



Local Object Scrambling in Sinhala: Evidence for A-bar Movement

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ABSTRACT

This paper provides an analysis of local object scrambling that generates the Object (O), Subject (S), and Verb (V) word order in Sinhala, an Indo-Aryan isolate spoken in Sri Lanka. Even though it has been generally assumed in limited generative literature on Sinhala that its OSV word order is derived through constituent scrambling, no prior study has systematically investigated the nature of the operation responsible for its derivation. This study reveals that local object scrambling (OSV) in Sinhala results from the syntactic merge, and it is uniformly an A-bar movement operation. The evidence comes from binding, reconstruction and parasitic gaps, the diagnostics standard in generative syntactic literature on scrambling. The analysis has implications for a generative theory on scrambling, a phenomenon that has remained a problem for the Minimalist Syntactic approach.

KEYWORDS: *scrambling, Sinhala, OSV word order, A-bar movement*

1 INTRODUCTION

Sinhala, the Indo-Aryan isolate spoken in Sri Lanka, is a free word-order language (Chandralal 2010; Chou & Hettiarachchi 2016; Gair 1998; Kanduboda & Ananda 2016). In addition to its canonical word order— Subject (S), Object (O), Verb (V) — the language allows multiple word orders. This is illustrated by the following example from Kariyakarawana (1998, p.19)

- 1) senə lokualiyek dækka. (SOV)
Sena.NOM big elephant.ACC see.PAST
Sena saw a big elephant.
- 2) loku aliyek_i senə_t dækka. (OSV)
- 3) senə dækka loku aliyek. (SVO)
- 4) dækka senə loku aliyek. (VSO)
- 5) dækka loku aliyek senə. (VOS)
- 6) loku aliyek dækka senə. (OVS)

According to the general assumption in the Sinhala syntactic literature, the alternate word orders in Sinhala (2-6) are syntactically derived from the canonical SOV word order through constituent scrambling (Chandralal 2010; Chou & Hettiarachchi 2016; Gair 1998; Hettiarachchi 2015; Hettiarachchi 2021; Kariyakarawana 1998; Kishimoto 2005; Sumangala 1992; Tamaoka et al. 2011). Despite this assumption, the nature of the syntactic operation/s responsible for deriving the alternative word orders in Sinhala is less known in scarce generative syntactic literature on the language. For this reason, Kariyakarawana (1998, p. 31) writes: “If indeed Sinhala phrase structure is configurational, then ‘scrambling’ becomes something more than a ‘free word order’ phenomenon. One must, therefore, find the syntactic conditions under which ‘scrambling’ is possible.” A survey of literature on Sinhala during the last two decades shows that this phenomenon has still received minimum attention in generative syntactic literature on the language.

Therefore, this study, based on theoretical constructs in generative syntax (e.g., Bošković 2004; Bošković & Takahashi 1998; Dayal

1994; Karimi 2005; Kidwai 2000; Mahajan 1990; Miyagawa 2003, 2006 & 2009 and Saito 1989, 2004.), investigates the nature of the syntactic operation responsible for the derivation of the alternate word orders in Sinhala. Due to space limitations, the discussion is limited to the OSV word order in Sinhala.

The rest of this paper is structured as follows. Section 2 provides the theoretical framework and the literature review. Section 3 describes the methodology of the study. Finally, Section 4 analyses Sinhala scrambling data, while Section 5 presents the summary and conclusion.

2 THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Ross (1967) originally coined the term "scrambling" to refer to an 'optional' 'stylistic' movement operation found in German and some other languages. But currently, it is commonly used as a 'cover term' to introduce any operation/s that generate/s non-canonical word orders in free-word-order languages (Bailyn, 2002). In addition, as Bošković (2004, p. 618) rightly points out, in the current literature, the term “scrambling” is also used for “expository convenience” whenever authors either have doubts about the movement operation that they deal with or the operation under treatment is different from standard A or A-bar movement. A review of generative literature of the last two decades shows at least two major types of approaches to scrambling (Karimi 2005):

- A. Base Generation Approaches
- B. Movement Approaches

The main difference between the two approaches concerns whether scrambling in current terms involves the operation of *Merge* (External Merge) or *Move* (Internal Merge). According to Chomsky (1995; 2001; 2007 and 2012), *Merge* and *Move* are the two structure building operations of the human syntactic computational system. “Merge” refers to the

operation which takes two syntactic objects (α , β) and forms a new object K (α , β) out of them (Chomsky, 2001). Meanwhile, “Move” (internal merge) introduces the displacement of a constituent from one syntactic position to another in the same structure. By doing so, *Move* yields the appropriate structure for interpretation at the CI interface (Chomsky 2012). Even though in early minimalist literature (e.g., Chomsky 1995, 2001), *Move* was considered more complex than *Merge*, in the recent developments of the theory, they are considered two equivalent versions of the combinatorial operation of *Merge* (see Chomsky 2012). Authors proposing a base-generation approach to scrambling (e.g., Bošković & Takahashi 1998) assume that scrambled elements are base-generated in their surface positions. In contrast, the proponents of the movement approaches (e.g., Mahajan 1990) describe scrambling in terms of A and/or A’ movement operations, as well-attested in the syntax literature. In the following sub-sections, we discuss each approach in detail.

2.1 Base Generation Approaches

Bošković & Takahashi’s (1998) approach is possibly the most influential recent proposal for a base-generation approach to scrambling. Their proposal is further defended and elaborated in Bošković (2004). The study, primarily based on Japanese long-distance scrambling, provides empirical evidence to support the idea that the word order variation involving scrambling in Japanese results from the operation of an external merge.

