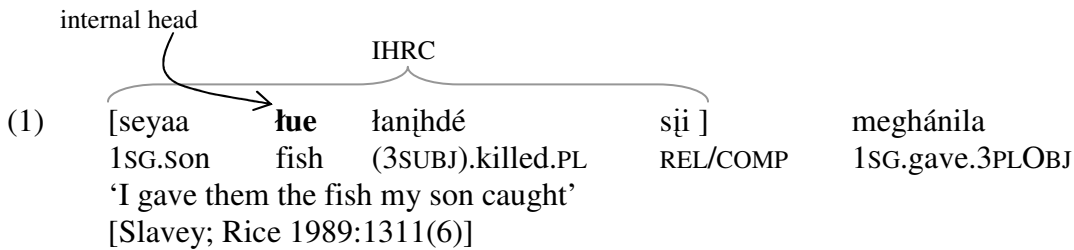


**Athapaskan Internal Heads**  
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### Simple Question

How is the head of an internally headed relative clause (IHRC) in Athapaskan languages composed with the rest of the relative clause?



### An elegant solution

Basilico (1996) proposes that internal heads, in these and other languages, have to be the kind of indefinites that serve only to restrict an operator that heads the relative clause.

(2) [ $t_x$  [**hue**(x) & łanihdé(seyaa)(x)]]

- the IH *restricts* some sort of iota/maximalization operator (Grosu and Landman 1998)
- must be an IH that provides a variable for restriction in this direct way, i.e. an indefinite/bare NP
- Crucially, Athapaskan IHRCs look to be different from other well-studied IHRCs in Japanese and Korean.
- Proposals for these (Shimoyama 1999) do not treat the internal head as a restrictor of a definite, but rather propose an indirect way of linking the internal head to an argument position in the matrix clause (through an E-type analysis).

### Goals

- show that Basilico's approach cannot be straight-forwardly maintained for Athapaskan
- data search of a number of languages in the Athapaskan family (Dene), focusing on the dialects of Slave (Rice (1989)) as well as Navajo (Southern Athapaskan), showing that **Internal Heads cannot directly restrict the operator heading the relative clause.**
- Because the range of internal heads examined in previous literature (an exception is Saxon 2000 for Dogrib (Northern Athapaskan)) could in principle be construed as



- (4) \***[Mila k'u mu he] ki] phe šni**  
 knife the-P I.use DUR REL-'THE' sharp NEG  
 'The knife I was using isn't sharp' [Williamson 1987]
- (5) \***[wichaša iyuha t'a pi] ki] Lakhota pi**  
 men all died PL REL-'THE' Lakhota PL  
 'All the men who die are Lakhota' [Williamson 1987]

**Does Athapaskan show the same restriction?** (Basilico 1996: yes; Saxon 2000: maybe)

- It appears that the same restriction holds in Athapaskan; while Navajo does not have a definite, but demonstratives are precluded from being heads:

- (6) \***[Bill díí léécha'í yitzał-ę:ę] nahał'in**  
 Bill this dog kicked-REL barking  
 'This dog that Bill kicked is barking'  
 [E. Perkins, p.c. May 2006]

- but 'universal' QPs are possible internal heads in Navajo:

- (7) **[John Bill t'áá altso chidí yaa nayiisnii'ée ] t'éiyá nizhónígo nidaajeesh**  
 John Bill all car 3.from 3.3-buy.P.REL only well da.3.run.I

'All the cars that John bought from Bill (and only those) run well'  
 [Faltz 1995:305]

- But Athapaskan in general does not have a wide range of D-like determiners and likely does not have true Generalized Quantifiers;
- Speas and Yazzie (1996) show that the putative universal in Navajo *t'áá altso* gives rise to plural, not singular agreement (8) and non-c-commanded pronouns can refer to the 'group' introduced by the quantifier (9).

