## Distributive Numerals in Tlingit: Pluractionality and Distributivity

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**1. Introduction** This paper describes and analyzes the semantics of distributive numerals in Tlingit, a highly endangered and understudied Na-Dene language of Alaska. Based upon original field data, I argue that – contrary to first appearances – distributive numerals in Tlingit possess a single, univocal, pluractional semantics, one that is able to felicitously describe a multitude of different scenarios.

**2. Basic Phenomenon** When a numeral in Tlingit bears the 'distributive' suffix -gaa, the resulting expression has all the hallmarks of a 'distributive numeral' (Gil 1982, Choe 1987, Farkas 1997, Oh 2005, Henderson 2011). As shown below, unlike unmarked numerals (1), distributive numerals in Tlingit do not permit 'collective' or 'cumulative' readings. Rather, they require an adjacent NP to function as a 'distributive share' (Choe 1987). As indicated below, the understood 'distributive key' (Choe 1987) can be either another participant in the sentence (2a) or some plural event (2b).

(1)	A <u>x</u>	<u>k</u> aa	yátx'i	nás'k	<u>x</u> áat	has aa	washaat.		
	my	male	children	three	fish	they.ca	aught		
	My so	ons caugh	t three fish.	(Cumu	lative o	r Collect	tive Reading OK)		
(2)	A <u>x</u>	<u>k</u> aa	yátx'i	nás'gig	gáa	<u>x</u> áat	has aawashaat.		
	my	male	children	three.I	DIST	fish	they.caught		
	a.	My sor	ns caught thr	ee fish each.		(key = sons; share = three fish)			
	b.	My sor	ns caught thr	ee fish each	time.	(key = events of fishing, share = three fish)			

Although I will later claim that (2a,b) are not separate 'readings', I will use the terms 'entity key scenario' and 'event key scenario' to distinguish these two kinds of verifying scenarios for sentences like (2).

**3. Methodology** To ascertain the truth-conditions of Tlingit sentences containing distributive numerals, I interviewed four native speakers (three women, two men) living in Juneau, AK. All four speakers were present at each interview session. I would present various scenarios to the elders, both orally and through the use of an accompanying cartoon. Scenarios were paired with an English sentence describing the scenario. Speakers were asked to supply an equivalent description in Tlingit. Speakers were also asked to judge the 'truth/correctness' of constructed Tlingit sentences relative to said scenarios.

**4. Syntax of Distributive Numerals** Distributive numerals in Tlingit can function either as adnominal or adverbial modifiers. Their adnominal status is revealed by the possibility of discourses like the following.

a.	Question:	Daa sáwé	has aawashaat	yá i	<u>k</u> aa yátx'i?
		what Q.FC	C they.caught	these your	male children
		What did you	sons catch?		
b.	Answer:	Nás'gigáa	<u>x</u> áat		
		three.DIST	fish		
		Three fish ea	ch.		
1 1	(21) $(1 - 11)$	1	1		

(3)

As shown by (3b), the elliptical answer to a wh-question can consist of a distributive numeral followed by an NP. Generally, such elliptical answers in Tlingit can only be constituents; it can be shown that an *adverb* followed by an NP cannot function as such an answer. Moreover, the complex data set below demonstrates that Tlingit distributive numerals can also function as adverbs.

(4)	a.	A <u>x</u>	shaa	yátx'i	dá <u>xg</u> aa		keitl	has aaw	ashúch.		
		my	female	children	two.DIS	ST	dog	they.ba	thed		
		My dau	ghters b	athed two dogs e	each.						
	b.	* A <u>x</u>	shaa	yátx'i	dá <u>xg</u> aa		wé	keitl	has aaw	ashúch.	
		my	female	children	two.DIS	ST	those	dog	they.bat	thed	
	c.	* A <u>x</u>	shaa	yátx'i	wé	dá <u>xg</u> aa		keitl	has aaw	ashúch.	
		my	female	children	those	two.DIS	ST	dog	they.bat	thed	
	d.	A <u>x</u>	shaa	yátx'i	dá <u>xg</u> aa		has aaw	ashúch		wé	keitl
		my	female	children	two.DIS	ST	they.bat	thed		those	dog
		My daughters bathed those dogs two at a time.									

The contrast between (4a) and (4b,c) shows that NPs modified by distributive numerals cannot also be modified by demonstratives, a common pattern across languages (Zimmermann 2002). Consequently, the

numeral in (4d) could not be a 'floating' modifier of the distributive share *wé keitl* 'those dogs'; rather, it must originate as an adverbial modifier. Furthermore, the contrast between (4a,b) shows that the numeral in (4a) must be adnominal; if it were adverbial, then the ill-formedness of (4b) would not be expected.

