THE ACQUISITION OF LOCATIONAL INCORPORATION STRUCTURES IN INUKTITUT*

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ABSTRACT

Locative noun incorporation constructions in Inuktitut behave differently in the adult grammar than do non-locative instances. This study investigates whether the production of locative incorporation differs from other noun incorporation structures over the course of acquisition. One would expect locative incorporation to be more difficult to acquire and therefore to emerge later, however this does not appear to be the case. Despite the added complexity of optional possessors and the added syntactic complexity of locational postpositions, locative incorporation appears to be acquired early and similarly to noun incorporation as both structures are produced by all children at the earliest ages studied. Additionally, an interesting pattern of acquisition emerged in the production of possessives. A phonologically reduced possessor form emerges for several of the children, however the possessor is never reduced in the adult grammar. Morphosyntactically speaking, this shows evidence of acquisition. The production of the reduced possessor shows that the concept is acquired in terms of morphology and syntax but is not yet fully acquired phonologically.

Keywords: Inuktitut, locative incorporation, noun incorporation, child language acquisition

1. INTRODUCTION

This paper will explore the acquisition of noun incorporation involving locatives. Despite the fact that locative noun incorporation constructions in Inuktitut behave differently in the adult grammar than do non-locative instances (possessive or plural inflection can appear on the noun root on the former, but not the latter for example), no study, to my knowledge, has yet investigated whether the production of locative incorporation differs from other noun incorporation structures over the course of acquisition.

Cross sectional and longitudinal data will show children's use of noun incorporation structures at various ages. I will examine the differences and similarities between the acquisition of locative noun incorporation in comparison to more typical noun incorporation (bare nouns only). The purpose of this research is to provide a description of the acquisition of different types of noun incorporation (as evidenced in child productions) and to examine if and when the child grammar begins to mirror the adult grammar, and how this process occurs.

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1.1. Background: noun incorporation in Inuktitut

A common research area in Inuktitut is noun incorporation, where a noun root is incorporated into an affixal verb. The noun and verb pattern together for purposes of agreement marking, case assignment, and other relevant processes (Fortescue, 1980). In noun incorporation structures, the noun root appears inside the verb form rather than as an independent lexical item. In Inuktitut all incorporating verbs are affixal verbs, which is to say that they cannot occur outside of noun incorporation structures (Allen, 1994). Such incorporation only involves bare nominal stems and any modifiers of the noun remain outside of the verbal complex (Johns, 1987; Compton, 2012); noun incorporation cannot occur with the normal case and number morphology required on nouns (Compton & Pittman, 2007). Thus, typical incorporated nouns never appear with overt case marking, and are generally unspecified for number.

Noun incorporation in Inuktitut proceeds in a similar way to other noun incorporating languages. In non-incorporated structures, verbs in Inuktitut have subject and object agreement, whereas incorporated structures show only subject agreement.[1] (1) contrasts an adult speaker's unincorporated and incorporated structure. In (1a), the object noun root *iqaluk* 'fish' functions as an independent lexical item, and the verb *niri* 'eat' is inflected with both object and subject agreement.

(1) a. *Jaani-up* *iqaluk* *niri-janga.*
Johnny.ERG-SG fish-ABS-SG eat.PART-3sS-3sO
'Johnny eats/ate fish.' (Allen, 1994: 172)

b. *Jaani* *iqaluk-tuq-tuq.*
Johnny-ABS-SG fish.eat.PART-3sS
'Johnny eats/ate fish.' (Allen, 1994: 173)[2]

(1b) shows an incorporated structure, with the noun root *iqaluk* 'fish' appearing inside the verbal complex. There is no inflection marking agreement of the verb with the incorporated noun.[3] The forms of *niri-* 'eat' in (1a) and the incorporating verb *–tuq-* 'consume' in (1b) are different because all incorporating verbs in Inuktitut are affixal verbs and therefore (1b) cannot have the same forms as those used in (1a).

Each Inuktitut dialect has a finite number of verbs that allow for noun incorporation. Noun incorporation involving this set of verbs is not optional in Inuktitut (as it is in other languages such as Mohawk); if an affixal verb is used then a noun must be incorporated (Johns, 2007).