Bošković & Takahashi’s (1998) main argument is that the widely held view in the literature that scrambling is an instance of overt optional movement in syntax (e.g., Harada 1977 and Saito 1985) is incompatible with Chomsky’s (1995 & 2001) *Last Resort Principle*: “an optional rule can apply only when necessary to yield a new outcome” (2001, pp. 34-35). To solve this issue of incompatibility, Bošković and Takahashi (1998) propose a novel analysis by which scrambling is assumed to involve the

base generation and obligatory LF lowering triggered by theta features. Following the work by Lasnik (1995) and Kim (1997), they assume that theta roles are formal features capable of driving LF (Logical Form) movement in syntax.

Their analysis is primarily based on the assumption that a ‘scrambled phrase’, e.g., *sono-hon-o* in (8), is directly base-generated in its surface position. But it is forced to undergo LF lowering to a position where it can receive its case and theta role. The LF lowering in this instance is obligatory because the derivation crashes at LF if the ‘scrambled object’ does not receive a case and a theta role. Thus, (7) & (8) given below have the same structure at LF.

- 7) John-ga [Mary-ga sono hon-o
katta to] omotteiru.
John-NOM Mary-NOM that book- ACC
bring.PAST that thinks
‘John thinks that Mary bought that book.’
- 8) Sono- hon-o_i John-ga [Mary-ga t_i katta
to] omotteiru.

Bošković and Takahashi (1998) believe that their analysis can readily account for a wide variety of scrambling data in Japanese that optional movement approaches fail to describe, including the absence of the wide-scope reading for the scrambled QP in the following sentence.

- 9) Daremo-ni;dareka-ga [Mary-ga t_i atta to
] omotteiru.
Everyone-DAT someone-NOM Mary-NOM
met that thinks
Everyone, someone thinks Mary met.’
 $\exists > \forall$; $*\forall > \exists$

According to Bošković and Takahashi (1998), the absence of the wide-scope reading for the scrambled QP ‘*Daremo-ni*’ (everyone) in (9) results from its obligatory LF movement to the embedded VP-complement position to be case and theta licensed. They assume that scrambling is semantically vacuous based on this undoing effect: “for semantics, scrambling does not exist” (p. 614). Bošković and Takahashi’s analysis also accounts for the

impossibility of adjunct scrambling in Japanese, an observation made in Saito (1985) and many others. This is illustrated by the contrast in (10 & 11):

- 10) Mary-ga [John-ga riyuu-mo
naku sono setu-o sinjiteiru to]
Mary-NOM John-NOM reason- even
without that theory-ACC believes that
'Mary thinks that John believes in that
theory without any reason.'
- 11) *Riyuu-mo naku_i Mary-ga [John-ga
t_isono setu-o sinjiteiru to].

Bošković and Takahashi (1998) postulate that (11) is ungrammatical due to the inability of the adjunct *Riyuu-monaku* to undergo LF movement to the embedded clause. Unlike scrambled arguments, whose movement is triggered by theta and case features, adjuncts have no motivation for obligatory LF movement in Bošković and Takahashi's lowering approach. So Last Resort prevents the LF movement of *Riyuu-monaku* by making it ungrammatical.

The significant contribution of Bošković and Takahashi's (1998) base generation approach is that it views scrambling as an obligatory movement operation, though the movement is assumed to take place at LF. However, their analysis has been challenged in the literature on empirical and theoretical grounds (e.g., Bailyn 2001; Karimi 2005; Miyagawa 2006). First and foremost, Bošković and Takahashi's analysis predicts that only arguments can undergo scrambling. Since scrambled elements undergo obligatory LF movement only to receive theta roles and case or a wh-scope interpretation, there is no driving force for the LF movement of adjuncts. Even though this rightly explains the absence of adjunct scrambling in Japanese, different studies have shown that non-wh adjunct scrambling exists in languages such as Russian (Bailyn, 2001) and Persian (Karimi, 2005), which the base-generation approach fails to describe. Also, scrambling is not always semantically vacuous, as Bošković and Takahashi (1998) assumed. For instance, Bailyn (2001) shows that a scrambled universal

quantifier can take wide-scope over the matrix clause subject, while Karimi (2005) shows that a scrambled element can receive a topic or focus interpretation in Persian. Karimi (2005) also indicates that scrambling in Persian is constrained by islands, which shows evidence for raising rather than base-generation in scrambling. Section IV further evaluates Bošković and Takahashi's approach to determine whether the proposal can be extended to account for object scrambling in Sinhala.

2.2 Movement Approaches

Studies proposing a movement approach to scrambling are diverse, especially regarding the kind of movement operation (A or A-bar) associated with scrambling and the syntactic features triggering such movement. This section reviews proposals that treat scrambling as either A-movement, A-bar movement or both. Saito (1985, 1989, 2002 & 2004) postulates that (both long-distance and clause internal) scrambling in Japanese is uniformly an adjunction operation. Following Chomsky (1981), he assumes that adjunction typically involves A-bar movement. According to Saito, the defining property of the Japanese/Korean type of scrambling is 'radical reconstruction.' Since scrambling is subject to radical reconstruction at LF, the movement does not involve any feature checking (Saito 2004; p.1). The following example from Saito (2002) illustrates this for Japanese:

- 12) John-ga_{CP}[TP Mary-ga dono hon-o
yonda] ka] siritagatteiru] koto
John-NOM Mary-NOM which book-ACC
read_Q want-to-know fact
[John wants to know [Q [Mary read which
book]]]
- 13) .? [TP Dono hon-o_i John-ga_{CP} [TP
Mary-ga t_i yonda] ka] siritagatteiru]
koto
which book-ACC John-NOM Mary-NOM
read_Q want-to-know fact
[Which book_i, John wants to know [Q
[Mary read t_i]

