Two types of long-distance scrambling in Khalkha Mongolian

Zhiyu Mia Gong

University of California, Santa Cruz (US)

mgong9@ucsc.edu

Abstract

Long-distance scrambling has previously been distinguished from typical A′ operator movement (e.g., *wh* movement) on the basis of two properties: its apparent insensitivity to *wh* islands and its ability to license radical reconstruction. This characterization is complicated by evidence that the scrambling of *wh* phrases patterns with operator movement in some respects. The present article argues that long-distance scrambling is not a uniform phenomenon. Based on a detailed investigation of *wh*-island effects in Khalkha Mongolian, I show that two distinct types of long-distance scrambling coexist in this language: one targeting non-*wh* DPs and one targeting *wh* phrases. I argue that these two operations are derived by movement to distinct positions in the clausal periphery. The observed divergence in island patterns follows from differences in the featural configurations of the probes driving each movement type in narrow syntax.

Keywords: long-distance scrambling, *wh* islands, A′ movement

1 Introduction

Long-distance scrambling (LDS) is well known to be distinct from canonical A′ operator movement. This distinction is supported by two core empirical generalizations. First, LDS may circumvent *wh*-island constraints (Zemskaja 1973, Saito 1985, Abe 1993, Kim 2003, Ko et al. 2019, and Bailyn 2020). Second, LDS reconstructs obligatorily for scope (Saito 1989 and Saito 1992). These facts, among others,[1] have motivated analyses in which LDS is not driven by standard A′ features (e.g., Saito 1992, Fukui 1993, Tada 1993, Lee 1994, Saito & Fukui 1998, Grewendorf & Sabel 1999, Saito 2004, Miyagawa 2006a, Miyagawa 2011b, and Bailyn 2020).

[1]This article focuses on **scope reconstruction** (May 1977), also termed **radical reconstruction** (Saito 1989) or **total reconstruction** (Aoun & Benmamoun 1998), which is distinguished from **binding-reconstruction/connectivity** effects (Barss 1986 and Heycock 1995) or partial reconstruction. The latter is dealt with in a significant body of work on scrambling. For discussion of the interaction between LDS and binding, see for instance Webelhuth 1985, Mahajan 1990, Saito 1992, Webelhuth 1992, Tada 1993, Dayal 1994, Mahajan 1994, Müller & Sternefeld 1994, and Bailyn 1995.

However, some studies have shown that at least certain instances of LDS behave just like English-type *wh* movement and thus are not quite exceptional after all (Takahashi 1993 and Miyagawa 2006b).

This article shows that these seemingly incompatible generalizations point to two distinct types of LDS that may coexist in a single language. Focusing on a set of novel patterns concerning *wh*-island effects in LDS in Khalkha Mongolian, I argue that this language has two types of LDS, one of which moves a non-*wh* element and the other a *wh* expression.[2] I refer to the former as ordinary LDS and the latter as *wh* LDS. *Wh* LDS in Khalkha Mongolian exhibits argument–non-argument asymmetry when extracted from *wh* islands, similar to English *wh* movement, while ordinary LDS does not show such asymmetry. Moreover, *wh* LDS and ordinary LDS in Khalkha Mongolian target distinct landing sites in the extended clausal periphery. Leveraging the structures of thematic-topic and relative-clause constructions, I demonstrate that ordinary LDS targets matrix AspP whereas *wh* LDS targets a higher landing site spec-*F*P.

These patterns are accounted for via a derivational approach to scrambling chains (Kitahara 2000, Kitahara 2002, and Saito 2003). Building on Grewendorf & Sabel 1999, Kawamura 2004, and Bailyn 2020, I propose that ordinary LDS is driven by an Agree relation with a probe bearing a Σ feature hosted on Asp. *Wh* LDS, in contrast, is driven by a *wh* feature hosted on *F*. The distinction between ordinary LDS and *wh* LDS therefore reduces to differences in syntactic features that drive them, reflected in the properties of the functional heads that host their respective landing sites. Under this analysis, the weak-island effects observed in *wh* LDS and the absence of such effects in ordinary LDS are derived via an articulated featural version of Relativized Minimality (Rizzi 1990, Starke 2001, Rizzi 2004a, and Abels 2012). In addition, I discuss how the current analysis might extend to the obligatory-scope-reconstruction patterns observed in LDS and provide a principled explanation for them.

The rest of the article will proceed as follows. Section 2 presents some of the basic properties of LDS in Khalkha Mongolian as background. Section 3 examines the core patterns of weak-island effects in two types of Khalkha Mongolian LDS. In section 4, I present a series of

[2]Unless otherwise noted, the data reported in this article came from the author's fieldwork with a total of five adult native speakers of the Ulaanbaatar variant of Khalkha Mongolian. Two rounds of elicitation were involved in producing the data presented here. The data reported in the original submission of this article come from four adult native speakers of Khalkha Mongolian. All four individuals were born and raised in Ulaanbaatar or its near vicinity. Each grew up as a monolingual speaker of Khalkha Mongolian within a society where it is both the official and dominant language. These speakers started learning additional languages, including English, Russian, Korean, and Japanese, after reaching adulthood. In all cases, the consultants' first and strongest language is Khalkha Mongolian. A second round of elicitation was conducted during the revision period: follow-up sessions were held with two speakers, one from the original group and one newly recruited, which replicated the empirical results from the first round. The original consultants were invited to participate in the second round but, with one exception, were unavailable. The new native-speaker consultant is a resident of Ulaanbaatar, who was likewise born and raised in a monolingual Khalkha Mongolian environment and maintains it as their dominant language.

diagnostics that reveal the syntactic properties of these two types of LDS, especially their landing sites. Section 5 presents a derivational approach to the two types of LDS in syntax. Taking a featural view of Relativized Minimality, I develop an analysis to account for the differences between the two types of LDS. The analysis developed in section 5 makes additional predictions about the interpretive properties of Khalkha LDS, which are borne out by the empirical data. Section 6 concludes the article.

2 Basic properties of LDS in Khalkha Mongolian

Khalkha Mongolian has both clause-internal scrambling and clause-external scrambling, or LDS, exhibiting a wide range of flexibility in word order. The default word order of a simple declarative clause is subject–object–verb (SOV), exemplified in (1a). The object may also undergo **intermediate scrambling** to a position linearly preceding the subject, giving rise to the order OSV, as in (1b).[3]

(1) a. Default word order (SOV)[4]

Dorj-∅ ***ene nom-ig*** *unš-san.*
Dorj-NOM this book-ACC read-PST

'Dorj read this book.'

b. Intermediate scrambling (OSV)

Ene nom-ig$_1$ *Dorj-∅* t_1 *unš-san.*
this book-ACC Dorj-NOM read-PST

In addition, Khalkha Mongolian allows LDS out of a finite embedded CP. An example is given in (2). Note that the gap left by LDS cannot be filled with an overt pronoun.

(2) LDS

[3]Abbreviations used in the glosses: 1/2/3 = first/second/third person, ABL = ablative case, ACC = accusative case, C = complementizer, COMIT = comitative case, COP = copula, CVB = converb, DAT = dative case, EP = epenthetic material without semantic content, FOC = focus particle, GEN = genitive case, HABIT = habitual, INST = instrumental case, NEG = negation, NOM = nominative case, NPST = nonpast, PART = particle, PL = plural, POSS = possessive, PROG = progressive, PST = past tense, PTCP = participle, Q = question particle, REFL = reflexive, SG = singular, TOP = topic.

The grammaticality of examples is notated as follows. * indicates an unacceptable, ungrammatical sentence. ? marks a mildly degraded sentence. ?? indicates a largely degraded sentence. Sentences without notations are deemed acceptable by native-speaker consultants.