[1]Morphological marker abbreviations: ABS = absolutive, ADV = adverbial, ASP = aspectual, ALL = allative, AUG = augmentative, COP = copula, CSV = causative, DR = demonstrative root, EMPH = emphasis, ERG = ergative, EXCL = exclamation, FUT = future, IND = indicative, INT = interrogative, IV = incorporating verb, LOC = locative, LI = localizer inflection, LNR = localizer noun root, LR = localizer root, NEG = negative, NI = nominal inflection, NOM = nominalizer, NR = noun root, NZ = nominalizer, O = object, p = plural, P = plural possessor, PART = participial mood, POSS = possessor, PRE = prefix, PRO = pronoun, PRSP = prospective aspect, s = singular, S = subject, sg = singular possessum, ST = static (demonstrative), VA = valency alternator, VI = verbal inflection, VIA = vialis, VV = verbal affix, VZ = verbalizer.

[2]Unless otherwise marked, all examples are from Allen (1996).

[3]See Johns (2009) for a subset of incorporating verbs which appear to show agreement with their incorporated object.

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1.2. Background: locatives

In addition to nouns, locatives[4] can be incorporated in Inuktitut. Locatives are a subclass within incorporating verbs that allow for possessive inflection on the noun root (Sadock, 1980; 2002).

In target production of incorporation, this subgroup of incorporation structures comprised of locatives do allow for inflectional affixation on the noun root (whereas typical noun incorporation suppresses the normal case and number morphology required on nouns). Possessive and plural inflection can be realized in this subgroup, and constructions without inflectional markers can be incorporated as well (Allen, 1994; Parkinson, 1999; Johns, 2007; Johns, 2009; see also Sadock, 1980 for discussion of related facts in Kalaallisut).

For locatives, the postposition is incorporated into the verb first, and then the noun incorporation occurs. Only locatives allow possessive or plural inflection to occur on the noun root (and will follow a noun-possessor-LOC-X or noun-LOC(plural)-X construction),[5] unlike all other incorporating verbs (Johns, 2007). An example of an adult locative construction with plural inflection is shown in (2a) and an adult locative construction with possessive inflection is shown in (2b). A child locative construction from Alec at age 2;6 is shown in (3).

(2) a. *Illu-ni-it-tut.* (South Baffin)
House.LOC-P.COP.PART-3p
'They are in the houses.'

b. *Illu-ga-kku-u-vutit.* (Labrador)
House.POSS-1s.through.COP.IND-2s
'You're going through my house.' (Johns, 2007)

(3) *Maanisivunga.*[6]
Ma-ani-it-si-vunga.
LR-here-LI.LOC-VZ.COP-VV-ASP.PRSP-VI.IND-1sS
'I'll be here.' (Allen, 1996)

1.3. Background: amalgams

It is predicted that for any specific structure a child will go through a period of non-use, incorrect use, restricted use, and then adult-like use (Allen, 1994). However, acquisition may appear to not follow this process as the child may correctly use unanalyzed chunks or amalgams, therefore mimicking a correct adult-like production before producing errors as they begin to fully segment and acquire the morpheme.

Studies of morphologically complex languages such as Navajo and Quechua (Courtney & Saville-Troike, 2002) show that children initially store memorized chunks (or amalgams). These memorized chunks, comprised of multiple morphemes, may be produced in the child's output, but

[4]Unless otherwise specified, my use of the term locative in this paper is in the broad sense which includes locationals and directionals.

[5]X represents the incorporating verb and morphology/agreement that follows.

[6]Each example from Allen (1996) contains the child's utterance on the first line, a breakdown of the morphemes the child is attempting to produce on the second line, a morpheme-by- morpheme gloss on the third line, and ends with the translation.

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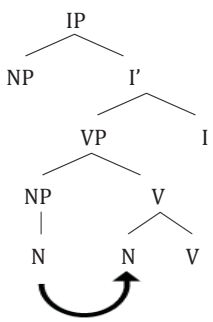
this does not necessarily mean that the individual morphemes are acquired. These chunks need to be further analyzed and decomposed and it appears that amalgams are memorized and stored as an initial strategy and are used only until the child can perform further grammatical analysis (Rose & Brittain, 2011). While I will engage with the topic of amalgams, it is not the focus of my current study. Due to the lack of literature in this research area however, I aim to see if there is evidence to support the idea of amalgam use in the acquisition of Inuktitut.

1.4. Expected acquisition of noun, locative, and possessor incorporation

Under a grammatical/generative approach, simple units are acquired first and more complex units emerge later as the subcomponents are acquired. This theory is based on structural complexity/opacity and is compatible with assumptions of innateness, where innately given grammatical features constrain children's hypotheses as they map features onto forms (Pinker, 1989). Therefore, the less complex a syntactic structure, the earlier it will be acquired (Fikkert, 1994; Levelt, 1994; Freitas, 1997; Goad and Rose, 2004). Based on the structural/syntactic complexity model of acquisition, basic noun incorporation would be expected to be acquired first, then locative incorporation, and then locative incorporation with possessors.

