# Patterns in the L1 acquisition of the Northern East Cree possessive suffix

Ryan E. Henke | University of Hawai‘i at Mānoa

# Agenda

Introduce NEC

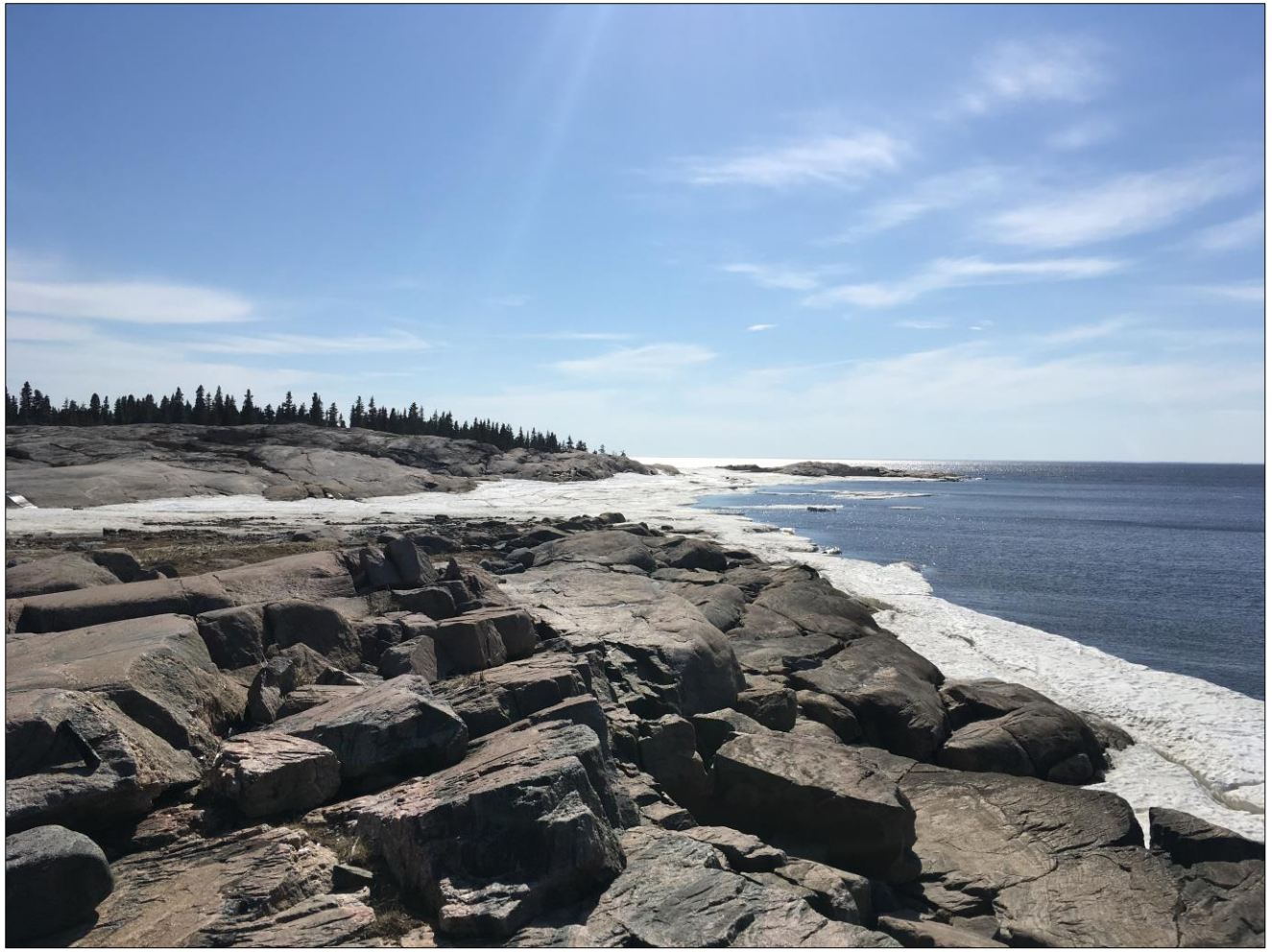
Acquisition of POSS marking

POSS suffix -*im* in NEC

RQs and data

Results

Conclusions



# Northern East Cree (NEC)

**Algonquian** language of **Eeyou Istchee** in Northern Québec

Spoken in **four communities** along James Bay

**Polysynthetic** language: Long + complex verbs

Most polysynthetic languages endangered …
(relatively) **little known about acquisition** (e.g., Kelly et al., 2014)

