This paper is an analysis of the –llu construction in Inuktitut. As noted by Johns and Smallwood (1998; 1999), this construction has been given many labels, such as participial (Harper 1974), conjunctive (Lowe 1985), gerundial (Bok-Bennema (1991), contemporative (Campana 1992), infinitive (Bittner 1994; Manning 1996), and non-finite (Murasugi 1992; Bobaljik 1993). In this paper I analyze the –llu morpheme as a Same-Subject (SS) switch-reference (SR) marker.1

Jacobsen (1967) states that SR “consists simply in the fact that a switch in subject or agent… is obligatorily indicated in certain situations by a morpheme, usually suffixed…” (p. 240). Examples of canonical SR from Maricopa (a Yuman language) taken from Gordon (1983) are given in (1) and (2).

(1) SS: Nyaa ‘– ashvar- k ‘ iima- k
1 1 sing SS 1 dance aspect
‘I sang and I danced.’

(2) DS: Bonnie -sh Ø-ashvar - m ‘ – iima -k
Bonnie subj. 3 sing DS 1 dance aspect
‘Bonnie danced and I sang.’

In (1) the SS morpheme – k appears and the subjects of the two clauses are necessarily coreferential. In (2) the Different Subject (DS) morpheme – m appears and the subjects are necessarily disjoint in reference.

The –llu morpheme in Inuktitut is always found on the verb of a subordinate (adjoined) clause, henceforth called the marked clause. When a verb is marked with this morpheme its subject must be identical in reference to the subject of the matrix clause, as exemplified in (3).

1 Thank you to Alana Johns, Diane Massam, Elizabeth Cowper, Michael Barrie, Jila Ghomeshi and members of the University of Toronto Syntax Project for their helpful comments on this project. Also I am grateful to the Inuktitut speakers I worked with who made this research possible. All errors are my own. This research is partially funded by SSHRC grant #410030887 and by the Northern Scientific Training Program.

i In fact, the SR constructions discussed in this paper seem to be undergoing rapid change. Older speakers of the North Baffin dialect Mittimatilik use the constructions as described in grammars like Harper (1974) and in this paper, but younger speakers have a different pattern of use. This paper is part of on-going research that aims to determine the extent of and reasons for the changes as well as to describe and analyze how the constructions are being used by younger speakers. The changes will not be discussed in this paper.

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(3) Alana-up ujagak atja-thu-gu ani-vuk
    Alana-erg rock-abs carry-llu-3s go.out-intr.indic.3s
    ‘While Alana was carrying the rock, she went out.’ (Labrador²)

Unlike prototypical SR systems, Inuktitut does not have a DS construction. Instead, the SS construction in (3) contrasts with a construction, marked with –ti + - llu, where the subjects can be disjoint in reference or not (henceforth the Open-Reference (OR) construction).

(4) pisuk-ti-llu-ta ipipi-lauq-tuq
    walk-ti-llu-1s. sing-d.past-3s.
    ‘While I was walking, he was singing.’

(5) pisuk-ti-llu-ta ipipi-lauq -tuq
    walk-ti-llu-1s. sing-d.past-1s.
    ‘While I was walking, I was singing.’ (Mittimalalik³)

Stirling (1993) shows many differences of this kind between SR systems cross-linguistically. She argues that an analysis within Binding Theory, such as Finer (1985), cannot account for these differences and thus cannot account for SR. In this paper I show that it is possible to account for some of the variation we see among SR systems within Binding Theory.

1. **Analysis of Inuktitut SR**

I adopt the analysis of SR proposed by Déchaine and Wiltschko (2002). Their analysis easily accounts for prototypical systems. We will see that a modification to their analysis allows it to also account for the Inuktitut system. This modification is not meant to extend to all SR systems. Instead, the modification shows that we can account for some of the differences between SR systems by allowing the binding-theoretic status of the SR morphemes to vary from one language to another. The account proposed for Inuktitut not only explains the coreference facts but also other particular aspects of the SR constructions in the language, namely their unusual tense and agreement patterns.

