

The syntax of numerals in two Dene languages

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0 Basic information

- two neighbouring languages: Tłı̨chǫ Yatı̀ (Dogrib) and Dēne Sų́łné (Chipewyan)
- there are two syntactic patterns in how numerals combine with nouns

Goals

- to describe the two patterns shared by the two languages
- to connect the syntactic patterns with meaning
- to suggest further areas for study

Sources

- field work in Behchokǫ̀, NWT (Tłı̨chǫ Yatı̀) and Cold Lake, Alberta (Dēne Sų́łné)
- textual materials, including
 - New Testament translated into Tłı̨chǫ Yatı̀ (Canadian Bible Society 2004)
 - Dēne Sų́łné text collections: Goddard 1912, L&S 1976, DCI 1997
- *Tłı̨chǫ Yatı̀ Enıhtł'è / A Dogrib Dictionary* (Dogrib Divisional Board of Education 1996)
- *Dene (Chipewyan) Dictionary* (E&E 1998)

Our analysis in a nutshell

- a functional category F has the semantic function of adding an argument, and the syntactic function of licensing a Specifier
- F licences a numeral Specifier when the complement of F is a unit noun
- the evidence of morphology, syntax, and semantics suggests that F has broader application within the nominal domain than the standard "possessive" label suggests

Structure of our discussion

1. basic facts about word order and morphology
2. analysis of the syntax and semantics of the two construction types
3. comparing the numeral constructions with other patterns in the languages
4. predictions
5. implications and open questions

1 Two basic noun-numeral patterns

1.1 Pattern I: Counting objects

- **Tɥchɔ Yatì: N – Num**

- (1) a. shɥ **nàke** 'two songs'
bird two
- b. ke **taɪ** 'three shoes'
shoe three
- c. sadzeè **ɟè** 'one clock'
clock/hour one
- d. libò **dɟ** 'four cups'
cup four

- **Dëne Sɥhné: Num – N (& N – Num)**

- (2) a. **ʔɟághe** hɥe 'one fish'
one fish
- b. **náke** ke 'two shoes'
two shoe
- (3) a. dɪ **náke** 'two chickens' (DCI 1997:4)
ptarmigan two
- b. ttheluzé **náke** 'two pieces of quartz' (L&S 1976:47)
rock-hard two

1.2 Pattern II: Counting abstract units

- **Tɿchɔ Yatì: Num – N_{Poss}**

- (4)
- | | | | |
|----|-------------|------------|--------------------------------|
| a. | nàke | dzeɛ̀ | ‘two days’ |
| | two | day.PNS | |
| b. | taɪ | tò | ‘three nights’ |
| | three | night.PNS | |
| c. | dɿ | sadzè | ‘four hours’ |
| | four | clock/hour | |
| d. | ɿ̀è | libò̀ | ‘one cup’ [of flour, tea, etc] |
| | one | cup.PNS | |

- the only cases where the numeral precedes N
- N is in the "possessed" form, with the "possessed noun suffix": extra mora + low tone

- **Děne Sɿ́nè: Num – N_{Poss}**

- (5)
- | | | | |
|----|-------------|----------|-------------|
| a. | ɿ́lá | dziné | ,one day’ |
| | one | day.PNS | |
| b. | náke | néné | ,two years’ |
| | two | year.PNS | |

- the numeral precedes N, as usual
- the numeral may have a shorter form, (5a)
- N is in the "possessed" form, with the "possessed noun suffix": -é suffix

1.3 Distribution of Pattern II

(6)

Type of N	TY	DS
natural time units: 'day', 'month', 'night', 'year'	√	(√)
constructed time units: 'hour', 'minute', 'week'	√	(—)
measurement units: 'feet', 'inch', 'mile', 'cup', 'gallon'	√	—
currency units: 'dollar', 'cent'	√	—

- in Ṭḥcḥo Yaṭi, many nouns can be used as both regular nouns and as measuring units, in contrasting syntactic patterns (cf. English *foot, yard, cup, teaspoon*; German *Uhr* 'clock/hour')