- (8) **T'áá 'altso kintah-di ndaalnish. /\*naalnish.**  
 Everyone/all of them town-at 3PL.working 3SG.working  
 [Speas and Yazzie 1996: 44(27a,b)]

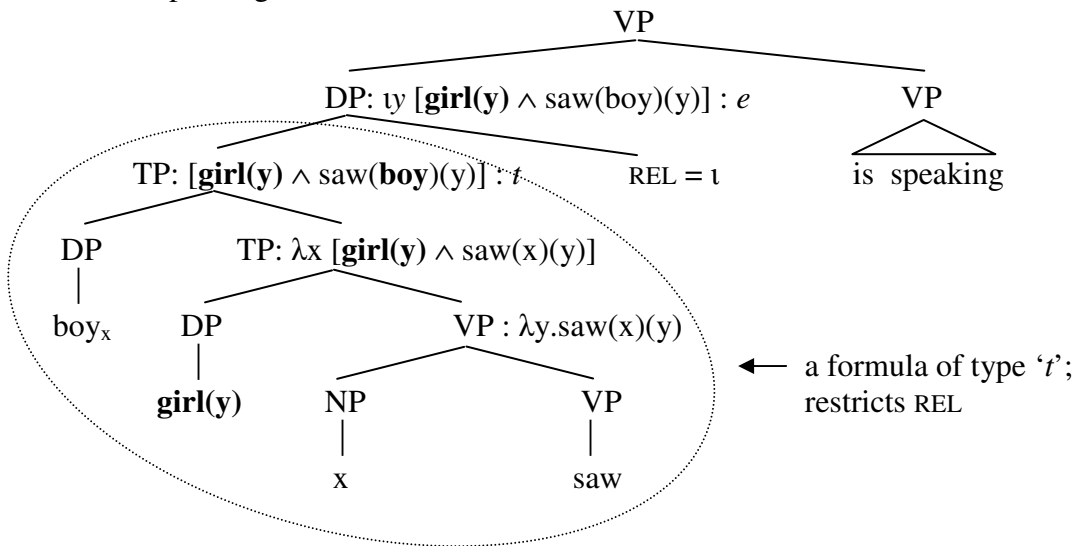
- (9) 'Adáááá' **t'áá 'ájiltso** Mary deiztal, 'áádóó k'ad yinídajiizhchid  
 yesterday everyone Mary 3OBJ.2PLSB-kicked and now 3OB-4PLSG-embracing  
 'Yesterday all of them kicked Mary and now they are embracing her.'  
 cf. English: \*Yesterday, everyone kicked Mary and now he is embracing her.  
 [Speas and Yazzie 1996: 46(32)]

**Conclusion:** Quantificational elements, then, will not tell us exactly what kinds of elements can be internal heads, because these could be predicative, and thus be bindable by some iota/maximality operator.

**Basilico (1996)**

- the internal head is unselectively bound by an operator that heads the IHRC.
- the internal head moves (within) the IHRC is so that it can escape  $\exists$ -closure (escapes the VP) and thus be bound by the higher operator which heads the IHRC (Basilico gives evidence from Athapaskan for this – we’ll discuss it below)
- IHRCs are quantificational (the REL marker is a quantifier, which he equates with an iota operator);
- the internal head is bound like a Heimian indefinite, which just introduces a restricted variable
- the internal head needs to get out of VP (nuclear scope) to be bound by or REL.

(10) [[Ashkii **at’éeéd** yiyiiltsan]-eē] yałti’  
 boy girl saw -REL speak  
 ‘The girl who the boy saw is speaking’ Or: ‘The boy who saw the girl is speaking’



### Four arguments that Athapaskan IHRCs do not fall under this approach:

1. Arguments usually look like bare NPs -- but do not always get interpreted that way, so we have no obvious evidence against having non-indefinite heads [Section 2]
2. Prima facie evidence: internal heads can be demonstrative (Northern Athapaskan) [Section 2]
3. The preferred head position within IHRC is one that is reserved for strong (definite, topical) NPs, not just predicates (Navajo; also Dakelh) [Section 3]
4. Pronominals (including indexicals) can serve as heads, making unselective binding difficult (all Athapaskan) [Section 4]

## 2. Athapaskan NPs

- Athapaskan NPs generally do not have determiners to express definiteness
- **in Error! Reference source not found.** both potential IHs look like bare NPs, but can be definite descriptions
- NPs can also be indefinite (Fernald et al), introducing new referents into a discourse.

(11)            Hastiin            dah neezd!.            [Fernald et al 2000:6 ex (8)]  
                   man                    sat down  
                   ‘A man sat down’  
                   ‘The man sat down’

- But we need to look more deeply to verify that internal heads *must* be indefinites.

### 2.1 Non-indefinite Internal heads

- Evidence from Slave (Northern Athapaskan; Rice 1989)
- Slave has IHRCs in addition to externally headed relatives, EHRCs.