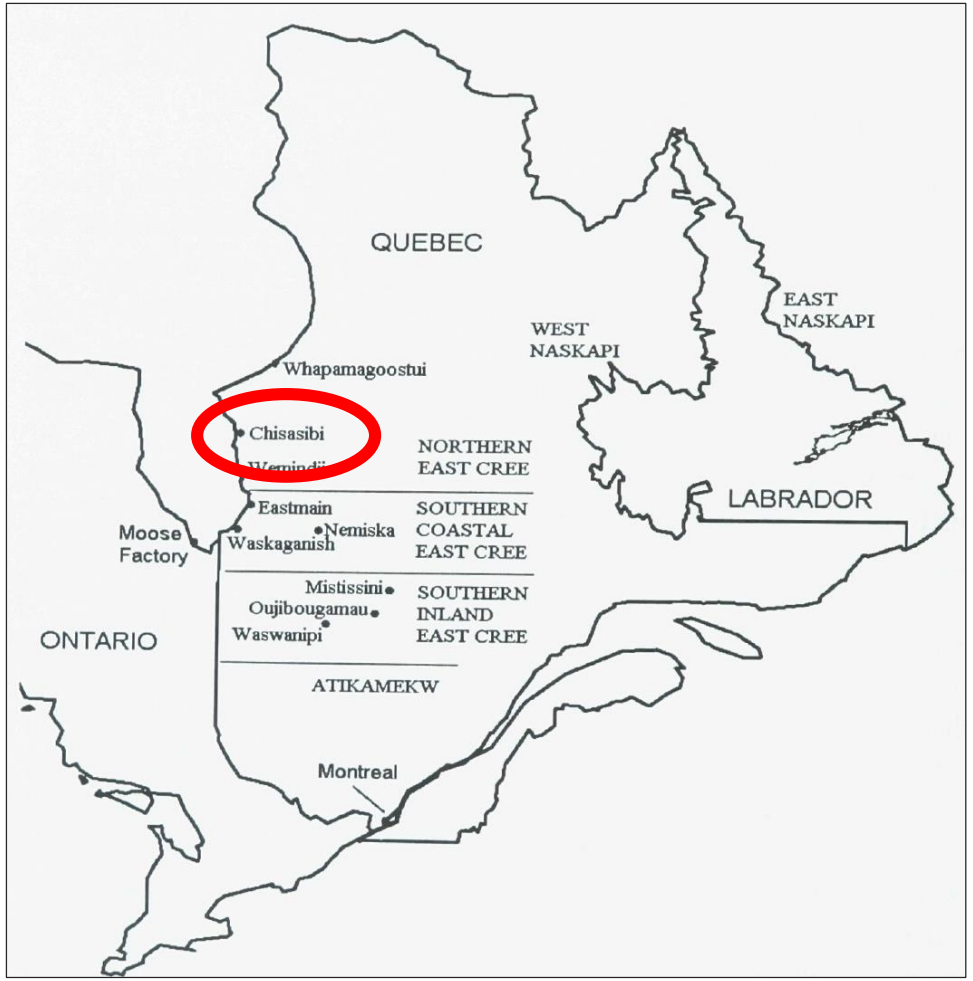
Data from **Chisasibi**: population ~5000 (Grand Council of the Crees, 2019)

**2475** report speaking Cree as "**mother tongue**" (Statistics Canada 2016)

But lots of language **change/shift** (Brittain and MacKenzie 2010; Collette 2018)

**Fewer children** still acquire NEC as mother tongue (ibid. & p.c.)

Crucial time for language **documentation**, **description**, and **teaching/revitalization**



# Acquisition of POSS marking

**Crosslinguistic lit:** Before age 2;0, children express possession **before** acquiring grammatical encoding
(e.g., Brown 1973; Clark 2001; Golinkoff & Markessini 1980; Tomasello 1998)