In Saito's analysis (2002; 2004), both the canonical (12) and scrambled (13) have identical representations at LF. In (12), *Dono hon-o*, the object of the embedded clause, has undergone scrambling to the matrix clause-initial position. However, at LF a wh-phrase must be inside the CP where it takes scope. Hence, (13) is expected to be ungrammatical. Its marginal grammaticality, in contrast, suggests that the scrambled wh-phrase can be radically reconstructed at LF. Since the object can be undone at LF, scrambling is a semantically vacuous operation, a position that Saito shares with Bošković and Takahashi (1998) and Bošković (2004). However, using data from Tada (1993) and Oka (1989), Saito (2004) shows that reconstruction is optional in clause internal scrambling in Japanese:

- 14) [IP Dareka -ga daremo -o aisiteiru] [E
>A; *A>E]
someone-NOM everyone-ACC love
"Someone loves everyone."
15) [IP Daremo -oi [dareka -ga t_i aisiteiru]]
[E >A; A>E]

As evident in the example, unlike the canonical (14), the scrambled version (15) yields scopal ambiguity, a phenomenon cross-linguistically common in free word order languages (see Karimi 2005).

Contrary to Saito's treatment of scrambling as an adjunction operation, Mahajan (1990) argues that scrambling in Hindi is not a unitary phenomenon. It involves two different types of movement operations: Argument shift (A-movement) and Adjunction to XP (A-bar movement). While local scrambling can be either A- or A-bar movement, long-distance scrambling is uniformly an A-bar movement operation. He argues that both kinds of movement operations exist independently in Hindi. In (17) (Mahajan 1990: (39-40)), the fact that the scrambled object can bind the reflexive in the subject position shows that it is in an A-position:

- 16) *[apne_i baccon-ne mohan-ko_i ghar
se [t_{sub}t_{DO} nikaal di-yaa]]
self's children-SUB Mohan -_{DO} house
from throw give-perf

Self's children_i threw Mohani out of
the house.?

- 17) . ? [mohan-ko_i apne_i baccon-ne ghar
se [t_{sub}t_{DO} nikaal di-yaa]]
Mohan (DO) self's children(SUB) house
from throw give-perf

Meanwhile, the grammaticality of scrambled (18) shows that local scrambling can also be XP adjunction; the scrambled XP is reconstructible at LF for binding:

- 18) ek duusre-ko raam Or siitaa pasand
karte Hen
each other-DO Ram and Sita like
"Ram and Sita like each other."

Dayal (1994), meanwhile, takes a different position on local object scrambling in Hindi. Mainly based on binding facts, she argues that local object scrambling in Hindi is an instance of atypical A-bar movement. Contrary to Mahajan (1990), she observes that "scrambling makes absolutely no difference to the binding possibilities" (p. 241) in Hindi. This is illustrated in (19) below:

- 19) a. raam-ne_i apne_i/*_j uske_i/*_j bhaii-ko
maaraa.
Ram-ERG self / his-ACC brother-ACC
beat
Ram beat self's/his brother.
b. [apne_i/*_j uske_i/*_j bhaii-ko] raam-ne_i
maaraa.

She also reports different judgments for the crucial data that Mahajan (1990) reports (20).

- 20) *mohan-ko_i apne-aap-ne_i t_i maara.
Mohan-ACC self-ERG beat
"Self beat Mohan."

Dayal (1994) accounts for the data in (19) and (20) in terms of reconstruction, a possibility created by the movement of the direct object to an A-bar position rather than an A-position. However, unlike typical English wh-movement, object scrambling in Hindi (21) does not trigger a WCO violation.

- 21) kis-ko_i uskii maaN t_i pasand kartii hai.
Who his mother likes
Who is such that his mother likes him?

Also, based on Déprez (1989), Dayal shows that in Hindi, local scrambling allows floating quantifiers, a property associated with A-movement.

- 22) raam-ne mohan-ko [saarii kitaabeN]
 lautaa diin
 Ram-ERG Mohan-DAT all books
 returned
 Ram returned all the books to Mohan.”
 23) kitaabeN_i mohan-ko [saarii t_i] lautaa
 diin.

Dayal (1994), based on these properties, concludes that Hindi local scrambling results from A-typical A-bar movement. Meanwhile, Kidwai (2000) takes a similar approach when she proposes that scrambling in Hindi results from XP adjunction.

Drawing insight from Mahajan’s (1990) theory of scrambling, Miyagawa (1997, 2003, and 2006) proposes that Japanese object scrambling is also of two types: A-scrambling and A-bar scrambling. This dichotomy is illustrated in (24) and (25) below.

- 24) zen'in-ga sono tesuto-o uke-nakat-ta
 all-NOM that test-ACC take-NEG-PAST
 'All did not take that test.'
 *not >> all; all >> not
 25) Sono tesuto-o Zen'in-ga uke-nakat-ta
 that test-ACC all-NOM take-NEG-PAST
 'All did not take that test.'

not >> all; all >> not

Miyagawa (2003) assumes that both SVO (24) and OSV (25) word orders in Japanese result from an obligatory movement operation which is triggered by the Extended Projection Principle (EPP) (i.e., the requirement that each clause has a subject in Spec TP: Chomsky 1981). The EPP feature in T can attract the subject (24) or the object (25) to its specifier position. In Miyagawa’s approach, V raising to T in Japanese makes it possible for the object (OSV) to move into Spec TP without violating the Minimal Link Condition (MLC). It “expands the domain” of the VP by making Spec TP and Spec vP equidistant from the object. The attraction of the object (25) creates the OSV word order, while the attraction of the subject yields the SOV order (24).

