Prospectus: A Grammar of Space in Kʷakʼʷala

1 Introduction

PRIMARY OBJECTIVE
Describe the grammatical resources in Kʷakʼʷala for capturing spatial relationships:
LOCATION
MOTION
DIRECTION

THEORETICAL RELEVANCE
- Spatial experience: universal category of human experience
- Cross-linguistic study of spatial language reveals (statistical) universals and cultural differences
- This work contributes a description of the grammar of space in Kʷakʼʷala, VSO and highly polysynthetic, to the existing typology.

COMMUNITY RELEVANCE:
- Contribute new knowledge about Kʷakʼʷala to current efforts to revitalize and maintain the language

2. Background: Cultural, Social, Historical and Ecological Context

Northeastern Vancouver Island and opposing mainland, Queen Charlotte Strait

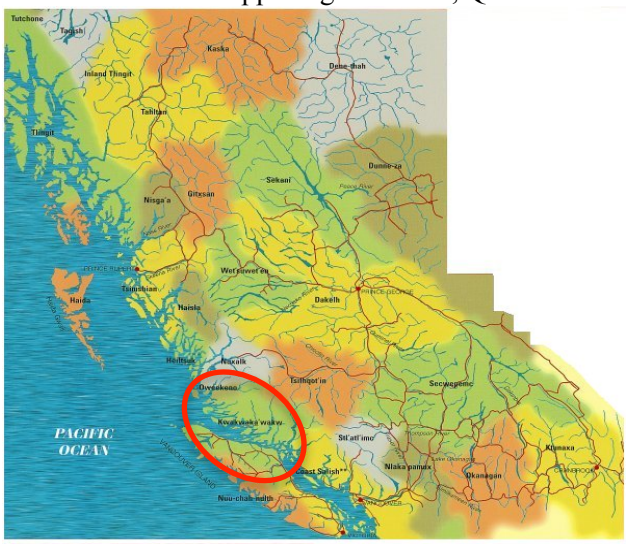


Figure 1:Map of First Nations Peoples of British Columbia
(http://www.bced.gov.bc.ca/abed/map.htm)

Bordering language families:

WAKASHAN: Ooweek'yala, Heiltsuk (aka Bella Bella), Haisla (Northern), Nuu-chah-nulth (Southern)
SALISHAN: Nuxalk (aka Bella Coola), Comox, Sechelt, Halkomelem (aka dialects həl̓q̓əmiṅəm/həṅq̓əmiṅəm/həl̓q̓əmeyləm)
ATHABASKAN: Tsilqotʼin (a.k.a. Chilcotin)

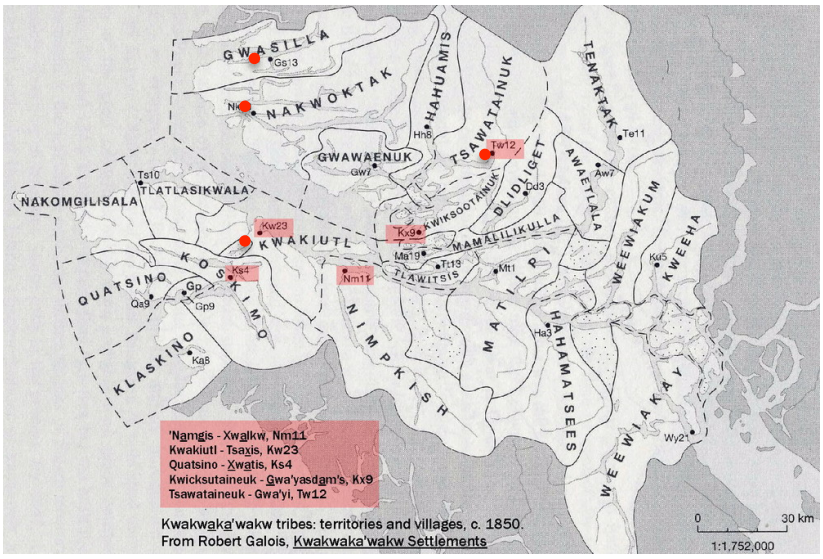


Figure 2: Kwakwaka'wakw tribes: territories and villages, c. 1850 (Galois, Powell, and Webster 1994)