Noun incorporation would be expected to be acquired first because it is syntactically less complex than the other structures,[7] as shown in (4) where only one movement occurs.

(4) Noun incorporation (Allen, 1994: 232)

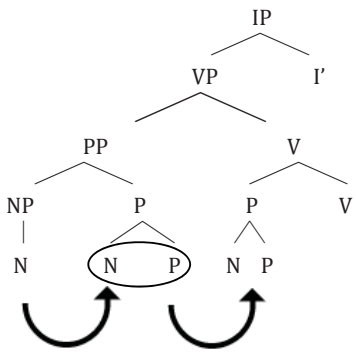


Locative incorporation is expected to be acquired later than noun incorporation because locatives have an extra instance of incorporation and an extra postpositional head. As can be seen in (5), there is an extra morpheme that must be introduced and then incorporated.

[7]An anonymous reviewer states that it is possible that the Prepositional Phrase is constructed first and then incorporated into the verb. If this is the case, the noun incorporation structure would not be more complex and the incorporation would be one step (PP-V).

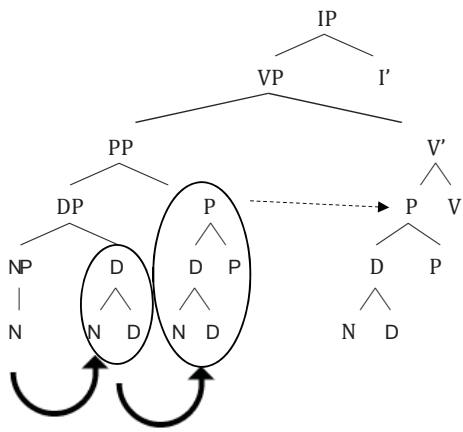
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(5) Locative incorporation



Locative incorporation with a possessor (as shown in (6) below) is expected to be acquired last because of the extra structures and movement involved: they have an extra case of incorporation and an extra postpositional head (like the regular locative form in (5) above) and a possessor marker.

(6) Locative incorporation with possessor



In addition, possessors do not have the same distribution in spoken language. With respect to their distribution, in the spoken language the first person possessor "my" is typically the first possessor expected to emerge in child language productions. First person "my" possessors may not look productive despite being the most expected as this type of possessor occurs in cases where the most conceptually salient meaning is the one belonging to the child. Therefore, it is more difficult to assess its productivity and acquisition since the grammar allows for a 'my' reading in

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the absence of an explicit first person singular possessive marker. In terms of syntactic structure however, “my” is straightforward: it looks like possessor-LOC (with an allomorph of the LOC morpheme). An example from Alec at age 2;10 is shown in (7) (where *–mi* (LOC) is used when there is no possessor, *-ni* when there is a possessor).[8] It is understood as "my" father (with no overt possessor occurring in the adult grammar either) and this structure is the same as the bare noun incorporation structure in (4).

(7) *Ataatamitu?*
Ataata-mi-it-juq?
NR-father-NI.LOC-SG-VZ.COP-VI.PAR-3sS
‘Are they at my father's?’[9]

The locative construction with a third person possessor is expected to emerge last out of the four constructions because it is the most complex. The child has to determine anaphoric relations to determine whether it is third or fourth person; fourth person is third person same meaning the possessor refers back to another referent in the sentence. Learners of Inuktitut may initially avoid this construction as it is more grammatically complex, as shown in (6) above.

2. RESEARCH QUESTIONS

We are now in a position to investigate the acquisition of the particular characteristics of noun incorporation involving locatives. Due to the different treatment of locatives in adult speech (possessive or plural inflection can appear on the noun root), I examine whether these two forms differ from other noun incorporation structures over the course of acquisition:

(1) Do the children incorporate possessors and plurals in locative and non-locative constructions?
(2) Are there more or less errors/specific types of errors in the production of incorporated locatives when compared to other types of noun incorporation structures?
(3) Are locative incorporation constructions and possessors emerging earlier or later than other types of noun incorporation structures?

In terms of productivity, the gradually increasing syntactic structure of NIC, LIC, and LIC with possessor would lead one to assume that the least complex construction would currently be the most productive given the young age of the subjects, and that all structures will gradually become more productive as the children’s age increases. I will investigate if acquisition indeed progresses in this order.

The cross sectional and longitudinal data will show children’s use of noun incorporation structures at various ages. I will examine the differences and similarities of the acquisition of locative incorporation in comparison to more typical noun incorporation (bare nouns only).

