Quantified nouns in Tłı̨chǫ Yatıı̀ relative clauses
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Overview: This paper investigates the interpretation of quantified nouns in Tłı̨chǫ Yatıı̀ relative clauses (Dene, Canada). Tłı̨chǫ has internally-headed relative clauses, where the modified noun (the head) is contained within the embedded clause (1a):

1a. internal head: Chekoa [Madlę nshi haẕq̱o whet’e-e] sii gra Children Madlę potato all 3S.cooked-C Foc 3O.3plS pf. eat

b. external head: The children ate all the potatoes [that Madlę cooked]

The internal position of the head raises questions about where it is semantically interpreted (i.e. about whether 1a and 1b are truth-conditionally equivalent). Platero (1974); Cole (1987); Williamson (1987) suggest that head-inneral relatives differ from externally-headed relatives only in where the head is pronounced, predicting that all heads will be interpreted in the main clause. Contra this, original fieldwork presented here shows that when Tłı̨chǫ heads appear with wèhdaà ‘some,’ they are interpreted unambiguously within the relative clause. Heads that appear with haẕq̱o ‘all/every’, however, do not have precisely the truth conditions predicted for internal or external heads. I argue that heads are always interpreted in-situ in Tłı̨chǫ, and that apparent external interpretations can be derived from analyzing Tłı̨chǫ relatives as open properties which undergo existential closure. This accounts for the absence of such readings in languages like Japanese (Hoshi 1995; Shimoyama 1999) and Korean (Kim 2008), where internally-headed relatives are maximalizing, and may likewise shed light on similar data in Navajo (Bogal-Allbritten & Moulton 2018).

Data: When Tłı̨chǫ relatives clause heads appear with wèhdaà ‘some,’ the head is interpreted internally:

(2) Context: Madlę and Zabae are making dinner for their children together. Both cooked some potatoes.

All of Madlę’s potatoes got eaten by the children, but some of Zabae’s were left over.
Chekoa [Madlę nshi wèhdaà whet’e-e] tlagerà children Madlę potato some 3S.cooked-C 3S ate all
a. ✓ Madlę made some of the potatoes and the children ate all of them (internal reading)
b. # The children ate some of the potatoes that Madlę made (external reading)

Conversely, universal heads are acceptable where an internal reading is expected to be false:

(3) Context: Ɂarı is at a feast and he only likes to eat meat. He notices that his mother brought meat to the feast, so he goes to get some. Ɂarı eats all the meat that his mother brought.

[Ɂarı wemǫ ekwò bò haẕq̱o whet’e-e] sii yṛza, haniko đone ladi ekwò Harry 3S mother caribou meat all 3S cooked-C Foc 3O 3S pf eat but people other caribou bò yet’ee sii yṛza-le

meat 3S cooked Foc 3O 3S pf eat-Neg

If the relative clause here means Ɂarı’s mother cooked all of the caribou meat (internal reading) then the follow-up but he didn’t eat the caribou meat other people cooked should be odd, since there should be no meat cooked by someone other than Ɂarı’s mother. If it means Ɂarı ate all the caribou meat his mother cooked (external reading), then the follow-up is predicted to be felicitous, suggesting an external interpretation. This is the claim made by Mantla et.al (2019), based on similar data. However, if universal heads are interpreted in the matrix clause, then the follow-up in (???) below should result in a contradiction:

(4) Context: Madlę is going to the feast, but she doesn’t have time to make food, so she asks her sister for help. Her sister makes a lot of carrots, so she only takes some of the carrots, not all of them.

Madlę [wedè haẕq̱o kwah whet’e-e] nasì kö ts’o yehchì, hanikò wèhdaà kwah Mary 3sister all carrot 3S cooked-C feast house to 3O 3S brought, but some carrot aila ayijìà

3S left behind 3O 3S cause intended: # Madlę brought all the carrots [her sister cooked] to the feast, but she left some behind

Despite this, (???) is grammatical, meaning something like Madlę brought carrots that her sister cooked all of to the feast, but she left some behind. In Tłı̨chǫ, quantifiers can also appear external to the relative clause. In a minimally-different example with haẕq̱o in an external position, the follow-up does result in a contradiction:
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(5) #‘Madlę [wedè ̂ kwah whet’e-c] hazǫǫ̀ našį̂ kq ts’q yehchu, hanikò wēhdaà kwah
‘Mary 3.sister carrot 3S.cooked-C all feast house to 3O.3S.brought, but some carrot
AILA ayjilà
3S.left 3O.3S.cause

#Madlę brought all the carrots that her sister cooked to the feast, but she left some behind.

