Tense, aspect, and agreement in heritage Labrador Inuttitut:
Do receptive bilinguals understand functional morphology*?

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Abstract
Heritage receptive bilinguals (RBs) are individuals who report understanding but not speaking
their family language. This study tests whether semantic features of functional morphemes,
namely tense, aspect, and agreement, are accessible to them in comprehension. RBs in this study
are fluent speakers of English with receptive knowledge of Labrador Inuttitut.

Many RBs showed fluent-like comprehension of aspectual suffixes, subject-object-verb
agreement suffixes, and past versus future contrasts in tense suffixes, but most could not identify
remoteness degrees in tense suffixes. Lowest-proficiency RBs did not show knowledge of any
morphemes. Remoteness features are missing from most RBs' grammars; the same applies to
many features in LRBs' grammars. Some RBs showed inconsistent performance: better than
chance, but worse than fluent speakers. The corresponding parts of RBs' grammars are therefore
fluent-like, but access to them is difficult. RBs' grammars consist of fluent-like parts, parts with
reduced access, and incomplete parts.

Keywords: Inuktitut, receptive bilinguals, heritage language, attrition, tense, aspect, agreement

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1. Introduction

Acquisition of a first language, even in a bilingual situation, normally results in full native competence - provided that an individual continues both to be exposed to that language and to use it sufficiently often. It is not known precisely how much is sufficient, but insufficient input and use caused by increased use of another language may lead to asymmetric bilingualism. The resulting linguistic performance in a weaker language of such a bilingual includes inaccuracy in comprehension, errors in production, and difficulty accessing words and forming sentences, manifested through slow speech rate and long pauses (Benmamoun, Montrul, & Polinsky, 2010). This is a frequent scenario for heritage speakers (HS) - typically second-generation immigrants exposed to the immigrant language by family transmission (Valdes, 2000). The same happens in many indigenous communities where a majority language has taken over (e.g. Dorian, 2006). While HSs tend to have better comprehension than production abilities (Benmamoun et al., 2010), this asymmetry is at its extreme in a subset of lower-proficiency HS termed receptive bilinguals (RBs). Typically, these individuals are fluent1 in the majority language and claim that they “understand, but do not speak” their ancestral language.

What kind of knowledge enables an individual to understand a language, but is not sufficient to speak it? And how do such individuals’ comprehension abilities compare to those of fluent bilingual speakers? Crucially, the comparison should be not with some monolingual standard, but, rather, with more balanced bilinguals who share their linguistic environment with the RBs2. The purpose of this study is to find out what RBs do and do not understand in their heritage language (HL); in particular, how their grammatical knowledge is comparable to the

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1 As an anonymous reviewer pointed out, the terms fluency and proficiency may be used vaguely by researchers; for the purposes of this article, I use them to denote the ability to communicate in a given language without difficulties, using structures considered well-formed in one's community.

2 It has been argued that it is not appropriate to compare HS to monolinguals because of different language acquisition experience, potentially including different input (Pascual Y. Cabo & Rothman, 2012; Putnam & Sanchez, in press).
fluent speakers' grammar. When RBs listen to Inuttitut, do they access elements of meaning expressed by functional morphemes, such as tense, aspect, or agreement (time of an event, the way it unfolds, and its participants, respectively)? Or is their comprehension based only on lexical and pragmatic knowledge?

While some previous HL studies included participants similar to RBs, they usually were not treated as a separate group. On the lower end of the HL proficiency continuum, the findings on two types of non-fluent bilinguals are relevant for predicting answers to the questions above: low-to-intermediate proficiency HSs with both receptive and productive abilities (typical participants of HL studies) and childhood overhearers - individuals who were exposed to a language in childhood but did not acquire it. Receptive bilinguals fit between these two populations. Studies on overhearers re-learning their HL as adults showed an advantage over novice learners in phonology but not in morphosyntax (Au, Knightly, Jun, & Oh, 2002).

Studies of HSs with some speaking abilities demonstrated that inflectional morphology is especially affected by insufficient use, not only in production, but also in comprehension (see Benmamoun et al., 2010, for a recent review). Categories are not equally affected, and for some, results are not uniform across languages. Within verbal morphology, use of tense is generally fluent-like (e.g. Fenyvesi, 2000, for Hungarian), but German HSs make tense errors in production (Schmid, 2002). Subject-verb agreement is affected in heritage Russian (Polinsky, 1997, 2006) but not in Arabic (Albirini, Benmamoun, & Saadah, 2011). Aspect is especially vulnerable in heritage languages, such as Russian (Laleko, 2010; Polinsky, 2008) and Spanish (Montrul, 2002). Studies of HSs' comprehension suggest that RBs might systematically ignore or misunderstand at least some functional morphemes, and therefore miss information encoded by them. The competence underlying such comprehension is often termed incomplete grammar, defined by Montrul (2008) as a grammar that fails to reach the age-appropriate level of proficiency.
compared to the grammar of fluent speakers of the same cognitive development and social group. The process leading to it is termed incomplete acquisition, which in its narrow sense means failure to acquire parts of the target grammar, and in the broader sense, also subsumes attrition. It has been shown that adult HSs perform worse than child HSs on linguistic variables that are acquired early (Polinsky, 2011; Silva-Corvalan, 2003); therefore, attrition is also part of the process. Ideally, incomplete acquisition in the narrow sense and attrition should be distinguished, but it is impossible to reconstruct an adult's HL acquisition history in such detail; some inferences can be based on the age of acquisition of the variable and the age of shift to the majority language. The notions of incomplete acquisition and incomplete grammar have been debated by some researchers who state that HS competence is not incomplete, but different from that of fluent speakers, due to a different language-learning experience (see Pascual Y. Cabo & Rothman, 2012; Putnam & Sanchez, in press; Rothman, 2007).

In this study, knowledge of Labrador Inuttitut in heritage RBs is examined. Labrador Inuttitut is an endangered dialect of Inuktutut, an Eskimo-Aleut language. The study took place in Nain, a Labrador Inuit community, where both Inuttitut and English are spoken, and many Inuit report partial knowledge of Inuttitut, despite exposure to it since childhood (Andersen, 2009; Andersen & Johns, 2005). Among such individuals, many report good comprehension skills, described as “understanding (almost) everything” but little or no production skills.

Labrador Inuttitut is characterized by rich morphology, especially in the verbal complex, and is considered polysynthetic under broad definitions of this term, in that Inuttitut verbs can incorporate nouns, adverbs, and possibly other material. Such a verb can equal to a whole proposition (translated as a sentence into a language like English). The leftmost morpheme in a verb is the root, and the rightmost, a portmanteau agreement+mood morpheme; both are obligatory. Various morphemes between them, called postbases in Inuktutut literature - including
tense, aspect, manner, negation, intensifiers, and others - are not syntactically obligatory, but required to express corresponding meanings. The morphemes selected for this task were tense, aspect, and agreement+mood markers.