[8] This construction, and others that I use to illustrate first person implicit possessors, *could* be instances of implicit first person possessors. I cannot state that they most certainly function as such.

[9] As pointed out by an anonymous reviewer, it could also be translated as ‘Are they at Daddy’s’ where ‘Ataata’ (father) is a proper name.

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3. COMPARISON OF NIC (ALLEN, 1994) AND LIC (ALLEN, 1996) CONSTRUCTIONS

In order to examine whether the added complexity of locative incorporation and possessors affect acquisition ages and errors, I will compare Allen's (1994) work on the acquisition of the less syntactically complex bare noun incorporation structure to my current investigation of LIC structures.

3.1. Data

Allen (1994) investigated the age of acquisition and productivity of noun incorporation structures in four young learners of Tarramiut, a subdialect of Inuktitut spoken in the Hudson Strait portion of arctic Quebec. Allen (1994) collected data from the four children aged 2;0 – 2;10 over a nine month period. The four subjects were from Quaqtaq, a community of approximately 200 people where Inuktitut is spoken fluently by all adults, is the first language learned by children, and is the language of daily and home life. Two girls and two boys were chosen to avoid any gender bias, and children had to be producing at least two morpheme long utterances at the beginning of the study and be free of language or developmental delays.

The data were spontaneous samples collected in a naturalistic setting, with the children in the company of their family or friends. Approximately four hours of video was collected per child, every month for nine months. Half of the data (two hours per month) was transcribed orthographically by native speakers of Inuktitut. For purposes of coding, the last, middle, and first sessions were analyzed. All utterances were coded for parts of speech and morphological analysis using conventions from CHILDES (MacWhinney, 1991).

The locative incorporation structures examined in this paper are a subset of the data collected by Allen (1994, 1996) for her dissertation. These constructions were not included in her dissertation, although they were orthographically transcribed and morphologically coded. Any data from Allen (1994) refers to data reported in her dissertation; any data not previously reported on will be referred to as Allen (1996) as per personal communication with Shanley Allen.

3.2. Methodology

I will compare Allen's (1994) noun incorporation findings to my current investigation of locative incorporation (using data from Allen, 1996) in terms of age of acquisition, productivity, and error types. The data from Allen (1996) have previously not been reported on in the literature.
In total, 352 locative incorporation structures were analyzed. However, due to the repetitive nature of some utterances (for example, repetitive uninterrupted attempts to get mother's attention), uninterrupted identical utterance types were collapsed to count as one utterance. This resulted in the total number of locative incorporation types analyzed being reduced to 264.

I am using Allen's (1994) guidelines to establish productivity in my current investigation of locative incorporation constructions with and without possessor incorporation. Allen (1994) considered a form productive (and not simply a memorized unanalyzed chunk or amalgam) when one or more of the following criteria were met: if the child uses the morpheme in a production they would not have heard in the adult input (an overgeneralization, use of incorrect allomorph), if the

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morpheme occurs in a large variety of environments, or if the child self-corrects an incorrect production.

3.3. Noun incorporation errors and corresponding locative incorporation errors

The noun incorporation and locative incorporation data are summarized by child, age, and error type in Table 1. Many of the error types listed under the LIC sections will be recoded as non-errors in Tables 2 and 3 after a more thorough investigation as detailed below.

Table 1 shows that at the earliest ages studied, all four children are productive in their use of noun incorporation and locative incorporation structures. The errors listed in Table 1 are described in the sections that follow.

TABLE 1
Verbal clauses and incorporation types per child

	Verbal clauses	*NIC*	*LIC correct*	*LIC error*	*LIC with possessor*	*LIC with possessor error*
A 2;6	103	9	26	0	0	2
A 2;11	97	16	14	1	0	0
A 3;3	225	33	3	0	0	7
J 2;0	220	26	29	5	0	3
J 2;5	308	53	33	5	1	3
J 2;9	321	52	32	1	1	1
M 2;6	161	8	8	1	0	0
M 2;10	343	19	17	22	0	0
M 3;3	121	26	22	0	1	0
S 2;10	71	7	6	0	0	0
S 3;2	332	23	32	1	1	0
S 3;6	282	34	17	5	0	0

In Table 1 above, the number of verbal clauses and noun incorporation structures come directly from Allen (1994) as reported in her dissertation. The number of locative incorporation constructions are from my current study based on Allen (1996) and are comprised of the 264 locative structures that were selected for analysis (once the repetitive continuous utterances were disqualified).

The following noun incorporation errors are summarized directly from Allen (1994). The locative incorporation errors come from my current investigation using data from Allen (1996). All ungrammatical productions/errors are marked with an asterisk (*).