2.1 Landscape and culture

- Resource-rich ecology
- Centrality of landscape:
  Each clan has an animal ancestor (actual or mythical),
  Each ẖəmẖima, or family, also has an animal ancestor

"The *ẖəmẖima* groups lived on the land in distinct locations sometimes associated with encounters with ancestors. According to Indian theory, the ancestor of a ẖamẖima (sometimes also of a tribe) appeared at a specific locality by coming down from the sky, out of the sea, or from underground, generally in the form of an animal, took off his animal mask, and became a person (Boas 1935c, 41)" (Nicolson 2013: 210)

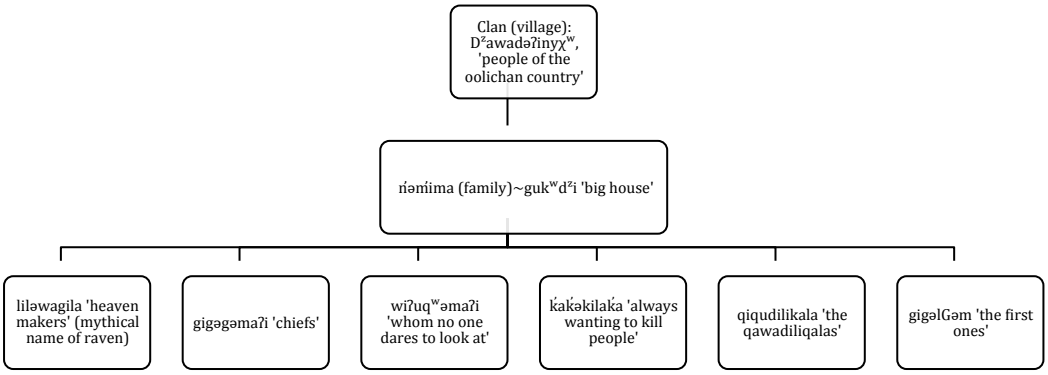


Figure 3: 6 *dˣawadəʔinuχʷ ẖəmẖima* identified in Boas 1897:331, quoted in Nicolson 2013

Animal	Mythical name	Clan	Village
wolf	*qáwadiliqəla*	*Dˣawadəʔinuχʷ*	*gʷaẏi* (Kingcome Inlet)
thunderbird	*qoləs*	*Qʷiqʷasutinuχʷ (ẇiẇomasGəm* family*)*	*gʷayasdəms* (Gilford Island)

- Body=house=land (Nicolson, 2013)

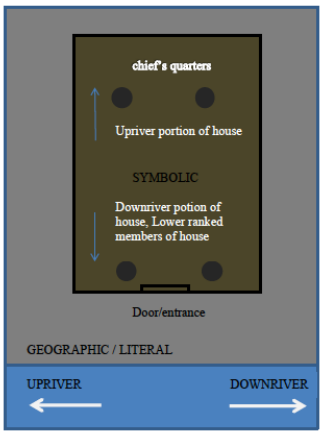


Figure 4: Analogy between landscape, social class and house topology in map of *guk^{w}dᶻi* ('big house')
(Nicolson 2013: 194)

2.2 Language: grammar and typology

- Nominative-accusative alignment
- Three core arguments: SUBJECT, PRIMARY OBJECT, SECONDARY OBJECT
- Three form classes: stems, affixes, exclamations (Boas 1947:280)
- Relatively fixed predicate-initial word order: VS(O_1)(O_2)(X_{prep})

Adnominal case-marking of lexically-expressed arguments:
Subject indexed on predicate
Objects case-marked with prenominal enclitics