The paper is organized as follows. In section 2, I present the methodology. Each of the following three sections is dedicated to one of the linguistic variables tested and includes linguistic and acquisition background on the respective variable, materials for testing its comprehension, results, and discussion. Section 6 contains general discussion and conclusion.

2. Method

2.1. Participants

Twenty residents of Nain who reported “understanding but not speaking” Inuittitut participated in the study, along with a control group of eight fluent bilinguals (FBs). All were paid for participation. The experiment presented in this paper was part of a larger study that also included other tasks (Sherkina-Lieber, 2010, 2011; Sherkina-Lieber, Pérez-Leroux, & Johns, 2011). The methodology was specifically developed for this bilingual community, and bilingual fluent speakers (rather than monolinguals) from the same community were chosen as a baseline in order to uncover differences between the groups that are not due to bilingualism per se. Monolinguals' participation was impossible anyway: only 15 live in Nain, all are elderly and might not wish or be able to participate.

The participants responded to an oral questionnaire on their language skills, language history, and current language use. Among the RBs, the majority reported understanding most of what they hear in Inuittitut, estimating their comprehension at 80-90% of the input. They reported limited production abilities, ranging from common words and expressions, sometimes inserted into English sentences, to short sentences and phrases in Inuittitut. The questionnaire data was supported by the results of pre-tests including a picture description task as a production test, a
vocabulary test, and a story retelling task (listening to a story in Inuittitut and retelling it in English) as a comprehension test. However, three participants reported understanding about 25% of the input, not always grasping the main idea, and not speaking Inuittitut at all; they also performed at a lower level on the pre-tests. Since the profile of these three participants was very different from the rest of the group, their data were analyzed separately. Below, they are referred to as low-proficiency receptive bilinguals (LRBs), and the rest of the group, as high-proficiency receptive bilinguals (HRBs).

Language acquisition history of Inuittitut RBs is typical of HSs. Though the term heritage language usually refers to immigrant languages, the situation for endangered aboriginal languages is the same psycholinguistically. Inuittitut RBs were raised in a community that was becoming increasingly English-dominant. They were exposed to Inuittitut since their childhood, simultaneously with English or as the only language until the school age. At school, they were immersed in English. In a situation of language shift, an aboriginal language is a minority language, with limited use in the society, just like immigrant languages. However, testing heritage RBs in an aboriginal community avoids the usual immigrant problem of exposure to an immigrant version of their HL, which may differ from the monolingual version spoken in their home country. Studies such as Paradis and Navarro (2003) showed such divergence in first-generation immigrants who provide input to their children. However, HSs in an aboriginal community are not immigrants, and they are exposed to the same language as fluent speakers to which they are compared.

2.2. Materials

One hundred mini-stories (1-2 sentences each) in Inuittitut were constructed for this task. These included 84 target items: 40 to test comprehension of tense, 24 - aspect, and 20 - agreement. In the limits on the number of items in each condition were dictated by the need to keep the total testing time for all

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3 The limits on the number of items in each condition were dictated by the need to keep the total testing time for all
addition, there were eight lexical control items and eight filler items. All target items were constructed so that if the listener does not process the target morpheme, the sentence is ambiguous for him/her; where the forced-choice questions are used, the context is compatible with both options. The comprehension question in English asked to resolve this potential ambiguity. The control items had the same comprehension questions as the target items, but the information required to answer them was encoded in lexical items (e.g. temporal adverbial), in addition to functional morphemes. These items were added to ensure that the participants understood the task and the questions. Materials for each variable are given in the corresponding sections below.

2.3. Procedure

Participants were tested individually in a quiet location. They listened to audio-recorded stimuli read by a fluent Inuttutitut speaker from the same community. Instructions were given in English, and participants were asked to provide their responses in English - their stronger language, in order to maximize performance.

The participants heard a mini-story in Inuttutitut and were asked a comprehension question in English. After answering, they moved on to the next mini-story. Two practice items were presented before the target items. The target items were presented in the same pseudo-randomized order (no more than two items in a row from the same condition) across participants. The stimuli were divided into two blocks, with a short break between them. The responses were audio-recorded and later transcribed.

The task was oral, as a reading task is not suitable for RBs: Many of them are not literate in Inuttutitut. The answers were verbal rather than button presses on a computer, and untimed, since the request to react fast and the need to use a computer would create unnecessary stress for tasks so that all testing could be completed in one three-week trip.
participants, who are not as familiar with computerized language testing as typical study participants (university-educated urban residents). In this setting, a fieldwork-style approach works best: The participants share with the researcher knowledge of their ancestral language, without pressure.

2.4. Data analysis

After the data was transcribed, the answers were scored as correct or incorrect. The data was analyzed separately for each variable, in six sets: time and remoteness for tense, pluractional and ingressive for aspect, and intransitive and transitive for agreement. LRBs were not included in the statistic tests because of the small group size.

3. Tense

3.1. Background

Eastern Canadian dialects of Inuktitut have grammatical tense (Clarke, 2009, for Labrador; Hayashi, 2011, for South Baffin), unlike West Greenlandic Inuktitut, which has been argued to be tenseless, with putative tense morphemes described as bound adverbials or aspectual markers (Bittner, 2005; Shaer, 2003). First, tense markers in Eastern Canadian dialects are obligatory even in the presence of temporal adverbials or contextual information about time; second, two tense markers cannot co-occur in one clause. The present tense in Inuttitut is morphologically unmarked: A verb containing no tense morpheme denotes an eventuality taking place during speech time, as in (1). The exception to this are achievement verbs - they are perfective; without a tense marker, they express immediate past, as in (2), but require a past tense marker to express past earlier than a few minutes ago. Tenses other than the present are marked by affixes that attach before the agreement+mood inflection, as in (3).

(1)  Kaja-liu-juk

I use Labrador Inuttitut standardized spelling, which has the following differences from the IPA: â = long aa, e =
According to Swift (2004), the main distinction in the marking of time in Inuktitut is realis versus irrealis, with irrealis as the marked member, in contrast to many commonly studied languages, where the main distinction is past versus non-past (e.g., English has a synthetic past, but no synthetic future). Future, as a special case of irrealis, always needs overt morphology, but past sometimes can be morphologically unmarked (immediate past of achievement verbs). Verbs without tense or aspectual markers can thus be interpreted as present or past (depending on lexical aspect), but never as future. Swift (2004) showed that this is reflected in first language acquisition of Inuktitut (Arctic Quebec dialect): Children start producing future before past.