3.3.1. Non-target like verbal inflection

At age 3;3 Alec produces three noun incorporation structures with incorrect inflections all involving *-liuq-* ‘make’ (out of 33 total noun incorporation structures). The verbal inflection should agree with the subject only (because the verb is incorporating a noun), however it has both subject

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and object agreement as shown in (8). Allen (1994) describes this as a specific error involving –*liuq*- and not a general noun incorporation error as Alec does not make this mistake with any other verb roots that he uses productively. Allen states that Alec has analyzed –*liuq*- as an independent morpheme but not as an affixal verb root.

(8) **Kaamuu itigaliusijara.*
Kaamu-up itiga-liuq-si-jara.
Camel.ERG-SG foot.make.PRES.PART-lsS-3sO
'I'm going to make a camel's foot.' (Allen, 1994)

In my current investigation, there are no examples of -*liuq*- occurring in any locative incorporation structures. However, other verbs did have incorrect verbal inflection. In the locative incorporation constructions, there were four instances of Juupi omitting person endings as shown in (9) at age 2;0, and also one error production by Mae.

(9) **Ananammurumanngi.*
Anaana-mut-uq-guma-nngit.
NR-mother-NI.ALL-SG-VZ.arrive at-VV-IV.want-VV.NEG
'I don't want to go to my mother.'[10]

3.3.2. Incorrect omission of incorporating verb root

The verb -*u*- 'be' is omitted in several instances (an exact number of utterances of this type is not given), as shown in (10) by Mae at age 2;6. Allen states that these are simple performance errors since all of the children frequently and productively use -*u*- at the earliest ages investigated. In (10) below, -*u*- should occur following *Taamisa* (Target: *taamisa-u-qquuq-mmat).*

(10) *Taamisaqquumat.*
Taamisa-qquuq-mmat.
Taamisa.probably.CSV-3sS
Intended: 'Is probably Taamisa.' (Allen, 1994)

This error was also very common in the locative data and involved several verbs. As per Allen (1994), these errors are considered phonological/production errors and not comprehension errors as the verbs are productive in other examples. As such, these productions were not included in error counts (as shown in Tables 2 and 3 to follow).

There are two examples of the verb –*aq*- 'go by way of' being omitted. The vowel 'a' needs to be lengthened for the verb to be realized in (11). Alec produces this error twice with locative incorporations as shown in (11) at age 2;6.

(11) *Maunasigamai.*
Ma-uuna-aq-si-gama-ai.
LR-here.VIA-VZ.go by way of-VV-ASP.PRSP-VI.CSV-1sS-EXCL.ACT
'I'm going here.'

[10]As pointed out by an anonymous reviewer, it could also be translated where 'Anaana' (mother) is a proper name.

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The verb *-uq-* 'to arrive' is also omitted by Juupi in six utterances involving locative incorporations as shown in (12) at age 2;4.

(12) *Una* *ataanusimat.*
U-na *ata-nganut-uq-si-mmat.*
DR-here-SG-ST-DI.ABS-SG LNR-bottom-NI.ALL-3Ssg-VZ.arrive at-VV-ASP.PRSP-VI.CSV-3S
'It went underneath.'

Similar to Allen's (1994) data, the verb *-u-/-i-* 'be' was frequently omitted; the vowel 'i' should be lengthened for the verb to be realized in (13). In locative constructions the verb was omitted 23 times by Mae, twice by Juupi (as shown in (13) at age 2;4), and once by Suusi.

(13) *Anana* *manigumajunga.*
Anaana *ma-ani-it-guma-junga.*
NR-mother LR-here-LI.LOC-VZ.COP-VV-IV.want-VI.PART-1sS
'Mom I want to stay here.'

3.3.3. Overuse of noun incorporation structure

Suusi is the only child who demonstrates an overuse of noun incorporation structure. At 3;2, Suusi creates redundant structures using incorporating verb roots *-u-* 'be' and *-gi-* 'have as', making some of her utterances grammatical. (14a) shows Suusi's production at 3;2, (14b) shows the adult target.

(14) a. **Unaalu* *ilangitaalugijara.*
U-na-aluk *pi-langa-nngit-jaq-aluk-gi-jara.*
This one.ABS-SG.EMPH PLEON.FUT.NEG.PP.EMPH.have as.PAR-1sS-3sO
'I'm not going to have this yucky stuff as mine.'
b. *Unaalu* *pilanganngitaaluga.*
U-na-aluk *pi-langa-nngit-jaq-aluk-ga.*
This one.ABS-SG.EMPH PLEON.FUT.NEG.PP.EMPH.ABS-1Ssg
'I'm not going to(eat) this yucky stuff.' (Allen, 1994)

Allen (1994) states that this is evidence of productivity of the verbs *-u-* 'be' and *-gi-* 'have as' because Suusi would have not heard such utterances in the adult input and that adults do not create redundant structures like the one produced by Suusi above.