[4]The following clarification is offered in response to a reviewer's query regarding the semantic/discourse effects of scrambling in (1) and their relevance for the later discussion of clause-external scrambling. The fact that the "default" or "neutral" word order is SOV and not OSV is discussed in Guntsetseg 2012: 39–40. The OSV order is a scrambled and marked configuration. Importantly, it has long been observed, since at least Saito 1985 and Mahajan 1990, that clause-internal and clause-external scrambling are not uniform. I take the information-structural effects of local scrambling to constitute a distinct empirical domain, one that must be investigated on its own terms. These effects should not be taken to extend automatically to clause-external scrambling without further investigation.

a. *Emč-∅* [$_{CP}$ *namaig* ***ene em-iig*** *uu-san* *gej*] *khel-sen.*
doctor-NOM 1SG.ACC this medicine-ACC drink-PST C say-PST
'The doctor said [that I took this medicine].'

b. ***Ene em-iig***$_1$ *emč-∅* [$_{CP}$ *namaig* ___$_1$ / **üüniig*$_1$ *uu-san* *gej*]
this medicine-ACC doctor-NOM 1SG.ACC it.ACC drink-PST C
khel-sen.
say-PST
(Based on Gong 2022: 89)

Much previous work has explored the precise nature of scrambling cross-linguistically. While originally regarded as a stylistic rule (Ross 1967), subsequent work has argued that scrambling should be regarded as a general narrow-syntax movement operation (Saito & Hoji 1983, Saito 1985, Saito 1989, Mahajan 1990, Saito 1992, and Tada 1993, among many others; cf. Whitman 1979, Farmer 1980, Hale 1980, Bayer & Kornfilt 1994, Bošković & Takahashi 1998, and Sauerland & Elbourne 2002). Saito 1985 in particular argues, based on facts from Japanese, that both local scrambling and LDS are instances of S-structure movement (cf. Tonoike 1980 and Miyara 1982). This article adopts as a working assumption the idea that local scrambling and LDS are narrow-syntax movement operations; additional discussion with supporting evidence is given when relevant.

Despite being flexible, the word order in Khalkha is not completely free. LDS, just like other types of narrow-syntax movement, exhibits sensitivity to islands. For example, LDS is subject to the adjunct-island constraint:

(3) * ***Süütei tsai-g***$_1$ *Bat-∅* [*bidniig* ___$_1$ *uu-kh* *gej*
milk tea-ACC Bat-NOM 1PL.ACC drink-NPST.PTCP C
bai-kh-a-d] *öröö-n-d* *or-j* *ir-sen.*
COP-NPST.PTCP-EP-DAT room-EP-DAT enter-CVB come-PST
Intended: '[Milk tea]$_1$, Bat entered the room [while we were about to drink ___$_1$].'
(Based on Gong 2022: 90)

In (3), the embedded object (*süütei tsaig* 'milk tea') is scrambled to the matrix-initial position. The movement proceeds out of an adjunct clause and gives rise to an ungrammatical result. LDS also shows sensitivity to the complex-NP constraint:

(4) * ***Ter nom-ig***$_1$ *Bat-∅* [[$_{RC}$ *öčigdör* ___$_1$ *khudalda-j aw-san*] *khün-iig*]
that book-ACC Bat-NOM yesterday deal-CVB buy-PST.PTCP person-ACC
khai-j *bai-na.*
search-CVB COP-NPST
Intended: '[That book]$_1$, Bat is looking for [the person [who bought ___$_1$ yesterday]].'
(Based on Gong 2022: 90)

In (4), the object is scrambled out of a relative clause (RC) modifying a head noun (*khün* 'person'). The result is ungrammatical. These data demonstrate that LDS patterns with narrow-syntax movement in exhibiting sensitivity to typical strong islands.

While LDS of arguments is widely attested, it is known that LDS of adjuncts is very limited (e.g., Saito 1985, Bošković & Takahashi 1998, Cho & Kim 2000, and Ko 2018). Where adjunct scrambling is attested, languages differ in which classes of adjuncts are extractable. Although "true adjuncts" (typically reason adjuncts and *wh* phrases like 'why') usually cannot be scrambled clause externally, it has been observed since Saito 1985 that certain time and place adverbials can be LDS-ed rather easily in Japanese. See also Ko 2018 for discussion of Korean.[5] In Khalkha Mongolian, similarly, a time/place adverbial can be scrambled clause externally. Consider the following example.

(5) ***Myagmar garig-t***$_1$ *Bayar-∅* [$_{CP}$ *Dulmaa-g* ___$_1$ *ir-ne* *gej*] *bodo-j*
Tuesday day-DAT Bayar-NOM Dulmaa-ACC come-NPST C think-CVB
bai-na.
COP-NPST
'[On Tuesday]$_1$, Bayar is thinking [that Dulmaa will come ___]$_1$.'

Native-speaker consultants report that the sentence in (5) is ambiguous: it has a reading where the sentence-initial adverbial (*Myagmar garigt* 'on Tuesday') modifies the matrix clause (i.e., Bayar is having this thought on Tuesday), but crucially, it also easily allows another interpretation where the adverbial is interpreted inside the embedded clause (i.e., that Dulmaa is coming on Tuesday). The gap representation in (5) corresponds to the latter reading.

Similarly, a locative adverbial can be scrambled clause externally. In (6), the embedded dative phrase (*Gowid* 'in the Gobi') is scrambled out of the embedded CP to the matrix-initial position. Native-speaker consultants describe the sentence as slightly stylistically degraded and more typical of colloquial speech but still easily acceptable under the intended reading.

(6) ? ***Gowi-d***$_1$ *Bayar-∅* [$_{CP}$ *Čingis* *khaan-ig* ___$_1$ *oršuul-san gej*] *bod-dog.*[6]
Gobi-DAT Bayar-NOM Chinggis Khan-ACC bury-PST C think-HABIT
'[In the Gobi]$_1$, Bayar thinks that [Chinggis Khan was buried ___$_1$].'

Another example illustrating the same point is given in (7). The locative phrase in bold is scrambled out of the embedded CP to the matrix-initial position. Consultants report that the sentence is acceptable under the intended reading indicated by the translation.

[5]See, in particular, Saito 1985: 172–175 on Japanese adjunct scrambling. This article focuses on time/place adverbials versus arguments, leaving the more complex issue of "true-adjunct" scrambling (e.g., Tsai 1994, Ko 2005, and Tsai 2008) for future research.

[6]The verb 'to bury' has a proper passive form *oršuul-a-gd-* (from the stem *orš-uul* where *-uul* is a causative suffix), but it is rarely used. The active form *oršuul-* is considered more frequent and natural in this context.

(7) ***Ulaanbaatar zočid buudl-in ömnö***$_1$ *Dorj-∅* [$_{CP}$ *Tuya-g* ___$_1$ *ter khun-tei*
Ulaanbaatar Hotel-GEN **front** Dorj-NOM Tuya-ACC that person-COMIT
ünseltse-j bai-san gej] *bodo-j bai-na.*
kiss-CVB COP-PST C think-CVB COP-NPST
'[In front of the Ulaanbaatar Hotel]$_1$, Dorj is thinking [that Tuya was kissing that person ___$_1$].'

This section presented three basic properties of LDS in Khalkha Mongolian: (i) the language allows both clause-internal scrambling and LDS; (ii) LDS cannot proceed out of adjunct islands and complex-NP islands; and (iii) not only DP arguments but also time and place adverbials can undergo LDS.

3 Two types of LDS: *wh*-island effects

Compared to its behaviors with respect to adjuncts and complex-NP islands, LDS exhibits distinct patterns when proceeding out of *wh* islands.

3.1 *Wh* questions in Khalkha Mongolian

Khalkha Mongolian is a *wh*-in-situ language. In simplex sentences such as those in (8), the *wh* phrases may remain in their base positions. In each example, a dedicated *wh*-question particle *be*/*we* appears at the clausal periphery and marks the clause as a *wh* question.

(8) a. ***Khen-∅*** *ir-sen* ***be****?*
who-NOM come-PST Q
'Who came?'

b. *Či* ***khen-iig*** *khar-san* ***be****?*
2SG.NOM who-ACC see-PST Q
'Who did you see?'

(Based on Tserenpil & Kullmann 2015: 270)

In embedded-clause constructions, the *wh*-question particle *be*/*we* marks its clause as a *wh* question and indicates *wh* scope:

(9) a. [*Nawčaa-∅* [$_{+Q}$ *Zayaa-g* ***ali*** ***nom-ig*** *unš-san* ***be*** *gej*] *asuu-san*].
Nawčaa-NOM Zayaa-ACC which book-ACC read-PST Q C ask-PST
Embedded scope: 'Nawčaa asked which book Zayaa read.'

b. [$_{+Q}$ *Nawčaa-∅* [*Zayaa-g* ***ali*** ***nom-ig*** *unš-san gej*] *khel-sen* ***be***]*?*
Nawčaa-NOM Zayaa-ACC which book-ACC read-PST C say-PST Q
Matrix scope: 'Which book did Nawčaa say that Zayaa read?'