- (7) a. satṣə degoo **ɟ̣ḥe** ɡ̣ɪḥòt'ɔ.
 coin white **one** be-given
 'they were given one silver coin' [Matthew 20.10]
- b. **ɟ̣ḥe** satṣə degoo ɡ̣ɔts'àzeeḥḍi ha ...
 one coin white pay-them Fut
 '... to pay them one silver coin' [Matthew 20.2]

Ṭḥcḥo Yaṭi

- there are some terms used only as measuring units (cf. English *mile, pound, litre, hour*; German *Liter, Meter, Gramm*)

- **Dëne Sùhné**

- (8) a. **ʔhà** néné ‘one year’
 one year.PNS
 b. **nàke** néné ‘two years’
 two year.PNS
 c. *néné/néne/nén

- **Tùchọ Yatù**

- (9) a. **ʔhè** nagèa ‘one minute’
 one minute
 b. **nàke** echù ‘two yards/miles’ [but cf. *dechy* 'stick']
 two yard/mile

2 Elements of a syntactic analysis

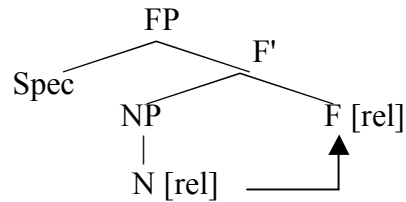
2.1 Counting objects: Numerals are *adjuncts (modifiers)*

- predict variation in basic order across and within the languages

2.2 Counting abstract units: Numerals are *specifiers of a functional phrase (required terms in the construction)*

- predict fixed word order across languages
- predict a single specifier
- predict functional morphology

(10)



<i>ʔłá</i>	<i>t_j</i>	<i>dzimé_j</i>	‘one day’ (Děne Sųłné)
<i>taı</i>	<i>t_j</i>	<i>toò_j</i>	‘three nights’ (Tłıchq Yatiı)

- FP licensing an additional argument in [Spec, FP]
- N moves to F to check its [rel] feature
- the morphological expression of [rel] on N: the "possessed noun suffix" (PNS)

- **What semantic relation is expressed by F [rel] ?**

- unit nouns denote abstract units of counting/measuring rather than *things*
- their semantics specifies a relation with a number, expressed as *OU* function in (11)
(cf. Krifka 1995, 2003, Wilhelm 2006)
- thus, they have a “number argument”

- (11) a. *dzeḡè* ‘day’: $\lambda n \lambda x [\text{day}(x) \ \& \ \text{OU}_{\text{DAY}}(x,n)]$ where *n* is a number, and OU_{DAY} is a type of relation
 b. *nàke* ‘two’: 2
 c. *nàke dzeḡè* ‘two days’: $\lambda x [\text{day}(x) \ \& \ \text{OU}_{\text{DAY}}(x,2)]$

3 F [rel] and the "possessed noun suffix"

3.1 Distribution of the "possessive" construction

➤ includes, but goes beyond, possession relations

- "Possession" of alienable nouns

(12)	a.	ts'ah	'cap'	sets'aà 1s.cap.PNS	'my cap'	
	b.	tɔ	'pail'	wetɔ̀ 3.pail.PNS	'his/her pail'	
	c.	tɬ	'dog'	nelɬ 2s.dog.PNS	'your dog'	
	d.	sɔ̀mba	'money'	gosɔ̀mbaà 1p.money.PNS	'our money'	

Tɬchɔ Yatì

(13)	a. jis mitten	sejisé 1s.mitten.PNS	‘my mitt’	<i>Dëne Süttné</i>
	b. thanakóthe car	sethanakóthé 1s.car.PNS	‘my car’	
	c. yú cloth, clothing	beyúé 3.clothing.PNS	‘his/her clothing’	
	d. tsąba money	setsąbaé 1s.money.PNS	‘my money’	

➤ not only a strict “possession” relation:

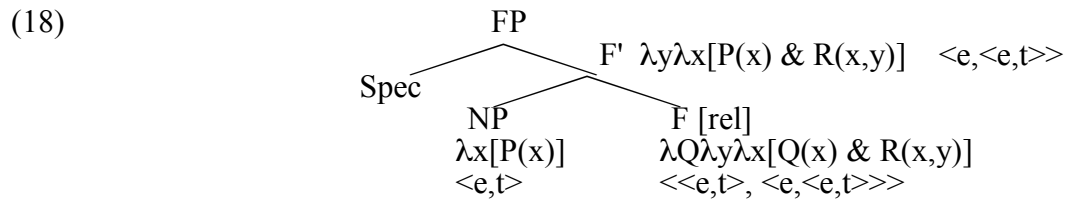
- | | | | | | |
|------|----|-------------------------|---------------------------------|-------------------------------|---------------------|
| (14) | a. | nàowo
'culture, law' | gonàowoò
1p.law.PNS | ‘our culture, law’ | <i>Tł̥ch̥o Yatì</i> |
| | b. | la
'work' | gilaà
3p.work.PNS | ‘their work’ | |
| (15) | a. | dz̥
day | sedzíné
1s.day.PNS | ‘my birthday’
(E&E 1998:6) | <i>Dēne S̥ł̥né</i> |
| | b. | ʔerihł̥’ís
paper | berihł̥’ísé
3.paper.PNS | ‘his photograph; his debt’ | |
| | c. | dáda
sickness | sedádaé
1s.sickness.PNS | ‘my sickness’ | |
| | d. | yati
language | nuheyatié
1/2pl.language.PNS | ‘our language’ | |

• **Clause with “characteristic” interpretation**

- (16) a. [behchù k'èdù] dọ̀
 vehicle drive.Nom person.PNS 'driver' *Tỳchọ Yatù*
 'lit. person who drives vehicles'
- b. [edets'egọọ] dzè
 UH.fast.Nom day.PNS 'day of fasting'
- c. [wet'à gokwìghà k'enazetsee] datfè
 3.with UH.hair be washed.Nom soap.PNS 'shampoo'
 'lit. soap with which one's hair is washed'
- d. [tso dèk'ọọ] satsọ̀
 wood burn.Nom stove.PNS 'wood-burning stove'
- (17) a. [tsádhéth kanđhémı] dënë
 beaver.fur want.Nom person.PNS 'trapper' *Dëne Sýłné*
 (E&E 1998:70)
- b. [tsąba hoghelehı] dënë
 money collect pl O.Nom person.PNS 'tax collector'
 (E&E 1998:66)
- c. [nálezéhı] dënë
 hunt.Nom person.PNS 'hunter'
 (E&E 1998:34)
- d. [há?onełtenı] homé
 teach.Nom story.PNS 'parable' (lit. 'story that teaches')
 (E&E 1998:48)

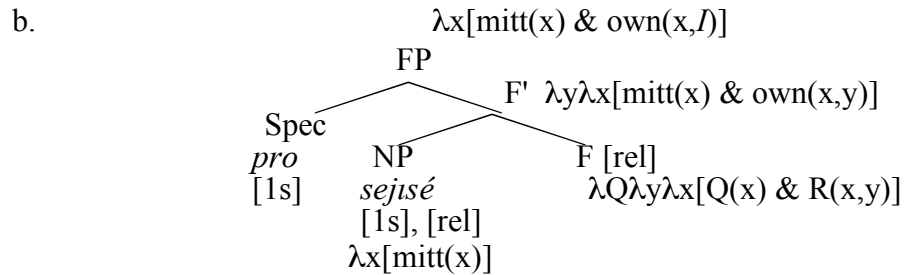
3.2 Analysis: FP licenses “any” argument of N, not only true possessors

- **R relation** (Williams 1980, Higginbotham 1983, Mühlbauer 2004)
 - “possession” involves a general relation *R* between possessed and possessor, where *R* expresses some (contextually defined) relation