**5. Semantics of Distributive Numerals** Importantly, whether the distributive numeral is adnominal or adverbial has no effect upon whether the sentence can describe 'event key scenarios' or 'entity key scenarios' (Gil 1982, Oh 2005). As shown by (5), an adnominal distributive numeral can describe event key scenarios. As shown by (6), adverbial distributive numerals can describe entity key scenarios.

Scenario:		My son went fishing every day last week. Each day, he caught three fish.				
A <u>x</u>	yéet	nás'gi <u>g</u> áa	<u>x</u> áat	aawashaat.		
my	son	three.DIST	fish	caught		
My son caught three fish each time.						
Judgme	ent:	True/felicitous	descript	ion of scenario above.		
Scenar	io:	My neighbors have four dogs. My daughters Hazel and Bea went over to their				

house to wash their dogs. Hazel washed two dogs, and Bea washed the other two. $A\underline{x}$ shaayátx'idáxgaahas aawashúchwékeitlmyfemalechildrentwo.DISTthey.bathedthosedogMydaughtersbathed two of those dogs each.dogs each.dogs each.dogs each.

Judgment: True/felicitous description of scenario above.

(5)

(6)

There are, however, a variety of constraints/generalizations governing the possible interpretations of structures containing distributive numerals. Some are listed below; all have been established via the methodology described in Section 3 above.

(7) a. Sentences of the Form 'Distributive Numeral > Subject<sub>Plural</sub> > Object<sub>Plural</sub> > Verb'

- (i) Can describe entity key scenario where *share* = subject and *key* = object
- (ii) *Cannot* describe entity key scenario where *share* = object and *key* = subject
- (iii) Can describe event key scenario where *share* = subject
- b. Sentences of the Form 'Dist. Num. > Subject<sub>Plural</sub> > Dist. Num. > Object<sub>Plural</sub> > Verb' Can *only* describe event key scenarios where *share = object*, *subject* (*e.g.* Each time, *num*<sub>1</sub> subjects V-ed *num*<sub>2</sub> objects)

6. Semantic Analysis I propose that Tlingit distributive numerals are (always) pluractional operators (Beck & von Stechow 2007). The ability of sentences containing distributive numerals to describe both 'entity key' and 'event key' scenarios is not due to an ambiguity, but instead to their possessing rather general truth-conditions. I propose two different lexical entries for -gaa, one creating adnominal distributive numerals, and the other creating adverbial ones. The semantics for 'adnominal gaa' is given in (8); 'adverbial gaa' is similar. I assume that sentence (2) has the LF in (9), and thus the T-conditions in (10). Note that in deriving the T-conditions in (10), I assume many of the key ideas of Kratzer (2008).

(8) [[ gaa ]] = [  $\lambda n$  : [  $\lambda Q_{\langle et \rangle}$  : [  $\lambda P_{\langle e_{\epsilon} t \rangle}$  : [  $\lambda e_{\epsilon}$ :  $\exists x. Q(x) \& P(x)(e) \&$ 

$$< e, x > \in \{ < e', y > : part(e,y) \& |y| = n \} ] \dots ]$$

- (9) [[ three gaa ] fish ] [1 [my sons [v [ caught  $t_1$  ] ... ]
- (10)  $\exists e : \exists x : *fish(x) \& *caught(e,x) \& *agent(e) = my.sons \&$

$$< e, x > \in \{ < e', y > : part(e,y) \& |y| = 3 \}$$

## There is a (plural) event e, and a plurality of fish x, and e is a (cumulative) event of catching x, and my sons are the (cumulative) agent of e, and the fish x can be formed from all those triples that participated in a subevent of e.

As can be seen from the informal paraphrase of the T-conditions above, the analysis correctly predicts that (2) is true both in scenarios where each son caught three fish, and ones where the sons collectively caught three fish on multiple occasions. Thus, the single lexical entry in (8) predicts that (2) is true in both 'entity key' (2a) and 'event key' (2b) scenarios. The same prediction is shown to hold for sentences containing 'adverbial *gaa*'. Finally, the analysis correctly predicts all the various generalizations, excerpted in (7), that concern the interpretations of sentences containing distributive numerals. Moreover, I show how the semantics in (8) could be modified to apply to English 'binominal each' constructions.