In (9a), the Q particle is located inside the embedded clause, and the matrix clause lacks a Q particle. The sentence can only be interpreted as having an embedded *wh* interrogative; it cannot be interpreted as a matrix-scope question. In contrast, in (9b), the Q particle is located

in the matrix clause, and the embedded clause does not have a Q particle. The sentence can only be interpreted as a matrix-scope *wh* question.

The remainder of section 3 investigates island effects arising from LDS out of embedded interrogatives. A distinction is drawn between two types of movement: ordinary LDS, defined as the clause-external scrambling of a non-*wh* constituent, and *wh* LDS, the scrambling of a *wh* constituent. This distinction is motivated by the empirical fact that the two operations exhibit differing sensitivity to *wh* islands in Khalkha Mongolian. Data will show that ordinary LDS may proceed from an embedded interrogative, whereas *wh* LDS from the same domain exhibits weak-island effects.

3.2 Ordinary LDS out of *wh* islands

It has been observed cross-linguistically that LDS seems to be able to escape *wh* islands (Zemskaja 1973, Saito 1985, Yoshimura 1992, Abe 1993, Bailyn 1995, Bošković & Takahashi 1998, Tanaka 1999, Kim 2003, Miyagawa 2005, Ko 2018, Ko et al. 2019, and Bailyn 2020). This apparent lack of *wh*-island effects is attested in Khalkha Mongolian. Consider the following example.

(10) ***Ter nom-ig***$_1$ *Bat-∅* [$_{CP}$ *khen-∅* *öčigdör* ___$_1$ *aw-san* ***be*** *gej*] *nad-aas*
that book-ACC Bat-NOM who-NOM yesterday buy-PST Q C 1SG-ABL
asuu-san.
ask-PST
'[That book]$_1$, Bat asked me [who bought ___$_1$ yesterday].'

In (10), the embedded object DP (*ter nomig* 'that book') has undergone LDS out of the embedded *wh* interrogative. Native-speaker consultants report that the sentence is acceptable under the intended reading. To further confirm the pattern, (11) is an example involving a 'whether' island.

(11) ***Ter nom-ig***$_1$ *Jon-∅* [$_{CP}$ *Meri-g* *öčigdör* ___$_1$ *unši-j* *duus-san*
that book-ACC John-NOM Mary-ACC yesterday read-CVB finish-PST
esekh-iig] *med-meer* *bai-na.*
whether-ACC know-wish COP-NPST
'[That book]$_1$, John wants to know [whether Mary finished reading ___$_1$ yesterday].'

In (11), the embedded object DP (*ter nomig* 'that book') has undergone LDS out of the embedded 'whether' clause. The result in (10) is replicated: consultants report that the sentence is acceptable under the intended reading.

In addition, time and place adverbials, which can undergo LDS quite easily, may scramble out of *wh* islands. This point is illustrated by the following two examples.[7]

[7]The mild degradation of examples like (12) and (13) appears to be linked to processing effort. Speakers re-

(12) ? ***Ulaanbaatar zočid buudl-in ömnö***$_1$ *Dorj-∅* [$_{CP}$ *Tuyaa-g khen-tei* ___$_1$
Ulaanbaatar Hotel-GEN front Dorj-NOM Tuyaa-ACC who-COMIT
ünseltse-j bai-san be gej] (*khuwiin mördögč-öös-öö*) *asuu-san.*
kiss-CVB COP-PST Q C private detective-ABL-REFL.POSS ask-PST
'[In front of the Ulaanbaatar Hotel]$_1$, Dorj asked (the private detective) [who Tuyaa was kissing ___$_1$].'

(13) ? ***Irekh jil***$_1$ *Bayar-∅* [$_{CP}$ *khen-∅* ___$_1$ *tögsö-kh we gej*] *nad-aas*
next year Bayar-NOM who-NOM graduate-NPST.PTCP Q C 1SG-ABL
asuu-san.
ask-PST
'[Next year]$_1$, Bayar asked me [who will graduate ___$_1$].'

As shown in (12) and (13), LDS of either time or place adverbials is acceptable out of embedded *wh* questions.

These examples illustrate that although LDS cannot proceed out of strong islands (section 2), it seems to be able to proceed out of *wh* islands.

3.3 *Wh* LDS out of *wh* islands

A *wh* phrase, too, can be scrambled out of an embedded *wh* interrogative. Depending on the construction, there is fine gradience in acceptability;[8] nevertheless, speakers generally accept the following type of construction with ease. Notably, the LDS-ed *wh* phrase receives an embedded-scope interpretation, exhibiting an obligatory-scope-reconstruction or **radical-reconstruction** effect in the sense of Saito 1989.

(14) ***Yamar nom-ig***$_1$ *Bold-∅* [$_{+Q}$ *Zayaa-g* ___$_1$ *aw-san* ***be*** *gej*] *asuu-san.*
what.kind.of book-ACC Bold-NOM Zayaa-ACC buy-PST Q C ask-PST
Embedded scope: 'Bold asked [what book Zayaa bought].'
(Literally: 'What book, Bold asked [Zayaa bought ___].')

port ambiguity in the adverb's attachment site (matrix or embedded clause). Although this ambiguity can be resolved—for instance, via a tense mismatch, as in (13)—the effort required seems to contribute to the degraded judgment. The sentences are accepted once the structure is resolved. The exact source of the judgment variation awaits future research, as not all ambiguous constructions are similarly affected (cf. (5)).

[8] Judgments vary mildly for *wh* LDS from embedded interrogatives: while (14) is accepted by my consultants, similar constructions like (i) are judged as mildly degraded.

(i) ?/^{OK} *Ali nom-ig*$_1$ *Bayar-∅* [*Dulmaa-g öčigdör* t$_1$ *nom-in delgüür-ees aw-san be gej*] *nadaas*
which book-ACC Bayar-NOM Dulmaa-ACC yesterday book-GEN store-ABL buy-PST Q C 1SG.ABL
asuu-san.
ask-PST
'Which book, Bayar asked me (that) Dulmaa bought from the bookstore yesterday.'

Crucially, even when a sentence is considered degraded, its interpretation and the intended embedded scope of the *wh* phrase are clear (see also section 5). This mild variation seems similar to that reported for Japanese (e.g., Saito 1989, Watanabe 1992, and Miyagawa 2005).

Wh LDS displacing an argument out of a declarative clause is also allowed. Consider the following examples. In (15a), the in-situ *wh* argument *yamar nomig* 'what kind of book' takes matrix scope. Scrambling this *wh* phrase out of the embedded [−Q] CP is acceptable, as indicated in (15b).

(15) a. *Či* [$_{-Q}$ *Dorj-iig öčigdör* ***yamar*** ***nom-ig*** *unš-san gej*] *khel-sen* ***be****?*
2SG.NOM Dorj-ACC yesterday what.kind.of book-ACC read-PST C say-PST
Q
Matrix scope: 'What book did you say [that Dorj read yesterday]?'

b. ***Yamar*** ***nom-ig***$_1$ *či* [$_{-Q}$ *Dorj-iig öčigdör* ___$_1$ *unš-san gej*]
what.kind.of book-ACC 2SG.NOM Dorj-ACC yesterday read-PST C
khel-sen ***be****?*
say-PST Q
Matrix scope: 'What book did you say [that Dorj read yesterday]?'

Next we turn to the crucial data of *wh* LDS involving non-arguments. While certain adverbials can be scrambled clause externally as demonstrated earlier, if the adverbial that undergoes scrambling is a *wh* phrase, the sentence becomes ungrammatical. Two examples, (16) and (17), illustrate this fact. In (16), a locative *wh* phrase (*khaana* 'where') taking embedded scope is scrambled out of the embedded interrogative, landing in the matrix-initial position. Judgments are uniform across all speakers consulted: it is not possible to interpret this dislocated *wh* phrase as a part of the embedded clause. Similar results are obtained when the *wh* phrase undergoing scrambling is a temporal *wh* phrase (*khezee* 'when'), shown in (17).

(16) * ***Khaana***$_1$ *suragčid-∅* [$_{+Q}$ *Čingis khaan-ig* ___$_1$ *oršuul-san* ***be*** *gej*]
where students-NOM Chinggis Khan-ACC bury-PST Q C
bagš-aas asuu-san.
teacher-ABL ask-PST
Intended (embedded scope): 'The students asked the teacher [where Chinggis Khan was buried].'
(Literally: 'Where, the students asked the teacher [Chinggis Khan was buried ___].')