#### Demonstrative Internal Head

(12)    ?eyi            dene    tse'e    go-yidee    i            hįshá            [Hare; Rice  
                   1989:1311 ex(8)]  
                   That man    to            1SG-talked    REL    3SG.IS.tall  
                   ‘The man whom I talked to is tall’

- These examples can be overlooked because they could be externally headed relatives, something Slave dialects have.
- We need to make sure this is really an IHRC: two possibilities it's an EHRC

**Morphological Evidence it isn't and EHRC:**

In Slave, when object argument NPs are either absent or fronted from their clause, the preposition shows a pronominal object (*be*); when in construct with the P, no pronoun:

- (13) Slave pronominal object marking [Saxon 1989: 388(18a,b,c)]
- a. [**Bee** hé] tádjíwee  
knife with 2SG.IMPERATIVE.cut  
'Cut it with the knife.'
- b. \*hé tádjíwee  
with 2SG.IMPERATIVE.cut  
'Cut it with (it).'
- c. Be-hé tádjíwee  
3SG-WITH 2SG.IMPERATIVE.cut  
'Cut it with it.'
- d. \*Bee be-hé

**Back to the relative:** no pronominal marking on embedded verb in (12)

So head NP is indeed inside the IHRC. If the head *were* external, the sentence would be the following, which is grammatical (with *be*):

- (14) **?eyi dene be-tse'e** go-yidee i híshá  
That man 3SG-to 1SG-talked REL 3SG.IS.tall  
'The man whom I talked to is tall'  
[Rice 1989:1313 ex(24)]

→ (12) is an IHRC with a Demonstrative internal head.

As noted, In Navajo a demonstrative is not licensed on an internal head:

- (15) \*Bill **díí léécha'í** yitzał-ę:ę nahat'in  
Bill this dog kicked-REL barking  
'This dog that Bill kicked is barking'  
[E. Perkins, May 2006]

- Is there a difference between Slave and Navajo?
  - Further data needed: can demonstrative-marked internal heads appear in a position inside the IHRC in Slave, or in topic position in Navajo (as case in Slave in (12)).
- Perhaps something blocks strong determiners as heads in object position;
- but this does not mean internal heads are indefinites; just that they're not demonstrative phrases.

### 3. The preferred position for Internal Heads

Navajo shows an alternation in verbal agreement depending on the surface position of arguments: the *bi/yi* alternation.<sup>1</sup>

- (16) a. Ashkii<sub>s</sub>      **At'ééd**<sub>o</sub>      yi-yiiltsa<sub>q</sub>  
 Boy              girl              3OB-saw  
 'The boy saw the girl'
- b. **At'ééd**<sub>o</sub>      Ashkii<sub>s</sub>                      **bi**-yiiltsa<sub>q</sub>  
 girl              boy                              3OB-saw  
 'The girl, she was seen by the boy'

[Barss 1989:321 ex(9-10)]

- Fronted object receives a topic interpretation (Hale 1973; Barss et al 1989).<sup>2</sup>
- Crucially, this alternation can help disambiguate: it is the preferred head in an ambiguous IHRC. (Similar disambiguation techniques are found in the Northern Athapaskan languages (Gessner 2004)).

- (17) [[**At'ééd** ashkii **b**-iiltsa:n]-ε:ε] yálti'  
 Girl boy 3OB-saw-REL speak  
 Preferred: 'The girl whom the boy saw is speaking'  
 Possible but dispreferred: The boy who saw the girl is speaking.<sup>3</sup>  
 [Barss et al. 1989:326: ex.(20)]

At first, this appears to confirm Basilico's idea about movement of an indefinite out of  $\exists$ -closure. (He cites similar alternations in Northern Athapaskan as evidence for IHRC-internal movement.)

#### Problem:

- in Basilico's account this means these IHs must be indefinite
- However, *bi*-topicalized objects *cannot* be indefinite
- *la'* a (non-specific) indefinite cannot *bi*-topicalize (nor can *léi'* 'a certain')

<sup>1</sup> The alternation is sensitive to an animacy and definiteness hierarchy (Aissen 2003): allows canonical lower ranked objects to be higher ranked.

<sup>2</sup> Barss et al (1989) show that the topicalized NP is still internal to the sentence, since it need not be clause initial (pp321-322).

<sup>3</sup> The fact that the lower subject argument *boy* does not serve as a good head is in fact quite puzzling on Basilico's account. For him, the NP that escapes  $\exists$ -closure is the head. Presumably if both NPs escape  $\exists$ -closure, as must be the case in (19), then we might expect the higher one (the promoted object here) to be bound by the IHRC external operator. However, although not preferred, this sentence shows that the lower NP can be bound.