(1)

hán4ʔidida	*bəg^{w}ánəmaχa*	*x̌aẏisa*	*hánλəmi.*
hán-4-ʔid=i=da	bəg^{w}ánəma=χa	x̌aẏi=sa	hánλəm-i
shoot-PST-MOM=SBJ=DEF	man=OBJ1	black.bear=OBJ2	gun-T.DEM
V	S	O_1	O_2

'The man shot the black bear with a gun.' (Shaw: 2008_07_21_003DS)

S: lexical argument *beg^{w}anəm* 'man' marked with enclitic *=i* attached to predicate
O_1: lexical argument *x̌aẏi* 'black bear' marked with left-leaning enclitic *=χ(a)*
O_2: lexical arguments *hánλəm* 'gun' marked with left-leaning enclitic *=s(a)*

OBL marked with preposition

(2) PRED	SBJ	OBL	
k̓^{w}əʔíɬəl̓əʔi	*Xatícən*	*laχis*	*guk^{w}*
k̓^{w}əʔ-íɬ-əla=i	*Xatícən*	la-χ=is	guk^{w}
sit-in.house-CONT=SBJ	Xatícən (NAME)	PREP-DEM =3.POSS	house

Xatícən was sitting in his house. (B1947:282, CII 2.1)

Prepositions marking OBL transparently derived from verbs:

la-	'go' >	*la-*	'PREP' (Deictic away from speaker)
gaχ-	'come' >	*gaχ-*	'PREP' (Deictic towards speaker)
gayuλ-	move.from.place' >	*gayuλ-*	'PREP' (specifying source)

Pronominal arguments indexed on the predicate, sequence echoes lexical arguments

(3) *χʷəsʔidəqs*
χʷəs-ʔid(ə)**=Ø=q=s**
strike-MOM**=3.SBJ=3.OBJ1=3.OBJ2**
He struck him with it. (B1947:281)

O_1: pronominal arguments marked with *-q*
O_2: pronominal arguments marked with *-s*

Morphophonology

- Fusion at morpheme-boundaries
- Three classes of suffix according to effect on coda C of previous morpheme:
  (1) neutral, (2) hardening, (3) softening
- Seven classes of suffix which trigger stem expansion via reduplication and vowel ablaut (Shaw 2008b)
- Some variation in predictability

Figure 5: Hardening and softening effects in Kʷakʼʷala

	Stops & Affricates								Fricatives								Resonants				
C	p	t	c	ƛ	k	kʷ	q	qʷ	s[1]	s[2]	ɬ	x	xʷ	χ	χʷ		m	n	l	w	y
C-!	ṗ	ṫ	c̓	ƛ̓	k̓	k̓ʷ	q̓	q̓ʷ	c̓								ṁ	ṅ	l̓	ẇ	ẏ
										ẏ	l̓	ṅ	ẇ	χ(ʔ)	ẇ						

	Stops & Affricates								Fricatives								Resonants				
C	p	t	c	ƛ	k	kʷ	q	qʷ	s[1]	s[2]	ɬ	x	xʷ	χ	χʷ		m	n	l	w	y
C-°	b	d	dᶻ	λ	g	gʷ	G	Gʷ	dᶻ								m̓	n̓	l̓	ẇ	ẏ
										y	l	n	w	χ(ʔ)	w						

(Adapted from Shaw 2009)

3. Relevant Literature

3.1 Literature: Kʷakʼʷala Grammar

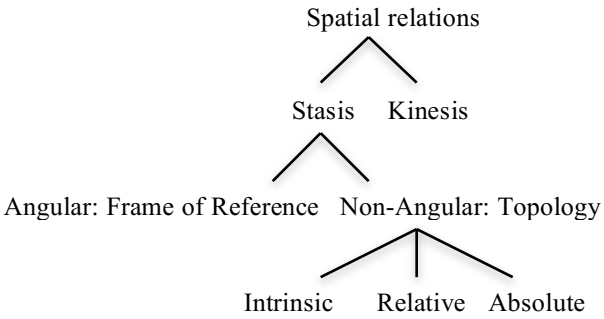
Grammar: Boas 1947, Grubb 1977
Dictionary: Boas and Boas Yampolsky 1948
Texts: Boas 1897, 1910, 1925, 1930, 1934, 1935, *inter alia*
Boas and Hunt 1902; 1905; 1921

