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Generalizations In Navajo

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This essay investigates the interaction of generic quantification with the interpretations of nominals and predicates in Navajo and in English. For the first time, evidence is presented of a distinction between individual- and stage-level predicates in Navajo. Kratzer's (1988) Prohibition against Vacuous Quantification and de Hoop and de Swart's (1989) Plurality Condition on adverbs of quantification are two leading explanations of the well-formedness of generics. Data considered here require contextual information to be added to the restrictions of quantifiers and they require the Plurality Condition to be extended to the nuclear scope in addition to the restriction of a quantifier.

This chapter is laid out as follows. Section 3.1 introduces the basic facts of Navajo syntax and provides background on the nominal interpretations with respect to (in)definiteness. Two kinds of uses of -go clausal adjuncts are then discussed. These adjuncts can be interpreted as reporting that two eventualities with overlapping run times occurred or they can be interpreted as generalizations. Background about the interaction between genericity and the individual-stage-level predicate distinction is presented in section 3.2 along with the analyses of Kratzer (1988) and de Hoop and de Swart (1989). Section 3.3 demonstrates the interaction between genericity and predicate status in Navajo, including data that are challenging for both previous analyses. Two new analyses are proposed and evaluated in section 3.4. Section 3.5 presents another type of Navajo generic sentence involving adverbial quantification. The data in this
section require an independent modification of the Plurality Condition. Section 3.6 is the conclusion.

### 3.1 Background

#### 3.1.1 Basic Navajo Syntax

It is widely known that Navajo sentences need not contain any overt nominal expressions. Examples (1) and (2) show that a single verb can be a whole sentence.

1. **Neinitché.** ‘S/he/It is chasing him/her/it.’

2. **Bits’ániká.** ‘I took him/her/it away from him/her/it.’

When sentences contain overt nominals, the word order tends to be SOV (but see discussion of the inverse voice construction Willie and Jelinek, this volume).¹

3. **Náshdóí biih neinitché.**
   - wildcat deer 3-3-chase
   ‘The wildcat is chasing the deer.’

4. **Naa’ołí yishbézhé kó’ bits’álká.** (Young and Morgan 1987)
   - beans 3-1-cook-REL fire 3-3-1-take-away-from
   ‘I took [the beans I was cooking] away from the fire.’

An additional feature of Navajo is that verbs show “agreement” with every NP “argument” in a sentence, as shown in (3) and (4). Quotation marks are used here because the analysis of the basic phrase structure of Navajo is currently a matter of some controversy. Work following from Jelinek (1989) and Willie (1989) assumes that overt nominals are adjuncts rather than being in argument positions. The arguments of the verb are taken to be pronouns that have incorporated into the verb. In other work (e.g., Perkins 1978; Platero 1978, 1982; Speas 1990), these morphemes are taken to be agreement markers and overt nominals are taken to be arguments. This chapter does not take a position on this issue (see Speas and Yazzie 1996 for a paper on Navajo quantification that does) but nevertheless aims to contribute to its resolution; the analysis of the interpretations of nominal expressions in quantificational sentences is likely to be of relevance as this debate develops.
3.1.2 Definiteness and Indefiniteness in Navajo

It is widely recognized that indefinite and definite nominals show a contrast of interpretation or grammaticality under the scope of a quantifier (see e.g., Krifka et. al. 1995, de Hoop and de Swart 1989, Kratzer 1988). Work following Lewis (1975), Kamp (1981), and Heim (1982) accounts for these differences by assuming that indefinites have variable reference and that definite nominals do not. Because of these differences, it is necessary to review what has been established in previous work on nominal interpretation in Navajo. It has frequently been observed that, with a few exceptions, bare nouns (those appearing without any determiner or focusing particle) are unmarked for number and can be construed as definite or indefinite depending on syntactic context. Thus, the nominals in (5–7) are may be interpreted as definite or indefinite, although the definite readings tend to be preferred.

(5) Dzaanééz ḥif’ yiztal.
mule  horse  3-3-Pf-kick
‘The/a mule kicked the/a horse.’

(6) Dzaanééz ḥif’ deiztal.
mule  horse  pl-3-3-Pf-kick
‘The/some mules kicked the/some/a horse(s).’

(7) ḥif’ dadijáá’d.
horse  pl-3-fast
‘(The) Horses are fast.’

The verbs in (6) and (7) contain a plural marker indicating that the subject is plural and, in (6), that the object may have a plural interpretation.

A nominal in Navajo can be overtly marked as either definite or indefinite (Willie 1991). Lé’i marks ‘ashkii as indefinite in (8), while the demonstrative dii, for example, forces ‘ashkii to be definite in (9).

(8) ‘Ashkii lé’i’ at’ééd yizts’qs.
boy  indef  girl  3-3-kissed
‘A boy kissed the/a girl.’