The evidence for the proposed analysis comes from different scopal properties of the examples illustrated in (24) and (25). The example in (24) can denote only the wide-scope reading for the subject quantifier: none of the people referred to by ‘all’ took the test. This confirms that the subject in (24) has moved to Spec-TP by escaping the c-commanding domain of negation. The A-movement of the subject also blocks the partial negation interpretation: *not all people took the test*. Meanwhile, the example in (25) is ambiguous between partial negation and total negation. It denotes the partial negation interpretation when the subject is spec-vP. Miyagawa assumes that the subject, in this case, can stay in situ since the object undergoes scrambling to Spec-TP to satisfy EPP. Thus, (25) can also yield a total negation interpretation (all > not) if both the subject and object leave the c-commanding domain of negation. Thus, in the derivation (25) corresponding to the total negation interpretation, the subject moves to Spec TP to satisfy EPP. The object is then scrambled to a position higher than Spec TP. According to Miyagawa (2003), this is an instance of A'-scrambling in Japanese. He assumes that A-bar scrambling, unlike EPP-driven A-scrambling, is driven by a focus feature.

However, Miyagawa (2009) modifies his EPP-driven approach to scrambling and assumes that “EPP movement only emerges when some relevant grammatical feature is present” in the structure in the cases involving local scrambling. In discourse configurational languages, including Japanese, this feature is assumed to be the *topic/focus* (Miyagawa 2009, p.78). He also assumes that topic/focus features in discourse configurational languages are “computationally equivalent to ϕ -features in agreement-based languages” (p.13). They are computationally equivalent in the sense that both kinds of features: (i) originate in the same phase head C, and they (ii) drive A-movement after being inherited by T. If a clause contains more than one topic or focus feature, an additional functional projection, P is generated between TP and CP. Similar to T, the head α

can also inherit topic/focus from C. Importantly, A-movement characterizes the movement to both Spec- α P as well as Spec-TP. Thus, Miyagawa's (2009) proposal makes two important predictions about Japanese object scrambling: (a) local object scrambling in Japanese involves A-movement (a), and such movement is triggered by topic/focus features in T or α .

Under this approach, the scrambled object in (26) has undergone topic/focus driven A-movement, yielding a partial negation reading (not>all).

- 26) Sono tesuto-o Zen'in-ga uke-nakat-ta
 that test-ACC all-NOM take-NEG-PAST
 'All did not take that test.'

The fact that an object in such cases undergoes A-scrambling is evidenced by the ability of the scrambled NP to serve as a new binder for an anaphor as illustrated in (27):

- 27) Taroo-to Hanako-o otagai-no sensei-ga
 t_i suisensita.
 Taro and Hanako-ACC each other-GEN
 teacher-NOM recommended
 'Taro and Hanako, each other's teachers
 recommended.'

To sum up, this section has revealed that Minimalist literature on scrambling concerns at least three main empirical issues: (i) the nature of the computational procedure generating scrambling, (ii) the kind of syntactic movement involved in scrambling and (iii) the nature of the semantic effects of scrambling, if any (see Karimi, 2005). Also, there appears to be a growing consensus in the field that at least local scrambling, unlike LDS, results from feature-driven syntactic movement (e.g., Karimi 2005, Miyagawa 2009). This paper intends to contribute to the discussion on scrambling on generative syntax by analyzing local object scrambling in Sinhala. The paper, in particular, addresses the following two questions:

- I. Is local object scrambling in Sinhala derived through *Merge* or *Move*?
- II. If scrambling involves movement, does it involve A-movement, A-bar movement or both?

3 METHODOLOGY

Data were collected for this analysis from 30 Sinhala native speakers through elicitation techniques. The researcher conducted three focus group discussions and ten interviews with the participants during 2012- 2013. The participants included 18 males and 12 females aged 22 to 64 years (Mean = 35.3). They were native speakers of Sinhala who had grown up in different regions of the country. They had learned English as a second language starting from age eight at school. The researcher elicited a wide range of syntactic data on Sinhala scrambling and word order during the focus group discussions and interviews. Selected data were transcribed from recorded interviews before the analysis.

4 ANALYSIS & DISCUSSION

4.1 Sinhala Scrambling: Merge or Move?

The base-generation approach to scrambling (Bošković 2004 and Bošković & Takahashi 1998), as reviewed in the previous section, is based on three main assumptions: (a) all scrambling is undone at LF and, therefore, is semantically vacuous, (b) only arguments can undergo scrambling, and (c) theta roles are formal features capable of driving obligatory LF movement of scrambled phrases to their theta positions. However, many recent studies of scrambling in various languages (e.g., Bailyn 2001 for Russian; Karimi 2005 for Persian and Miyagawa 2003, 2006 & 2009 for Japanese) show that not all scrambling is undone at LF and nor is all scrambling semantically vacuous.

Sinhala object scrambling also poses a problem for the assumption that all scrambling is semantically vacuous. First and foremost, object scrambling in Sinhala idioms results in clear semantic consequences. Even though (28) carries an idiomatic meaning, (29), derived through object scrambling, can convey only a literal meaning.

- 28) sunil anuntə lanu denawa.
 Sunil.NOM others.DAT pieces of string
 give.PRE
 'Sunil misleads other people.'

29) lanu_i sunil anuntə t_i denawa.

‘Pieces of string, Sunil gives to others.’