The special characteristic of Inuititut tense morphology is that there are several degrees of remoteness both in the future and in the past. Each tense in Inuititut is specified not only for being before or after the moment of speech, but also how far from the moment of speech it is. The most common remoteness distinction is used in the test materials: same-day, or hodiernal

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Abbreviations: SG - singular, PL - plural, D - dual, 1SG - first person singular; 3SGSUBJ.3POBJ - third person singular subject and third person plural object; ABS - abolutive case, ERG - ergative case, MIK - the oblique case on the objects of antipassive verbs, LOC - locative case, ABL - ablative case; INDIC - indicative mood, PART - participial mood; SPST - same-day past; DPST - distant past; SFUT - same-day future; DFUT - distant future; INGR - ingressive aspect, PLURACT - pluractional aspect, PERF - perfect, AP - antipassive, POSS.1SG.SG - first person singular possessor and singular possessed.
(within the day the utterance is made) versus distant, non-hodiernal (beyond the day the utterance is made). Children acquiring Inuktitut, according to Swift (2004), begin producing tense morphemes between the ages of 1 and 3;6, starting with very recent future and very recent past, followed by distant future and past, and only after that produce same-day future and past. However, there are no studies of comprehension of Inuktitut tenses by children.

All the tenses in this task likely have been acquired by RBs because more exposure to the HL typically occurs before the school age; if exposure to Inuktut was reduced before past was acquired, we can expect RBs to comprehend future better than past. One needs to be cautious about these predictions as they are based on production data and another dialect. Predictions cannot be made about the remoteness markers because of the dialect differences: The very recent past is not found in the Labrador dialect. Based on the HL studies cited above, one can expect RBs to be able to distinguish future and past, but there is no data on remoteness in HL.

3.2. Materials

Four tense morphemes were targeted: distant past -lauC-, same-day past -kKau-, same-day future -niaC-, and distant future -lâC-. Each was tested in two contrasts: time (past vs. future) and remoteness (same-day vs. distant)\(^6\). The comprehension questions were of the forced-choice type, with two options for the answer. In the time contrasts, the question for the same-day past versus same-day future contrast was “Did X already V, or will X V soon?” (as in (4)), and for the distant past versus distant future contrast, “Did X already V, or will X V later?”.

(4)  
\[
\text{Past versus future} \\
\text{IKalu-luvini-Ka-vuk kom-mi. Johnny iKalu-nnia-gia-\textbf{niat}tuk.}
\]

Char-a.lot.of-have-\textsc{indic.3sg} river-\textsc{loc} Johnny char-hunt-go.to-\textsc{sfut-part.3sg}

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\(^6\) Strictly speaking, both are time contrasts, but I reserve the term *time contrast* for the past vs. future distinction, for ease of discussion.
'There is a lot of char in this river. Johnny will go fishing for char.'

*Question:* Did Johnny already go fishing, or will he go fishing soon?

*Correct answer:* Soon

In the remoteness contrasts, the question for the same-day past versus distant past contrast was “Did X V today or on some other day?” (e.g., (5)), and for the same-day future versus distant future contrast, “Will X V today or on some other day?”.

(5) **Same-day versus distant**


Mary pick.berries-place-MIK know-PART.3SG pick.berries-a.lot-SPST-PART.3SG

‘Mary knows a good place for berry-picking. She picked a lot of berries’

*Question:* Did Mary pick berries today or on some other day?

*Correct answer:* Today

The order of conjoined phrases in the English questions was counterbalanced within each condition to avoid a bias towards repetition of the second conjunct. Each morpheme appeared five times with a question testing a time contrast, and five times with a question testing a remoteness contrast. The second conjunct was the correct answer two times for each morpheme within each contrast, and three times, the incorrect answer.

3.3 **Results**

Table 1 gives mean number of correct answers for each group in each time contrast condition (i.e. for each tense marker); the maximum possible number in each condition is five. Figure 1 shows the percentages of correct answers.

(table 1 here)

(Figure 1 here)
Both groups had the lowest scores in the sentences with the same-day past marker; in this condition, the difference between the groups was the smallest, with HRBs’ mean score even slightly higher.7.

In each condition, HRBs’ results were significantly different from chance (2.5, or 50%), as shown by Wilcoxon signed rank test (distant future, V=147, \(p=0.0006\); distant past, V=143.5, \(p=0.0014\); same-day future, V=149.5, \(p=0.0004\); same-day past, V=139.5, \(p=0.0026\)). LRBs, however, had scores lower than 50% in all conditions except distant past, showing no comprehension of time contrasts. Individually, each LRB demonstrated chance performance, with the exception of one LRB who had 100% correct answers in the distant past condition (but chance performance in other conditions), causing the high group mean.

A logistic regression was performed on the time contrasts data from HRBs and FBs, with fluency (FBs vs. HRBs), time (future vs. past), and remoteness (distant vs. same-day) as fixed effects. Table 2 shows coefficients, standard errors, and \(p\)-values for the fixed effects in a model with a three-way interaction (fluency*time*remoteness).

\(7\) For one item in this condition, five FBs’ answers were coded as incorrect. The analysis with this item removed produced a smaller difference between FBs and HRBs, but the pattern of results did not change. Therefore, the analysis without exclusions was retained.
There was no difference between HRBs and FBs in any condition except a marginal
difference in the distant past. Individual results showed that 10 HRBs performed exactly as FBs,
with 80-100% correct answers in every condition except same-day past. The rest had 80-100%
correct answers only in the future tense conditions except one who chose the past interpretation
regardless of the tense morpheme.

Since the questions were of the forced choice type, most errors were the choice of the
wrong alternative, with very few exceptions (1-3 occurrences each): a present-time interpretation,
ambiguous or irrelevant answers, and “don’t know”/“don’t understand”.

Performance on remoteness contrasts had a different pattern. HRBs had lower scores than
on time contrasts, and the difference between HRBs and FBs was larger. LRBs did not show any
knowledge. Table 4 shows the mean number of correct answers for each group in each condition
(each tense marker); as with time contrasts, the maximum possible number of correct answers per
condition is five. Figure 2 shows percentage of correct answers.

(table 4 here)

(figure 2 here)

In all conditions, HRBs gave fewer correct answers than FBs. HRBs’ scores on same-day
future and distant past were at chance level, while their scores on distant future and same-day
past were different from chance (Wilcoxon signed rank tests on HRBs' data for each condition:
same-day future, V=93.5, p=0.43; distant past, V=84.5, p=0.72; distant future, V=129, p=0.012;
same-day past, V=139, p=0.0027.)

A logistic regression was performed on the remoteness contrasts data in the same way as
for the time contrasts data. Table 5 shows coefficients, standard errors, and p-values for the fixed
effects in a model with a three-way interaction (fluency*time*remoteness).

(table 5 here)
The effect of fluency was significant, but it did not interact with morpheme types: FBs overall performed better than HRBs on remoteness distinctions. Time and remoteness, however, did interact. Both groups gave more correct answers to items containing distant future and same-day past morphemes. A more precise model, then, is the one where fluency is present as a main effect but is not included in any interactions. This model is given in Table 6, with all effects reaching higher significance.

(table 6 here)

In addition, performance of FBs and HRBs in each condition was compared by separate logistic regressions on subsets of data corresponding to each condition, with fluency as the only predictor. The coefficients, standard errors and \( p \)-values for fluency effect in each of the conditions are given in Table 7. The difference between FBs and HRBs was significant for distant future and distant past, and marginally significant for same-day past, but not significant for same-day future (probably because one FB had a score of 0 in this condition).