(9) Díi ‘ashkii at’ééd yizts’qs.
this boy  girl  3-3-kissed
‘This boy kissed the/a girl.’

Another way for an argument to have an indefinite interpretation is if the verb bears a morpheme for an unspecified argument (Willie 1991, Jelinek and Willie
In such cases, overt nominals are ungrammatical, and the unspecified argument must be interpreted as indefinite:

(10) a. 'Ajiył.
   3indef-4-eat
   'He’s eating something.' (YM 1987:67)

   cf.
   b. *Dah dìńfilghaazh 'ajiyl.
      fried-bread 3indef-4-eat.
      ‘He’s eating fried bread.’

(11) a. Yah 'ashì' dooltł.
       inside 1-3indef-carried
       ‘I was carried inside by someone.’ (YM 1987:78)

   cf.
   b. *Jåan yah 'ashì' dooltł.
      J. inside 1-3indef-carried
      ‘John carried me inside.’

Finally, Willie (1991) points out that the external argument of verbs bearing bi-third person morpheme must be construed as definite, unless the verb is plural:

(12) 'Ashkìi 'at'ëéd léi' bizts'qs.
    boy girl indef 3-3-kissed
    ‘The boy was kissed by a girl.’ (=Willie’s (46))

(13) *'Ashkìi léi' 'at'ëéd bizts'qs.
    boy indef girl 3-3-kissed
    ‘A boy was kissed by the girl.’ (=Willie’s (47))

(14) 'Ashìiké 'at'ëéké dabiiftsìq.
    boys girls pl-3-3-saw
    ‘The boys were seen by the girls./Some boys were seen by some girls.’
    (=Willie’s (65a))

Willie (1991) goes on to show that the subject of a bi-verb cannot serve as the restriction of a generic operator. Note that (15) contains a bi-verb in the adjunct clause and that it cannot be interpreted as a generalization. Example (16), which contains a yi-verb is grammatical as a generalization.
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(15) Leečchą́'i ma'ii biititsą́go, bikéé' nííiilwod.  
  dog coyote 3-3.sees=when 3.follow 3.runs  
  'When the dog was seen by the coyote, it was chased by it.'  
  (=Willie's (53))

(16) Leečchą́'i ma'ii yiįįiitttséehgo, yikée nííilwo'.  
  dog coyote 3-3.sees=when 3.follow 3.runs  
  'When a dog sees a coyote, it chases it.' (=Willie's (52))

3.1.3 Clausal Complements and Modifiers

Various clitics can be attached to the verb at the end of a clause in Navajo to allow the clause to be used as a modifier or as an argument (or coindexed with an argument, following Jelinek and Willie). Schauber (1975) discusses -go at length, arguing that it is a subordinator that has no semantic content of its own. (17) gives an example of -go attached to a clause denoting the event seen in a perceptual report.²

(17) Bill Baa' neinitchéego yiįtsá.  
  B. B. 3-3-chase 3-1-saw  
  'I saw Bill chasing Baa.'

The next example shows that -go can also be used to derive an adverbial from the predicate nízhóní:

(18) Mary nízhónígo French bizaad yee yááti'.  
  M. well-GO French language3-P speaks  
  'Mary speaks French pretty well.'

Clauses bearing the clitic -go can also be used as non-arguments. In the sentences below, the -go clause is adjoined to the main clause at the sentential level:

(19) Mary bilií holóogo bił hózhói.  
  M. 3-horse exist-GO 3-P I-happy.  
  'Mary has a horse and is happy.' ('Because Mary has a horse, she is happy.')
The examples in (19) and (20) strongly suggest a causal connection between the eventualities denoted by the two clauses. The suggestion of causation, however, is only implicated (the implicature can be defeated); the interpretation mechanism in the grammar should require only that the denotations of the two clauses be logically conjoined. Stump (1985:60ff., 325ff.) discusses certain English absolutes in which, he argues, the logical relationship between the adjunct and the main clause is underdetermined by the semantics and left to be resolved by pragmatic considerations. The same considerations seem to be involved with these examples from Navajo. Since the weakest plausible relationship is logical conjunction, that is what I am assuming for the semantics of (19) and (20). The association between the two clauses is in fact a bit stronger than simple conjunction since, as Eloise Jelinek pointed out to me, the -go clause is presupposed in those sentences. It will turn out that this reading, which I will call the conjunction reading, is always in principle a possibility with -go adjuncts but that other readings are sometimes available or preferred for pragmatic reasons.

The causality suggested by (19) and (20) can be overtly entailed by adding bininnaa between the two clauses:

(21) 'Adóòdóó' 'ayóo deesdoigo bininnaa shibéégashii 'altso yesterday very hot-go because my-cattle all taah yikai.
     into-water got-into

'It was so hot yesterday that my cattle all got into the water.' (YM 1987:795)

(22) Shich'oozhlaa' yiháadgo bininnaa chid'nat'a'f biyidégé' my-elbow 3-1 licked-go because airplane out-from ch'initízh.
     1-fell

'Because I licked my elbow I fell out of the plane.' (Hale 1972:6)

These sentences have the same structure of a -go clause adjoined to a main clause that we have been discussing.