(18) a. 'Ashkii 'at'ééd la' bi-zts'os. [Willie 1991:77]  
 Boy girl a bi-kissed  
 'The boy was kissed by some girl'

b. \* ['Ashkii la' ] 'at'ééd bi-zts'os. [Willie 1991:77]  
 boy a girl b-kissed  
 'Some boy was kissed by the girl'

- While this is not a knock-down argument, it is suspicious under Basilico's account that topics are the best kind of internal heads.
- Instead, the topic-hood of internal heads suggest that the relation between the internal head and the matrix argument is mediated more indirectly.

**Side note: similar observations are reported for Northern Athapaskan dialects:**

In Dekelh (Northern Athapaskan, Gessner 2004), objects usually appear with pronominal object marking on the verb even when the object NP is overt and clearly in a sentence-internal position.

(i) [[Nahbai lhi yu-zgus-]-i] too lhai yu-tnai  
 Weael dog 3SGOB-bite-REL water much 3SGOB-drink  
 'The dog that the weasel bit drank too much water'  
 [Gessner 2004:15 ex(60)]

Gessner (2004): pronominal object marking correlates with definiteness

Gunlogson (2001): same effect in Babine-Wutsywit'en, a neighboring Northern Athapaskan language

#### 4. Pronominal Internal Heads

- In Athapaskan null Arguments are allowed, and identified by agreement marking on the verb (which is often null with 3<sup>rd</sup> person subjects and objects)
- **IHRCs can be formed with these (null) pronominal agreement markers as heads (19)b:**

(19) a. ya:q:lti' [Navajo; Willie 1989:414 ex(23)]  
 3S.spoke  
 'He spoke'

b. ya:q:lti'-ye:q  
 3S.spoke-REL  
 'The one (such that) he spoke'

(20) *pronominal transitive subject as head*  
 ['ateed yi-izts'os-ye:q] yalti' [Navajo; Willie 1989:417 ex(32)]  
 Girl 3O-3S.kissed.REL 3S.speaks  
 'The one who kissed the girl is speaking'

- (21) *pronominal object as head*  
 a. s-ats'os [Willie 1989:414:ex(25)]  
 1SG-3OB.kissed  
 'I kissed him'  
 b. s-ats'os-yɛ:ɛ  
 1SG-**3OB**.kissed-REL  
 'the one who I kissed'
- (22) *pronominal object as head*  
 'ateed **bi**-zts'os-yɛ:ɛ [Willie 1989: 416 ex(29)]  
 Girl **3OB**-3S.kissed-REL  
 'The one who the girl kissed'

Slave also allows non-overt heads:

- (23) *pronominal subject as head*  
 [nɪwə **ke**-daw'i: i ke] go-gha:yeyida: (Hare)  
 Long 3PLS.sat COMP PL 1S-3PLO.saw  
 'I met the ones who stayed a long time'  
 [Rice 1989:1322 ex(83)]

While I do not have evidence from Slave dialects, Saxon (2000) shows that in another Northern Athapaskan language, Dogrib, indexical pronouns can serve as internal heads:

- (24) *Indexical pronouns as internal heads* (Dogrib)

[ Dii k'ielà whahtsɪ̃ ] sɪi, [ hazoð wek'e  
 this birch.boat 2PL.Perf.make.C Foc all 3.on  
 ʔeghàlaahdàa ] sɪi wegħo dàahwho?  
 2PL.Perf.work.C Foc 3.about 2SG-PL.think how  
 'You who have made this birchbark canoe , all [of] you who have  
 worked on it, what do you think of it?' [Saxon 2000: (26)]

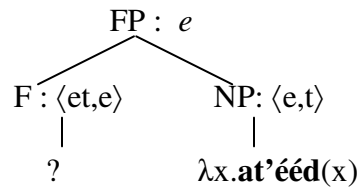
Basilico's account in which the internal head is bound by an operator would be hard-pressed to allow the second person pronoun to be bound by an iota operator.

**Summary:** Athapaskan NPs are not just elements that can restrict the operator heading the relative clause:

- (i) some internal heads appear to either be definite or be in positions that disallow indefinites; and
- (ii) that pronominals, even indexicals, can serve as internal heads.