Will **omit** grammatical marking inflection, case markers, or adpositions (e.g., Marinis 2016)

**Polysynthetic** languages: No explicit attention to POSS marking, but clues …

**Mohawk**: Child lacks POSS marking at 2;10, and acquires it "late" (Feurer 1980)

**K'iche**: Children at 2;1, 2;9 missing POSS marking (Pye, 1979, 1992)

**Yucatec**: One child masters POSS marking by age 3;0 but another takes until 4;1 (Pfeiler 2009)

**Input**: Patterns in child-directed speech *often* **linked to acquisition** of inflectional forms
(Ambridge & Lieven 2011, Deen 2012)

**Open questions for polysynthetic languages:**
How do children acquire POSS inflection, and what is the relationship to input?

# NEC POSS suffix -*im*

NEC POSS inflection on **nouns** via **suffix** -***im***:

(1) shîshîp
shîshîp
duck
'duck'

(2) chishîshîpim
chi-shîshîp-**im**
2-duck-**POSS**
'your duck'

(3) chishîshîpimiwâuch
chi-shîshîp-**im**-iwâu-ch
2-duck-**POSS**-2/3.PL-3.PROX.ANIM.PL
'your (PL) ducks'

**Obligatory** usage of -***im***: very **complex**

Conventional wisdom says grammatical **animacy** is key (e.g., Junker et al., 2012)

**animate** = -*im*  **inanimate** = no -*im*

But it's not that simple …

# NEC POSS suffix *-im*

But Collette lays out many **additional factors** (2014)

lexical, semantic, (morpho)phonological … along with lexicalization, "random" distributions

| | **Lexical + Semantic** | | **Phonological** | **Lexical** |
|---|---|---|---|---|
| | Biologically **animate** referent | **Inalienably** possessed | Stem ends in **nasal C** | **English** loanwords |
| **Noun takes *-im*?** | Yes | No | No | Yes |

Plenty of **exceptions** …

(4) nitâniskawisîm
nit-âniskawisî-**m**
1-great.grandfather-**POSS**
'my great-grandfather'

(5) niwâskâhikanim
ni-wâskâhikan-**im**
1-house-**POSS**
'my house'

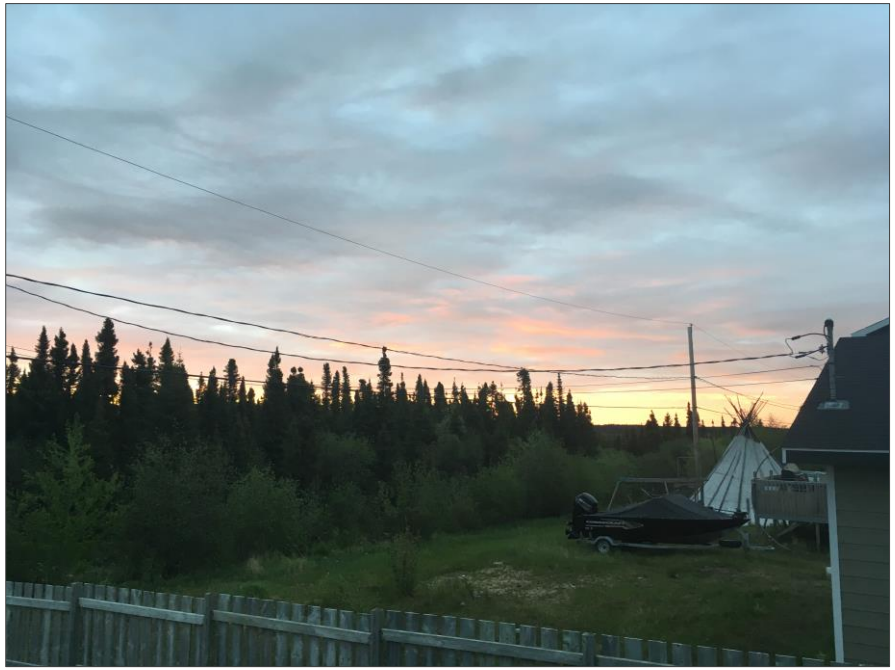
# Research questions

**The big question:** Given such complexity, how do children figure out where to use ***-im***?

Anecdotal claims: Young speakers may **regularize** *-im* to **all possessees** (Collette, 2014; Junker, 2003)