(table 7 here)

The difference between conditions in the FB group was caused by only two participants’ low scores, in one condition each; otherwise, they performed at ceiling. However, in the HRBs’ individual results, the difference between the conditions was real. Only three HRBs had 80-100% (4-5) correct answers in each condition and a total score of 95-100%. Seven HRBs had mostly correct answers in the distant future and same-day past conditions, but varying lower scores in the two other conditions. Seven remaining HRBs did not demonstrate knowledge of remoteness distinctions. Three of them had a bias towards one of the two possible answers, while the rest had low scores in all conditions. Some of these HRBs and one LRB explicitly stated that they did not know that Inuittut tense markers encode remoteness, and did not understand why they were asked to judge if an event happened today or on some other day, even though they often could
identify the time more globally (past or future). The typical answer of this kind was: “It already happened but she [the speaker who read the sentence] didn’t say when”. Participants who were not sure about remoteness interpretation likely chose one of two strategies: admit their lack of knowledge or guess using pragmatic information.

Besides these answers, the most common type of non-target answers among all participants was choosing the wrong alternative. Other errors (present time interpretation, incorrect time interpretation, irrelevant answers) happened only 1-2 times in each group.

Only the strongest HRBs distinguished remoteness degrees, while only the weakest did not distinguish between past and future. However, there was no correlation between time and remoteness scores (Spearman’s $r_s=0.15$, $p=0.57$). Better performance on time contrasts does not predict better performance on remoteness contrasts. However, those HRBs who had high scores on remoteness also had high scores on time, but not all those who had high scores on time also had high scores on remoteness.

3.4. Discussion

While FBs showed high performance on both time and remoteness contrasts, HRBs were more sensitive to more global time specification (past vs. future) of each morpheme than to its remoteness features (same-day vs. distant), and LRBs did not show any knowledge of tense markers.

On time contrasts, more than half of the HRB group performed at the FBs’ level. The rest of the group showed better knowledge of the future markers than of the past markers. This finding parallels production data from acquisition of Inuktitut in Swift (2004): children start producing future markers before past markers. This suggests either attrition (in line with Jakobson’s (1941) regression hypothesis stating that the order of attrition is the opposite of
acquisition) or non-acquisition of past due to interrupted exposure.

The same-day past items elicited the largest number of errors in both FBs and HRBs, including the present-time interpretation (not an option in the forced-choice questions, but in fact not incorrect for some items). A possible reason is that Inuittitut non-punctual verbs do not have a completion entailment; they have an implicature of completion, which is more easily calculated in the distant past, but less so in the same-day past. For example, if Tommy went hunting earlier today, he might still be hunting at the speech time.

Remoteness contrasts proved more difficult for HRBs than time contrasts. Some HRBs did not know at all that remoteness was also encoded, though they knew whether the time reference was past or future. Both HRBs and FBs showed lower sensitivity to remoteness in the same-day future marker -niaC- and the distant past marker -lauC-. The same-day (hodiernal) future marker -niaC- also has a modal meaning “to intend, plan, set out to do x” (Smith, 1978, p. 77). According to Hayashi (2011), its counterpart in the South Baffin dialect (-niaq-) “is ambiguous, indicating either (a) a hodiernal future tense . . . . or (b) a strong modality with future orientation” (p. 76). This could obscure its remoteness feature.

While there was no correlation between performance on time and remoteness contrasts, there is a dependency. Division into past and future is more likely to be present in a HL than remoteness degrees, and only those who have acquired and maintain broader past vs. future contrasts can acquire and maintain the more fine-grained remoteness distinctions. Many HRBs have partial representations for tense morphemes in Inuittitut in terms of semantic features. For FBs, each tense morpheme is specified for both time and remoteness, as represented in Figure 3, but for many HRBs, each tense morpheme is specified only for time, without information about remoteness, as represented in Figure 4. Such HRBs have two markers for past, and cannot distinguish them; the same goes for the two markers for future. This is the most salient
One possible reason for higher vulnerability of remoteness is that remoteness features have no equivalents in English, and this is an example of “negative borrowing” in the sense of Dorian (2006): Features of a weaker language that do not exist in the dominant language are more likely to be lost. However, as shown in Section 5, such features are not invariably lost. Another likely reason could be that past versus future is a more basic distinction, and remoteness distinctions are more fine-grained, made within past and within future. In Inuktitut, the timeline is first cut into two large chunks, past and future, and then each of these chunks is cut further into smaller chunks reflecting remoteness degrees. The finding that knowledge of the past vs. future contrast is a pre-requisite for knowledge of the remoteness contrast supports this possibility.

4. Aspect

4.1. Background

In terms of lexical aspect, there is a difference between achievements (punctual verbs) and other lexical aspectual classes, as mentioned above. Achievement verbs are telic and have no duration; that is, they are points. According to Cowper's (1998) Principle of Non-Simultaneity of Points, two temporal points cannot be simultaneous (unless simultaneity is expressed through lexical elements); therefore, such verbs cannot coincide with the moment of speech (also a point, as Cowper argues) and, consequently, cannot express present. In Inuktitut, such verbs express immediate past (Clarke, 2009; Hayashi, 2011). Accomplishment verbs, though telic, are durative, and in Inuktitut, they pattern with other durative verbs - activities and states, expressing an eventuality taking place at the moment of speech.

Inuktitut also has numerous aspectual postbases. Two of them are tested in this study: the
Ingressive -lic⁸- and the pluractional -Katta-. Ingressive -lic- (-liq- in other dialects) is glossed either as `be in the process of X-ing; now' (Smith, 1978, Labrador Inuttitut) or `begin to, be in the process of X-ing' (Fortescue, Jakobson, & Kaplan, 1994, West Canadian Inuktitut); Swift (2004) points out that it ``highlights the initial boundary of an event'' (p. 59). From my fieldwork in Labrador, it appears that the meaning of -lic- includes all these components and equals to `begin X(-ing) shortly before reference time and be X(-ing) at the reference time⁹', with a presupposition that the subject was not X-ing before.

The suffix -lic- can appear with any lexical aspectual class and interacts with lexical aspect. Although accomplishments, processes, and states without tense or aspectual affixes are by themselves interpreted as going on at the speech time, -lic- adds more focus on the current situation and its initial boundary. With achievements, -lic- affects their temporal interpretation, turning them into progressive, so that they are interpreted as present rather than immediate past: a slowed-down version of a punctual event, a state before that punctual event, or both, as in (6).

(6)  
a.  Tiki-juk
    arrive-PART.3SG
    `He (just) arrived'
b.  Tiki-lit-tuk
    arrive-INGR-PART.3SG
    `He is arriving'

A pluractional suffix -Katta- (-qatta(q)- in other dialects) is sometimes glossed `often', but in many cases behaves as a habitual marker (and is glossed as such by, e.g. Swift, 2004). A verb without tense or aspectual affixes is interpreted as a single eventuality, but if -Katta- is added,
the interpretation becomes pluractional: an eventuality occurs multiple times, as illustrated in (7).