1.1 **Déchaine and Wiltschko (2002)**

Déchaine and Wiltschko (2002) develop a theory of pronoun types. They give three types, only two of which are relevant here: Pro-DP and Pro-∅P. Pro-DPs act as R-Expressions that cannot be bound and Pro-∅Ps as variables that must be bound by an operator. Déchaine and Wiltschko briefly show that this distinction also holds of X₀-agreement. They use SR to illustrate.

² All Labrador examples are taken from Johns and Smallwood (1999).
³ Examples from Mittimalalik, a dialect spoken in North Baffin Island, and from Baffin dialects generally, are taken from my own fieldwork unless otherwise noted.
They propose that DS marking is D-agreement and SS marking is φ-agreement. DS marking is thus an R-expression which cannot be bound by any c-commanding element of the matrix clause. Different subjects is the result.

SS marking is φ-agreement and is thus a variable that must be bound by an operator. The relevant operator is the tense of the marking clause. They propose that SS marking is only licensed when the Ts of the two clauses are coindexed. They claim that each subject is coindexed with its respective Tense via specifier-head agreement. The same-subject orientation results by transitivity: each subject is coindexed with its Tense and the Ts of the two clauses are coindexed. The subjects are then necessarily also coreferential.

Inuktitut does not have a DS construction but instead has an OR construction. We cannot analyze the OR morpheme(s) as an R-expression because the morphemes are sometimes bound (in sentences where –ti + -llu occurs but the subjects are coreferential, as in (5)). The simple solution would be to state that Inuktitut –llu is an SS variable but that the language lacks a contrasting R-expression. However, -llu occurs in the OR as well as in the SS construction. What is its role in this construction and what is the role of –ti?

These questions will be answered in the following sections.

1.2 Clause Structure

The clause structure adopted in this analysis uses insights from Levin and Massam (1985) and is based on the structure given by Bobaljik (1993) for Inuktitut, Massam (2001) for Niuean and by Bejar (2003) for ergative languages generally. The idea is that absolutive case is the case that must be assigned in every clause and it is always assigned by v.

In transitive clauses, the prototypical agent (A) is merged in spec-vP and moves to spec-TP where it is assigned ergative case. The object (O) is merged as the complement of V and moves to spec-vP where it is assigned absolutive case. In unaccusative clauses, the sole argument (S) is merged as the complement of V. v has the sole set of φ-features available from the numeration (Bejar (2003) claims that a single set of φ-features will merge as soon as possible, thus in v rather than T). The S argument moves to spec-vP where it is assigned absolutive case. In unergative constructions, the S argument is merged in spec-vP. v has the sole set of φ-features. It probes its complement but does not find a match. It expands its search domain to include its specifier (Rezac 2003; Bejar 2003). The S argument is then assigned absolutive case.

I also assume that the S argument in intransitives moves from spec-vP to spec-TP to satisfy an EPP requirement. This EPP feature is needed because, in ergative SR languages like Inuktitut, it is the A and S arguments that are involved in the co/disjoint reference relation (Stirling 1993). (6) shows an ergative marked A argument cross-referenced by SR with an S argument, (7)

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4 This is a valid claim for any analysis of SR since, in many languages, the marked clause is dependant on the controlling clause for tense (i.e. tense is not marked on the SR marked clause). Also, in some languages, if the tenses of the two clauses are distinct SS marking is not possible (Stirling 1993).
shows two A arguments cross-referenced and (8) shows an S argument cross-referenced with the sole argument of a passive.

(6) Alana-up ujagak atja-\textit{tlu}-gu ani-vuk  
    Alana-erg rock-abs carry-\textit{llu}-3s go.out-\textit{intr.intr.3s}  
    ‘While Alana was carrying the rock, she went out.’  