- **true possessors: R = “owns”**

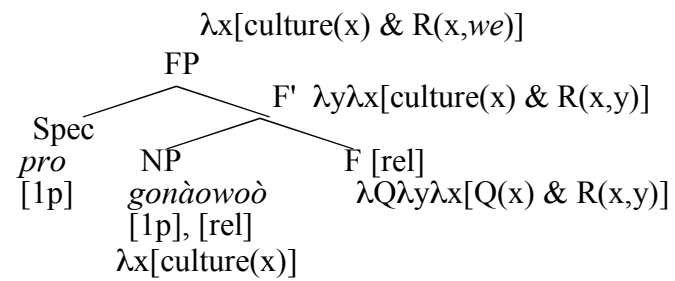
(19) a. *sejisé* ‘my mitt’:



- **not true possessors: general R (contextually specified)**

(20) a. *gonàowoò* ‘our culture/law’:

b.



- **numeral + unit noun: R = OU** [repeated from above]

(11) a. *dzeḡè* ‘day’: $\lambda n \lambda x[\text{day}(x) \ \& \ \text{OU}_{\text{DAY}}(x, n)]$ where n is a number, and OU_{DAY} is a type of relation
 b. *nàke* ‘two’: 2
 c. *nàke dzeḡè* ‘two days’: $\lambda x[\text{day}(x) \ \& \ \text{OU}_{\text{DAY}}(x, 2)]$

4 A prediction

4.1 Complementary distribution of specifier types

- we predict complementary distribution among numeral arguments, alienable possessors, and "characteristic" clauses, as we assume FP allows only one Specifier

(24) * nàke **sesòmbaà** *Tɔ̀chɔ̀ Yatù*
 two 1s.dollar.PNS
 [intended: my two dollars, two of my dollars]

- **numeral + inalienable possessor**

➤ apparent problem: in certain cases, numeral and possessor do co-occur

(25) a. sɪ̀lài **go-kè** 'five feet [in length]' *Tɔ̀chɔ̀ Yatù*
 five UnspHuman-foot
 b. nàke **go-lahchì** 'two inches'
 two UnspHuman-thumb

(26) honéna **dène-ké** 'ten feet [in length]' *Dène Sɔ̀hné*
 ten person-foot.PNS

- **alienable + inalienable possessors**

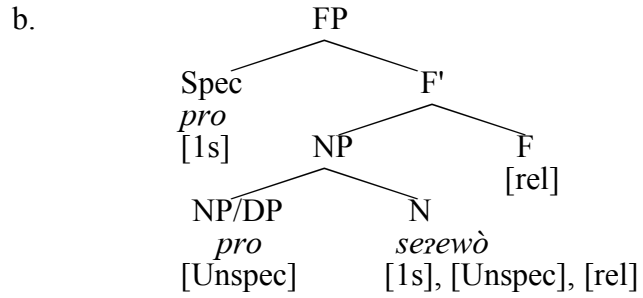
- “double possession” is independently possible
- occurs when an inalienably possessed noun is also alienably possessed
- inalienably possessed nouns: body parts, kin terms, etc
- they have an inherent possessor argument; the rest of the derivation is the same

- (27) a. se-**ɾe**-wò 'my [animal] hide'
 1sg-Unsp-hide
- b. we-**ɾe**-kwì 'his/her [animal] head'
 3-Unsp-head

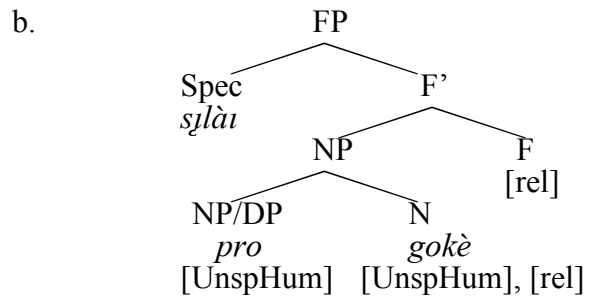
Tɬɬɬɬ Yatù

4.2 Analysis

(28) a. sezewò ‘my [animal] hide’ [= (27a)]



(29) a. sɿlàì gokè ‘five feet [in length]’ [= (25a)]



