (39) $[[\text{MORE}]]: \lambda G_{\langle d, \langle e, t \rangle \rangle} \lambda x_e. \exists d[d > d_{\text{stnd}} \ \& \ G(d)(x)]$

- Requires only an asymmetric ordering (of any size difference on a scale).
- Predicts that crisp judgements should be felicitous.

⁴Comparatives involve an adjunction structure with an embedded clause marked with the dependent mood -aʔ, which Hanink & Bochnak 2018 assign a semantics that is essentially equivalent to conjunction.

Degree-less accounts:

Gradable predicates are always vague, and so vagueness should persist in comparatives.

- Vague predicates are subject to a similarity constraint (Klein 1980, Graff 2000, Kennedy 2011):

(40) **Similarity Constraint**

When x and y differ only to a very small degree in the property that a vague predicate G is used to express, speakers are unable or unwilling to judge the proposition that x is G true and y is G false. apud Bochnak (2015: 12)

- Predicts that crisp judgements should not be felicitous.

Our account:

Comparatives are built on a conjunction of norm-related positive constructions.

- Positive constructions are norm-related and vague, without recourse to POS.
- Correctly predicts the infelicity of crisp judgements, on a par with the Kleinian account.

- (41) a. té:liwɰu de-ʔil-káykay-iʔ k'-éʔ-i daʔmóʔmoʔ
 man 3.POSS-ATTR-TALL-ATTR 3-be-IND woman
 de-ʔil-káykay-iʔ-é:s k'-áʔ-a-š
 3.POSS-ATTR-TALL-ATTR-NEG 3-be-DEP-DS
 ‘The man is taller than the woman.’
 =‘The man is tall, the woman is not tall.’ =(37)
- b. $\llbracket (41a) \rrbracket: \exists y[\text{tall}(y) \ \& \ \text{have}(\text{man}, y)] \ \& \ \exists y[\text{tall}(y) \ \& \ \neg \text{have}(\text{woman}, y)]$

6.3. On the overall lack of degree constructions

Our analysis is essentially a Davidsonian version of that proposed for (presumed degreeful) Ulwa.

For example, Ulwa has an explicit comparative with the morpheme *more*:

- (42) *Ulwa degree comparative*
 Abanel ya **kanas** yûh-ka Clementina karak
 Abanel the **more** tall-3.POSS Clementina with
 ‘Abanel is taller than Clementina.’ Francez & Koontz-Garboden 2017: 46

So what is the difference between Ulwa and Washo?

- We follow Bochnak et al. (2020) (building on Wellwood 2019) in the idea that degrees are introduced by degree morphemes themselves (e.g., measure phrases, comparative morphemes, intensifiers, etc.) (see also Bogal-Allbritten 2013 for conceptually related syntactic ideas).

- Such morphemes are not part of the functional inventory of Washo.
- Without this functional inventory, no degree constructions arise.

The difference between Ulwa and Washo is the functional inventory available in the language.

7. Conclusion and outlook

Washo property concepts are morphologically complex, using possession to turn a mass-type core into a property of individuals.

Property concepts have a mass type core

In recent work, [Menon & Pancheva \(2014\)](#) and [Hanink et al. \(2019\)](#) argue that a mass-type meaning underlies the lexical semantics of property concept lexemes **across all languages**:

- This meaning can be attributed to individuals via a possessive relation introduced overtly in the morphology or syntax (e.g., Ulwa, Washo), or covertly (e.g., Malayalam).
- Washo provides overt morphological evidence that this possession can be introduced via categorization (cp. the null categorizer in Malayalam).
- In other cases, possession is encoded into the meaning of the property concept lexeme itself, as is the case for certain property concepts in Basaá ([Hanink et al. 2019](#)) and English adjectives (so that e.g., *beautiful* is the set of individuals standing in the possessive relation to some beauty state).

Interaction with degreelessness

Against this backdrop is the degreelessness literature, which argues that languages can be split into those that have PCs with a degree argument (e.g., English) and those that do not (e.g., Washo).

- In showing that (most) Washo property concept verbs are actually morphologically complex, built on possession with a mass noun semantics for a property concept root (much like Ulwa), we have shown that the possessive analysis of property concept lexemes cuts across the degreefulness issue.
- We have also shown, adopting the analysis of [Bochnak et al. 2020](#), how Washo can be analyzed in these terms, while at the same time accounting for its degreeless behavior.

Open questions

It remains to be seen how this typology interacts with other points of syntactic and semantic variation in the grammar of gradability and comparison, e.g.,

- The syntactic categories of property concept lexemes
- The structural interactions between (possessed) PCs and degree morphology
- Variation in the derivation of change of state predicates from property concept lexemes ([Koontz-Garboden 2007](#), [Matthewson et al. 2015](#))

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Appendix 1: Attributive and predicative property concepts in Washo

The prefix *t’-/d^e-* in Washo forms what superficially look like *-er* nominals:

- | | | |
|--|---|----------------------|
| <p>(43) dé:guš t’-í:k’e?
 potato 3.UN-grind
 ‘potato grinder’ (<i>man’s name</i>)</p> | <p>(44) da-mt’á?ŋa?
 3.UN-hunt
 ‘hunter’</p> | <p>Jacobsen 1964</p> |
|--|---|----------------------|

The same morphology is also found with deverbal property concepts in Washo

Washo lacks an adjectival category.