Adjuncts bearing the -go subordinator can also be interpreted as eventualities that overlap in time, with the eventuality denoted by the main clause. An example of this, in which the verbs are in perfective aspect, is shown in (23).
In cases like this, the sentence entails that both eventualities of the speaker stubbing his or her toe and falling flat on his or her face occurred.

When the verbs appear in the imperfective, a generalization is often possible:

(24) **Mary yidlohog** _hoodiits'a'go yidloh_ (Ieh).
    M. 3-I-laugh-GO loudly 3-I-laugh (usually)
    'When Mary laughs, she (usually) laughs loudly.'

(25) **Nāshdṓ́ tā' bijh neį́tkahgo ayóó dį́lwo'** (Ieh).
    wildcat indef deer 3-3-I-chase very run (usually)
    'When a wildcat tracks deer, it [the wildcat] (usually) runs fast.'

(26) **Éf dzaanéę́ lfi' neįntalgo bit hozhgo** (Ieh).
    that mule horse 3-3-I-kick-GO 3-P happy (usually)
    'When that mule is kicking a horse, it is (usually) happy.'

These have a conditional reading that does not entail that the eventualities denoted by either clause hold in the universe of discourse. Thus, for example, (24) does not mean that Mary is laughing at the time the sentence is spoken, only that, generally speaking, when Mary laughs, she laughs loudly. The ambiguity between the conjunction and conditional readings is very similar to what Hale (1976) found for several Australian languages that have an adjoined clause type that is ambiguous between relative and temporal readings.

### 3.1.4 Basic Assumptions

In the analysis of (24–26), I will assume the analysis of indefinite descriptions that has emerged from Lewis (1975), Kamp (1981), and Heim (1982). The basic assumptions are that indefinite nominals are interpreted as restricted variables that have no quantificational force on their own. Adverbs of quantification are taken to be unselective quantifiers, binding any free variable in their domain. Quantifiers create tripartite structures as shown in (27).

(27) \[ G \quad [\text{restriction}] \quad [\text{nuclear scope}] \]
    \[ \quad \text{adjunct} \quad \text{main clause} \]

The interpretations of (24–26) can be derived by positing the optional existence of a null generic adverb$^3$ (following among others Stump 1985, Kratzer 1988,.
Diesing 1992, Krifka et al. 1995) and by mapping the adjoined -go clause to the restriction of the operator and the main clause to its nuclear scope.⁴

3.2 Genericity and Individual- and Stage-Level Predicates

The distinction between individual-level predicates and stage-level predicates (ILPs and SLPs) has been seen to have grammatical reflexes in a wide variety of languages, but evidence for the distinction has not previously been sought in Navajo. A rough characterization of the distinction is that SLPs are characteristics of individuals that are crucially located in space and time (e.g. kick the chair) while ILPs denote properties that have nothing to do with time and space (e.g. know French, be human). In English, this distinction is evident in contrasts in grammaticality and interpretation. A contrast in grammaticality appears in the existential construction (Milsark 1974):

(28) a. There are chairs available. (SLP)
   cf. *There are chairs wooden (ILP)

b. There were people sick. (SLP)
   cf. *There were people tall. (ILP)

It has been known since Carlson (1977) that there is an interaction between generic sentences and the distinction between ILPs and SLPs. The following paradigm, illustrating this interaction, is from Kratzer (1988):

(29) a. *When Mary knows French, she knows it well.
   *G [knows (Mary, French)] [knows well (Mary, French)]

b. When a Moroccan knows French, she knows it well.
   Gx[Moroccan(x) & knows (x, French)] [knows well (x, French)]

c. When Mary knows a foreign language, she knows it well.
   Gx[foreign language(x) & knows (Mary, x)] [knows well (Mary, x)]

d. When Mary speaks French, she speaks it well.
   Gi[speaks (Mary, French, l)] [speaks well (Mary, French, l)]

e. *When Mary speaks French, she knows it well.
   *Gi[speaks (Mary, French, l)] [knows well (Mary, French)]

Kratzer analyzes (29a) is a case of vacuous quantification, and posits the following prohibition to account for it:
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(30) Prohibition against Vacuous Quantification
For every quantifier Q, there must be a variable x such that Q binds an occurrence of x in both its restrictive clause and its nuclear scope.

A canonical example of vacuous quantification is shown in (31b) and is contrasted with the fully acceptable example in (31a).

(31) a. Every man is such that he is tall.
   b. #Every man is such that John is tall.