Analysis: Berman, discourse 1982, 1983, 1989, 1990, 1990, 1991, 1992, 1994, 1997
Grubb, lexicon 1969, 1977
Levine, morphosyntax (1982, 1983, 1989, 1990, 1990, 1991, 1992, 1994, 1997)
Anderson, syntax (1984, 2005)
Nicolson & Werle, syntax (2009)
Goodfellow, sociolinguistic analysis (2005)
Nicolson, language, culture, metaphor and symbolism (2009, 2013)

3.2 Local geography
Boas 1934: *Geographical Names of the Kwakiutl Indians*
Galois 1994: *Kwakwaka'wakw Settlements, 1775-1920: A Geographical Analysis and Gazetteer*

3.3 Spatial grammar: cross-linguistic work
Cognitive perspectives:
Talmy (1983, 1985),
Fillmore (1982)
Typological (Neo-Whorfian) perspectives:
Svorou 1993
Slobin and Berman 1994
Levinson 2003
Levinson and Wilkins 2006

Figure 5: Schema of the spatial domain (adapted from Levinson and Wilkins 2006: 7)



The three Frames of Reference (FoR) identified as Intrinsic, Relative, and Absolute are described in Levinson 2003.

Figure 6: Frames of Reference, adapted from Levinson 2003

	Reference point	**Coordinate-system**
INTRINSIC	Object-centered	Ground: Inherent features of object
RELATIVE	Viewer-centered	Ground: Bodily coordinates of observer
ABSOLUTE	Fixed bearings independent of scene	Ground: Fixed coordinates. (Cardinal directions, topographic features such as rivers or mountains)

(Levinson 2003: 41-50)

4. Research questions

- What do learners and teachers of the language need to know in order to produce well-formed descriptions of their movement, location and direction in space?
- How do speakers make choices about where to locate information, in stem or suffix, in predicate or argument?
- How do stems and suffixes combine into constructions that describe and locate figures in space? What is possible, what is frequent, and what is likely? What seems to be ungrammatical?
- What are the dominant 'frames of reference' evident in the Kʷaḵʷala documented by Boas; are they intrinsic, relative, absolute, or a mixture of these?
- What are the dominant frames of reference found in contemporary documentation? Have they changed?
- In a place where the landscape and its resources continue to be crucial for the culture, what aspects of the local ecology and geography are evident in the grammar?
- In turn, what can we say about how the grammar shapes human interaction with the landscape?
- How is spatial language used metaphorically, and what do these metaphors reveal about Kʷakʷəkəẃakʷ culture?

5. Method

5.1 Sites

5.2 New documentation

5.2.1 Conversation (dyads)

Primary texts:

- 23.5 hours 2009-201

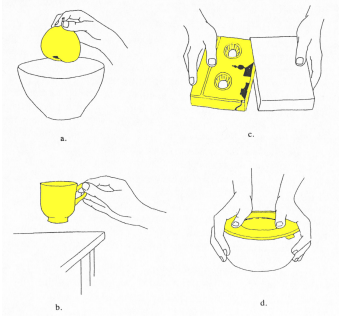
Transcribed in ELAN:

- 11/5/2009 Bread baking at Lillian's house (6 hours)
- 7/25/2012 Residential school stories(1 hour

5.2.2 Elicitation stimuli

- Frog Stories: 4 speakers (Beverly Lagis, Lillian Johnny, Ernest Scow, Spruce Wamiss)
- Toy Game (McDonough/Lachlan)

- Topological Relations Picture Series (‘BowPed’)



- Video stimuli

Percy Lagis checking crab traps at the mouth of the river:

Beverly picking thimbleberries:

5.3 Data management

- Metadata maintained in Excel, XML export
- Translation and ‘re-speaking’ with speakers in ELAN
- Collaborative transcription, remote and in person
- Storage
  Local archives: Kingcome, Tsulquate
  Remote archives: CLA, ELAR

6. Preliminary findings

6.1 Linguistic resources: roots and suffixes

Table 1: Roots relating to spatial description

la-	go (direction away from speaker)
gaχ-	come (direction towards speaker)
gay(uƛ)-	come/emerge out/away/from a place
bəw-	leave (someone, something)
ɢʷas-	direction towards reference object
qʷəs-	direction away from reference object
qas-	walk
dɬəlχʷ-	run
siχʷ-	paddle
siɬ-	slither, wind (snake), zig-zag
ʔaps-	(to) one side
ẇaxs-	(towards) both sides
ṅəχʷ-	near
ʔix-	to approach (goal)
ʔaƛ-	inland, into woods
ƛ̓as-	away from land, towards sea or water
ṅala-	upriver, south, east, day, daylight, world
gʷa-	downriver, north, west

(Boas 1948)

Table 2: Some suffixes relating to Space and Motion

GROUND: PATH

-[g]usta	UP
-aχa	DOWN
-beta	DOWN.INTO
-[x]sta	DOWN.TO.GROUND
-[x]səqʷa	OVER
-°abo	UNDER
-ċəw	IN
-wä	OUT (out of, off, away.from)
-[x]sa	THROUGH
-[g]u	BETWEEN
-aqa	PAST (in space)

GROUND, REFERENCE OBJECT: LOCATION, PATH

-uẏu	MIDDLE
-°no	SIDE.ROUND (side of round object)
-°nos	SIDE.LONG (side of long object)
-°iɬ	IN.HOUSE (in house, on floor, in enclosed space)
-°is	IN.OPEN (usually on the beach, in the world, at the bottom of the water, on the bottom inside the body)
-!s	ON.GROUND.OUTSIDE.HOUSE
-ayak	WATER.SURFACE (on surface of water)
-!a	ROCK (locative relationship implied)
-°xs	CANOE (locative relationship implied)
-ċəw	IN (into, inside, inwards)
-°ƛiʔ, -°ƛaẏala, -°ƛaẏod	WATER.MOVING (moving on water, at sea)
-ƛəla	ABOVE.GROUND

GROUND, BODY: LOCATION

-°χƛa	HEAD
-[g]əm	FACE
-[g]iw, -əyu	FOREHEAD

-ᵒato	EAR
-ᵒiɬba	NOSE
-ᵒəχsta	MOUTH (also opening of a bag, vessel)

GROUND, EARTH: PATH + LOCATION

-usdis	UP.FROM.BEACH
-ənċis	DOWN.TO.BEACH
-[g]əga	INSIDE.HOLLOW.OBJECT
-ᵒənsa	UNDER.WATER (in.throat)
-ʔusta	UP.RIVER
-atus	DOWN.RIVER
-yag	LANDWARD, INTO.WOODS
-χt̓a	SEAWARD

- Frame of Reference: orthogonal axes

	ROOTS		SUFFIXES	
Riverain axis:	*ṅala-*	'upriver'	*-ʔusta*	UP.RIVER
	gʷa-	'downriver'	*-atus*	DOWN.RIVER
Land-Sea axis:	*ʔaƛ̓-*	'inland', 'into woods'	*-yag*	LANDWARD, INTO.WOODS
	ƛas-	'seaward'	*-χt̓a*	SEAWARD

- What do we find in contemporary language? Are roots and suffixes used with equal frequency? What is the historical relationship between these forms?

- ORDER OF SUFFIXES: What are the paradigmatic and syntagmatic relationships between morphemes? Can we identify subclasses of roots, suffixes, or combinations thereof? Can we identify combinatorial constraints?