(17) * ***Khezee***$_1$ *suragčid-∅* [$_{+Q}$ *Čingis khaan-ig* ___$_1$ *tör-sön* ***be*** *gej*] *bagš-aas*
when students-NOM Chinggis Khan-ACC born-PST Q C teacher-ABL
asuu-san.
ask-PST
Intended (embedded scope): 'The students asked the teacher [when Chinggis Khan was born].'
(Literally: 'When, the students asked the teacher [Chinggis Khan was born ___].')

		Out of [−Q] clause	Out of *wh* island
Ordinary LDS	Arguments	✓: (2b)	✓: (10, 11)
	Adverbials	✓/?: (5, 6)	?: (12, 13)
***Wh* LDS**	Arguments	✓: (15b)	✓/?: (14), (i) in footnote 8
	Adverbials	✓/?: (19, 20)	*: (16, 17)

Table 1: LDS patterns

Note in addition that it is not the case that *khezee* 'when' and *khaana* 'where' can never be scrambled. Both *wh* phrases can be scrambled locally within a clause or clause externally so long as they do not cross a *wh* island (or other islands). Example (18) illustrates that these two *wh* adverbials can undergo intermediate scrambling to the sentence-initial position.

(18) ***Khaana***$_1$ / ***khezee***$_1$ *Bayar-∅ ene kino-g* ___$_1$ *üz-sen* ***be****?*
where when Bayar-NOM this movie-ACC see-PST Q
'Where/when did Bayar see this movie?'[9]

These *wh* adverbials can also be scrambled long distance out of declarative CPs. Examples illustrating instances of LDS of *khezee* 'when' and *khaana* 'where' are the following.

(19) ? ***Khaana***$_1$ *bagš-∅* [$_{CP}$ *Čingis khaan-ig* ___$_1$ *oršuul-san gej*] *khel-sen* ***be****?*
where teacher-NOM Chinggis Khan-ACC bury-PST C say-PST Q
'Where did the teacher say [that Chinggis Khan was buried ___]?'

(20) ? ***Khezee***$_1$ *bagš-∅* [$_{CP}$ *Čingis khaan-ig* ___$_1$ *tör-sön gej*] *khel-sen* ***be****?*
when teacher-NOM Chinggis Khan-ACC born-PST C say-PST Q
'When did the teacher say [that Chinggis Khan was born ___]?'

In these examples, the embedded CP is not an interrogative. The *wh* phrases *khezee* 'when' and *khaana* 'where,' taking matrix scope, may proceed out of these embedded CPs. Although the surface orders of these two examples are mildly degraded (indicated with *?*), for all native speakers consulted, they sound far better than (16) and (17) under the intended interpretation.

3.4 Summary of the patterns

The full range of patterns presented so far is summarized in table 1 with representative example numbers.

As the table indicates, ordinary LDS is essentially unconstrained, with ordinary LDS of adverbials being somewhat degraded, something also observed in other languages (Bailyn 2020).

[9]The gap in this example is represented as being in the verb-adjacent position for expository purposes. In Khalkha Mongolian, this position often receives a focus interpretation.

Since ordinary LDS of adverbials is nevertheless easily accepted by the native-speaker consultants, for the purpose of the current investigation I will assume that Khalkha Mongolian permits adverbial LDS, at least to a certain degree, and leave the source of such mild degradation to future work.

The data further suggest that *wh* LDS patterns differently from ordinary LDS. Although LDS of *wh* arguments is more or less acceptable out of a *wh* island, *wh* LDS of adverbials is completely ungrammatical out of a *wh* island. This pattern is an instance of the argument–non-argument asymmetry, mirroring the familiar weak-island effects observed with A′ movement such as English *wh* movement. The pattern additionally bears a resemblance to a previous observation made by Huang 1982: although 'when' and 'where' pattern with 'who' and 'what' in being quite freely extractable at LF, 'when' and 'where' pattern more like true adjuncts in terms of narrow-syntax A′ extraction—they are subject to a stricter locality requirement and cannot be easily A′ extracted out of *wh* islands (Huang 1982: 534–543; see also Tsai 1994).

3.5 The nature of the asymmetry

If *wh* LDS indeed has similar syntactic properties as regular A′ movement, the fact that it exhibits the asymmetry observed in table 1 is expected. This sub-section investigates in greater detail the nature of that asymmetry, wrapping up section 3.

3.5.1 Two analytical options

There are at least two options for analyzing the patterns in table 1.

The first option is to suppose that *wh* LDS and ordinary LDS are the same type of movement. Under this approach, one would need to say that there is a certain unique property that prevents the particular *wh* phrases *khaana* 'where' and *khezee* 'when' from extracting out of *wh* islands. However, the same constraint does not apply to their non-*wh* counterparts (i.e., non-*wh* time and place adverbials), even though all these elements are adverbials.[10]

The second option is to assume that *wh* LDS and ordinary LDS are different types of movement driven by distinct types of features. Suppose that a *wh* island imposes an intervening element of a featural class α on the path of LDS. The patterns could then be potentially explained via a ban on forming dependencies across interveners of that featural class (**Relativized Minimality**; Rizzi 1990): if *wh* LDS is driven by those α-class features, then we expect it to exhibit, when crossing a *wh* island, the asymmetry observed in English *wh* movement out of a *wh* island. In contrast, ordinary LDS is not driven by features of such a class. Therefore, intervening α-type elements imposed by *wh* islands do not interact with ordinary-LDS dependencies. (Bai-

[10]These facts may be additionally considered in light of Murasugi & Saito 1992, in which adverbials can be considered as arguments of the event. Nevertheless, it is not immediately clear how this analysis could help distinguish the *wh* adverbials from the non-*wh* adverbials in terms of their extraction patterns.

lyn 2020 makes a proposal along these lines for Russian.)[11, 12]

This article will pursue the second analytical option, arguing that the *wh*-LDS patterns instantiate weak-island effects. Two further facts support this. First, in contrast to extraction out of embedded interrogatives, ordinary LDS and *wh* LDS pattern identically with respect to strong islands; this is explored in section 3.5.2. Second, the asymmetric patterns of *wh* LDS parallel those of typical A′ movement such as relativization; this is explored in section 3.5.3.

3.5.2 Ordinary versus *wh* LDS: no asymmetry in strong islands

If the *wh*-LDS patterns are indeed weak-island effects, we expect that when extracting the exact same types of elements out of strong islands, arguments will behave the same as non-arguments and the asymmetry will be absent. This prediction is borne out: strong islands block ordinary and *wh* LDS alike, with no argument–non-argument asymmetry.

First, as noted in section 2, ordinary LDS of a DP argument is sensitive to adjunct islands (e.g., (3)). As expected, ordinary LDS of an adverbial out of an adjunct clause is not possible either. Example (21) illustrates this point with a locative adverbial. In this sentence, the adverbial *Parist* ('in Paris') cannot be construed with the embedded clause.

(21) * ***Paris-t***$_1$ *yerönkhiilögč-∅* [*Meri-g* ___$_1$ *delgüür khes-č*
Paris-DAT president-NOM Mary-ACC shop wander-CVB
bai-kh-a-d (*ni*)] *ogtsro-son.*
COP-NPST.PTCP-EP-DAT 3.POSS resign-PST
Intended: 'The president resigned when Mary was shopping in Paris.'
(Literally: 'In Paris, the president resigned [when Mary was shopping ___].')

Similarly, ordinary LDS cannot proceed out of complex NPs, neither when the extracted element is an argument, as in (22), nor when it is an adverbial, as in (23).

(22) * ***Ter nom***$_1$***-ig*** *Bat-∅* [[$_{\text{RC}}$ *öčigdör* ___$_1$ *khudalda-j aw-san*] *khün-iig*]
that book-ACC Bat-NOM yesterday deal-CVB buy-PST.PTCP person-ACC
khai-j *bai-na.*
search-CVB COP-NPST
Intended: 'Bat is looking for the person who bought that book yesterday.'
(Literally: 'That book, Bat is looking for [the person [who bought ___ yesterday]].')

[11] The label α could be conceived as the quantificational elements in Rizzi 2004a, the operators in Abels 2012, or a more general featural class. See section 5.

[12] While the precise nature of extraction asymmetries from weak islands is a topic of ongoing investigation (see earlier work like Huang 1982, Rizzi 1990, and Lasnik & Saito 1992 and later developments/revisions by Kroch 1989, Cinque 1990, Szabolcsi & Zwarts 1993, and Abrusán 2014, among others), this article's immediate goal is to demonstrate a parallelism: *wh* LDS shows the same selective extraction effects typical of A′ movement. For expository purposes, I will refer to the pattern as an argument–non-argument asymmetry, acknowledging but abstracting away from the complexity of weak-island effects cross-linguistically.