(7) taku-\textit{tlu}-gu tuså-laut-taga  
    see-\textit{llu}-3s hear-d.past.intr.part.1s/3s  
    ‘While I saw it, I heard it.’ (Labrador)  

(8) uumasuq pikin-naviir-\textit{lu}-gu qilirsur-niqar-pu-\textit{q}  
    animal kick.about-prevent-\textit{llu}-3s tie.up-pass-intr.indic.3s  
    ‘While the animal was kicking about (prevented from), it was tied up.’  
    (West Greenlandic, Manning 1996)  

The EPP feature ensures that it is the S and A arguments that are relevant to SR by virtue of being in the same structural position. We will see that it is the specifier of TP that is responsible for this relation.

In contrast, if A and S arguments check features in different positions, we are able to account for the agreement facts in this construction. In Inuktitut the verb usually agrees with both the A and O arguments of a transitive clause.

(9) anguti-up arnaq kunik-taa  
    man-Erg woman(Abs) kiss-Part.3sg/3sg  
    ‘The man is kissing the woman.’ (Mittimatalik, Spreng 2001)  

In a transitive SS construction, the verb agrees solely with the O argument.\footnote{Actually, the verb in the SS construction sometimes agrees with the A argument: it agrees with third person A arguments. However, the form of this agreement morpheme is not the usual third person agreement marker. Instead, it is homophonous with a third person reflexive in the language (Johns 1996). Pittman (2005) analyzes this morpheme as a long-distance anaphor that establishes a link with the subject of the matrix clause. It is thus not true agreement and we can maintain that A agreement is deficient in this construction.}

(10) Arna-p atisassat irurr-\textit{lu-git} irinarsur-pu-\textit{q}  
    Woman-erg clothes(Abs) wash-\textit{llu}-3p sing-intr.indic.3s  
    ‘While woman was washing the clothes, she sang.’  
    (West Greenlandic, Bittner 1994)  

As in (4) and (5), S agreement is not deficient in SS constructions. S/O agreement and A agreement thus behave differently in SS. This is explained if they check φ-features in different positions.

Johns and Smallwood (1999) explain the deficient A agreement by saying that the information is recoverable from the matrix clause. They claim that –\textit{llu}
absorbs the A agreement. The A argument is not licensed through agreement but through the discourse resulting in the coreferential subject effect.

There are two problems with this explanation. First, we see agreement with the S argument even though this information is also recoverable from the controlling clause, as in (4) and (5). This leads to the second problem, what is the function of –llu in intransitive clauses? It is not absorbing agreement nor is it allowing an argument to be licensed through the discourse. The S argument is licensed by the agreement and yet it still must be coreferential with the subject of the other clause. The coreferentiality here is then not a result of discourse licensing. It is therefore not clear why the S argument must be coreferential with the subject of the matrix clause. An alternate explanation for the deficient agreement in transitive –llu clauses will be offered in the following section.

1.3 The Inuktitut SS Construction

In this section the structural position of –llu, its function and the deficient agreement will be discussed. Following Déchaine and Wiltschko, I analyze the –llu morpheme as a variable bound by a tense operator. However, contrary to their account, I propose that –llu is found in the head of TP of the marked clause and is bound by the matrix tense operator.

As noted by Johns and Smallwood (1999), the Inuktitut –llu construction does not have tense morphology.

(11) ili-lau-kKise
    learn-d.past-intr.interrog.2p
    ‘Did you (pl) learn?’

(12) pisu-___-tlu-tik kata-kKau-jâtik
    walk-___-llu-2d drop-r.past-trans.part.2d/3s
    ‘When you two were talking you dropped it.’      (Labrador)

They analyze –llu as a mood morpheme, like the interrogative shown in (11). These examples show that there is a tense slot in constructions like the interrogative, found between the mood marker and the root. In (12) this slot is empty. The –llu clause is interpreted as being simultaneous to the matrix clause (‘you dropped it’), marked recent past. If –llu is in T, we have an explanation for why tense morphology does not surface: the position is filled by –llu.