Parallel examples in Navajo are shown next:

(32) a. ḡneezíghi diné t’áá nízhígo yee hadít’é.
    indef-tall-COMP man each-individually 3-P has-characteristics-of
    ‘Being tall is a characteristic every man has.’
   b. #Jáan nineezíghi diné t’áá nízhígo yee hadít’é.
      John 3-tall-COMP man each-individually 3-P has-characteristics-of
      #‘John being tall is a characteristic every man has.’

In Kratzer's analysis, the reason (29a) is odd is that the generic quantifier has no variable to bind in either its restriction or its nuclear scope. When the indefinite nominal a Moroccan is introduced in place of Mary, as in (29b), the sentence becomes felicitous. The tradition of Lewis (1975), Kamp (1981), and Heim (1982) of treating indefinites as restricted variables allows (30) to make the correct prediction for (29b). (29c) is acceptable for the same reason: a foreign language introduces the variable that is bound by the generic operator.

Given this account of (29a–c), it is at first a bit surprising that (29d) is acceptable: there are no indefinite nominals in the sentence and yet it has the interpretation of a generalization. The crucial difference between (29a) and (29d) is that (a) contains an ILP and (d) contains a SLP. This difference leads Kratzer to propose that the relevant difference between ILPs and SLPs is that the latter introduce a spatiotemporal (or “Davidsonian”) variable into the logical representation and the former do not. (29d), then, is a generalization about spatiotemporal locations at which Mary speaks French. (29a) cannot be a generalization about spatiotemporal locations at which Mary knows French because know French is not located in space and time and does not introduce a spatiotemporal variable. (29e) is noteworthy for its oddness. Even though the adjunct contains a SLP, the main clause does not introduce any variable, so the quantification is vacuous.

De Hoop and de Swart (1989) pointed out that certain SLPs sound just as odd in when-adjuncts as (29a):
(33)  a. *When a Moroccan kills Fido, she kills him quickly.
    b. *When Anne makes the film "Dangerous Liaisons," she makes it well.

What is odd about these sentences is that the predicate in the adjunct clause, in its ordinary usage, denotes an eventuality that can take place only once. The difficulty these ‘once-only’ examples pose for Kratzer’s analysis is that the SLPs introduce variables into the logical representation, so the prohibition against vacuous quantification is not violated. De Hoop and de Swart propose that the problem with ILPs and with once-only SLPs is that they do not form an adequate restriction for a generalization; forcing them into the restriction results in a trivial generalization about only one eventuality. For reasons having to do with their analysis of tense and aspect, de Hoop and de Swart reject Kratzer’s proposal that ILPs do not have a spatiotemporal argument; their solution allows all predicates to have such arguments. The crucial assumption for the interaction of the ILP/SLP distinction with genericity is the idea that each ILP and each once-only SLP is presupposed to be associated with only one spatiotemporal location, while other SLPs are potentially associated with many. This proposal is implemented as follows:

(34)  Uniqueness presupposition on the Davidsonian argument (de Swart 1991:59) The set of spatiotemporal locations that is associated with an individual-level or a ‘once-only’ predicate is a singleton set for all models and each assignment of individuals to the arguments of the predicate.

(35)  Plurality condition on quantification (de Swart 1991:118) A Q-adverb does not quantify over a set of situations if it is known that this set has cardinality less than two. A set of situations is known to be a singleton set if:

1) the predicate contained in the sentence satisfies the uniqueness presupposition on the Davidsonian argument, and
2) there is no (in)definite NP in the sentence which allows indirect binding by means of quantification over assignments.

These conditions require the restrictions of quantificational adverbs to have cardinality of greater than or equal to two. The null generic operator posited for the data in (29) is subject to these conditions, as are other adverbs of frequency.
3.3 Navajo Generalizations with ILPs and SLPs

We now turn to consider Navajo data that parallel the English examples in (29). The examples in (36) indicate that Navajo shows a contrast between ILPs and SLPs in the interpretation of -go adjuncts.6

(36) a. #Mary diné bizaad bit béezhízingo hastóf bit
   M. Navajo language 3-P 3-3-know-GO men 3-P
danílįį teh.
   pl-3-respect usually
   ‘When Mary knows Navajo, men respect her.’ (ILP)

b. Mary diné k’ehji yáti’go hastóf bit
   M. Navajo 3-speak-GO men 3-P
danílįį teh.
   pl-3-respect usually
   ‘When Mary speaks Navajo, men respect her.’ (SLP)

Example (36a) in Navajo seems just as odd as (29a) does in English. As with English, adding an indefinite nominal to an ILP makes the generalization reading possible:

(37) a. Sáaníí diné bizaad bit béezhízingo hastóf bit
   woman Navajo language P-3 3pl-know-GO men 3-P
danílįį teh. (ILP)
   pl-3-respect usually
   ‘When a woman knows Navajo, men usually respect her.’

b. Mary ał’qq ana’i bizaad bit béezhízingo hastóf bit
   M. foreign language P-3 3-know-GO men 3-P
danílįį teh. (ILP)
   pl-3-respect usually
   ‘When Mary knows a foreign language, men usually respect her.’