(23) * ***Öčigdör***$_1$ *Bat-∅* [[$_{RC}$ ___$_1$ *ter nom-ig khudalda-j aw-san*] *khün-iig*]
yesterday Bat-NOM that book-ACC deal-CVB buy-PST.PTCP person-ACC
khai-j bai-na.
search-CVB COP-NPST
Intended: 'Bat is looking for the person who bought that book yesterday.'
(Literally: 'Yesterday, Bat is looking for [the person [who bought that book ___]].')

Unlike in the case of movement out of embedded interrogatives, *wh* LDS out of strong islands patterns almost identically with ordinary LDS out of strong islands. No matter whether *wh* LDS targets an argument or adverbial, it cannot proceed out of an adjunct or a complex-NP island. First I should note that Khalkha Mongolian allows *wh* phrases in situ inside adjunct clauses and complex NPs:

(24) a. *Tsagdaa-g-iin gazr-in darga-∅* [*Jon-ig khen-tei uulza-j*
police-EP-GEN place-GEN chief-NOM John-ACC who-COMIT meet-CVB
bai-kh-a-d] *öröön-d or-j ir-sen be?*
COP-NPST.PTCP-EP-DAT room-DAT enter-CVB come-PST Q
'Who$_x$ is such that the chief of police entered the room while John was meeting with *x*?'

b. *Yerönkhiilögč-∅* [*Meri-g khaana delgüür khes-č bai-kh-a-d*
president-NOM Mary-ACC where shop wander-CVB be-NPST.PTCP-EP-DAT
(*ni*)] *ogtsro-son be?*
3.POSS resign-PST Q
'Where$_x$ is such that the president resigned when Mary was shopping at *x*?'

(25) a. *Či* [[*yerönkhiilögč-∅ khen-tei uulz-san gekh*] *yaria-g*] *sons-son be?*
2SG.NOM president-NOM who-COMIT meet-PST C rumor-ACC hear-PST Q
'Who$_x$ is such that you heard the rumor that the president was meeting with *x*?'

b. *Či* [[*yerönkhiilögč-∅ khezee ogtsor-no gekh*] *yaria-g*] *sons-son be?*
2SG.NOM president-NOM when resign-NPST C rumor-ACC hear-PST Q
'When$_x$ is such that you heard the rumor that the president will resign at time *x*?'

However, none of these *wh* phrases may be scrambled out of adjunct clauses or complex NPs. The examples in (26) are the results of applying LDS to the *wh*-in-situ constructions in (24): LDS of either an argument or adverbial *wh* phrase out of an adjunct clause is ungrammatical.

(26) a. * ***Khen-tei***$_1$ *tsagdaa-g-iin gazr-in darga-∅* [*Jon-ig* ___$_1$ *uulza-j*
who-COMIT$_1$ police-EP-GEN place-GEN chief-NOM John-ACC meet-CVB
bai-kh-a-d] *öröön-d or-j ir-sen be?*
be-EP-NPST-DAT room-DAT enter-CVB come-PST Q

b. * ***Khaana*** *yerönkhiilögč-∅* [*Meri-g* ___1 *delgüür khes-č*
where president-NOM Mary-ACC shop wander-CVB
bai-kha-d (*ni*)] *ogtsro-son be?*
be-NPST.PTCP-DAT 3.POSS resign-PST Q

The same patterns are observed in complex NPs. Applying LDS to the constructions in (25) leads to ungrammatical results, with no argument–non-argument asymmetry:

(27) a. * ***Khen-tei***$_1$ *či* [[*yerönkhiilögč-∅* ___1 *uulz-san gekh*] *yaria-g*]
who-COMIT 2SG.NOM president-NOM meet-PST C rumor-ACC
sons-son be?
hear-PST Q

b. * ***Khezee*** *či* *yerönkhiilögč-∅* ___1 *ogtsor-no gekh*] *yaria-g* *sons-son*
when 2SG.NOM president-NOM resign-NPST C rumor-ACC hear-PST
be?
Q

The examples in (27) further confirm the patterns so far: neither *wh* LDS nor ordinary LDS can proceed out of strong islands. Argument and non-argument extraction are equally ungrammatical.

3.5.3 *Wh* LDS: comparison with typical A′ movement

Relativization, an instance of A′ operator movement, shows the argument–non-argument asymmetry that the patterns in *wh* LDS resemble. Long-distance relativization of time and place constituents out of a *wh* island is not possible (see Huang 1982 and Tsai 1994 for similar observations):

(28) * *Ene nögöö* [$_{RC}$ *bagš-iin* [$_{CP}$ *ter nom-ig* ___1 *khen aw-san be gej*]
this one teacher-GEN that book-ACC who buy-PST Q C
asuu-san] *gazar*$_1$.
ask-PST.PTCP place
Intended: 'This is the place where the teacher asked [who bought that book ___].'

(29) * *Ene nögöö* [$_{RC}$ *bagš-iin* [$_{CP}$ *ter nom-ig* ___1 *khen aw-san be gej*]
this one teacher-GEN that book-ACC who buy-PST Q C
asuu-san] *ödör*$_1$.
ask-PST.PTCP day
Intended: 'This is the day when the teacher asked [who bought that book ___].'

In (28), a locative element undergoes long-distance relativization out of an embedded interrogative. The sentence is not acceptable under the interpretation indicated in the translation with the notated gap position inside the embedded *wh* question. The same pattern is observed

when the element undergoing relativization is a time constituent (29).[13]

This contrasts with long-distance relativization of an argument, which is relatively easy in Mongolian:

(30) ? *Ene nögöö* [$_{RC}$ *minii* [$_{CP}$ *Dorj-iig yaagaad* ___$_1$ *aw-san be gej*] *asuu-san*] *nom*$_1$.
this one 1SG.GEN Dorj-ACC why buy-PST Q C ask-PST.PTCP book
'This is the book that I asked [why Dorj bought ___].'

In other words, long-distance relativization shows an argument–non-argument asymmetry when it proceeds out of a *wh* island: arguments can be relativized out of an embedded interrogative, but time/place adverbials cannot be. This is similar to the asymmetry observed in *wh* LDS and is expected if *wh* LDS, like relativization, is driven by A′-type features.

4 Diagnosing landing sites

In this section, I show that *wh* LDS and ordinary LDS involve distinct movement operations that target different landing sites. I will first develop a proposal for the Khalkha Mongolian extended clausal periphery building on previous work (Rizzi 1997, Rizzi 2004b, Cinque & Rizzi 2008, Rizzi 2013a, and Saito 2013). Then, I will show that *wh* LDS targets a higher landing site in the clausal periphery than ordinary LDS does, based on evidence from thematic topics and relativization.

4.1 Diagnosing LDS landing sites through thematic topics

Khalkha Mongolian LDS cannot freely target an arbitrary landing site in the matrix clause. In all the examples we have examined so far, LDS lands in the matrix-initial position, preceding the matrix subject:

(31) LDS ✓
***X*P**$_1$ matrix subject … [$_{CP}$ … ___$_1$ … $V_{embedded}$ C] V_{matrix}

It is known that cross-linguistically, LDS that does not target such a position is often degraded. For example, LDS that targets some position below the matrix subject, as schematized in (32), is noted to be significantly degraded in Mongolian compared to scrambling all the way to the matrix-initial position (Gong 2023b: 24–25). This contrast is also attested in other scrambling languages such as Hindi (Bhatt 2003 and Dayal 2017).

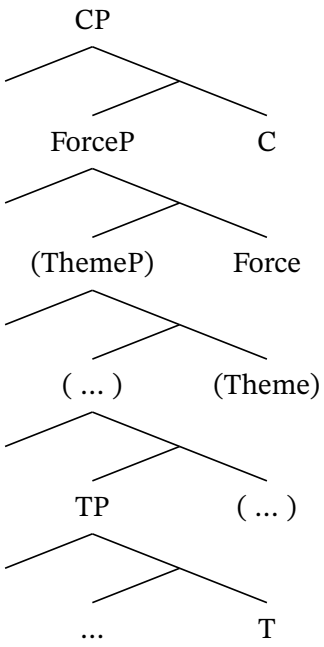
[13] It should be noted that the surface strings themselves in (28, 29) sound OK. However, the corresponding interpretation is one in which the relative-clause head (the place, the day) is construed with the matrix clause, not with the embedded clause.