(4) Order of suffixes

láċâgaʔliɬ	‘to go into house, room’	
la-ċəw-**gaʔɬ**-iɬ		
go-IN-**MOT.TEL**-LOC.HOUSE		
láċâgaɬiχaʔi	*laχənc*	*kʷíχsəmdəʔaċiχ*
la-ċəw-**gaʔɬ**-iɬ-χ=i	*la-χ-ənc*	*kʷíχ-s(g)əm-(xʔi)d-əʔa-ċ-iχ*
go-IN-**MOT.TEL**-LOC.HOUSE-SBJ?	PREP-OBJ1-1.INCL.POSS	strike-ROUND.SURFACE-MOM-?-IN.TIME-POSS
‘We will go into our time-beating (drumming) house’	(B1947:349; CX 162.10)	

Figure 6: Tentative template for words containing spatial description

(RED)	ROOT	(PL.LOC)	(PATH?)	(MOTION)	(LOCATIVE)	(VALENCE)	(TENSE)	ASPECT	PERSON/DEM	(DEF)

- Are basic motion verbs deictic?

Three GRAMMATICALIZATION patterns of basic motion verbs *la-* ‘go’, *gaχ-* ‘come’, *gayuχ-* ‘come from’ suggest that deixis is part of the core semantic value for *gaχ-* ‘come’

LEXICAL USES

(5) Basic motion

la- **‘go’**

ládᶻaχən	‘I will go (indeed).’ (Boas III 146.7)
lá-dᶻa-χ-ən	
go-EMPH-FUT-1.S	

lágalis	‘to arrive at beach’ (Boas and Hunt: R179.4)
la-gaʔɬ-°is	
go-MOT.TEL-BEACH	

láċagaɬiɬ	‘to go into house’
la-ċəw-gaʔɬ-°iɬ	
go-IN-MOT.TEL-LOC.HOUSE	

gaχ- **‘come’**

gaχχa	*gə́ngənanəmi*	‘The children will come’ (Boas X 17.8)
gaχ-χ-(id)a	gə́ngənanəm=i	
come-FUT=1.sub	children	

gáχʔalis	'to come to beach'
gaχ-(g)aʔɬ-is	
come-MOT.TEL-BEACH	

gásgəχʔa	‘to hear, to come into ear'
gas-gaχ-!a	
RED-come-EAR	

GCZ 1: PREPOSITIONS. See (2).

GCZ 2: FIRST PERSON PRIMARY OBJECT MARKER: "Since the objectives of the first person, the inclusive and exclusive, are missing, these forms always have indirect objects" (Boas 1947: 281)

Figure 7: **Pronominal enclitics**

	SUBJ	OBJ1	OBJ2
1SG	-ən(χ)	---	-ən(χ)
1INCL	-ənc	---	-ənc
1EXCL	-ənuχ^{w}	---	-ənuχ^{w}
2ND	-əs	-uχ	-us
3RD	-Ø	-q	-s

(6) Oblique marking of first person primary object

dᶻunu̓qᵂa-dᶻa	*q̓aɬʔiʔdi*	*gaχ=**ən***
Dzunuqwa-EMPH	carry	**PREP=1**

The Dzunuqwa really carried me away (Boas 1947: 281).

GCZ 3: 'Auxiliary' predicates: discourse markers in narrative. See (9) and (10) (Berman 1982)

- Is PATH included in the lexical semantics of motion verbs?

ACTIVE CONSTRUCTIONS

(7) MOTION: DESTINATION marked as PRIMARY OBJECT

Wə,	láʔlaʔi	**qástuwiχa**	**n̓aqᵂaɬa**
Wə,	láʔlaʔi	qás-(xʔi)d-o=**(i)χ**a	**n̓aqᵂaɬ**=a
DISC	DISC	walk-MOM-AWAY=**OBJ1**	**light**=T.DEM

Well, then it is said, he walked away toward the light. (B1906, III11.4)

(8) MOTION: CO-ACTOR marked as SECONDARY OBJECT

gaχsa	q̓ásа	λəẇá	q̓áq̓əko .
gaχ=sa	q̓ásа	λəẇá	q̓áq̓əko
Come=OBJ2	sea.otter	AND	RED-slave