Data in (3) suggests external head scope, while (4) and (5) suggest the head is interpreted internally.

Proposal: To account for this data, I propose that Tłı̨chǫ relative clauses are formed by binding of the head by a clause-external quantifier (similar to Williamson 1995; Basilico 1996; Grosu 2012). I hold that heads have trace-like denotations (as in Sauerland, 2004), introducing a variable with their meaning as a presupposition:

(6) kwah: \([\text{carrot}] = g(i) \text{ only if } *\text{carrot}(g(i)) = T\)

Hazǫǫ̀ does not render this variable inaccessible to higher binding because it is not generalized quantifier-creating (see Faltz, 1995; Basilico, 1996; Davis, 2010 for comparable proposals). Instead, I take it to have a partitive semantics that does not involve binding the head variable:

(7) hazǫǫ̀: \([\text{all}] = \lambda x. \lambda P. \forall y. y \leq x. P(y) = T\)

The relative clause is a property formed by abstracting over the head, combing with the matrix clause through predicate modification. In the case of object relatives, this is achieved by lambda-abstracting over a matrix token of the head variable introduced by the object clitic ye- on the matrix verb. The relative itself does not occupy object position, but is a clause-level adjunct. The complex property formed by PM is then existentially closed. For example (5), this gives:

(8) a. \([\exists [1 [\text{Madlę’s sister cooked all of the carrots}]_1] 2 [\text{Madlę brought them} to the feast]]\)

b. \(\exists x. *\text{carrot}(x). \forall y. y \leq x. \text{Madlę’s sister cooked } y \& \text{Madlę brought } x \text{ to the feast.}\)

c. There exists x (defined if carrots) and all of x was cooked by M’s sister, and M. brought x to the feast.

These truth conditions account for why the follow-up in (?) does not result in a contradiction, as the group of carrots that Madlę brought need not be the maximal set of carrots that her sister cooked. The same logic can be applied to (??), which has truth conditions as in (9):

(9) a. \(\exists x. *\text{meat}(x). \forall y. y \leq x. ?ari’s mother cooked } y \& ?ari ate x\)

b. There exists x (defined if meat) and all of x was cooked by ?ari’s mother, and ?ari ate x

The follow-up in (?) (but he didn’t eat the meat other people cooked) is compatible with these truth conditions because they do not preclude the existence of meat cooked by someone other than ?ari’s mother in the context. Under this view, the seemingly external reading of (?) is a product of the fact that a) hazǫǫ̀ is not generalized-quantifier creating, and b) Tłı̨chǫ Yatıı relative clauses are (at least optionally) existentially closed.

Implications: Grosu (2012) classifies internally-headed relative clause languages based on whether they have restrictive relatives (e.g. Navajo, Mojave, Lakhota), which may be indefinite, or maximalizing relatives (e.g. Japanese, Korean), which are obligatorily definite. A second way to partition this typology is through whether the head is necessarily interpreted in-situ (Japanese, Korean), or whether apparent external readings are also possible, particularly in the case of universal heads (Quechua; Hastings 2004, Navajo; Bogal-Allbritten & Moulton 2018, Tłı̨chǫ Yatıı; Mantla et.al 2019). Here I argue that these two properties are related, that the apparent external interpretation of universally quantified heads in Tłı̨chǫ is not a product of movement, but is a directly result of the availability of relative clauses with indefinite force. This successfully predicts that illusory external readings will not be available in maximalizing languages, and does not appeal to movement specifically targeting universal heads. If such an analysis can be extended to other languages reporting similar phenomena (e.g. Navajo, Quechua), then this will provide a simple way of deriving the internally-headed relative clause typology based on how relative clauses within a language get their quantificational force.