It is compatible with any lexical aspectual class.

(7) a. Illu-liu-juk
    House-make-PART.3SG
    'He is building a house'

b. Illu-liu-Katta-juk
    house-make-PLURACT-PART.3SG
    'He builds houses'

According to Swift (2004), lexical aspect in Arctic Quebec Inuktitut is acquired by children before aspectual suffixes. The ingressive suffix -liq- (the equivalent of Labrador -liC-) appears at MLU of 3.5, first with atelic verbs to express an activity or state at the moment of speech, and only later, after the age of 3, with telic verbs to express a change of state in progress. The pluractional suffix -qattaq- (Labrador -Katta-) occurred very rarely in Swift's data, which suggests that it is not productive in the age range that she analyzed - before 3;6. Thus, RBs might be expected to answer correctly in the absence of the suffixes, because this requires only lexical aspect knowledge; -Katta- may be more difficult for RBs than -liC- if the dominance switch occurred before the former was fully acquired (but, again, this is based on production data from a different dialect). Studies of other HLs predict difficulties with aspect interpretation.

4.2. Materials

For both suffixes, the contrast was the presence versus the absence of the suffix. The aspect items did not contain any other aspectual or tense suffixes, and were designed so that if the aspectual morpheme is disregarded, another aspectual interpretation is possible.

In the case of -Katta-, the comprehension questions gave the one-time ongoing and the
habitual interpretations as two options for the answer: “Is X V-ing now, or does X usually V?”, as in (8) and (9). Seven items contained -Katta-, and seven did not. The order of conjuncts in questions was counterbalanced in the same way as for the tense items.

(8) **Habitual versus one-time: -Katta- is absent**

Sally ikaju-juk Tommy-mik.

Sally help-PART.3SG Tommy-MIK

‘Sally is helping Tommy’

**Question:** Does Sally usually help Tommy, or is she helping him now?

**Correct answer:** Now

(9) **Habitual versus one-time: -Katta- is present**

Mary Kimmina-nnik nuniva-**Katta**-juk KakKa-mi tasi-up Kula-ni.

Mary red.berries-MIK.PL pick.berries-**PLURACT**-PART.3SG hill-LOC lake-ERG over-LOC

‘Mary (habitually) picks red berries on the hill over the lake’

**Question:** Is Mary picking berries on that hill now, or does she usually pick berries there?

**Correct answer:** Usually

Ingressive -**liC**- was tested only with achievement verbs, because the difference between the presence and the absence of this suffix is most clearly seen with this class. The comprehension questions offered choice between progressive and perfective: “Is X still V-ing, or has X already V-ed?”, as in (10) and (11). Five items contained -**liC**-, and five did not. The order of conjuncts in questions was counterbalanced as in the other conditions.

(10) **Progressive versus perfective: -**liC**- is absent**

Mary pâlla-juk.

Mary fall.from.standing-PART.3SG

‘Mary fell down’ (on the ground)
Question: Is Mary still falling, or has she already fallen?

Correct answer: Already

(11)  Progressive versus perfective: -liC-is present

Tommy kata-lit-tuk napâttu-mit.

Tommy fall.from.height-INGR-PART.3SG tree-ABL

‘Tommy is falling from a tree’

Question: Has Tommy already fallen from a tree, or is he still falling?

Correct answer: Still falling

4.3. Results

FBs’ scores were high, though further away from 100% than on tense contrasts. This was expected, as aspectual contrasts are notoriously difficult to test, and even fluent native speakers do not always give target answers. HRBs’ scores were close to those of FBs, but LRBs’ scores were again low. The data for each suffix was analyzed by a logistic regression of the same type as for the tense data, with fluency and presence versus absence of the suffix as the fixed effects.

Table 8 presents the mean number, and Figure 5, the mean percentage, of correct answers for the habitual versus one-time contrast (-Katta-presence vs. absence); each condition contained seven items. Both in the presence and in the absence of -Katta-, HRBs’ answers were significantly different from chance (3.5, or 50% in each condition), as demonstrated by Wilcoxon test: in the presence of -Katta-, V=134, p=0.0065; in the absence of -Katta-, V=151, p=0.0003.

(table 8 here)

(figure 5 here)

The difference between FBs and HRBs was not significant (coefficient estimate 0.44, standard error 0.72, p=0.54); however, the difference between the presence and the absence of -Katta- was
Both groups made more errors on the items with -Katta- (i.e. interpreted a pluractional sentence as a single instance more often than the reverse). In the HRB group, scores ranged from 3 (21.43%) to 14 (100%), but almost all HRBs got more than 70% correct; four got 100% correct. LRBs had a larger difference between the presence and the absence of -Katta-: low scores in the presence of -Katta-, but relatively high scores in its absence.

Table 9 shows the means for the progressive/perfective contrast in achievement verbs (-liC- presence vs. absence); Figure 6 shows percentages. There were five items in each condition. HRBs’ answers were significantly different from chance (here 2.5, or 50%): in the presence of -liC-, \( V=146, p=0.0009 \); in the absence of -liC-, \( V=148, p=0.0007 \).

A logistic regression on the progressive/perfective contrast data showed no significant difference between HRBs and FBs\(^{10} \) (coefficient estimate -0.16, standard error 0.39, \( p=0.69 \)) or the presence and the absence of -liC- (coefficient estimate -0.33, standard error 0.46, \( p=0.46 \)).

Individual results show that most HRBs have good knowledge of achievement verbs and their use with and without -liC-. Fifteen out of 17 HRBs performed in the FB range - 70% or more of correct answers in both conditions; seven of them had 90-100% correct answers.

LRBs’ results were different from FBs and HRBs. Two had extremely low scores in -liC- presence, but high scores in -liC absence, and one had low scores in both conditions.

4.4. Discussion

Most HRBs have fluent-like comprehension of both the pluractional and the ingressive

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\(^{10} \) Five FBs made errors on one item in the perfective condition. In an analysis with this item removed, the pattern of results did not change, therefore, the results from the full set of items are reported. FBs’ low mean in no -liC- condition is caused by unusually low scores in two FBs.
morphemes in Inuttitut. LRBs, in contrast, completely disregard both aspectual suffixes. Also, most HRBs know lexical aspectual characteristics of verbs without aspectual suffixes. In the -liC- vs. no -liC- contrast, the distinction between achievements and other verbs is crucial, since participants cannot give correct answers in the absence of -liC- unless they know which verbs are punctual, and that punctual verbs are interpreted in Inuttitut as immediate past in the absence of tense or aspectual suffixes. While lexical aspectual classes are at least partly universal, their temporal interpretation is not. In English, lexical aspectual class does not change temporal interpretation, and in Slavic languages, perfective verbs in such cases are interpreted as future.