## 5. Rescue Basilico's Analysis?

Suppose all nominals, whether internal heads or not, are accompanied by a distinct functional projection, call it F, (see Matthewson (2001)):

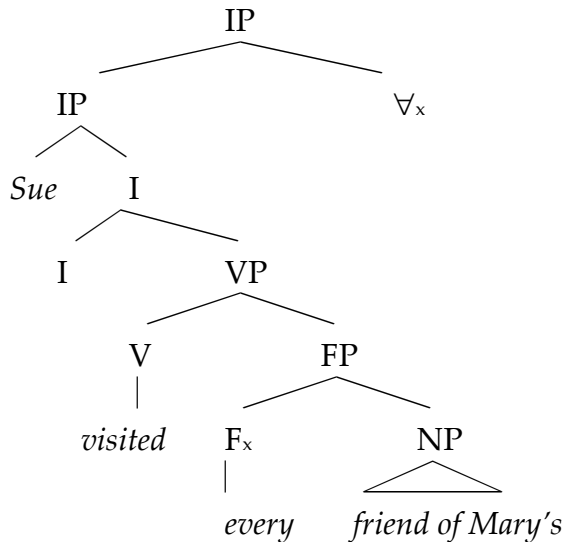


- F could be a choice function, picking out from its set-denoting sister an individual, depending on various contextual criteria
- F could also be realized by various D-elements, for instance demonstratives.
- Crucially, F is not a quantifier, but rather the whole FP can be bound.

### A 'Trace Conversion' Style analysis

- quantifiers bind a type of DP (Fox's (2002) trace conversion rule)
- Johnson (2007) recasts trace conversion: QPs are composed of Quantifiers and FPs. The F can be read like a definite, which introduces a predicate that contains a variable bound by the real quantificational element, which is merged high.

(25) Sue visited every friend of Mary's [Johnson 2007: 4(9,10)]



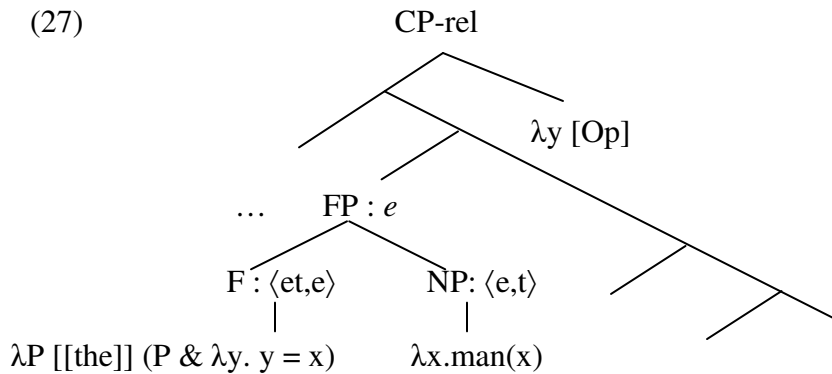
(26)  $\forall x$  [friend-of-Mary's(x)  $\rightarrow$  she visited *the* y [friend-of-Mary's(y) & y = x]

**Internal Heads are FPs!**

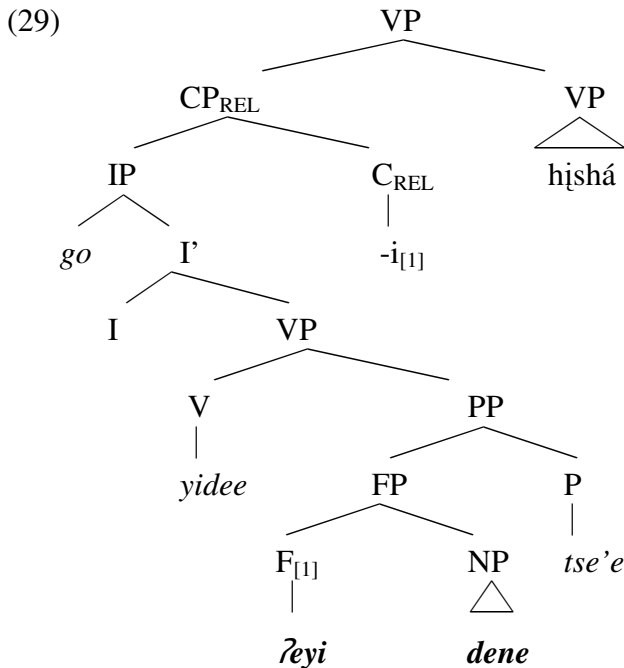
Assume the F has the meaning below, which essentially translate as a definite with a free variable in it:

$$\text{Tr}([\text{F}]) = \lambda P \text{ [[the]] } (P \ \& \ \lambda y. y = x)$$

A schematic diagram of an IHRC is given in (27). Some operator (which I will remain neutral about and simply identify as a lambda-binder) binds a variable in the restrictor of the FP.