In the locative incorporation data, *-u-* and *–gi-* are not treated differently, and incorporating verbs are not used in contexts where they are not allowed.

3.3.4. Overgeneralization

In at least two utterances, Suusi overgeneralizes the use of *-u-* 'be' when she should rather use *-gi-* 'have as'. Allen (1994) states that the overgeneralization of *-u-* is common among Inuktitut

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second language learners as well as first language learners. An overgeneralization is shown in (15a) by Suusi at 3;2 with the adult target shown in (15b).

(15) a. **Una* *atjingaunngituq.*
U-na *atji-nga-u-nngit-juq.*
This one.ABS-SG same.ABS-3Ssg.be.NEG.PART-3sS
'This one is not its same one.'

b. *Una* *atjiginngitanga*
U-na *atji-gi-nngit-janga.*
This one.ABS-SG same.have as.NEG.PART-3sS-3sO
'This one is not the same one.' (Allen, 1994)

This phenomenon of overgeneralizing the use of *-u-* 'be' does not occur in the locative incorporation data.

3.4. Summary of Allen (1994) noun incorporation

Allen (1994) found that the acquisition of noun incorporation in Inuktitut occurs relatively early (when compared to other languages such as Mohawk, where children do not demonstrate productive noun incorporation until sometime after 4;9 (Mithun, 1989)). Allen's (1994) findings are similar to data from West Greenlandic (Fortescue, 1985; Fortescue & Lennert Olsen, 1992). The relatively early acquisition of noun incorporation is predicted to apply to the Inuit language family in general.

Allen (1994) states that reasons for the cross-linguistic difference include the frequency of noun incorporation in Inuktitut, and exposure to the language (Inuktitut was the language used at home by the families of the four children studied). It is also the case that incorporated verbs in Inuktitut are the frequently used basic verbs such as "have" and "be".

4. LOCATIVE INCORPORATION DATA (ALLEN, 1996)

This section summarizes the productions of locative incorporation structures that did not have noun incorporation counterparts and therefore did not have Allen (1994) comparisons.

4.1. Locative incorporation with partial possessor

Locatives allow possessive inflection to occur on the noun root (and adhere to a noun-possessor-LOC-X template), unlike all other incorporating verbs. All four subjects demonstrated possessor use, however they did so with varying levels of frequency and accuracy.

An interesting pattern occurred in the production of possessives. Suusi and Mae each produced possessives correctly once, and made no incorrect or partial productions. Alec and Juupi displayed a different acquisition pattern; Juupi produced a partially formed possessor in six separate utterances, and Alec in nine. Alec at age 3;3 (16) and Juupi at age 2;0 (17) produce the

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possessor *-nga-* as '*-a-*', and this reduced production is the same for all fifteen of Alec and Juupi's utterances.

(16) *Ah attaaguktitaga.*
Aah ata-ngagut-uq-tit-jara.
Hey LNR-bottom-NI.VIA-3Ssg-VZ.arrive at-VV-VA.CAUS-VI.PART-1sS-3sO
'Ah I let it go underneath.'

(17) *Iluanuurtait.*
Ilu-nganut-uq-jait.
LNR-inside-NI.ALL-3Ssg-VZ.arrive at-VI.PAR-2sS-3sO
'You put it inside.'

In the child directed speech, the possessor was not reduced. Morphosyntactically speaking, there is evidence of acquisition. The production of the reduced possessor shows that the concept is acquired in terms of morphology and syntax but is not yet fully acquired phonologically. Juupi correctly produces the possessor in two other utterances, while Alec never correctly produces a possessor in noun incorporation structures.

Table 2 summarizes the production of the various possessor types per child. The implicit first person was the most common possessor (as was predicted by its simple syntactic structure in section 1.4), and the reduced third person possessor was the second most common despite only being produced by Alec and Juupi. The correct productions of the third and fourth person are discussed further and classified as amalgams or memorized chunks in section 6.1 below.