In order to answer correctly in the -Katta- vs. no -Katta- contrast, participants had to know that Inuttitut verbs without tense and aspectual suffixes denote one-time eventualities taking place at the speech time. This is not universal: in English, the least complex forms - the simple tenses - can express a habitual meaning, and do not express a one-time eventuality taking place at the speech time (e.g. John smokes). Since most HRBs did well both in the presence and in the absence of the suffixes, it can be concluded that they know both lexical aspect and the two aspectual suffixes, even though Inuttitut and English express aspectual meanings in very different ways.

However, for the LRB group, interpretation of the results in the conditions without suffixes is less clear. In these conditions, LRBs chose the correct answer as often as the other groups. But they incorrectly chose the same answers for the items with suffixes. While they clearly ignored the suffixes, it is not clear whether their preferred response reflects knowledge of lexical aspect and its default interpretation, or simply a bias.

HRBs’ success in comprehension of aspect is surprising, given previous research that showed vulnerability of aspect in HSs of higher proficiency than RBs. The most logical answer
lies in the differences between the Inuktitut aspectual system and aspectual systems of better-studied HLs, particularly Romance and Slavic. Inuktitut is very different from Romance languages, where aspect is bundled with past tense. Both Inuktitut and Slavic languages have many affixes that cause aspectual changes, both encode aspect separately from tense, and, though the main division in Slavic is perfective/imperfective, Slavic languages also have many aspectual meanings (including ingressive and pluractional) induced by certain affixes. However, Slavic prefixes are not true aspectual morphemes (Filip, 1999, and others), but rather, morphemes that bring about aspectual changes indirectly. Slavic aspectual suffixes are more restricted than prefixes, but, for example, Russian imperfective suffix covers many aspectual meanings, including pluractional and progressive. In contrast, while some Inuktitut aspectual suffixes are also polysemous to some extent, they are dedicated aspectual morphemes, less complex than Slavic or Romance morphemes that mark aspect among other things. It is conceivable that this makes them more robust in HL.

5. Agreement

5.1. Background

Agreement in Inuktitut is encoded separately from tense but is fused with mood, and the agreement+mood marker is syntactically obligatory for all verbs (Inuktitut does not have infinitives or any other non-agreeing forms). Occasionally, it can be omitted in colloquial speech under certain pragmatic conditions, at least in Arctic Quebec dialects (Crago & Allen, 2001). Verb agreement differs in ergative and antipassive sentences. Inuktitut is an ergative-absolutive language, but it has an antipassive construction, similar to the nominative-accusative pattern, where absolutive case on the subject functions similarly to nominative, and a case marked with -mik on the object functions similarly to accusative (Johns, 2001). Typically, antipassive is used with arguments that are mentioned for the first time, and ergative is used with null subjects and/or
objects that have antecedents in the previous discourse, as (12) illustrates. A verb with intransitive agreement (inherently intransitive or antipassive), as in (12a), agrees only with its subject (though the object can be present), and a verb with transitive agreement (in an ergative construction) agrees with both its subject and its object, as in (12b).

(12)  
\text{cook-PERF-PART.3SG egg-MIK.PL}  
‘Mary has cooked eggs’

b. Nigi-kKau-\text{jangit}.  
\text{Eat-SPST-PART.3SGSUBJ.3PLOBJ}  
‘She ate them’

Since Inuttitut has eight moods, three numbers (singular, dual, plural), three persons, and, for dependent moods, a distinction between reflexive (same as in the main clause) versus disjoint third person subject, the number of agreement+mood markers is over 500. Inuttitut allows null subjects and objects; overt pronouns are rarely used and usually are emphatic. Agreement morphemes provide information about the identities of the arguments of the verb. While this information can be disregarded when all the arguments are overt, it is needed for null argument recovery.

For this study, I focused on the indicative (also called declarative) and participial moods. The participial mood is used to form participles; however, both moods are used for verbs in main clauses of declarative sentences, with a subtle difference that interacts with the person features of the verb's arguments. The participial mood is the unmarked mood for the third person subject, but it is ungrammatical with the first and second person subjects; the indicative mood is the unmarked mood for the first and the second person, but the marked one for the third person, conveying ``a meaning of surprise or immediacy” (Johns, 1995, p. 132). With ergative agreement,
the choice between the two moods depends on the person feature of the object.

The initial consonant in an agreement+mood marker is affected by the last sound of the morpheme before it. In the indicative mood, the initial consonant of the agreement morpheme is $v$ after a vowel, $K$ after a consonant; in the participial mood, the initial consonant of the agreement morpheme is $j$ after a vowel, $t$ after a consonant.

Children acquiring Inuktitut as a first language start producing agreement+mood markers as soon as they start combining morphemes, and achieve adultlike use by the age of 2 (Crago & Allen, 2001). Even young children drop subjects and objects in an adultlike manner, showing awareness that agreement markers provide information about the person and number of the arguments to help identify these arguments. Given such early acquisition of agreement, RBs likely have acquired it (but still could lose it). HL studies do not give clear predictions on the status of agreement in RBs.

5.2. Materials

In the agreement items, the first sentence contained two potential antecedents for the subject (in some, also two for the object) of the next sentence. The second sentence contained a null subject (for antipassive, as in (13)) or both a null subject and a null object (for ergative, as in (14)). The questions to the agreement items were of the form “Who P?” (where P is any predicate), asking for the subject identity, except four transitive agreement items, where the question “Who V who?” asked for both the subject and the object identity. The sentences with null arguments were constructed so that they present ambiguity for those speakers who disregard agreement morphemes: Any of the noun phrases in the first sentence can be the antecedent for the null argument in question. Only indicative/participial mood was tested\(^{11}\), and the unmarked mood was

\(^{11}\) In the pilot study, causative mood was also tested, with one contrast: whether the 3rd person subject of the dependent clause is the same as the subject of the main clause or not. The pilot study showed that not all fluent speakers maintain this distinction. These items were excluded from the experimental set, but kept as fillers, in order to balance the larger number of tense items.
chosen for each item.

(13)  **Indicative/participial intransitive**

Mary-lu ani-i-lauk-Kuguk ulla natlugu. Kâ-liaKi-lauk-Kuguk

Mary-and go.out-be.at-DPST-INDIC.1D day whole hungry-become-DPST-**INDIC.1D**

‘Mary and me were out all day. We two got hungry’

*Question:* Who got hungry?

*Correct answer:* both Mary and me/the speaker

(14)  **Indicative/participial transitive**


father-POSS.1SG.SG-and caribou-AP-DPST-INDIC.1D shoot-DPST-**PART.3SGSUBJ.3SGOBJ**

‘My father and me saw a caribou. He shot it.’

*Question:* Who shot the caribou?