(32) matrix subject $\boldsymbol{XP}_1$ … [$_{CP}$ … ⟵$_1$ … $V_{embedded}$ C] V_{matrix}

LDS ??

Assuming for now that there is a specific landing site or sites that LDS must target, I adopt the following basic template for the Khalkha Mongolian extended clausal periphery, taking a cartographic approach (based on Rizzi 1997, Rizzi 2013a, and Saito 2013).

(33)



In embedded clauses, C hosts the complementizer *gej*. In interrogative clauses, Force hosts the Q particle, which can either be the *wh*-question particle *be*/*we* (in a matrix question or in an embedded question) or the yes/no-question particle *uu*/*üü* (which appears in matrix questions in the data reported in this article). ThemeP hosts thematic topics, headed by the topic marker *bol*, and is projected "as needed" (in the sense of, e.g., Rizzi 1997). For expository purposes, the templatic structure in (33) further assumes that ThemeP is located below ForceP, following previous work both on potentially universal fine CP structure (Rizzi 1997 and Rizzi 2013a) and on typologically similar languages like Japanese (Saito 2013).

A few additional notes are needed in order to clarify the nature of thematic topics in Mongolian and justify the presence of a dedicated projection for them in the periphery. In this language, topics are often indicated by the marker *bol*. A *bol*-marked phrase can be interpreted as a "theme" (i.e., an aboutness topic or thematic topic, as in Kuno 1975) or as a contrastive topic. Therefore, a sentence like (34) is potentially ambiguous between thematic- and contrastive-topic readings of the subject.

(34) [*Bat-∅ bol*] *ter nom-ig unš-san.*
Bat-NOM TOP that book-ACC read-PST

Thematic: 'Speaking of Bat, he read that book.'
Contrastive: 'Bat read that book, (but I don't know about others).'

Importantly, although a contrastive reading is readily available for *bol*-marked phrases in most cases, the thematic reading is possible only when a phrase is located in the clause-peripheral position. In (35), *bol* marks the object *ter nomig* ('that book'), which is not in the sentence-initial position. Here, the object can only receive the contrastive reading.

(35) *Bat-∅* [*ter nom-ig bol*] *unš-san.*
Bat-NOM that book-ACC TOP read-PST
* Thematic: 'Speaking of that book, Bat read it.'
Contrastive: 'Bat read that book, (but I don't know about other books).'

The thematic reading of the object in (35) becomes available if the *bol*-marked object linearly precedes the subject and occupies the sentence-initial position:

(36) [*Ter nom-ig bol*]$_1$ *Bat-∅* ___$_1$ *unš-san.*
that book-ACC TOP Bat-NOM read-PST
Thematic: 'Speaking of that book, Bat read it.'
Contrastive: 'Bat read that book, (but I don't know about other books).'

In Gong 2023a, thematic topics in Mongolian are analyzed as follows. Theme, the head that hosts the thematic topic, is located in the extended clausal periphery and requires its specifier to be filled. This explains the fact that thematic topics must be located in the clausal periphery and cannot be in situ in their base-generated positions. As a functional head, Theme does not probe, and a DP may receive thematic-topic interpretation only if it occupies spec-ThemeP (e.g., Miyagawa 2010). Spec-ThemeP is similar to a criterial position in nature (Rizzi 2006, Rizzi 2017, and Rizzi & Shlonsky 2007): a DP receives an interpretation associated with topicality when it occupies this position. Additionally, thematic topics are not limited to root clauses in Mongolian. As noted in Gong 2023a, finite CP complements of the verb 'to say' allow embedded thematic topics:

(37) *Bagš-∅*$_1$ [$_{CP}$ *Bat-∅* ***bol*** *offis-t ni*$_1$ *khoyor nom-ig unš-i-j*
teacher-NOM Bat-NOM TOP office-DAT 3SG.POSS two book-ACC read-EP-CVB
duusga-san gej] *khel-sen.*
finish-PST C say-PST.
'The teacher$_1$ said that Bat finished reading two books in his$_1$ office.'
Thematic OK: 'The teacher$_1$ said that speaking of/as for Bat$_2$, he$_2$ finished reading two books in his$_1$ office.'

The embedded subject *Bat* is marked by *bol*, giving rise to an embedded thematic-topic reading. The co-indexation ensures that the sentence is not a direct quotation (Vermeulen 2013). Only

embedded clauses with a large enough structure such as a finite CP can accommodate thematic topics. Complement clauses with smaller structures (e.g., embedded non-finite clauses) disallow thematic topics.

From this brief background we see that (i) ThemeP serves as a fixed "landmark" within the extended clausal periphery and (ii) ThemeP can appear in both root clauses and embedded finite CPs. I will leverage these two properties of ThemeP to diagnose the landing site of two types of LDS.

First, intermediate scrambling can target a position above the *bol*-marked thematic topic, but LDS cannot. Recall a previous example with a subject thematic topic:

(38) [*Bat-∅ bol*] *ter nom-ig unš-san.*
Bat-NOM TOP that book-ACC read-PST
Thematic: 'Speaking of Bat, he read that book.'
Contrastive: 'Bat read that book, (but I don't know about others).'
= (34)

The thematic reading of this subject topic remains accessible even when the subject no longer counts as the sentence-initial constituent after intermediate scrambling applies. In (39), *ter nomig* ('that book.ACC') has undergone intermediate scrambling to the sentence-initial position, preceding the *bol*-marked subject *Bat*. The thematic reading remains accessible.

(39) *Ter nom-ig*$_1$ [*Bat-∅ bol*] ___$_1$ *unš-san.*
that book-ACC Bat-NOM TOP read-PST
Thematic OK: 'That book, speaking of Bat, he read that book.'
(Gong 2023a: 429)

The availability of the thematic reading in (39) suggests that intermediate scrambling can land in a position above the thematic-topic position. In contrast, LDS may never precede a thematic topic. Consider the following example, where the matrix subject *Yör* is marked with *bol* and receives the thematic-topic interpretation, as indicated in the translation.

(40) *Yör-∅ bol nadad* [$_{CP}$ *Anya-g samar-t maš durtai gej*] *ürgelj khel-deg.*
Yor-NOM TOP 1SG.DAT Anya-ACC peanut-DAT very like C often say-HABIT
Thematic OK: 'Speaking of Yor, she often says to me that Anya likes peanuts very much.'

Crucially, LDS targeting a position above this thematic-topic matrix subject *Yör bol* is not possible. The word order in (41) is out.

(41) * *Samar-t*$_1$ *Yör-∅ bol nadad* [$_{CP}$ *Anya-g* ___$_1$ *maš durtai gej*] *ürgelj*
peanut-DAT Yor-NOM TOP 1SG.DAT Anya-ACC very like C often
khel-deg.
say-HABIT

Intended (thematic): 'Peanuts$_1$, speaking of Yor, she often says to me that Anya likes (them$_1$) very much.'

Is it possible for LDS and matrix thematic topicalization to co-occur at all? The following example, though still quite degraded, presents a contrast with (41) in that speakers report that the word order is plausible.

(42) ?? *Yör-∅ bol, samar-t_1, nadad* [$_{CP}$ *Anya-g* —$_1$ *maš durtai gej*] *ürgelj*
Yor-NOM TOP peanut-DAT 1SG.DAT Anya-ACC very like C often
khel-deg.
say-HABIT
Intended (thematic): 'Speaking of Yor, peanuts, she often says to me that Anya likes (them) very much.'

Given (41, 42), I adopt the working assumptions that LDS (i) targets a fixed position in the matrix clausal periphery and (ii) can in principle target a position below the thematic topic.

4.2 Diagnosing LDS landing sites through relative clauses

Evidence from relative clauses (RCs) further clarifies the nature of the clausal periphery and the specific landing sites of LDS. In particular, the behavior of LDS within RCs suggests that *wh* LDS targets a higher landing site than ordinary LDS. After establishing the necessary background on Mongolian RC structure and related analytical assumptions, I demonstrate how these positions are structurally differentiated.

4.2.1 Background on Khalkha Mongolian RCs

RCs in Mongolic languages are known to have a reduced structure and limited clausal periphery (e.g., Hale 2002 and Miyagawa 2008). An example of an object RC is the following.