Below is another pair of examples with an ILP in the adjunct.

(38) a. Sarah ’azee’ii’í’í yitsi’ nilįgįgo ayóo óhta’ teh.
   S. doctor 3-daughter 3-be very 3-study usually
   Sarah, being a doctor’s daughter, studies a lot.’
   #‘When Sarah is a doctor’s daughter, she studies a lot. (ILP)
b. At'éekeké ta' 'azee'ít'íini yitsi' nilíigo ayóó ótta' 
   girls indef doctor 3-daughter 3-be very 3- study 
   teh. usually 
   'When a girl is a doctor's daughter, she studies a lot.' (ILP)

Consultants indicate that (38a) is acceptable on the first gloss given. The second interpretation, like the English gloss, suggests that sometimes Sarah is a doctor's daughter and sometimes she is not. Example (38b), on the other hand, is an acceptable generalization about girls who are doctors' daughters.

There is a fair amount of speaker variation in judgments among the examples in (36–37) with respect to the interpretation of teh. Everyone's judgments are consistent with what I have argued about the basic logic of generics, but how that interpretation is expressed syntactically varies. For some speakers, generalizations are usually possible without teh, although this is not always the case. For them, teh is interpreted as 'usually'. This dialect appears to have a null generic quantifier, since a generalization is possible even when teh is not present. For other speakers, if teh is not in the sentence, the examples in (36–37) cannot be interpreted as generalizations. This dialect has no null generic quantifier (or it is ineffective in this syntactic context.) Leh has the interpretation of the generic quantifier in this dialect. We will examine the effects of teh in section 3.5.

The data in (36–37), both the Navajo examples and their English counterparts, appear to indicate that Kratzer's prohibition against vacuous quantification is too strong. In (36b) and (37b), the main clause appears to contain an ILP. The standard English diagnostics for respect indicate that it heads an ILP:

(39) a. Firefighters respect Mary. (no existential reading)
   b. *I saw Robin respect Mary. (cf. I saw Robin reach a decision.)

For more on these, see Carlson (1977), Fernald (1994, 2000), Kratzer (1988), or de Swart (1991). Unless we take respect to be the head of a SLP, there will be no variable in the nuclear scope that also appears in the restriction. The following would be the representation for (36b):

(40) G [speak (Mary, Navajo, 1)] [Gx [men(x)] [respect (x, Mary)]]

The generalization in the main clause (‘Men respect Mary’) is well-formed: the generic operator G in the main clause (the second one in the formula above) binds the variable x. The problem arises with the first generic operator in the formula since it has no variable to bind. Thus, our assumptions would seem to make the incorrect prediction that (36b) should be ill formed.
3.4 Contextualized Restrictions and Coercion

There are two kinds of solutions to the problem seen in section 3.3. One, as already suggested, treats respect as a stage-level predicate in (36b). It would analyze the problematic examples as cases in which the main clause ILP has been coerced into an SLP, resulting in an inchoative interpretation. The other solution admits contextual information into the restrictions of quantifiers. It thus departs from classical theories in which there is a pristine mapping from syntactic trees to logical representations. However, such a departure is required for many ordinary quantificational sentences. Such an account would need to allow the missing variable to be accommodated under just the right circumstances. We will consider the coercion solution first.

3.4.1 Coercion

When recalcitrant data are discussed in scholarly writing on the ILP/SLP distinction, one frequently finds a speculation that a predicate of one variety is "being used" as a predicate of another variety. Perhaps the ILP in (36b) is being used as a stage-level predicate. We might think such a thing because respect is the sort of thing that ordinarily builds over time. There may be something a bit odd about making it depend on particular eventualities of Mary speaking Navajo. Perhaps the oddness results from using respect in a slightly unusual way, from coercing it to be a SLP.

All ILPs are stative. Moens and Steedman (1988) pointed out that stative predicates can be "coerced" into having a change of state reading in certain syntactic environments. A change of state predicate, of course, is not stative itself since it is telic. Since it is not stative, it cannot be an ILP. But then the predicate must be stage-level. And Kratzer (1988) analyzes SLPs as having a spatio-temporal argument. Returning now to the analysis of (36b), if respect is a coerced SLP, then we no longer have a problem with vacuous quantification: both speak and respect will have spatiotemporal arguments that can be bound by the generic quantifier. It seems plausible that (36b) has a change of state (inchoative) interpretation, which may be paraphrased as, 'When Mary speaks Navajo, men in the area come to respect her'. Since come to respect is stage-level, it should introduce a spatiotemporal variable into the nuclear scope. The following formula is the result of this assumption along with existential closure of the nuclear scope:

(41) \( G_i \left[ \text{speak} (\text{Mary, Navajo, l}) \right] [\exists x \left[ \text{men}(x) \& \text{come-to-respect} (x, \text{Mary, l}) \right]] \)