*Correct answer:* father

5.3  **Results: Agreement**

In the transitive agreement condition, HRBs’ performance was close to that of FBs, and LRBs had very low scores. However, in the intransitive agreement condition, performance in all groups - including FBs - was very low; such a result was due to the item design and processing (see below), and does not reflect knowledge. Therefore, the intransitive agreement condition was excluded from further analysis. Table 10 shows mean number of correct answers in the two agreement-testing conditions; there was a total of eight items in the transitive condition, and 12 in the intransitive condition. Figure 7 shows mean percentage of correct answers.

*(table 10 here)*

*(Figure 7 here)*
HRBs’ performance in the transitive agreement condition was different from chance. Since each transitive agreement morpheme marked both the subject and the object, and each item contained one competitor for the subject and one competitor for the object, there were four possible combinations of the subject and the object, therefore, chance was 1 out of 4 (25%). The Wilcoxon test comparing HRBs’ performance to chance was significant, \( V=153, p=0.00029 \).

A logistic regression on FBs' and HRBs' data in the transitive agreement condition showed no significant difference between the groups (coefficient estimate for fluency 0.59, standard error 0.41, \( p=0.15 \)). Six HRBs performed at the level of the majority of the FBs (100% correct answers or no more than one error). LRBs, most of the time, answered incorrectly or did not know the answer.

5.4. Discussion

Most HRBs understand person features encoded by transitive agreement markers on the verbs that agree with both their subjects and their objects. This is particularly interesting given that object-verb agreement does not exist in English, and even for subject-verb agreement, English has an impoverished agreement marking system. Therefore, absence from the dominant language is not a sufficient condition for attrition of a feature or failure to acquire it. LRBs, as in other conditions, did not show any comprehension of transitive agreement morphemes.

However, the results in the intransitive agreement condition were not informative because of very low FBs' performance. The reason is likely that the items might not sound natural. After the testing was done, one of the language consultants reported that it is preferable to repeat the antecedent rather than use a null subject with intransitive agreement. Work with the other consultants conducted at the same time as testing suggests that when an argument is pronominal/null, an ergative construction is preferable.
6. General discussion and conclusion

This study showed that, despite severe difficulties with speech production, the knowledge underlying HRBs' comprehension in their HL is not limited to content morphemes - it includes grammar, as demonstrated by their successful comprehension of features encoded by agreement, aspect, and tense morphemes. HRBs possess neither merely residual knowledge of the HL nor full knowledge accessible only in comprehension. Not all semantic features of functional morphemes are part of HRBs' grammar. The features that HRBs can access in comprehension include subject-object-verb agreement in person and number, pluractional aspect, ingressive/progressive aspect, and the past/future contrast in tense morphemes. This is especially impressive given that these properties have been affected in intermediate proficiency HSSs of at least some heritage languages. Features associated with remoteness degrees in tense morphemes (not tested in previous HL studies) are accessible only to the most proficient HRBs. Other HRBs' grammars contain partial representations for tense morphemes. This suggests a possibility of more features missing from HRBs' linguistic system for Inuttitut. Importantly, the number of participants and items was sufficient to establish reliable similarities and differences between the fluency groups, and demonstrate difference from chance.

Negative borrowing is not inevitable. Even a feature not supported by the dominant language can be successfully acquired and maintained, even at such a low proficiency level – as evidenced by HRBs' comprehension of person and number features of objects in subject-object-verb agreement. The most difficult semantic features for HRBs - the remoteness features of tense morphemes – are non-existent in English, but, more importantly, they are involved in fine-grained contrasts dependent on more basic contrasts. The fine-grained contrasts are acquired only after the more basic contrasts are in place.
It is possible that some RBs never acquired remoteness because of insufficient input. More clues – and hence more contexts - are needed for a child to figure out that a morpheme encodes how far in time an event occurs than to figure out that it encodes, for example, that an event already happened. In contrast, verbs with object agreement in Inuittitut always come after the object was referred to by an overt nominal, and thus features of an agreement morpheme are easier to acquire. It is also possible that remoteness features were acquired, but then attrited. Reduced HL use results in its lower activation; therefore access to its features slows down. With more reduction, access becomes more difficult, and some features may become inaccessible. (Frequency of activation, however, is not enough to explain the difference between time and remoteness: These features are encoded by the same morphemes and thus have the same frequency.)

The two RB groups - HRBs and LRBs - divided on the basis of their self-assessment performed differently on the morpheme comprehension task, and their performance corresponded to their self-assessment and results in other tasks. HRBs, who described themselves as understanding most of what they hear but not speaking, actually demonstrated good comprehension, though missing certain parts. While HRBs as a group were not statistically different from FBs, it was a continuum, from the strongest ones who performed exactly as FBs in comprehension to the weakest ones whose performance sometimes was close to that of LRBs, and including those in-between, whose performance was inconsistent (better than chance, but worse than the control group, i.e. sometimes a given feature was recognized, sometimes not). LRBs are unable to access any of the semantic features introduced by the functional morphemes tested here, and this is one reason for the dramatic difference between them and HRBs in self-assessment of comprehension. Still, it cannot be said that LRBs' knowledge is exclusively lexical: Sherkina-Lieber et al. (2011) demonstrated knowledge of the case marking
requirement and the position of agreement markers in the same group of LRBs (but not knowledge of features encoded by case and agreement markers). HRBs and LRBs overall do not differ in acquisition history, but do differ in current language use, which may be both a cause and an effect of more attrition in LRBs. However, an extremely low level of proficiency – such as in LRBs – typically results from attrition in childhood (Montrul, 2008). Differences in proficiency between RBs can be due to quantity and quality of input and use from birth to the present time, and possibly to individual differences in language processing.

Is a HL grammar of this sort incomplete or just different? While a divergent grammar that still allows to encode any message without disruptions in communication can be seen as different in the same way as a different dialect, in the case of RBs (especially LRBs), it is clear that their grammar does not serve them in the same way a full grammar would. Tendencies in HS – production skills below comprehension skills, slow speech rate, long pauses, errors, failure to express an intended message – are magnified in RBs, making speech production too effortful. In the interviews, RBs reported frustration over their difficulties to express messages in Inuttitut, naming “putting words together” (i.e. application of morphosyntactic knowledge) as their biggest challenge. Some also demonstrated their awareness of what is missing from their grammar: “I don’t get tenses, or whether it’s ‘us’ or ‘them’“. Not all this is due to incompleteness of RBs’ grammar; certain aspects are due to processing difficulties. In comprehension, RBs’ differences from FBs show in two ways: inconsistent recognition of features and missing features.

Inconsistent recognition suggests the same knowledge of a given aspect of grammar as in fluent speakers. That part of the grammar is neither incomplete nor different. The problem here is processing, not representation.

In other cases, features present in the input are consistently missing from RBs’ grammar, and this makes their grammar incomplete, compared to the input grammar. A lack of a feature
that distinguishes two morphemes creates ambiguity in comprehension and indeterminacy in production (e.g., two morphemes encoding past tense, without indication of which to select). The more such features are missing, the harder it is to comprehend and produce speech.