(43) [$_{RC}$ *Bat-∅ / Bat-in öčigdör unš-san*] *nom*
Bat-NOM Bat-GEN yesterday read-PST.PTCP book
'the book that Bat read yesterday'

Such RCs have a truncated structure: they lack ThemeP and everything above it. The reduced structure of RCs is further evidenced by the fact that in (43) the RC-internal predicate is in a non-finite participial form (*unšsan*). Typical finite verb endings, such as the recent-past ending *-lAA*, are impossible in this environment:

(44) * [$_{RC}$ *Bat-∅ / Bat-in öčigdör unš-**laa***] *nom*
Bat-NOM Bat-GEN yesterday read-PST book
Intended: 'the book that Bat read (finite recent past)'

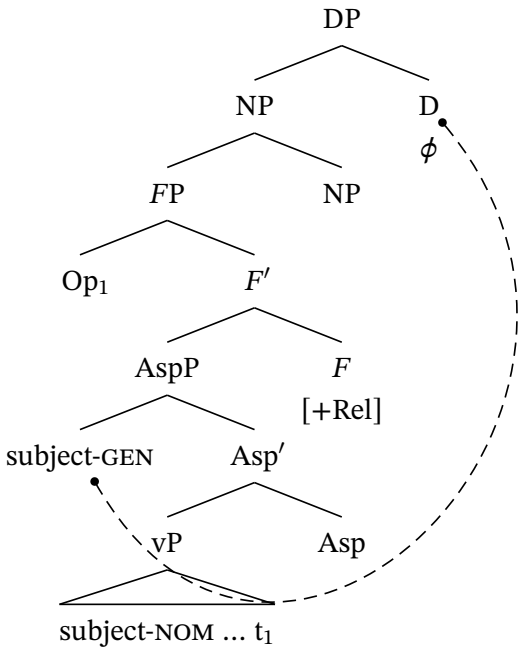
Based on Hale 2002's proposal for RCs in the Mongolic language Dagur, the widely held understanding about the structure of RCs in Mongolic and typologically similar languages (especially certain Turkic languages; e.g., Asarina 2011, Asarina & Hartman 2011, Ótott-Kovács 2023, and Ótott-Kovács 2024) is that they have the structure of an Aspectual Phrase (AspP) or a defective TP (see, e.g., Miyagawa 2011a for one of the influential proposals along these lines).

In some proposals, the truncated clausal structure in (43) is closely related to the case alternation on the RC subject. Since AspP/TP is smaller than a CP, this reduced structure allows the D head associated with the RC head to license the genitive-case marker on the RC subject (e.g, Miyagawa 2011a's D-licensing analysis). The nominative–genitive case alternation on the embedded RC subject is likely due to the subject occupying positions of different heights in the RC: genitive subjects occupy a higher position than nominative ones and are therefore closer to the genitive-case-licensing head D. One piece of evidence suggesting that genitive subjects are indeed higher than nominative subjects comes from binding. Consider the following example.

(45) *Bat Dorj khoyor-*$\varnothing_1$ [$_{\text{RC}}$ *biye biye-***(nii)**-kh-ee*$_1$ *aw-san*] *zurg-ig*
Bat Dorj two-NOM each other-GEN-EP-REFL.POSS take-PST.PTCP picture-ACC
zar-san.
sell-PST
'Bat and Dorj$_1$ sold the picture(s) each other$_1$ took.'

In (45), the anaphor 'each other' in the RC subject position must be bound by a local subject. In order to obtain the reading in which the matrix subject 'Bat and Dorj' binds the RC subject, the RC subject must be in genitive case; nominative case (morphologically null) results in ungrammaticality. While the details of genitive-subject licensing in RCs are a complex issue beyond the immediate scope of this article, the preliminary evidence so far seems sufficient for us to adopt the following structure for RCs in Mongolian for expository purposes.

(46) Assumed RC structure



The structure in (46), building on Ótott-Kovács 2023, captures the following properties of Khalkha Mongolian RCs. (i) The RC is represented as an *F*P with a reduced clausal structure (the functional head *F* is assumed to host an A′ probe responsible for relativization). (ii) The D head associated with the RC head licenses genitive case on the subject. (iii) Genitive subjects are located in a higher position (spec-AspP) than nominative subjects within the RC.

4.2.2 Scrambling within RCs

Having clarified my assumptions about RCs and their syntactic structures, I now turn to scrambling. Although RCs in Khalkha have a truncated structure, they permit scrambling within them. Notably, intermediate (clause-internal) scrambling may freely proceed over both genitive subjects and nominative subjects:

(47) [$_{\text{RC}}$ *Margaaš*$_1$ *Dorj-∅* / *Dorj-iin* ___$_1$ *yawa-kh*] *gazar-∅* *khol bai-na.*
tomorrow Dorj-NOM Dorj-GEN go-NPST.PTCP place-NOM far COP-NPST
'The place that Dorj will go tomorrow is far.'

The example in (47) involves a temporal adverb. Intermediate scrambling of a regular object argument over the subject is also acceptable:[14]

(48) [$_{\text{RC}}$ *Meri-tei*$_1$ *Dorj-∅* / *Dorj-iin* *margaaš* ___$_1$ *uulza-kh*] *gazar-∅*
Mary-COMIT Dorj-NOM Dorj-GEN tomorrow meet-NPST.PTCP place-NOM
khol bai-na.
far COP-NPST

[14]The landing site of intermediate scrambling within the RC is not shown in the assumed RC template. Plausibly, this position could be an adjoined position (a proposal going back to Saito 1985) or an additional functional projection (adopting an alternative version of Saito 2009) above the subject.

'The place that Dorj will meet Mary tomorrow is far.'

LDS can also occur within an RC to some extent. However, while an RC provides a landing site for ordinary LDS, it cannot host *wh* LDS. This restriction highlights a distinction not only between clause-internal scrambling and LDS but also between sub-types of LDS. Although these operations all target the clause-initial position linearly, they likely involve distinct types of movement and target different structural landing sites.

First, ordinary LDS can take place within an RC with a nominative subject, although it is somewhat degraded. Consider the base order (49), which is an RC structure with a finite CP embedded in the RC.

(49) [$_{RC}$ *Bill-∅* / *Bill-iin* [$_{CP}$ *Jon-ig* *Meri-tei* *gerle-sen* *gej*] ___$_1$
Bill-NOM Bill-GEN John-ACC Mary-COMIT get.married-PST C
khel-sen] *gazar-∅*$_1$ *bol ter baar yum.*
say-PST.PTCP place-NOM TOP that bar PART
'The place where Bill said that John married Mary is that bar.'

Sentence (50) is the result of applying LDS to the most deeply embedded object argument, Mary, in (49). As shown, although the sentence is variably degraded for different speakers, it remains acceptable provided the RC subject is nominative.

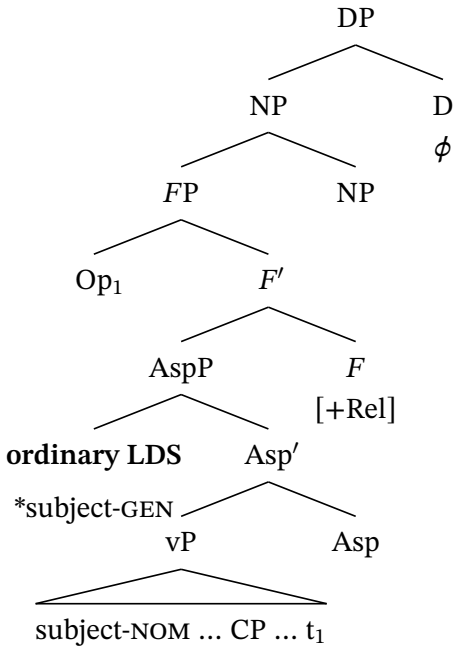
(50) ?/?? [$_{RC}$ *Meri-tei*$_2$, *Bill-∅* [$_{CP}$ *Jon-ig* ___$_2$ *gerle-sen* *gej*] ___$_1$
Mary-COMIT Bill-NOM John-ACC get.married-PST C
khel-sen] *gazar-∅*$_1$ *bol ter baar yum.*
say-PST.PTCP place-NOM TOP that bar PART
Literally: 'The place where [$_{RC}$ Mary$_2$, Bill said [$_{CP}$ that John married ___$_2$]] is that bar.'