Additional evidence for the semantic impact of scrambling comes from structures involving quantifier raising. In (14-15), we observed that scrambling generates scopal ambiguity in Japanese: the universal quantifier receives only wide-scope in (14) but (15), after object scrambling, is ambiguous (See Karimi 2005 for the same observation in Persian). Structures with scrambling in Sinhala show similar effects:

30) hāmə laməya-mə hetə-wenəkotə potak
kiyawanna ona.
every child-EPH tomorrow-by
book.a read must
Every child must read a book by
tomorrow.

$\forall > \exists; * \exists > \forall$

31) potak_i, hāmə laməyamə hetəwenəkotə t_i
kiyawanna ona.

$\exists > \forall; \forall > \exists$

As illustrated in the example, (30) denotes only the wide-scope reading for the universal quantifier, implying that each child must read a different book. However, after object scrambling, (31) yields ambiguity. It could either denote the wide or narrow scope reading for the quantifiers: each child must read a different book or there is a unique book that each child must read.

The base generation approach assumes that only arguments can undergo scrambling. This is an observation that Bošković and Takahashi (1998) make concerning Japanese. This motivates them to propose that theta roles are formal features capable of driving LF lowering in scrambling. Since adjuncts do not receive theta roles, they have no motivation for obligatory LF movement. However, the following example shows that Sinhala, similar to Russian (Bailyn, 2001) and Persian (Karimi, 2005), allows the scrambling of adjuncts too. This is illustrated in (32b):

32) a. siri iye liyumak postkəla
Siri.NOM yesterdayletter.INDEF-ACC
post.PAST
‘Siri posted a letter yesterday.’

b. iye_i siri t_i liyumak post-kela.

This data challenges the base-generation approach to provide a motivation for adjunct scrambling.

One piece of empirical evidence that Bošković and Takahashi (1998) and Bošković (2004) provide to support their base-generation approach to scrambling is the absence of island constraints in long-distance scrambling in Japanese. As shown in (33) below, Sinhala, in contrast, does show island effects with long-distance scrambling, another reason why Bošković and Takahashi’s proposal cannot be extended to Sinhala. Islands are generally assumed to be evidence for movement in syntax, for instance, wh-movement in English:

33) a. mamə [siri liyəpu potə] kiyewwa.
I.NOM Siri.NOM write.PASTP book.ACC
read.PAST
‘I read the book that Siri wrote.’
b. potə_i mamə [siri liyəpu t_i] kiyewwa.
book.ACC I.NOM Siri.NOM write.PASTP
read.PAST

Based on this evidence, I conclude that B & T’s (1998) base-generation approach cannot successfully account for the so-called scrambling phenomena observed in Sinhala. Semantic interpretation effects associated with scrambling and the possibility of adjunct scrambling and island constraint violations in long-distance scrambling support a movement approach to scrambling rather than base-generation. In the next section, we present further evidence to show that scrambling, primarily clause-internal object scrambling in Sinhala, involves syntactic movement while investigating whether the type of movement involved should be analyzed as A-movement, A-bar movement or both.

4.2 Sinhala Scrambling: A-movement or A-bar movement?

The Principles & Parameters approach has distinguished two types of movement operations: A-movement and A-bar movement. They are both defined in terms of the landing site of the moved XPs and the features that trigger their movement. A-movement is

traditionally defined as the movement of an argument from a $\langle + \text{theta}, - \text{case} \rangle$ position to a $\langle - \text{theta}, + \text{case} \rangle$ position (Chomsky 1981). The landing position is traditionally assumed to be the specifier of TP (and AgroP for object Shift) for A-movement. Passive and Raising constructions are typical structures argued to involve A-movement in English. Under the VP-internal Subject Hypothesis (see McCawley 1970), NP movement is also assumed to involve A-movement. A-bar movement, in contrast, refers to the movement of an XP to a TP external position: the specifier of any functional projection in the CP domain. Wh-movement and Topicalization in English are examples of the A-bar movement.

There are at least four major syntactic properties associated with A-movement which have been taken to distinguish it from A-bar movement: (a) the ability to create a new A-binder (b) the suppression of WCO effects and the (c) absence of reconstruction: the invisibility of a copy of an A-moved element for semantic interpretation (e.g., Lasnik 1999; Mahajan 1990; Epstein & Seely 1999/2006) and (d) the failure to license parasitic gaps. Following Mahajan (1990), different studies have used these properties as diagnostics to determine the type of movement involved in scrambling cross-linguistically (e.g., Dayal 1994; Karimi 2005; Miyagawa 1997 and subsequent work & Saito 2006). In the following discussion, I use similar tests to determine whether Sinhala scrambling should be analyzed as A-movement, A-bar movement or both.

Binding properties are often treated as clear indications of the nature of movement involved in scrambling (see, among others, Dayal 1994; Karimi 2005; Mahajan 1990; Saito 2006). The common assumption is that only elements in A-positions are visible for A-binding. The three principles of Binding Theory (Chomsky 1981), as reviewed below, state that:

- 34) a. An anaphor must be A-bound in its governing category.
 b. A pronoun must be free in its governing category.

- c. An R-expression must be free.

(The governing category for an element α is a minimal XP containing α , its governor and an accessible subject.)