**RQ1:** What is the distribution of *-im* in **adult input** to children?

**RQ2:** What is the path of emergence for *-im* in **child speech**?



# The data

**Corpus data:** Chisasibi Child Language Acquisition Study (**CCLAS**) (Brittain et al., 2007)

**Naturalistic** video data (2004–2007): **Three children**

| | | |
|---|---|---|
| **Ani** | age 2;01–4;03 | 15 sessions, 10 hours video |
| **Daisy** | age 3;08–5;10 | 11 sessions, 6.5 hours video |
| **Billy** | age 4;05–05;10 | 11 sessions, 6.75 hours video |

First + last recording session, then spaced every 1–2 months

| **Child** | **Age** | | | |
|---|---|---|---|---|
| | 2;0 | 3;0 | 4;0 | 5;0 |
| **Ani** | \|----------\| | | | |
| **Daisy** | | \|----------\| | | |
| **Billy** | | | \|----------\| | |

# RQ1: *-im* in adult input

**RQ1:**
What is the distribution of *-im* in **adult input** to children?

| | ***+ im*** | ***- im*** |
|---|---|---|
| **Cree** | **18** (102) | **70** (512) |
| **English** | **7** (10) | **3** (3) |

**Possessee** nouns in adult speech: **98 types** (627 tokens)

Cree possessees dominate input … but most **do not require *-im***

We'll explore these **four factors** identified by Collette (2014)

- Grammatical animacy
- (In)alienability
- Phonology
- English loanwords

Starting with the **Cree nouns** …

# RQ1: *-im* in adult input

What about grammatical **animacy**?

Conventional wisdom doesn't hold up:

Grammatical **animacy does *not* predict** whether ***-im*** is required (c.f. Junker et al., 2012)

OK, what about **(in)alienability**?

| | ***+ im*** | ***- im*** |
|---|---|---|
| **Animate** | **9** (83) | **27** (184) |
| **Inanimate** | **9** (19) | **43** (328) |

# RQ1: *-im* in adult input

**(In)alienability** is a great predictor of *-im*

Children could posit a principle:

**inalienable Cree** nouns **do not use *-im***

| | ***+ im*** | ***- im*** |
|---|---|---|
| **Inalienable** | **2** (23) | **36** (290) |
| **Alienable** | **16** (79) | **34** (222) |

(6) Tânihî mâk chihtiwikîh

| | | |
|---|---|---|
| tâni-hî | mâk | chi-htiwikî-h |
| where-INAN.PL | then | 2-ear-INAN.PL |

'Where are your ears?' (Adult, A1.15, 039:09)

The two exceptions are **lexicalized** with *-im*: *uhku-* 'grandmother', *mushu-* 'grandfather'

**Phonology** then accounts for the **alienable** Cree noun types …

# RQ1: *-im* in adult input

**Phonology** is a great predictor of *-im*

Children could posit another principle:

Cree noun stems ending in a **nasal consonant do not use *-im***

| Final stem segment | + *im* | - *im* |
|---|---|---|
| **Nasal C** | **3** (9) | **28** (172) |
| **Other** | **13** (70) | **6** (50) |

(7) Awân an kânûkusit chitishtutinihch

| awân | an | kânûkusit | chit-ishtutin-ihch |
|---|---|---|---|
| who | DEM | s/he.is.visible | 2-hat-LOC |

'Who is that on your hat?' (Adult, A1.33, 021:27)

Leaves a handful of **exceptions** … but we've accounted for **~90 percent of Cree nouns** in input

What about the **English** nouns?