5 Implications and open questions

5.1 The “possessive” construction expresses more than just “possession”

- diverse and open-ended semantic relations within FP: “owns”, “OU”, “characterized by”, ...
- formalized as general relation R
- R can be further specified by lexical semantics or by context (Higginbotham 1983, Szabolcsi 1994)
- general function: to license additional argument

5.2 Inalienable possession is different

- inalienable possessor is lexical argument
- lower structural position than alienable possessor: complement of NP
- cf. Mühlbauer (2004), Barrie and Alboiu (2007) & references therein

5.3 Unit nouns are special

- only they relate a number to an entity directly in having a number argument
- special behaviour across languages, e.g.:
 - need no classifier in many numeral classifier languages

...in a wide range of languages, certain *particular* nouns are commonly quantified without apparent classifier. Frequently, the subset of nouns that pattern in this way is very similar and includes words for units of time such as ‘year’, ‘day’, and ‘time’; sometimes the word for ‘person’, and certain other terms used with fairly high frequency... (Simpson 2005:830)

- some unit nouns do not pluralize in German

(30) *drei Euro(*s)* ‘three Euros’, *drei Uhr(*en)* ‘three o’clock’

but *drei Tag*(e)* ‘three days’, *drei Jahr*(e)* ‘three years’

- not exactly the same set across languages, but rather there is lexical variation

5.4 Ordering of numeral and noun

- how do we know that something is a measuring unit?

(31) a. $\text{ɾech}\grave{\text{ɪ}}\text{ɪ}\text{ɪ}\text{ɪ}$ $\text{n}\grave{\text{a}}\text{k}\text{e}$ 'two spoons; two spoonfuls'
 spoon two

Tɿchɔ Yatì

b.* $\text{n}\grave{\text{a}}\text{k}\text{e}$ $\text{ɾech}\grave{\text{ɪ}}\text{ɪ}\text{ɪ}\text{ɪ}$ [intended: two spoonfuls]
 two spoon

➤ problem: if $\text{ɾech}\grave{\text{ɪ}}\text{ɪ}\text{ɪ}\text{ɪ}$ 'spoon' is a unit noun, the expected order of Num-N is impossible

- further observations

(32) a. * sezech̀l̀l̀l̀, * sezech̀l̀l̀l̀ [intended: my spoon(s)]
 1s.spoon.PNS 1s.spoon

T̀y`ch`o` Y`at̀i`

b. sets'`o` zech̀l̀l̀l̀ 'my spoon'
 1s.from spoon

➤ with this noun, alienable possession is impossible too

➤ *zech̀l̀l̀l̀* 'spoon' is etymologically a nominalization

➤ some nominalizations permit the FP pattern for possession and some do not

➤ those that do not allow it require the periphrastic possession construction shown in (29b) and (30c)

(33) a. kẁi`k`f̀i` 'gun' nek̀ẁi`k`f̀i` 'your gun'
 1p.language.PNS

T̀y`ch`o` Y`at̀i`

b. Ǹo`hts̀l̀ 'God' seǸo`hts̀l̀ 'my God'
 1s.God.PNS

c. whek'`o` 'freezer' * sewhek'`o`, * sewhek'`o` [intended: my freezer]
 1s.freezer.PNS 1s.freezer

d. sets'`o` whek'`o` 'my freezer'
 1s.from freezer

➤ we do not understand what is going on with *zech̀l̀l̀l̀* 'spoon', or with the nominalizations, though possibly the degree of lexicalization or the vintage of the words is relevant

5.5 N-N compounds with PNS

- a highly productive class of compounds shows the PNS (cf. Rice 1984-1985, Hargus 2007)
- the analysis of this paper needs to be extended to this important class of data
- in particular, we would like to explore the role of syntax and lexicon in the constructions unified by the appearance of the PNS

- | | | | | |
|------|-----------------------|--------------------|--------------------------|-------------------|
| (34) | goht'q
clothes | t'ù
string.PNS | ‘clothesline’ | <i>Tłchq Yatù</i> |
| (35) | det'anichogh
eagle | zaghé
month.PNS | ‘February (eagle month)’ | <i>Dëne Słłné</i> |

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