As observed by Gair and Karunatilake (1990) and Kariyakarawana (1998), all three principles of the Binding Theory hold in Sinhala. This is illustrated in (35) below:

- 35) a. *siri_i prasiddiye thamanwə_i /eyawə*_{i/j} wiwechanayə-kəla.*
Siri_i.NOM openly self_{.ACC}him_{.ACC} criticize-PAST
*Siri_iopenly criticized himselfi/him*_{i/j}.*
 b. *siri_i [ravi_j thaman-wə*_{i/j}eyawə_i/*_j wiwechanayə-kəla kiyəla] dannawa .*
Siri_i.NOM Ravi_{.NOM} self-ACC him-ACC criticize-PAST that know_{.PRE}
*Siri_i knows that Ravi_j criticized himself*_{i/j} / himi/*_j.*
 c. **ohu_i laltə_i kəməti.*

He-NOM Lal-DAT like
**He_i likes Lal_i.*

According to Binding Principles A and B, anaphors and pronouns are in complementary distribution: an anaphor can only be bound where a pronoun is free. In (35a), the subject *Siri* cannot bind the pronoun *eyawa* because this would violate Binding Principle B. But it has to bind the anaphor *thamanwə* which would then be bound in its governing category. The reverse pattern is observed in (35b), regarding binding by the matrix subject. Finally, (35c) shows that Sinhala disallows the binding of an R-expression *laltə* by a c-commanding antecedent *ohu*. Since Sinhala binding properties appear consistent with the Binding Theory, binding can be considered a reliable test to determine the nature of movement involved in Sinhala scrambling, similar to other approaches that have used binding properties as diagnostics for movement typing.

Mahajan (1990) shows that a scrambled object in Hindi can serve as an antecedent for a reflexive in the subject position, arguing that the scrambled object undergoes A-movement.

This was illustrated by (16 & 17). The same test is applied to Sinhala in (36) below. In each example, *a* shows the canonical word order while *b* shows its scrambled version.

36)

a.* thaman_i sunil-tə_i dos-kiwwa.

self_{NOM} Sunil_{ACC} blame_{PAST}

* Selfi blamed Sunili.’

b.*suniltə_ithaman_it_i dos-kiwwa.

37) a.*thaman-ge_i malli sunil-wə_i taumedi
dækka.

self’s brother_{NOM} Sunil_{ACC} town-in
see_{PAST}

b. ‘* Self’s_i brother saw Sunil_i in town.’

*sunilwə_j thamange_i mallit_j
taumedi dækka.

The ungrammaticality of (36a) and (37a) show that Sinhala, similar to English, does not allow an anaphor in the subject position because a c-commanding antecedent cannot bind it in the same clause. In addition, if scrambling in Sinhala were A-movement, (36b) and (37b) would be expected to be grammatical: the scrambled object, which now occurs in a position c-commanding the anaphor, should A-bind it in its governing category. However, the ungrammaticality of the scrambled sentences in (36b) and (37b) suggest that the scrambled element is in an A-bar position. Further evidence for this hypothesis comes from (38), which illustrates that a sentence in Sinhala can be grammatical despite the scrambling of a phrase with an anaphor to the initial sentence position (38b).

38)

a. demawpiyo_i thaman-ge_i lamain-tə adare_i.

parents_{NOM} self_{GEN} children_{ACC} love

‘Parents_i love self’s_i children.’

b. thamange_i lamaitə_j demawpiyo_i t_j adare_i.

If condition A were applied at the surface structure, (38b) would be expected to be a violation of the Binding Principle A because the anaphor in that position is not bound by any antecedent. Thus, the ungrammaticality of (37b) and the grammaticality of (38b) indicate that scrambling in each of the above cases involves A-bar movement. Recall that in (22)

and (23), Dayal (1994) makes the same argument for Hindi.

Another property that distinguishes A-movement from A-bar movement is its potential for reconstruction (Mahajan, 1990). Reconstruction, as discussed by Chomsky (1992), Huang (1993) and Mahajan (1990) and many others, refers to the process by which a moved phrase is interpreted back in its (external)-merged position. For instance, if A-bar movement were not characterized by reconstruction, the following English example would violate the Binding Principle A. The assumption is that the binding requirement in the following sentence is fulfilled at LF through reconstruction.

39) [Which picture of himself]_i did Bill like *t_i*
?

Sinhala data in (38) is similar to the English example in (39) in the sense that reconstruction is responsible for its grammaticality: the scrambled anaphor is A-bound in its first merged position through obligatory reconstruction after A-bar movement. This evidence shows that scrambling does not alter the A-binding possibilities in Sinhala, a property associated with A-bar movement.

Reconstruction is also associated with scope interpretation involving quantifiers and negation. This has been extended to scrambling cross-linguistically (e.g., Karimi 2005; Miyagawa 1997, 2003, 2009; Saito 1989 and Tada 1993) to determine the nature of movement involved in it. One observation made by Miyagawa (2003) and Karimi (2005) for Japanese and Persian respectively is that scrambling yields scopal ambiguity in cases where the non-scrambled counterpart does not. The following example is intended to test this with regard to Sinhala:

40) a. həmə gayəkəyamə sinduwak
kiwwa.

Every singer_{NOM} song_{INDEF.ACC}

sing_{PAST}

Every singer sang a song.

[A > E; *E > A]

b.sinduwak_ihæmə gayəkəyamə t_i
kiwwa.

[$\exists > \forall$; $\forall > \exists$]

In (40a), *hæməgayəkəyamə* (every singer) can only take wide-scope, denoting that every singer sang a different song. This reading is made possible by the fact that the universal quantifier *hæməgayəkəyamə* c-commands the existential quantifier *sinduwak* (a song) in the surface position. Interestingly, unlike (40a), the scrambled version (40b) is ambiguous. In the preferred reading, the existential quantifier takes wide-scope: there was a unique song that everyone sang. However, the second reading is also possible when the existential quantifier takes narrow scope, implying that the scrambled phrase can be reconstructed by being in an A-bar position. However, reconstruction in this case, is optional, yielding two possible representations with differing scopes. This optionality in reconstruction in local scrambling is also a property found in Japanese (Saito 2004).