# RQ1: *-im* in adult input

Children can posit that **English** possessees **use *-im* …**

… **unless** there is an **Eng POSS pronoun**

Accounts for 9/10 English types (12/13 tokens)

| | ***+ im*** | ***- im*** |
|---|---|---|
| **Cree** | ✓ | ✓ |
| **English** | **7** (10) | **3** (3) |

(8) Kûhtâwî âi utauntîmh
k-ûhtâwî âi ut-aunt-**îm**-h
2-father HES 3-aunt-**POSS**-ANIM.OBV
'Your dad's aunt' (Adult, B3.18, 018:53)

(9) Awân chîyi your auntie
awân chîyi **your** aunt-ie
who 2 **2SG.POSS** aunt-DIM
'Who is your auntie?' (Adult, B3.18, 019:02)

Let's review …

# RQ1: *-im* in adult input

**Takeaways for RQ1**:
What is the distribution of *-im* in adult input to children?

| | ***+ im*** | ***- im*** |
|---|---|---|
| **Cree** | **18** (102) | **70** (512) |
| **English** | **7** (10) | **3** (3) |

Children could extrapolate **four principles** from **input:**

| | |
|---|---|
| **P-Inalienable** | No *-im* if inalienable Cree possessee |
| **P-Nasal** | No *-im* if nasal-final Cree noun stem |
| **P-English** | No *-im* if English possessive pronoun used |
| **P-im** | Use *-im* on all other possessees |

Accounts for **~90 percent of *-im*** in adult input: **88/98 types** (555/627 tokens)

So … how does *-im* appear in **child speech**, and are these principles evident?

# RQ2a: *-im* in Ani's speech

**RQ2a:** What is the path of emergence for *-im* in **Ani's speech**?

**No inflection** for possessees (age 2;01–3;04), whether Cree or English nouns

(10) Nîyi û chûchûsh

| nîyi | û | *Ø-chûchû-***Ø**-sh |
|---|---|---|
| 1 | DEM | 1-bottle-**POSS**-DIM |

'This is my bottle' (Ani, 2;07.06, A1.12, 028:54)

(11) Nîyi û car

| nîyi | û | *Ø- car-***Ø** |
|---|---|---|
| 1 | DEM | 1-car-**POSS** |

'This is my car' (Ani, 3;02.05, A1.24, 018:30)

Similar to **no-marking stage** for POSS in **many other languages**

Productive usage of ***-im*** emerges from **age 3;06–4;00**

# RQ2a: *-im* in Ani's speech

Not many possessees (12 types, 22 tokens), but largely **follow principles** in adult input:

**P-Inalienable** No *-im* if inalienable Cree possessee (2 types, 5 tokens)

(12) Nimui chîpit
nimui ch-îpit
NEG 2-tooth
'Not your tooth?' (Ani, A1.35, 4;00, 019:59)

**P-Nasal** No *-im* if nasal-final Cree noun stem (2 types, 2 tokens)

(13) Tân nîyi nimischisin
tân nîyi ni-mischisin
where 1 1-shoe
'Where is my shoe?' (Ani, A1.30, 3;06, 006:17)

# RQ2a: *-im* in Ani's speech

**P-English** No *-im* if English possessive pronoun (2 tokens)

(14) Tâpâ ihtikun nîyi my pencil

| tâpâ | ihtikun | nîyi | **my** | pencil |
|---|---|---|---|---|
| NEG | be.INAN.SG | 1 | **1SG.POSS** | pencil |

'It's not there, my pencil!' (Ani, 4;03.07, A1.37, 037:42)

**P-im** Use *-im* on all other possessees (7 types, 12 tokens)

(15) Awân uyâyiuh upencilimh

| awân | u-yâyiuh | u-pencil-**im**-h |
|---|---|---|
| who | DEM-ANIM.OBV | 3-pencil-**POSS**-Q |

'Whose pencil is this?' (Ani, 4;03.07, A1.37, 006:59)

**Only one exception** to the principles in Ani's speech (1 type, 1 token)

# RQ2b: *-im* in Daisy + Billy's speech

**RQ2b:** What is the path of emergence for *-im* in **Daisy + Billy's speech**?

**Daisy** (age 3;08–5;10), **Billy** (4;05–05;10) similar usage:

Both use *-im* productively from first session

Both pattern with the **four principles** in adult input

Let's go through them …

| | ***+ im*** | ***- im*** |
|---|---|---|
| **Cree** | **16** (31) | **52** (184) |
| **English** | **23** (33) | **7** (7) |