Chierchia (1992) noted that donkey sentences (of which -go generics are an example) can, in principle, have two interpretations, although many individual sentences strongly favor one interpretation over the other. Thus, (42) has what
Chierchia calls an $\exists$-reading, shown in (b), and the more obvious $\forall$-reading shown in (c):

(42) a. When a farmer has a donkey he beats it.
    b. $\forall x [\text{farmer}(x) \& \exists y (\text{donkey}(y) \& \text{has}(x, y))$
       $[\exists y (\text{donkey}(y) \& \text{has}(x, y) \& \text{beat}(x, y)))]$
    c. $\forall x [\text{farmer}(x) \& \exists y (\text{donkey}(y) \& \text{has}(x, y))$
       $[\forall y (\text{donkey}(y) \& \text{has}(x, y) \& \text{beat}(x, y))]]$

Example (41) is the $\exists$-reading of (36a), and in fact this is a fairly unlikely reading for the sentence. The more likely $\forall$-reading would entail that it is a general property of locations at which Mary speaks Navajo that all men at those locations come to respect her there. This interpretation is shown below:

(43) $\exists l [\text{speaking}(\text{Mary, Navajo, } l)]$
    $[\forall x [\text{men}(x) \& \text{at}(x, l)] [\text{come-to-respect}(x, \text{Mary, } l)]]$

Notice what was needed to produce this formula. In addition to coercion, we had to add the contextual information $\text{at}(x, l)$ to the restriction of the embedded quantifier. We will see that this is exactly the contextual information required by our other proposal.

Let us now hone our intuitions about (36b) to see whether (43) is a valid interpretation of it. It would appear that (36b) conversationally implicates (44), but that (44) is not a truth-condition of the sentence.

(44) Men do not always respect Mary.

Note that it is not contradictory to say:

(45) When Mary speaks Navajo, men respect her, and in fact, they always respect her.

This shows that, on at least one reading, (36b) does not entail (44). We can show that (44) may be conversationally implicated by (36b) in the right sort of context: if the speaker knew that it is always true that men respect Mary then the speaker could have said so. But since we take (36b) to be a weaker claim than $\text{Men respect Mary}$, the speaker must not have adequate evidence for the latter. So by the Maxim of Quantity, we infer that it is not always true that John respects Mary.

The fact that (36b) does not entail (44) has fatal consequences for appealing to coercion as an explanation for (36b). At least one reading of (36b) does not entail that men ever fail to respect Mary, but (41) does (as long as Mary speaks
Navajo around men at some time) since it entails a change of state to respect for Mary from lack of respect for her. On the other hand, if a context supports the conversational implicature that men do not always respect Mary, it might well support an inference of (41), and this is why (41) might initially seem to be a plausible interpretation for (36b).

Notwithstanding this line of reasoning, Moens and Steedman had solid reasons for positing the existence of inchoative coercion. If we were really convinced that the coerced reading had to be a possible interpretation, we would be forced by (45) to believe that (36b) is ambiguous:¹⁰ (45) shows that there is at least one reading of (36b) that does not entail (44). Thus we conclude that, even with the possibility of coercion, (36b) still poses a challenge for our theory since it must have an uncoerced reading. In the next section we will develop such a reading.

First, however, it should be pointed out that Femald (1994, 1999, 2000) predicts an additional coerced reading for this sentence. In this earlier work, I claimed that sentences such as Robin is usually intelligent exhibit what I called “Evidential Coercion.” Like inchoative coercion, evidential coercion can happen when an ILP is used in a spot that is more compatible with a SLP. If a hearer is obliged to produce an interpretation for such a sentence, somehow a spatiotemporal variable must be added to the predicate. Below is a formal account of this:

**Evidential Coercion:** Let α be an ILP with interpretation α'. α can be used as a SLP with the following interpretation:

\[
\lambda l \lambda x \exists Q [Q(x,l) \& G_y [Q(y,l)] [\alpha'(y)]
\]

A proposition using an ILP α that has been coerced by the above rule will entail that the subject has some stage-level characteristic Q at location l, and that, in general, if Q holds of someone, that person has the individual-level property α. Evidential Coercion is predicted, in principle, to be a successful coercion anytime an ILP needs to satisfy the Plurality Condition without the help of an indefinite nominal. Certainly there are particular predicates that are more difficult to coerce than others. Nevertheless, we expect that a pair of evidential coercion readings (a ∃-reading and a ∀-reading) should be available for (34b). This reading follows:

(46) a. Gi [speak (Mary, Navajo, l)]
    [∃x [men(x) & ∃Q,l [Q(x,l) & G_y [∃l Q(y,l)]]
    [respect (y, Mary)]]]

b. Gi [speak (Mary, Navajo, l)]
    [∀x [men(x)] [∃Q,l [Q(x,l) & G_y [∃l Q(y,l)]]
    [respect (y, Mary)]]]
By these formulas, (36b) is taken to express the generalization that when Mary speaks Navajo at a location, men display some characteristic at that location that generally would be taken to mean that they respect her. In other words, the men display some outward sign of respect for her.