So far, the discussion based on binding and reconstruction suggests that clause internal object scrambling in Sinhala bears A-bar properties. One other test that can determine the nature of movement involved in scrambling is parasitic gaps. A parasitic gap, as first discussed by Engdahl (1983), refers to a null element whose presence has to be licensed by the existence of another null element in the sentence: “a parasitic gap is a gap that is dependent on the existence of another gap” (p.1). According to Chomsky (1982) and Mahajan (1990), a parasitic gap can only be bound by an antecedent in an A-bar position.

- 41) Which article did you file_____ without reading_____?
42) This is the kind of food you must cook_____ before you eat_____
43) *John was killed t by a tree falling one.
44) *Mary seemed t to disapprove of John’s talking to e.

Both Mahajan (1990) and Karimi (2005) show that only A-bar scrambling can license parasitic gaps in Hindi and Persian, respectively. The

following examples show that this property is associated with Sinhala object scrambling too.

45) parənə karekə sara [t_i hadanne
nətuwa] t_i wikunuwa.

old car.ACC Sara.NOM repairing
without sell.PAST

‘The old car, Sara sold without repairing.’

46) redio-ekə nelu [t_i ahanne nətuwa] t_i
wahala dæmme.

radio-ACC Nelu.NOM listen without
switch.PAST off.

‘It is the radio that Nelu switched off without listening to.’

47) monə paper-ekə dəi siri [t_i kiyawanne
nətuwa] t_i file kəle?

which paper Q Siri.NOM reading without
file.PAST

‘Which paper did Siri file without reading?’

Among the above examples, (45) shows topic-driven object scrambling while (46) shows focus-driven object scrambling. In (47), the scrambled object is a wh-phrase. As well-established in literature, Sinhala lacks overt wh-movement (e.g., Hettiarachchi 2015; Kariyakarawana 1998). Hence, the parasitic gap in (47) must be licensed by wh-scrambling through A-bar movement. Thus, if a parasitic gap, as widely assumed (e.g., Mahajan 1990), can only be licensed by an element in an A-bar position, the data confirms that local object scrambling in Sinhala is indeed A-bar movement.

Despite the evidence presented so far, there are two properties of Sinhala object scrambling which could be problematic for a uniform treatment of Sinhala object scrambling as A-bar movement: absence of WCO effects (48) and quantifier floating (49).

48) eya-ge_i amma katə_i də adar-e?
he-GEN mother.NOM who-DAT Q
love.PAST-E

*Who_i does his_i mother love t_i

49) pot_i lamai t_i okkomə kiyewwa.

Book.ACC children.NOM allread.PAST

As for books, children read all.

Among them, the absence of WCO effects is cross-linguistically a common property associated with scrambling (see Karimi 2005 & Dayal 1994). WCO, originally referred to as the Leftness Condition (Chomsky 1976), is observed when a variable (represented by a movement trace) is co-indexed with a pronoun to its left which fails to c-command the variable/trace:

50) *Who_i does his_i mother like *t_i*?

51) *His_i mother likes everyone_i.

Mahajan (1990) uses the absence of WCO effects as evidence for A-movement in Hindi scrambling. Still, given that WCO is not an invariant property of A-bar movement, it may not necessarily be a reliable test to determine the kind of movement involved in scrambling. For instance, Lasnik and Stowell (1991) shows that even in English, some instances of A-bar movement, including tough movement, parasitic gap and topicalization do not trigger WCO effects:

52) Who_i*t_i* will be easy for us [to get [his_i mother] to talk to e_i]?

53) Who_i did you stay with *t_i* before [his_i wife] had spoken to e_i]?

54) This book_i, I expect [its_i author] to buy e_i.

55) What did you get all for Christmas?

Thus, empirical evidence from binding, reconstruction, and parasitic gaps suggests that so-called local object scrambling in Sinhala undergoes A-bar movement. Even though floating quantifiers and the absence of WCO in object scrambling could cast doubt on this position, cross-linguistic evidence shows that neither are invariant properties of A- or A-bar movement.

5 CONCLUSION

This study started with the goal of investigating the nature of the syntactic operation responsible for generating the OSV word order in Sinhala. Even though it has been generally assumed in the limited generative literature on Sinhala that the OSV word order of the language is derived through constituent scrambling, no prior study has systematically

investigated the nature of the operation responsible for its generation. Thus, this study has revealed that object scrambling that results in the OSV word order in Sinhala is derived through A-bar movement. The evidence comes from binding, reconstruction and parasitic gaps. However, future research should determine the exact semantic conditions that license object scrambling in Sinhala.