# RQ2b: *-im* in Daisy + Billy's speech

**P-Inalienable** No *-im* if inalienable Cree possessee

Their **inalienable** Cree nouns **do not use *-im***

(16) Îhî nîchinâhch chîhihtâu
îhî n-îch-inâ-hch chîhihtâu
yes 1-home-1PL.EXCL-LOC he.was
'Yes, he was at our house' (Billy, 5;06, B3.17, 029:27)

| | ***+ im*** | ***- im*** |
|---|---|---|
| **Inalienable** | **2** (6) | **37** (159) |
| **Alienable** | **13** (25) | **17** (25) |

The two exceptions lexicalized, just like adult: *uhku-* 'grandmother', *mushu-* 'grandfather'

Then **phonology** accounts for their **alienable** nouns …

# RQ2b: *-im* in Daisy + Billy's speech

**P-Nasal** No *-im* if nasal-final Cree noun stem

(17) Iyâu â utishtutin

| | | |
|---|---|---|
| iyâu | â | ut-ishtutin |
| he.has | Q | 3-hat |

'Does he have his hat?' (Billy, 5;03, B3.14, 008:04)

| Final stem segment | + *im* | - *im* |
|---|---|---|
| **Nasal C** | **0** (0) | **15** (22) |
| **Other** | **13** (25) | **2** (3) |

**Exceptions**: 0 for Daisy, 2 types (3 tokens) for Billy

# RQ2b: *-im* in Daisy + Billy's speech

**P-English** No *-im* if English possessive pronoun used

**Not many** examples: 2 types (2 tokens) for Daisy, 2 types (2 tokens) for Billy

(18) Tân my keysiyiu
tân **my** key-s-iyiu
where **1SG.POSS** key-ENG.PL-INAN.OBV
'(He says) where are my keys?' (Billy, 5;03, B3.14, 011:22)

**Exceptions**: 1 type (1 token) for Daisy, 2 types (2 tokens) for Billy

# RQ2b: *-im* in Daisy + Billy's speech

**P-im** Use *-im* on all other possessees

(19) Chîhâtuwihû wâsh âi nibusiminân

| | | | |
|---|---|---|---|
| chîh-âtuwihû | wâsh | âi | ni-bus-**im**-inân |
| PST-it.is.stuck-3SG | EMPH | HES | 1-bus-**POSS**-1PL.EXCL |

'Um ... our bus got stuck' (Daisy, 5;07, B1.30, 009:23)

**Exceptions**: 0 for Daisy, 2 types (3 tokens) for Billy

**Daisy + Billy's usage** patterns w/ **four principles** from input:

Accounts for **91/98 types** (246/255 tokens)

# Conclusions

POSS suffix -***im***: has **complex distribution** in adult grammar, evades parsimonious description

But **acquisition** may hinge on straightforward **principles** in adult input:

| | |
|---|---|
| **P-Inalienable** | No -*im* if inalienable Cree possessee |
| **P-Nasal** | No -*im* if nasal-final Cree noun stem |
| **P-English** | No -*im* if English possessive pronoun used |
| **P-im** | Use -*im* on all other possessees |

These principles account for **huge proportions** of on-target ***-im* usage**:

| | | |
|---|---|---|
| **Adult** input: | 88/98 total noun types | **87.8 percent** |
| **Ani**: | 11/12 total noun types | **91.7 percent** |
| **Daisy** + **Billy**: | 91/98 total noun types | **92.9 percent** |

Remaining question: How do children learn the **exceptions**?

# Conclusions

**Community** applications:

- Principles could be used in **pedagogy:** Help students learn where to use *-im*
- Can inform **SLP** methods, tools

Implications for **NEC** linguistics:

- **Animacy** is **not** a determining factor in *-im*
- **No evidence** three children are **regularizing** *-im* with Cree … but **likely** with English

Contributions to **cross-linguistic** acquisition of **POSS**:

- **No-marking** stage for Ani until age 3;04: Similar to **Mohawk** and **Yucatec**?
- Productive **child speech** patterns tightly with **adult input**
- Adult **input** may facilitate learning of **complicated** inflectional phenomenon

# References


Ambridge, B., & Lieven, E. V. M. (2011). Child language acquisition: Contrasting theoretical approaches. Cambridge: Cambridge University Press.