They came with sea otters and slaves. (CII 102.25)

PASSIVE CONSTRUCTIONS

(9) Passive: *qas-* 'walk' passivized with PRIMARY OBJECT PASSIVE-*suʔ*

Laʔə́mɬ'awis	*qásʔidsaẇa*
La-ʔəm-ɬ'a-wis	qas-(χ)ʔid-**suʔ-Ø**-a
AUX-OI-QUOT-AND.SO	walk-INCH-**PASS1-3.SBJ**-T.DEM

Then it is said they went after him.
(Then, it is said, he was pursued by them. - DR; Boas 1895, M727.17)

(10) Passive: *qas-* 'walk' passivized with SECONDARY OBJECT PASSIVE *-ayu*

Lálaʔi	*qásʔidayusa*	*wíwaʔokᵂ*
Lalaʔi	qas-(x)ʔid-**ayu=sa**	**wiwaʔokᵂ**
Then	walk-MOM-**PASS2=OBJ2wolf**	

Then he was walked by the wolf. (B1895: M 666.21)

Contrast with

Gᵂas- 'direction towards reference object'
(Boas: 'direction towards here' 1947: 228; 'to be close to you, near by, to approach, to turn to, to turn this way, to come this way' 1948: 326)

qᵂis- 'direction away from reference object' (Boas: 'direction towards there' 1947: 228; 'far in space or time' 1948: 343)

(11) *Gʷas-* derivations

Gʷasxəla	'to approach' (*-xəla* TO.MOVE)
Gʷasəʔa	'this side of rock' *(-!a* ROCK)
Gʷasəʔatoxʷʔid	'to turn ear this way' (*-ato* EAR; *-xʔid* INCH) (Boas 1947: 228)

(12) *qʷis-* derivations

qʷísgila	'to go far away, to go to far side'
qʷísigiʔ	'long after'
qʷísagəʔə	'to arrive at a distant point (*-gəʔə* ARRIVE) (Boas 1947: 228)

- Are *Gʷas-* and *qʷis-* inherently deictic roots? No. See (13) and (14)

(13) *Gʷas-* 'toward reference object'

ẖáχʷaʔəmlaʔI	Gʷágustəɬida	ṗoẏi	laχ	ƛúʔbana.
ẖáχʷa-ʔəm-laʔi	Gʷá-gu-ust-(g)əɬ=i=da	ṗoẏi	laχ	ƛúʔban=a
all-OI-QUOT	toward.RO-HEAD-UP.RIVER-MOT.ATEL=SBJ	halibut	PREP	cormorant=T.DEM

All the halibut had their heads (turned) toward Cormorant. (III:293.18)

(14) *qʷis-* 'away from reference object'

Wa, láχaʔa	ʔəχidχa	múqʷəla
wa láχaʔa	ʔəχid=χa	múqʷəla
now	AUX.DISC	take=OBJ1 stomach

And she takes the stomachs

qa gaχis	*gaʔís*	
qa gaχ=χis	gay-is	
SBDAUX=3.SBJ>3.OBJ2	come.from-BEACH	

and puts them down on the beach,

laχa	***ḱis***	***qʷisaɬa***	***laχa***	***ťíqʷapaẏi***
la=χa	ḱis	qʷisaɬa	la=χa	ťíqʷapaẏi
PREP=DEMNEG	**away**		PREP-DEM	stones.in.fire

not far from the stones in the fire.

- How do these forms function in connected discourse? What can we observe about these forms in relation to anaphoric reference in discourse?