TABLE 2
Possessor type and frequency per child

	Reduced 3rd	*Correct 1st*	*Correct 3rd*	*Correct 4th*	*Omitted 3rd*	*Implicit 1st*
A 2;6	3					1
A 2;11						5
A 3;3	7				1	2
J 2;0	3					3
J 2;5	3			1		4
J 2;9		1 (plural)	2			6
M 2;6						1
M 2;10						4
M 3;3			1			1
S 2;10						
S 3;2			1			
S 3;6						

As shown above, Suusi and Mae produced minimal possessors. However, Alec and Juupi produced reduced third person possessors as well as a higher number of implicit first person possessors than the other two children. Alec is the only subject to show possessor errors by omitting the third person when it is required in the adult grammar (as illustrated in section 4.2 below).

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4.2. Unmarked mandatory possessor

Alec completely omits the possessor in one utterance at age 3;3 where it is required in the adult grammar as show in (18).

(18) **Ah attaguttua.*
Ah ata-ngagut-uq-juq-aluk.
um LNR-bottom-NI.VIA-3Ssg-VZ.arrive at-NZ.that which-NN-AUG.EMPH
'Ah it went under over there.'

4.3. Derivational morphology with deleted incorporated verb

Derivational morphology on the noun is generally allowed in incorporation constructions. Juupi has two productions where the incorporating verb *–uq-* 'arrive at' is omitted, however the derivational morphology that would have occurred within the incorporated verb is present. Juupi at age 2;0 produces the derivational affix *-aluk-* 'EMPH' (emphasis) which would occur with the incorporated verb. However, the verb is deleted, leaving the derivational morphology present despite the absence of the verb as shown in (19).

(19) **Tappaungaalurumapaa.*
Ta-pa-unnga-aluk-uq-guma-paaq.[11]
PRE-EXT-LR.up there-LI.ALL-NN-AUG.EMPH-VZ.arrive at-VV-IV.want-VI.oh how I
'I want to go up.'

4.4. Lexical selection error: 'mut' instead of 'mi'

Juupi at age 2;4 (20) and Suusi both make the error of using the morpheme *-mut-* 'to, towards, be towards' when they should have used *–mi-* 'on, in, at'. Despite using the wrong locative form, they are consistent with the verb endings. The same inflections occur on both *–mi-* and *–mut-* so they are using the correct inflectional ending. Juupi makes this error twice (however, it is counted as one error due to it being a repetition), and Suusi makes this error 36 times (however, it is counted as five errors due to the uninterrupted repetitive nature of the utterances). The children chose the wrong morpheme/lexical item, but they match the syntactic endings required correctly.

(20) **Anaana killamuurama.*
Anaana killak-mut-uq-gama.
NR+mother NR-hole-NI.ALL-SG-VZ.arrive at-VI.CSV-1sS
'Mom I'm in the hole.'

[11] As pointed out by an anonymous reviewer, the verb *guma* 'want' almost always appears following a verb, however sometimes the verb can be omitted.

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5. RESULTS

The following results summarize previously unreported data and show morphological processes in Inuktitut not previously reported on in the literature.

5.1. Acquisition of locatives and the effect on noun incorporation

My first research question (1) was whether children erroneously incorporate possessors and plurals into non-locative constructions. The data showed that the children never try to add a possessor or plural to a non-locative construction, and only incorporate bare nouns (or those bearing derivational suffixes) into typical noun incorporation structures. The data show that even though possessors are not fully acquired by all of the children, all four participants only attempt to incorporate possessors in the correct environment.

5.2. Types of errors

My second research question (2) was whether there were more or less errors or specific types of errors in the production of incorporated locatives when compared to other types of noun incorporation structures. Due to the added complexity of the locative incorporations, additional errors could be expected. Most errors found in the Allen (1994) noun incorporation structures had counterparts in the locative incorporation data. Two exceptions are the possessor errors, which would not be expected in the noun incorporation data, and the lexical error of selecting *-mi-* instead of *-mut-*. However, this process is simply a lexical selection error; it is not observably different from saying 'cats' instead of 'dogs' in English.

It is of interest to note that the children avoid the use of possessors in positions where the target grammar disallows them. All participants attempt to produce possessors in the correct syntactic and morphological positions only.

5.3. Age of acquisition of locative incorporation structures

My last research question (3) was whether locative incorporation constructions emerge earlier or later than the more typical noun incorporation structure. One would expect locative incorporation to be more difficult to acquire and therefore to emerge later, however this does not appear to be the case. Despite the added complexity of optional possessors and the added syntactic complexity of locational postpositions, locative incorporation appears to be acquired early and similarly to noun incorporation as both structures are produced by all children at the earliest ages studied (as shown in Table 1).