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REFERENCES

- Bailyn, JF 2001, 'On scrambling: A reply to Bošković and Takahashi', *Linguistic Inquiry*, vol. 32, no. 05, pp. 635-658.
- Bošković, Z & Takahashi D. 1988, 'Scrambling and last resort', *Linguistic Inquiry*, vol. 29, no. 3, pp. 347-366.
- Bošković, Z 2004, 'Topicalization, focalization, lexical insertion, and scrambling', *Linguistic Inquiry*, vol. 35, no. 4, pp. 613-638.
- Chandralal, D 2010, *Sinhala*, John Benjamins Publishing Company, Philadelphia.
- Chou C-TT & Hettiarachchi S 2016, 'On Sinhala subject case marking and A-movement', *Lingua*, vol. 177, no. 1, pp. 17-40.
- Chomsky, N 1982, *Some concepts and consequences of the theory of Government and Binding*, MIT Press, Cambridge.
- Chomsky, N 1986, *Barriers. Linguistic Inquiry Monograph 13*. MIT Press, Cambridge.
- Chomsky N 1995, *The Minimalist Program*, MIT Press, Cambridge.
- Chou, C-T T & Hettiarachchi, S 2012, 'Sinhala Case Marking, Modality and A-movement',

- The GLOW in Asia IX, Mie University, Japan, pp. 1-9.
- Dayal, VS 1994, Binding facts in Hindi and the scrambling phenomenon in M Butt, TH King and G Ramchand (eds.), *Theoretical Perspectives on Word Order in South Asian Languages*, pp. 237–61. Center for the Study of Language and Information (CSLI) Publications, Stanford.
- Engdahl, E 1983, ‘Parasitic Gaps’, *Linguistics and Philosophy*, vol. 6, no. 1, pp. 5-34.
- Epstein, SD, Pires, A & Seely, TD 2005, ‘EPP in T: More controversial subjects’, *Syntax*, vol. 8, no. 1, pp. 65-80.
- Epstein, SD & Seely, TD 2006, *Derivations in Minimalism*, Cambridge University Press, Cambridge.
- Fukui, N 1993, ‘Parameter and optionality in a grammar,’ *Linguistic Inquiry*, vol. 24, no. 03, pp. 399-420.
- Gair, JW & Sumangala, L 1992, ‘What to focus in Sinhala’, Eastern States Conference on Linguistics, Baltimore, pp. 93-108.
- Gair, JW 1983, ‘Non-Configurationality, movement, and Sinhala focus’, Linguistic Association, Great Britain.
- Gair, JW & Karunatilake, WS 1998, Pronouns, Reflexives, and Anti-anaphora in Sinhala in James W Gair and Barbara C Lust (eds.), *Studies in South Asian linguistics: Sinhala and other South Asian languages*, pp.126-139. Oxford University Press, Oxford.
- Henadeerage, DK 2002, Topics in Sinhala syntax, PhD thesis, The Australian National University.
- Hettiarachchi S, 2021, A syntactic analysis of Sinhala relative clauses, *Linguistics International Journal*, vol. 15, no. 1, pp. 21-42.
- Hettiarachchi, S 2015, Syntactic competence and processing: Constraints on long-distance A-bar dependencies in Bilinguals, PhD thesis, University of Michigan, Ann Arbor.
- Hettiarachchi, S 2015, ‘Sinhala object scrambling revisited’, Pennsylvania Linguistics Conference 39, University of Pennsylvania, pp. 1-10.
- Huang, CTJ 1993, ‘Reconstruction and the structure of VP: Some theoretical consequences’ *Linguistic Inquiry*, vol. 24, no. 01, pp. 103–138.
- Inman, MV 1994, Semantics and pragmatics of colloquial Sinhala involitive verbs, PhD thesis, Stanford University.
- Kanduboda, PB, & Ananda, L 2016, ‘Configurationality and mental grammars: Sentences in Sinhala with reduplicated expressions’, *International Journal of Multidisciplinary Studies*, vol. 3, no. 2, pp. 186-195.
- Karimi, S 2005, *A Minimalist Approach to Scrambling: Evidence from Persian*, Mouton de Gruyter, Berlin.
- Kariyakarawana, SM 1998, *the syntax of focus and wh-questions in Sinhala*, Karunaratne & Sons, Ltd, Colombo.
- Kidwai, A 2000, *XP-Adjunction in Universal Grammar: Scrambling and Binding in Hindi-Urdu*, Oxford University Press, Oxford.
- Kishimoto, H 2005, ‘Wh-in-situ and movement in Sinhala questions’, *Natural Language & Linguistic Theory*, vol. 25, no. 1, pp. 1-51.
- Lasnik, H 1995, A note on pseudo-gapping in *MIT Working Papers in Linguistics* 27, pp. 143-163.
- Mahajan, A 1990, The A/A-bar distinction and movement theory, PhD thesis, MIT, Cambridge.
- Miyagawa, S 1997, ‘Against optional scrambling’, *Linguistic Inquiry*, vol. 28, no. 1, pp. 1–26.
- Miyagawa, S 2003, A-movement scrambling and options without optionality in S Karimi, *Word order and scrambling*, pp. 177-200. Blackwell, Oxford.

Miyagawa, S 2006, 'On the undoing "property" of scrambling: A response to Bošković', *Linguistic Inquiry*, vol. 37, no. 4, pp. 607-624.

Miyagawa, S 2009, *Why Agree? Why Move? Unifying Agreement-based and Discourse Configurational Languages*, Linguistic Inquiry Monograph 54. MIT Press, Cambridge.

Ross, J 1967, Constraints on variables in syntax, PhD thesis, MIT, Cambridge.

Saito, M 2004, 'A derivational approach to the interpretation of scrambling chains', *Lingua*, vol. 113, no. 4, pp. 481-518.

Saito, M 1985, Some asymmetries in Japanese and their theoretical implications, PhD thesis, MIT, Cambridge.

Saito, M & Fukui, N 1998, 'Order in phrase structure and movement', *Linguistic Inquiry*, vol. 29, no. 3, pp. 439-474.

Tada, H 1993, A/A' partition in derivation, PhD thesis, MIT, Cambridge.

Kashiwagi-Wood, A 2021, 'Learning the narrative characteristic: Perspective taking in written Japanese as a foreign language' *Journal of Language Teaching and Research*, vol. 12, no. 5, pp. 631-640.