Brittain, J., & MacKenzie, M. (2010). The Future of Cree. In E. Faries, M. MacKenzie, J. Brittain, L. Morris, S. Demers, M.-O. Junker, E. Chiskamish, N. Dostaler, & S. Runnels (Eds.), Research Report: Cree School Board Language of Instruction Evaluation (pp. 1–13). Cree School Board of Quebec.

Brittain, J., Dyck, C., Rose, Y., & MacKenzie, M. (2007). The Chisasibi Child Language Acquisition Study (CCLAS): A progress report. In H. C. Wolfart (Ed.), Papers of the 38th Algonquian Conference (pp. 1–17). Winnipeg: University of Manitoba.

Brown, R. (1973). A first language: The early stages. Cambridge, Massachusetts: Harvard University Press.

Clark, E. V. (2001). Emergent categories in first language acquisition. In M. Bowerman & S. C. Levinson (Eds.), Language acquisition and conceptual development (pp. 379–405). Cambridge: Cambridge University Press.

Collette, V. (2014). Description de la morphologie grammaticale du cri de l'Est (dialecte du Nord, Whapmagoostui) (PhD dissertation). Université Laval, Québec.

Collette, V. (2018). Morphology and morphosyntax of eastern James Bay Creenglish [Conference paper]. 50th Algonquian Conference, University of Alberta.

Deen, K. U. (2012). The morphosyntax interface. In E. L. Bavin (Ed.), The Cambridge Handbook of Child Language (pp. 259–280). Cambridge University Press.

Feurer, H. (1980). Morphological development in Mohawk. In Papers and reports on child language development (pp. 25–42). Stanford: Stanford University.

Golinkoff, R. M., & Markessini, J. (1980). "Mommy sock": The child's understanding of possession as expressed in two-noun phrases. Journal of Child Language, 7(1), 119–135.

Grand Council of the Crees. (2019). Chisasibi. Retrieved from Cree Nation Government website: https://cngov.ca/community-culture/communities/chisasibi/

Junker, M.-O. (2003). East Cree dependent nouns and disjoint reference. Algonquian & Iroquoian Linguistics, 28(1), 11–13.

Junker, M.-O., MacKenzie, M., & Brittain, J. (2012). Comparative structures of East Cree and English. http://eastcree.org/pdf/Cree_English_Structure_2012.pdf

Kelly, B., Wigglesworth, G., Nordlinger, R., & Blythe, J. (2014). The acquisition of polysynthetic languages. Language and Linguistics Compass, 8(2), 51–64.

Marinis, T. (2016). Acquiring possessives. In J. L. Lidz, W. Snyder, & J. Pater (Eds.), The Oxford Handbook of Developmental Linguistics. Oxford: Oxford University Press.

Pfeiler, B. (2009). The acquisition of numeral classifiers and optional plural marking inYucatec Maya. In U. Stephany & M. D. Voeikova (Eds.), Development of nominal inflection in first language acquisition: A cross-linguistic perspective (pp. 91–110). Berlin: Mouton de Gruyter.

Pye, C. (1979). The acquisition of Quiche (Mayan). Current Anthropology, 20(2), 459–460.

Pye, M. (1992). The acquisition of K'iche' Maya. In D. I. Slobin (Ed.), The crosslinguistic study of language acquisition, volume 3 (pp. 221–308). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Statistics Canada. (2016). Census Profile, 2016 Census: Chisasibi, Quebec. www12.statcan.gc.ca

Tomasello, M. (1998). One child's early talk about possession. In J. Newman (Ed.), The Linguistics of Giving (pp. 349–373). Amsterdam: John Benjamins.

# Acknowledgements

**BIG thanks** to language consultants: **Margaret** and **Darlene Bearskin**

Thanks to **Chief & Council of the Cree Nation of Chisasibi** for supporting this dissertation research

Thanks to the **Cree School Board** for their support

Thanks to **Julie Brittain** and the CCLAS project at Memorial University

Thanks to **Kamil Deen** at the University of Hawai‘i at Mānoa

Thanks for additional feedback, ideas from **Marguerite MacKenzie** and **Vincent Collette**

This dissertation research is supported by a Dissertation Research Improvement Grant (**DDRIG**) from the **National Science Foundation** (award #1912062)