Possessors in noun incorporation do appear to be acquired later than the incorporation structures with Suusi and Mae each using a possessor once correctly, Juupi using a possessor twice correctly, and Alec never correctly producing a possessor in a noun incorporation structure. Additionally, the partially produced possessors in section 4.1 give evidence to the process of acquisition; its syntactic position is marked first and the full form is added later.

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6. DISCUSSION

6.1. Possessor acquisition

As stated in section 3.2, I followed Allen (1994) where a form is considered productive (and not simply a memorized unanalyzed chunk or amalgam) when one or more of the following criteria were met: if the child uses the morpheme in a production they would not have heard in the target grammar (an overgeneralization, use of incorrect allomorph), if the morpheme is used in a large variety of environments, or in cases of self-correction. I do not have enough data to say whether the forms are fully acquired, but based on the frequency of production I can address productivity and offer insights into the acquisition process.

The children who were most productive in terms of noun incorporation and locative incorporation frequency were also the most productive in terms of possessor production as shown in Table 3. Suusi and Mae are both very similar in their NIC, LIC, and possessor usage. Suusi does not appear to have acquired possessors in noun incorporation as she only makes one production. While it correctly mimics the adult target, it is most likely an amalgam or memorized chunk, as she does not attempt possessors elsewhere. Suusi's NIC totals 64 and LIC correct totals 55, which is quite similar to Mae's totals of 53 NIC structures and 47 correct LIC structures. Mae is slightly more productive with possessors, with one implicit first person possessor and one correctly produced third person possessor, which is again thought to be an amalgam due to its lack of productivity elsewhere.

Table 3
Frequency of incorporation and possessor types

	Reduced 3rd	*Correct 1st*	*Correct 3rd*	*Correct 4th*	*Omitted 3rd*	*Implicit 1st*	*NIC*	*LIC correct*	*LIC errors*
Alec	10	0	0	0	1	8	58	43	1
Juupi	6	1 (plural)	2	1		13	131	94	11
Mae	0	0	1	0	0	6	53	47	3
Suusi	0	0	1	0	0	0	64	55	6

Juupi is the most productive of the four children, with six partial productions, suggesting they are not amalgams as she would have not heard such productions in the adult grammar. Juupi also produces three forms which are understood as first person singular, an explicit first person plural, two correct third persons, and a correct fourth person (which is third person same). Juupi is using different possessors in different environments and is producing forms she would not have heard in adult productions. In parallel with her being the most productive in her use of possessors, Juupi is significantly more productive with her use of incorporation structures with 131 NIC productions and 94 LIC productions. Alec is the second most productive, in that he makes nine reduced productions (again showing that he has analyzed possessors and is not a producing a memorized chunk), and eight implicit first persons. However, Alec makes one incorrect possessor omissions, showing that he has not progressed in his acquisition of possessors as much as Juupi. Additionally, Alec's incorporation productions resemble Suusi and Mae, with Alec producing 58 NICs and 43 LICs.

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Syntactically speaking, noun incorporation is less complex than locative incorporation which is less complex again than locative incorporation with a possessor. Based on the increasing complexity, one would expect overall productivity and overall error patterns to relate to syntactic complexity which is what the current data demonstrate.

6.2. Overview

Errors across noun and locative incorporation structures were quite similar, with the exception of possessor errors. The use of possessors in conjunction with locative incorporation appears to be at the upper edge of the children's grammatical ability.

The first person "my" possessors do not look overly productive despite being the most expected. This may be due to the fact that the first person possessor is used in a context where the most conceptually salient meaning is the one belonging to the child. Therefore, the use of first person possessor is difficult to assess in terms of productivity as it can be implicitly understood and need not be explicitly present in the structure.

The third person emerges later, arguably because it is the most complex production in the current study: the child has to figure out if it refers back to an earlier referent in the sentence or not. The child has to determine anaphoric relations to determine whether it is third or fourth person (fourth person is third person same). The child may just be avoiding this construction at the beginning because it is more grammatically complex.

7. CONCLUSIONS

This paper demonstrated that the acquisition of noun and locative incorporation in Inuktitut follows a predictable pattern based on the increasing grammatical complexity of each structure. It also showed that young children acquiring possessors in Inuktitut mark the syntactic position first and then map the correct phonological form later. Lastly, it offered insights into the use of amalgams in morphologically complex languages: the children store these amalgams until they can begin to decompose these units into their individual grammatical structures/lexical items (as was also found in Rose & Brittain (2011)). Young learners of Inuktitut appear to use memorized chunks which include possessors (hence their initial error free productions), before breaking apart the morphology and using possessors as individual morphemes.

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