That –llu is bound by the matrix clause T instead of by the marked clause T is supported by another of Johns and Smallwood’s observations. They state that in some dialects –llu makes a morphological distinction based on the tense/mood (±future) of the matrix clause.

(13) ani-llu-ni quţa-ttuk
    exit-llu-3s smile-intr.part.3s
    ‘Exiting, he smiles’
It is thus not the case, as Déchaine and Wiltschko claim for other SR languages, that the variable’s insertion context involves the two Ts being coindexed. We would then expect independent tense morphology on the marking clause. Instead, it seems that the form –llu takes depends on the tense specifications of the matrix clause. It is more likely that the variable –llu is merged in T of the marked clause and is bound by the matrix Tense operator. The structure I propose for the Inuktitut SS construction is given in (16).

As for Déchaine and Wiltschko, I assume that Tense becomes coindexed with its specifier through spec-head agreement. When A arguments move to spec-T and are assigned ergative case, T becomes coindexed with the argument. I assume that any checking relationship establishes the coindexing relation. Thus, when S arguments move to spec-TP to satisfy the EPP, coindexing occurs. The same-subject orientation of the construction results because the matrix T, which is coindexed with its subject (A or S argument), binds the variable –llu, which is merged in T of the marked clause and is coindexed with its subject. Due to the binding relation between these elements, it is necessary that their indices are identical. It is therefore necessary that their subjects are identical. This explains why the Inuktitut SS construction requires that it is the A argument of transitive clauses and the S argument of intransitive clauses that must be coreferential.

Merging –llu in T of the marked clause can also explain the deficient A agreement. Following Déchaine and Wiltschko, I have claimed that –llu is a
variable. A variable is an empty place-holder waiting to get its value from its binder. It thus cannot have any features of its own. For this reason, I propose that –llu is the instantiation of a deficient T. It has an EPP feature which will attract an active D/NP and license it but will not check its φ-features. This results in the deficient A agreement. Full agreement occurs with S and O arguments because they check φ-features in vP, which is not deficient in this sense.

1.4 The Inuktitut OR Construction

As discussed above, Déchaine and Wiltschko’s analysis of SR cannot straightforwardly account for the system in Inuktitut because it is different from prototypical SR: Inuktitut does not have a DS construction but instead contrasts SS with OR. Inuktitut therefore does not have a DS R-expression. Instead, we need an account for the OR construction that explains the appearance of the –llu variable and the additional –ti morpheme.

Johns and Smallwood (1998) analyze the OR morpheme –ti as a delinker, which severs the discourse link between the two clauses. Using this intuition, I propose that –ti is an operator in C of the marking clause that is capable of binding –llu. –llu is then not bound by the matrix Tense operator in this construction. The Tenses of the two clauses are thus not linked (the relationship is severed by -ti) in the OR construction. The structure I propose for the OR construction is given in (17).

There are three reasons for claiming that –ti is in C. First, if Johns and Smallwood are correct, the role of –ti is to introduce a clause that is in some sense independent of the previous discourse. This is a function that could be filled by an element in CP. Second, Finer (1985) proposed that SR morphemes
are located in C (and that the INFL-AGR-C complex is the joint head of S’). Third, speakers of Inuktitut often claim that –ti means *while*, which is an element in English normally housed in CP.⁶

There is also a reason to suppose that –llu is not bound by the matrix tense operator in the OR construction but is instead bound by –ti. Recall from examples (13) – (15) that –llu reflects the tense/mood of the matrix clause in the SS construction. This does not occur in the OR construction. Instead, –llu is invariable in the OR construction and thus seems to be independent of the matrix clause tense specifications.

(18) Taami sinik-ti-llu-gu ani-lauq-tuŋa
    Taami sleep-ti-llu-3s exit-past-intr.indic.1s
    ‘While Taami was sleeping, I went out.’

(19) Taami sinik-ti-llu-gu ani-llaq-tuŋa
    Taami sleep-te-llu-3s exit-future-intr.indic.1s
    ‘While Taami is sleeping, I will go out.’ (Baffin, Mallon 1991)

This is what we expect if –llu is not bound by the matrix tense operator in the OR construction.