The same considerations that applied to the readings obtained by Inchoative Coercion apply to the readings in (46):

(47) When Mary speaks Navajo, men respect her, but they do not show it.

The fact that (47) is not a contradiction shows at least that there is another reading for (36b). Now we will see how that reading can be predicted.

3.4.2 Contextualized Restrictions

It is widely known that the restrictions of quantifiers need to allow contextual information to be added if they are to reflect the intended interpretations of quantificational sentences. Let us consider some examples:

(48) a. Men respect Mary.
    b. Robin always eats steak.

The first example is a generalization ranging over men. However, this would never be taken to be a generalization over all men that have ever existed, including those that have never even heard of Mary. We would not want to predict that a sentence like (a) is always false and therefore unusable. The best we could do would be to hope for a Gricean explanation for why it is possible to utter (a) informatively. But a Gricean analysis would predict that using (a) would always involve flouting the Maxim of Quality. Surely this is not the correct way to go. Rather, we must allow context to contribute to the restriction of the quantification so that only those men that are contextually relevant count as cases for quantification.

The example in (b) is a universal quantification. What is understood to be its restriction? It may in fact have an unrestricted reading, which would entail that for all spatiotemporal locations in the universe it is the case that Robin eats steak. However, again the most plausible use of the sentence is one that is taken to be a quantification over contextually relevant spatiotemporal locations. These would normally not include locations at which Robin is sleeping, and they would certainly not include locations at which Robin does not exist.

Example (36b) is ordinarily taken not to mean that all men in the universe respect Mary when she speaks Navajo, but only that the men who are present when she speaks Navajo respect her. The restriction of the embedded quantification has the contextual information $at(x,l)$ added to it:
Notice that respect, lacking a spatiotemporal variable, is not a stage-level predicate in this analysis. Since the variable l appears in both the restriction and the nuclear scope in (49), the formula is well formed, and the interpretation is consistent with our intuitions about the meaning of the sentence.

The contextualization strategy used to produce the formulas in (49) has a different effect from what happened with (48a). The latter was well formed prior to contextualization, but the formulas in (49) were not, as we have seen. (48b) is more like the cases in (49) since little if any of the information that ends up in the restriction is represented in the syntax of the sentence.

Clearly a great deal of work needs to be done to see exactly when and where contextual information can be added. Here, I will only add the observation that it is not always the case that contextual information in an embedded restriction can save a generalization the way it seems to in (36b):

(50) #When Mary speaks Navajo, men are tall.

This problem is independent of the issue of contextualization, however. Note that example (a) below is just as odd as (50):

(51) a. #When Mary speaks Navajo to Apaches, they are tall.
    b. When Mary speaks Navajo to Apaches, they understand her.

I can only speculate about an explanation for this. Somehow, it is less easy to see how the height of people could be relevant to Mary speaking Navajo than it is to see how people understanding or respecting her could be relevant to those events. This suggests that the ways in which relevance is involved in contextualizing the restriction can be fairly complex.

In this section we have seen that two kinds of coercions result in possible interpretations for sentences like (36b) but that a pair of noncoerced readings are required as well. To produce these readings it was necessary to contextualize the restriction of the adverbial quantifier.

3.5 The Quantificational Adverb teh 'usually'

Kratzer (1988) pointed out that English ILPs sound odd with frequency adverbials such as sometimes and usually. This is demonstrated by the English counterparts to the Navajo sentences below, which sound equally odd:
As we would expect, changing one of the arguments to be construed as an indefinite makes these acceptable:

(54) *Ha'a'aahdэ' hastóí danineez teh.*
    east men pl-3-tall usually
    'Eastern men are usually tall.' (ILP)

In contrast, SLPs sound perfectly natural with frequency adverbials:

(55) *Mary diné k'ehjí yee yáltì' teh.*
    M. Navajo 3-P 3-speak usually
    'Mary usually speaks Navajo.' (SLP)

(56) *Éí tì' dzaanééz neintał teh.*
    That horse mule 3-3-l-kick usually
    'That horse usually kicks mules.' (SLP)

In these examples, *teh* is interpreted as 'usually'.