- (28) **ʔeyi dene** tse'e go-yidee i hįshá [Hare; Rice 1989:1311 ex(8)]  
 That man to 1SG-talked REL 3SG.IS.tall  
 'The man whom I talked to is tall'



- (30)  $t_y$  [**talk-to** ( $\iota x$  [man(x) &  $x = y$ ](I)]

The idea is that internal head can contain certain kinds of determiners, those that function as FPs, but not certain generalized quantifiers, such as universals.

For instance, if the F was a universal with the kind of meaning given to F that allows for an additional predicate to be bound, we would predict rather odd meanings for an internally headed RC, since the denotation of the whole IHRC would be as follows:

$$(31) \quad \# \text{ } \iota y [\forall x [\text{man}(x) \ \& \ x = y)] \rightarrow \text{talk-to}(x)(I)]$$

There is no 'y' variable in the consequent of the formula, which will lead I believe to odd truth conditions, in that non-men could satisfy it.

### 5.1 Is this good enough?

- first, this approach does not explain how indexical pronouns can be bound by REL
- second, the approach still predicts that the internal head can restrict the operator heading the IHRC, much as an externally headed relative clause (EHRC) would.
  - **BUT!** For Korean and Japanese IHRCs it has been shown that this is not true (Shimoyama 1999, Kim 2004). IHRCs and Externally headed relatives (EHRCs) have different truth conditions.

#### (32) *Japanese IHRC*

Taro-wa [[Yoko-ga reezooko-ni **kukkii-o hotondo**  
 Taro-Top Yoko-Nom refrigerator-Loc cookie-Acc most  
 irete-oita]-no] -o paatii-ni motte itta.  
 put-Aux -NM-Acc party-to brought

'Yoko put most cookies in the refrigerator and Taro brought them to the party.' [Shimoyama 1999: 149(4)]

#### (33) *Japanese EHRC*

Taro-wa [[Yoko-ga reezooko-ni  $\emptyset$  irete-oita]  
 Taro-Top Yoko-Nom refrigerator-Loc put-Aux  
**kukkii-o hotondo]** paatii-ni motte itta.  
 cookie-Acc most party-to brought

'Taro brought most cookies that Yoko had put in the refrigerator to the party.' [Shimoyama 1999: 150(5)]

Scenario: If Yoko put 10 cookies in the refrigerator and Taro brought 7 of them to the party: the EHRC is true, but the IHRC is false.

- So the QP heading the EHRC is restricted by the whole RC; it is not in the IHRC
- This leads to an analysis for Japanese where the IHRC acts as an independent sentence, the head recovered in a different (E-type) way.  
e.g. [[Toko put most cookies in the fridge]<sub>CP</sub> *them* ] Taro brought.
- We need to find, then, quantificational elements in Athapaskan to test if they behave similarly.
- But recall (7), repeated below: Faltz 1995 confirms that this sentence does not predicate something of *all* the cars (in the domain of discourse), but the set restricted to the cars that were bought.

(34) [John            Bill    **t'áá altso chidí** yaa    nayiisnii'ée ] t'éiyá nizhónígo nidaajeesh  
        John            Bill    all            car    3.from 3.3-buy.P.REL    only    well        *da.3.run.I*

'All the cars that John bought from Bill (and only those) run well'  
 [Faltz 1995:305]

- It remains to be seen whether a maximality operator (Grosu and Landman 1998), directly binding an FP as I have proposed, is sufficient to handle Athapaskan, or whether a less direct approach is needed.

## 6. Conclusion

- This investigation of IHRCs across a number of Athapaskan languages has shown that the internal head, despite initial appearances, does not have to be (a weak) indefinite.
- In particular, a number of diagnostics, including the pronominal/agreement morphology, showed that what appear to be heads with strong determiners are indeed internal heads.

**The range of internal heads can be accommodated by proposing that internal heads are FPs, which allow a range of determiner marking but not true quantifiers.**

Nevertheless, two remaining issues call out for more attention:

- the preferred position of the head, as a topic within the RC, may tell us that it is not binding *per se* that determines the internal head but discourse principles.
- Lastly, some suggestive evidence from pronouns, especially indexicals as shown in Saxon (2000) suggests that internal heads are not simply restrictors.

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