Attributive and nominalized property concepts are deverbal (Jacobsen 1964, Bochnak et al. 2011) and involve a nominal possessive structure (Hanink 2020):

- (45) a. *Attribution*
 dewdǫʔiš [**de-ʔil-káykay-i?**] l-í:gi-yi
 tree [**3.UN-ATTR-TALL-ATTR**] 1/3-see-IND
 ‘I saw the tall tree.’Washo Archive
- b. *Nominal predication*
 [**de-ʔil-bá:bab-i?**] L-éʔ-i
 [**3.UN-ATTR-SPOT-ATTR**] 1-be-IND
 ‘I’m freckled.’ [=‘I’m one with freckles/a freckled one.’]
- c. *Argument position*
 [**de-ʔil-káykay-i?**] l-í:gi-yi
 [**3.UN-ATTR-TALL-ATTR**] 1/3-see-IND
 ‘I saw the tall [one].’

The *t’-/d^e-* prefix is not a nominalizer, but a reflex of **possessor agreement**.

Washo makes use of expressed vs. unexpressed possessor marking in third-person contexts.

- If the possessor is overt, possessor agreement marks person.
- If the possessor is covert, the (phonologically conditioned) prefix *t’-/d^e-* surfaces.

- | | |
|---|--|
| <p>(46) a. Adele ʔ-áŋal
 Adele 3-house
 ‘Adele’s house’</p> | <p> b. t’-áŋal
 3.UN-house
 ‘his/her house’</p> |
|---|--|

Another place where we see unexpected possession of this kind is in possessive predication.

(47) a. minisih-ka
DIRTY-POSS
 ‘dirty’ [= ‘one having the property of being dirty’].
 b. $[[minisihka]]: \lambda x_e [\pi(x, \textit{DIRTY})]$ Koontz-Garboden & Francez 2010: 223-224

- ## What exactly is this possessive relation?

Building on this, [Hanink \(2020\)](#) argues for the following meaning for POSS:

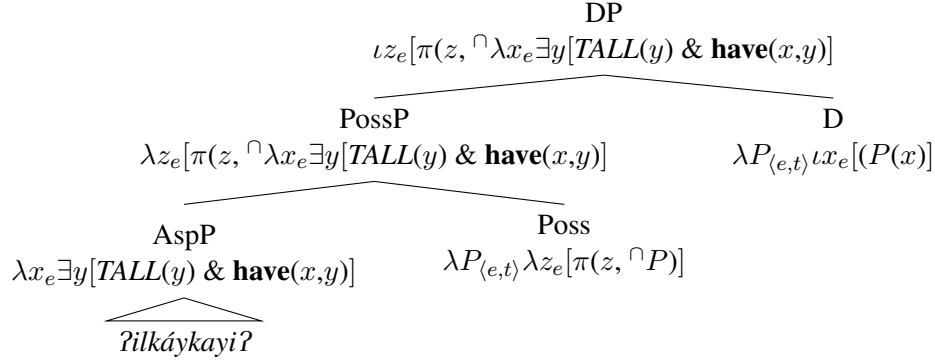
Subject nominalizations

DP
 $\iota x_e[\pi(x, \cap \lambda y_e \text{GEN}_e[\mathbf{heal}(\mathbf{people})(e) \ \& \ \text{agent}(y)(e)])]$
 PossP D
 $\lambda x_e[\pi(x, \cap \lambda y_e \text{GEN}_e[\mathbf{heal}(\mathbf{people})(e) \ \& \ \text{agent}(y)(e)])]$ $\lambda P_{\langle e, t \rangle} \iota x_e[(P(x))]$
 AspP Poss
 $\lambda y_e \text{GEN}_e[\mathbf{heal}(\mathbf{people})(e) \ \& \ \text{agent}(y)(e)]$ $\lambda P_{\langle e, t \rangle} \lambda x_e[\pi(x, \cap P)]$
 $t'ánu \ i\check{s}iwha$

- ⁵See Koontz-Garboden & Francez 2010: 223 for variations in the possible meaning of POSS.

Property concepts in argument position

- (51) a. [de-ʔil-káykay-iʔ] l-í:gi-yi
 [3.POSS-ATTR-TALL-ATTR] 1/3-see-IND
 ‘I saw the tall [one].’
 b.



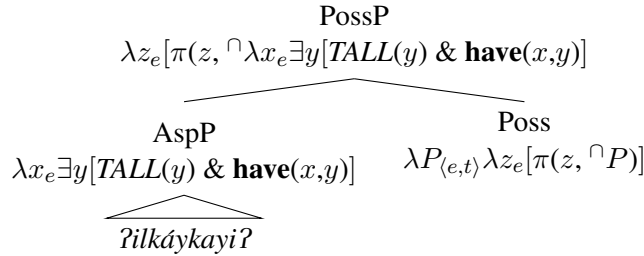
- Null D or ι type-shift applies to PossP

⇒ Result: the unique individual who is in the extension of the set of individuals who have tallness

Property concepts in attribution/predication

PossP doesn't need to be nominalized, it can remain a property of individuals.

- (52) a. dewdíʔiš [de-ʔil-káykay-iʔ] l-í:gi-yi
 tree [3.POSS-ATTR-TALL-ATTR] 1/3-see-IND
 ‘I saw the tall tree.’
 b.



- Undergoes Predicate Modification with $[[tree]]$:

$$(53) \quad [[dewdíʔiš de ʔilkáykay-iʔ]]: \lambda z_e [\mathbf{tree}(z) \& \pi(z, \cap \lambda x_e \exists y [TALL(y) \& \mathbf{have}(x,y)])]$$

- Followed by ι -shift/composition with D:

$$(54) \quad [[dewdíʔiš de ʔilkáykay-iʔ]]: \iota z_e [\mathbf{tree}(z) \& \pi(z, \cap \lambda x_e \exists y [TALL(y) \& \mathbf{have}(x,y)])]$$

- In predication contexts (e.g., (45b)), nothing further is required.