Kratzer's analysis of this is that frequency adverbials must bind some variable, and therefore they are able to quantify over only those clauses which contain indefinite nominals or SLPs. For de Hoop and de Swart, we would think that the Plurality Condition in (35) should have a role in the analysis of (52–56). Note, however, that (35) is a condition on the restrictions of quantifiers, not on their nuclear scopes. Examples (52–56) are interesting cases since all the material in these sentences is mapped to the nuclear scope; the restrictions arise entirely from context. Thus, (55) means that usually, in contextually relevant situations, Mary speaks Navajo. Examples (52–56) show that the nuclear scopes of adverbial quantifiers are just as susceptible to the ILP/SLP distinction as the restrictions are. The question that arises is whether the oddness of (52) and (53) can be predicted by the kinds of contexts in which they could be uttered. If so, the Plurality Condition can cover these cases as currently stated. The alternative is to extend the Plurality Condition to cover the nuclear scope as well as the restriction:
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(57) Plurality Condition on Quantification (modified)

The restriction and nuclear scope of a Q-adverb must not be known to have cardinality less than two. A set of situations is known to be a singleton set if:

1) the predicate contained in the sentence satisfies the uniqueness presupposition on the Davidsonian argument, and
2) there is no (in)definite NP in the sentence which allows indirect binding by means of quantification over assignments.

3.6 Conclusions

This chapter provides first evidence for a distinction between individual- and stage-level predicates in Navajo. This distinction does not appear to result in a contrast in grammaticality along the lines of the English existential construction, but contrasts are found where a predicate is used to restrict generic quantifiers; as in English, SLPs that are not once-only can restrict a generic quantifier without the help of an indefinite nominal, but ILPs cannot.

We have noted that there is some speaker variation with respect to whether a null generic operator is available with -go adjuncts and when it is available and have left the reasons for this as a subject of further research. For all speakers, leh is an overt generic quantifier that is subject to the Plurality Condition.

This chapter has also argued that sentences like (34b) require contextual information to be admitted into the restriction of a quantifier if the prohibition against vacuous quantification is to account for them. I have also considered a number of examples of adverbial quantifiers in simple clauses. Since all the overt material in the sentence is mapped to the nuclear scope, a modification of the Plurality Condition was needed in which the condition applies to the scope as well as the restriction.

In closing, it is worth noting something which will come as no surprise to linguists who believe that the semantics of natural language is universal, but which may come as a surprise to others: generalizations are formed according to the same principles of logic in Navajo as they are in English. We have seen that the grammars of both Navajo and English provide ways for generalizations to be stated. Moreover, the restrictions (and nuclear scopes) of generic quantifiers must delimit a plurality of cases in both languages. It is not simply the case that the same tools of logical analysis have been used for understanding English and Navajo. Theories of quantification have been useful in explicating the interpretations of sentences, but we have seen something more than that. A violation of the Plurality Condition sounds just as odd in Navajo as it does in English. The effects described here are thus due to the way speakers of Navajo and English think and are not mere by-products of the tools of analysis. The conclusion is that, although there are substantial differences between the grammars of English and Navajo, particularly with respect to clause structure and morphology, generalizations are formed according to the same principles of logic.
Notes

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1. Verbs are glossed IO-D0-S-root, consistent with the order in which these morphemes occur. Numbers in the glosses indicate person; Pf stands for perfective, I for imperfective, and It for iterative. Postpositions are indicated by P and agree with the NPs they appear with. YM abbreviates Young and Morgan.

2. Eloise Jelinek points out that the -go clause could simply be an adjoined modifier rather than a complement. If so, (17) would be interpreted as ‘I saw Bill when he was chasing Baa’.

3. See Krifka, et al. 1995 for arguments in favor of treating the generic as a binary operator rather than as a monadic operator.

4. Chierchia (1992) points out that, in general, determining the restriction of an adverb of quantification is more complicated than this, requiring an analysis of information structure. This issue is not central to this paper, however.

5. Thanks to Paul Platero for these.

6. Certain speakers prefer hastoi to appear at the beginning of the entire sentence in these examples.

7. This is grammatical on the conjunction reading: ‘Because Mary knows Navajo, men respect her.’ In some dialects, the argument structure of the main verb in this sentence is reversed. For these speakers, the sentences in (36) and (37) should end with yit nili leh rather than bit danili leh.

8. See also Schubert and Pelletier (1989), Krifka et al. (1995), and Fernald (1994, 1996) for a discussion of these considerations with the ILP/SLP distinction or the similar episodic/non-episodic distinction.

9. The Coercion analysis would need to explain why the examples in (39) do not indicate that a SLP is present. The answer to this (following Fernald 1996) is that coercion does not happen automatically; it needs to be induced by something and the interpretations of the examples in (37) are not able to induce it.

10. An alternative to relying on ambiguity we might say that coercion is itself a pragmatic inference that can be defeated by an overt statement, as in (45).

11. This is similar to the strategy of Kratzer (1977, 1979) in assuming that conversational background contributes significantly to the restriction of modals. Rooth (1992) posits a pragmatically-bound variable for his analysis of quantificational focus constructions.

12. It is controversial whether the existential quantifier should be taken to have a restriction and nuclear scope or just a scope. If the latter is the best course, to get the reading in (49b), we would need to allow contextual information to appear in nuclear scopes as well as restrictions. If we can avoid this, our theory will have more predictive power.
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References