Thus, the differences between RBs and FBs are partly due to incomplete grammar, partly to processing difficulties, depending on the linguistic variable and the proficiency level. The same feature may be intact in one RB, inconsistently accessed in another, and missing in yet another, systematically depending on the proficiency level. Similar results have been found with case (Polinsky, 2006) and aspect (Laleko, 2010) in Russian HSs.

This study contributes data not only on a new population (RBs), but also on a new language. Inuittitut is very different typologically from better-studied HLs, and this study provides data on linguistic variables not previously explored in HSs. Future research on receptive bilingualism needs to look at more linguistic variables that differ in their properties, across different languages.

These results are also relevant for language revitalization programs. One of the main goals of such programs is to increase the number of speakers through teaching the language. HRBs possess knowledge of their ancestral language that gives them an advantage over novice learners. Finding out which linguistic properties are problematic for RBs can make teaching RBs more effective by focusing on such properties.

To summarize, HRBs comprehend many semantic features encoded by functional morphemes, but features that depend on other features may be missing from their grammar. Where RBs' comprehension is deviant, it is explained by incompleteness of certain parts of their grammar, and reduced access to other parts.

References


### Tables

**Table 1: Mean number of correct answers in the time contrast**

<table>
<thead>
<tr>
<th></th>
<th>distant future (SD)</th>
<th>same-day future (SD)</th>
<th>distant past (SD)</th>
<th>same-day past (SD)</th>
<th>Total (SD)</th>
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<tbody>
<tr>
<td>FB</td>
<td>4.88(0.35)</td>
<td>4.88(0.35)</td>
<td>4.88(0.35)</td>
<td>3.25(1.49)</td>
<td>17.9(1.64)</td>
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<td>HRB</td>
<td>4.29(1.21)</td>
<td>4.47(1)</td>
<td>4(1.23)</td>
<td>3.59(1.06)</td>
<td>16.35(3.45)</td>
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<td>LRB</td>
<td>1.33(1.16)</td>
<td>1.67(0.58)</td>
<td>3.67(1.16)</td>
<td>2.33(0.58)</td>
<td>9(3)</td>
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**Table 2: A logistic regression on the time contrast data**

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<th>Estimate</th>
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</thead>
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<tr>
<td>(Intercept)</td>
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<td>0.14</td>
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<td>time (past)</td>
<td>-0.0004</td>
<td>1.55</td>
<td>0.99</td>
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<tr>
<td>remoteness (same-day)</td>
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<td>0.99</td>
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<td>1.61</td>
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<td>fluency * remoteness</td>
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<tr>
<td>fluency * time * remoteness</td>
<td>-2.43</td>
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<td>0.23</td>
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**Table 3: Effect of fluency for each condition in the time contrast data**

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**Table 4: Mean number of correct answers in the remoteness contrasts**

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<th>same-day future (SD)</th>
<th>distant past (SD)</th>
<th>same-day past (SD)</th>
<th>Total (SD)</th>
</tr>
</thead>
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<tr>
<td>FB</td>
<td>4.63(0.52)</td>
<td>4(1.69)</td>
<td>4.38(1.06)</td>
<td>4.88(0.35)</td>
<td>17.88(2.36)</td>
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<td>3.59(1.46)</td>
<td>2.88(1.93)</td>
<td>2.65(1.77)</td>
<td>3.94(1.3)</td>
<td>13.06(4.71)</td>
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<td>LRB</td>
<td>2(1.73)</td>
<td>2.67(1.53)</td>
<td>1.33(1.53)</td>
<td>3.33(1.16)</td>
<td>9.33(3.79)</td>
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Table 5: A logistic regression with a three-way interaction on the remoteness contrasts data

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<td>1.59</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Table 6: A logistic regression with fluency + time * remoteness on the remoteness contrasts data

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>-3.28</td>
<td>0.63</td>
<td>&lt; 0.00001</td>
</tr>
<tr>
<td>fluency (receptive)</td>
<td>2</td>
<td>0.64</td>
<td>0.0019</td>
</tr>
<tr>
<td>time (past)</td>
<td>1.04</td>
<td>0.43</td>
<td>0.015</td>
</tr>
<tr>
<td>remoteness (same-day)</td>
<td>0.94</td>
<td>0.43</td>
<td>0.029</td>
</tr>
<tr>
<td>time * remoteness</td>
<td>-2.57</td>
<td>0.63</td>
<td>&lt; 0.00001</td>
</tr>
</tbody>
</table>

Table 7: Effect of fluency for each condition in remoteness contrast data

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>distant future</td>
<td>2.25</td>
<td>1.04</td>
<td>0.03</td>
</tr>
<tr>
<td>same-day future</td>
<td>1.89</td>
<td>1.27</td>
<td>0.14</td>
</tr>
<tr>
<td>distant past</td>
<td>2.85</td>
<td>1.06</td>
<td>0.007</td>
</tr>
<tr>
<td>same-day past</td>
<td>2.88</td>
<td>1.67</td>
<td>0.088</td>
</tr>
</tbody>
</table>

Table 8: Mean number of correct answers in the habitual/one-time contrast
### Table 9: Mean number of correct answers in the progressive/perfective contrast

<table>
<thead>
<tr>
<th></th>
<th>FB</th>
<th>HRB</th>
<th>LRB</th>
<th>Total(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>habitual:-\textit{Katta}- present (SD)</td>
<td>5.63(1.77)</td>
<td>5.24(1.89)</td>
<td>1(1.73)</td>
<td>12.13(1.96)</td>
</tr>
<tr>
<td>one-time: -\textit{Katta}- absent (SD)</td>
<td>6.5(0.89)</td>
<td>6.24(1.3)</td>
<td>5.33(0.58)</td>
<td>11.47(2.74)</td>
</tr>
<tr>
<td>Total(SD)</td>
<td>12.13(1.96)</td>
<td>11.47(2.74)</td>
<td>6.33(1.53)</td>
<td>12.13(1.96)</td>
</tr>
</tbody>
</table>

### Table 10: Mean number of correct answers for the agreement items

<table>
<thead>
<tr>
<th></th>
<th>Transitive(SD)</th>
<th>Intransitive(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB</td>
<td>6.75(0.71)</td>
<td>5.75(1.91)</td>
</tr>
<tr>
<td>HRB</td>
<td>6.06(1.14)</td>
<td>6.18(2.04)</td>
</tr>
<tr>
<td>LRB</td>
<td>2.67(0.58)</td>
<td>0.67(0.58)</td>
</tr>
</tbody>
</table>
Figure 1. Percentage of correct answers in the time contrasts.
Figure 2. Percentage of correct answers in the remoteness contrasts.
Figure 3. Semantic features of tense morphemes in full Labrador Inuttitut.
Figure 4. Semantic features of tense morphemes in heritage Labrador Inuttitut.
Figure 5. Percentage of correct answers in the habitual/one-time contrast.
Figure 6. Percentage of correct answers in the progressive/perfective contrast.
Figure 7. Percentage of correct answers for the agreement items.