6.2 Motion suffixes

Table 3: Motion suffixes

Form	Meaning	Gloss	Reference
-[g]əɬ	motion. any.direction	MOT.ATEL	----
-[g]aʔɬ	motion.toward.goal, telic.motion	MOT.TEL	DESTINATION
-wəɬ	motion.away/off/out.of	MOT.AWAY	ORIGIN

(B1947: 349-350)

Table 4: Locative suffixes frequently co-occuring with motion suffixes

-°iɬ	IN.HOUSE (also on floor)
-°is	IN.OPEN (on the beach, in the world, on the bottom of the water, on the bottom inside the body)
-!s	ON.GROUND.OUTSIDE.HOUSE

-!a	ROCK
-°xs	CANOE
-!qa	AMONG.PLURAL
-c̓əw	IN (also inside, inwards)
-!χλa	FOLLOWING (hind end, stern of canoe, afterwards)
-°λiʔ, -°λay̓ala, -°λay̓od	MOVING.WATER (at sea)
-(λ)əla	ABOVE.GROUND

(15) **Motion roots: add PATH**

a. *t̓ípəlil* 'to lift foot from floor'
t̓ip-**(g)əɬ**-°iɬ
step-**MOTION.ATEL**-LOC.FLOOR

b. *t̓ípal̓iɬ* 'to put foot on the floor', 'to step on the floor'
t̓ip-**(g)aʔɬ**-°iɬ
step-**MOTION.TEL**-LOC.FLOOR

- PUT/TAKE semantics provided by *–gaʔɬ* and *–gəɬ*

(16) **Posture roots:**
paχʔaλiʔ 'to fall flat on water' (CII 340.28)
paq-(g)aʔɬ-λiʔ
lay.flat.thing.horiz-MOT.TEL-LOC.ON.WATER

(17) **Activity roots**:
həmgəɬəχstala 'drop crumbs while eating'
həm̓-°(g)əɬ-°(ə)χstala (perhaps because one is talking) (B1947:350)
eat/food-MOT.ATEL-TALK.ABOUT

(18) **Stative roots:**
hə́ngəliɬa 'to shift vessel on floor' (R265.22)
hə́n-gəɬ-°iɬ
hollow.vessel.upright-MOT.ATEL-LOC.HOUSE/FLOOR

(19) *hənə́mgaʔliɬ* 'to put (baskets) down (in house)' (R207.53)
hən-əm-gaʔɬ-iɬ
hollow.vessel.upright-PL.OBJ-MOT.TEL-LOC.HOUSE/FLOOR

Are these 'associated motion' (AM) morphemes, like those found in Mparntwe Arrernte (Arandic, Pama-Nyungan: Australia), Kayterye (Arandic : Africa), Atusgewi (Palaihnihan: California), and Ese'eja (Takanan: Brazil)?

AM morphemes "relate(s) main verb events to background motion events" (Wilkins 1991: 209) 'go and V', 'go V-ing along', 'come V-ing along', 'V in passing', 'V going along with someone', 'V in following along after someone' and 'V in going to meet someone'

No: Kʷak̓ʷala motion suffixes do not add a separate motion event. Rather, they affect the semantics of the root. Do they affect the argument structure in predictable ways?

8. Outline of chapters

I. Introduction
- Background
- Typological overview
- Brief grammatical sketch

- Review of the literature
- Data
- Method
- Theoretical significance?

II. Overview of linguistic resources for spatial description
- Lexical (Roots)
- Grammatical (Suffixes)
- Morphological subclasses
- Morphological Template
- Syntactic constructions

III. Topological relations
- Results from Topological Relations Picture Series
- Suffixes
- Prepositions
- Topological relations in discourse

IV. Motion
- Motion constructions
- The subclass of 'motion' suffixes
- Argument structure of motion constructions
- Motion in discourse: frog stories, old stories, new stories, and conversation

V. Frames of Reference
- Intrinsic
- Relative
- Absolute

VI. Conclusion

9. Timeline to completion

October 2013	• Defend prospectus • I. Introduction
November 2013	• Defense • I. Introduction
December 2013	• II. Overview of linguistic resources
January 2014	• III. Topological Relations
February 2014	• IV. Motion
March 2014	• IV. Motion
April 2014	• V. Frames of Reference
May 2014	• VI. Conclusion
June 2014	• Revisions
July 2014	• Submit