Furthermore, Inuktitut speakers interpret the marked clause in the OR construction as simultaneous to the matrix clause, as they do in the SS construction, despite the lack of tense/mood reflection in OR. If –llu is bound by –ti, which has the temporal meaning *while*, we can explain the simultaneous interpretation.

There is a further reason to suppose that –llu is bound by –ti in the OR construction. As Johns and Smallwood (1998) discuss, transitive marked clauses are prohibited in this construction. My consultant refuses the sentence in (20) and instead insists on the antipassive in (21).

(20) *ujarar uasa-ti-llu-gu ippër-niar-tutit
    rock     wash-ti-llu-3s sing-fut-indic.2s
    ‘While I’m washing the rock, you will sing.’

(21) ujarar-mik uasar-si-ti-llu-tə ippër-niar-tutit
    rock-obl wash-AP-ti-llu-1s sing-fut-indic.2s
    ‘While I’m washing the rock (oblique), you will sing.’ (Mittimatalik)

Interestingly, Nichols (1997) claims that the SS morpheme in Zuni constructs a tighter link between clauses, established at the IP level, and that the DS morpheme constructs a looser link, established at the CP level. This explains why DS morphology is sometimes used in Zuni (based on certain aspectual considerations) when the subjects have the same reference. The position of –ti in CP may establish this looser link between the clauses. Tying DS with more structure and SS with less is also in line with the observation made by Déchaine and Wiltschko (2002) that DS morphemes are often augmented versions of SS morphemes, as we see with Inuktitut’s –ti + -llu. And often, SS morphology is null and only DS morphology is marked.
The antipassive in (21) demotes the object to an oblique. The subject is then the sole argument of an intransitive construction and the verb agrees with it.

If –llu is bound by –ti in this construction, -llu is only able to bear indices that are compatible with those of -ti. –ti is a temporal element which does not have a referential index, nor does it enter into a checking relation with a referential element. If an argument enters into a checking relation with –llu, -llu would obtain a referential index. Any derivation where this occurs would crash since –llu would have an index that is incompatible with the indexation of its binder. Transitive clauses are thus not permitted in this construction since A arguments necessarily enter into a checking relationship with T to become licensed, which would lead to illicit indexation on –llu. Having –ti act as the binder for –llu in the OR construction therefore explains why transitive sentences are not permitted in the marked clause of this construction.

While intriguing, this explanation does have a problem. It was claimed above that T has an EPP feature which is checked by S arguments in intransitive constructions. This checking relation was assumed to result in T becoming coindexed with the S argument. We therefore should predict that intransitive constructions are also illicit in the OR construction. We can solve this problem by saying that –llu, in both the SS and the OR constructions, is not only deficient in terms of φ-features but in terms of all features. Then it also would not have an EPP feature. In the SS construction, the EPP feature on the marked clause comes from the binder, the matrix tense operator. In the OR clause, -ti does not have an EPP feature and so –llu, in the marked clause T, does not have one either. S arguments are licit in the OR construction since they are licensed by v. A arguments are not permitted because licensing them results in illicit coindexion.7

The above section has presented an analysis for Inuktitut SR that is based on the account proposed by Déchaine and Wiltschko in that the SS morpheme is a variable bound by a tense operator. Inuktitut differs from the languages they discuss in that it does not have a contrasting R-expression found in a DS construction. Instead, Inuktitut has an OR construction containing an additional morpheme, -ti, which serves to bind the variable. The relationship between the two clauses is thus severed and the subjects of the two clauses are free to corefer or not. In the following section we will see that this analysis has implications for how we view SR cross-linguistically.

7 Pittman (2005) instead proposes that the marked clause in the OR construction is a non-finite. It does not have an independent tense specification nor does it reflect the tense of the matrix clause. It is therefore specified as [-TNS]. Both the SS and the OR constructions are specified as [-AGR], due to their deficient agreement properties. The subordinate T in the OR construction is thus [-TNS, -AGR], the specification given by Haegman (1985) for ordinary infinitives. If the OR marked clause is actually non-finite, this might explain why it cannot have an A argument and why T does not have an EPP feature. See footnote 10 of Pittman (2005) for further discussion of the similarities between non-finites and SR in Inuktitut and cross-linguistically.
2. Conclusion and Implications for SR Cross-Linguistically

Stirling (1993) claims that a binding-theoretic account of SR cross-linguistically, such as Finer’s (1985), is not possible. Her reason for this claim is that so many SR systems differ from the prototypical description of the phenomenon and that a binding-theoretic account can only account for SR systems that fit this description. For instance, prototypical SR is a relation between a matrix and subordinate clause which is marked on the subordinate clause. But there are languages like Pitjantjatjara, a dialect of the Australian Western Desert language, which have SR marking in coordination constructions. Pitjantjatjara marks SR with an independent morpheme which also contains the general meaning of ‘and’ associated with conjuncts (Stirling 1993).

(22) Palunyalu junku junku nyangka nyuma purlkarriku
     and.SS put-Fut put-Fut and.DS cake-Abs become.big-Fut

ka paalku ka jilka ngamu ngarranyjamaalpa
     and.DS cook-Fut and.DS child-Abs near not.stand

‘and (they) would put (it) out and the cake would spread and they would
cook (it) and the children would not stand by.’ (Austin 1980)

Stirling views SR in coordination structures as problematic to an account
within Binding Theory because she assumes that conjunction is symmetrical and
thus that it would be impossible for a binding relation to be established between
the conjoined clauses (since neither conjunct dominates the other). However, if
coordination is hierarchical, as proposed by Munn (1993), the problem is easily
resolved. Other structural differences between SR systems that Stirling discusses
can likely be given similar solutions.

More difficult to address are Stirlings concerns about systems, like
Inuktitut’s, that do not have a strict DS construction. It is perhaps true that we
cannot maintain a unified binding-theoretic account of SR that accounts for
systems like Inuktitut’s while also accounting for prototypical systems. However,
if we allow the binding-theoretic status of the morphemes to differ from one
language to another, we can account for some of the variation we see between
languages. This has been demonstrated for Inuktitut above. It is conceivable that
a similar approach could be used to account for languages that have a pattern
that is the reverse to Inuktitut’s. For instance, Dargi, a language of the Northeast
Caucasus, contrasts DS with OR (Nichols 1983).

(23) Ø raj  ha’ib  gal aqrhic”’ij
     word  said.OR8 boy got up

‘(someone,ij) having spoken, the boy, got up.’

8 Note that I have added OR and DS to the gloss. These terms did not appear in Nichols’
examples.
(24) Øraj ha’ib-mu:til gal aqhic’’ij
     word said-when.DS boy got up
     ‘when (someone) spoke, the boy got up.’

To account for the Dargi data, we might say that the language only has a DS R-expression but does not have a contrasting variable. In this way, the system is still accounted for within Binding Theory and the difference between Dargi and prototypical systems is no longer problematic.

Other solutions may be necessary to account for systems that differ from prototypical SR in different ways. For instance, the SR system of Amele uses not only the notion of subject but of agent in determining which SR morpheme is used. In this system, DS does not signal “new subject” but instead “new agentive subject” (Stirling 1993). To account for Amele we might want to change the position in which the SR morphemes are found. Instead of being in T and establishing a relation with the subject, they may be positioned in v.

This means that a truly unified binding-theoretic account of SR is likely impossible, however we must wonder if it is even desirable given the differences we see between the systems. It is instead preferable to have an analysis of the phenomenon that uses the same general tools while allowing for language-specific variation. I therefore propose that we can account for both prototypical and non-prototypical SR systems within Binding Theory if we allow for the binding theoretic status, and perhaps the position, of the SR morphemes to vary from one language to the other.

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