Crucially, for the same group of speakers, ordinary LDS over a genitive subject is much worse than ordinary LDS over a nominative subject. The sentence in (50) becomes ungrammatical if the RC subject is in genitive case:

(51) * [$_{RC}$ *Meri-tei*$_2$, *Bill-**iin*** [$_{CP}$ *Jon-ig* ___$_2$ *gerle-sen* *gej*] ___$_1$ *khel-sen*]
Mary-COMIT Bill-GEN John-ACC get.married-PST C say-PST.PTCP
gazar-∅$_1$ *bol ter baar yum.*
place-NOM TOP that bar PART

Given this pattern, I propose that ordinary LDS proceeds out of an embedded finite CP and lands in spec-AspP. Since spec-AspP is also the position that the RC subject raises to in order to get genitive case, ordinary LDS cannot co-occur with a genitive RC subject. In contrast, since nominative subjects are lower in the structure, ordinary LDS can target spec-AspP, landing above nominative RC subjects, giving rise to (50):

(52) Landing site for ordinary LDS



In contrast to ordinary LDS, *wh* LDS is not possible within an RC, regardless of the case of the subject. Consider the base structure (53). This is similar to the constructions above, except that here the RC contains an embedded interrogative CP.

(53) [$_{RC}$ *Bayar-∅* [$_{CP}$ *Jon-ig* *khen-tei* *gerle-sen* *be gej*] ___$_1$ *asuu-san*]
Bayar-NOM John-ACC who-COMIT get.married-PST Q C ask-PST.PTCP
gazar-∅$_1$ *bol ter baar yum.*
place-NOM TOP that bar PART
'The place where Bayar asked who John married is that bar.'

wh LDS is applied in (54). For speakers who think (50) is more or less okay, (54) is significantly worse and completely ungrammatical. Note that it does not matter what case the RC subject is in. Both nominative and genitive subjects are ungrammatical when *wh* LDS applies within the RC.

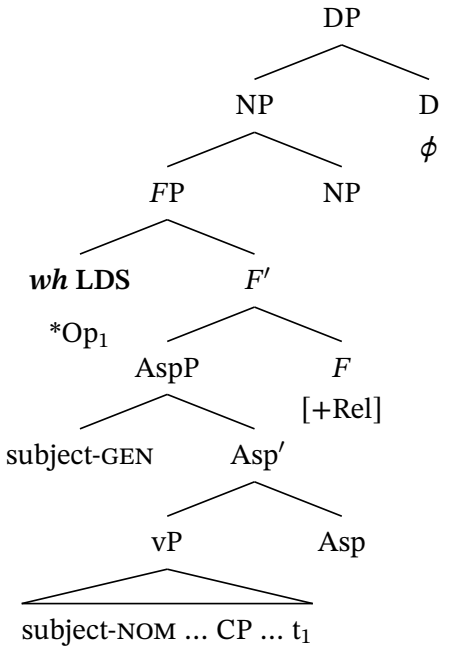
(54) * [$_{RC}$ *Khen-tei*$_2$ *Bayar-∅* / *Bayar-iin* [$_{CP}$ *Jon-ig* ___$_2$ *gerle-sen* *be gej*]
who-COMIT Bayar-NOM Bayar-GEN John-ACC get.married-PST Q C
___$_1$ *asuu-san*] *gazar-∅*$_1$ *bol ter baar yum.*
ask-PST.PTCP place-NOM TOP that bar PART
Intended: 'The place where [$_{RC}$ who$_2$, Bayar asked [$_{CP}$ John married ___$_2$]] is that bar.'

Note that if the *wh* LDS in (54) is removed from the RC environment, the operation itself is possible in a matrix construction. The following example is only mildly degraded.

(55) ? *Khen-tei*$_2$ *Bayar-∅* [$_{CP}$ *Jon-ig* ___$_2$ *gerle-sen* *be gej*] *asuu-san.*
who-COMIT Bayar-NOM John-ACC get.married-PST Q C ask-PST
'Who$_2$, Bayar asked [$_{CP}$ John married ___$_2$]].'

The ungrammaticality of (54) is explained if the landing site of *wh* LDS is an A′ position that the RC operator also occupies. Since there is only one such position (*F*P), the fact that *wh* LDS is completely impossible in RCs is expected.[15] The landing site for *wh* LDS within an RC is marked in the following tree.

(56) Landing site for *wh* LDS



5 Deriving the two types of LDS in syntax

So far, I have presented data showing that *wh* LDS and ordinary LDS differ in their locality profiles and target different landing sites. Based on these observations, this section addresses the following question. Why does *wh* LDS display an argument–non-argument asymmetry while ordinary LDS does not? Recall that ordinary LDS targets matrix spec-AspP whereas *wh* LDS targets a higher position, matrix spec-*F*P. I propose that the locality difference derives from the features of the probes on the functional heads hosting these distinct landing sites. Before detailing this analysis, I outline the necessary assumptions regarding the structure of *wh* questions in Khalkha.

[15] Another possibility is that *wh* LDS lands somewhere higher than the RC operator. Since these two analytical options do not make a significant difference in terms of empirical results, I will assume that *wh* LDS targets *F*P for the current purpose.

5.1 The structure and interpretation of *wh* in situ in Khalkha Mongolian

As mentioned in section 3, Khalkha Mongolian is a *wh*-in-situ language: in a *wh* question, the *wh* phrase does not move to the clausal periphery to take scope. In simplex sentences, *wh* phrases remain in their base-generated position. The periphery is occupied by a Q particle, yielding a question interpretation:

(57) *Či* ***khen-iig*** *khar-san* ***be****?*
2SG.NOM who-ACC see-PST Q
'Who did you see?'

Following previous work, I assume that an in-situ *wh* phrase in Khalkha need not undergo covert movement at LF to its scope position and is instead interpreted in situ (Baker 1970, Nishigauchi 1986, Nishigauchi 1990, Cheng 1991, Aoun & Li 1993, Tsai 1994, Chomsky 1995, Reinhart 1998, Tsai 1999, and Kratzer & Shimoyama 2002, among others). The in-situ *wh* expression is bound by a phonologically null operator, which undergoes narrow-syntax movement from its base-generated position near the *wh* expression to the scope position spec-ForceP (Watanabe 1992). The schema in (58) models this null-operator movement following Tsai 1999. Under this approach, the in-situ *wh* phrase is interpreted as a variable bound by the operator that is moved to the scope position.[16]

(58) $[_{CP}\ [_{ForceP}\ \overset{\downarrow}{Op}_x\ [_{IP}\ \ldots\ t_x\ wh_x\ \ldots\ ]\ Q]]$

The existence of movement of a null operator is supported by evidence from the "additional-*wh*" effect (Watanabe 1992 and Hagstrom 1998; cf. Richards 1998). In Khalkha Mongolian, an in-situ *wh* phrase is degraded when it appears inside an embedded interrogative:[17]

(59) ? *Či* [*Altantsetseg-iig yuu aw-san esekh-iig*] *Zayaa-g-aas asuu-san*
2SG.NOM Altantsetseg-ACC what buy-PST whether-ACC Zayaa-EP-ABL ask-PST
be?
Q
'What did you ask Zayaa whether Altantsetseg bought?'

But when a second *wh* phrase is added outside of the island to make a multiple question, the sentence improves:

[16]While various other approaches to the semantics of *wh* in situ exist (e.g., choice functions: Reinhart 1998; focus alternatives: Beck 2006 and Kotek 2014, building on Rooth 1985 and Hamblin 1973), it is not the goal of the current article to provide a comparative assessment. What is important for the current account is the syntactic fact that (i) the *wh* phrase does not move at LF and (ii) there is narrow-syntax operator movement due to the in-situ *wh*-island effect.

[17]To account for why in-situ *wh* phrases can appear inside complex NPs, Nishigauchi 1986 and Nishigauchi 1990 propose large-scale pied piping that moves the entire island at LF. An alternative analysis involves null-operator movement in the narrow syntax (e.g., Hagstrom 1998 and Tsai 1999).

(60) *Či* [*Altantsetseg-iig yuu aw-san esekh-iig*] *khen-ees asuu-san be?*
2SG.NOM Altantsetseg-ACC what buy-PST whether-ACC who-ABL ask-PST Q
'Who did you ask whether Altantsetseg bought what?'

Addition of a *wh* phrase inside the *wh* island does not lead to improvement:

(61) ? *Či* [*Altantsetseg-iig khen-ees yuu aw-san esekh-iig*] *asuu-san be?*
2SG.NOM Altantsetseg-ACC who-ABL what buy-PST whether-ACC ask-PST Q
'What did you ask whether Altantsetseg bought from who?' or 'Who did you ask whether Altantsetseg bought what from?'

In Tsai 1999's analysis of such effects, which builds on Watanabe 1992, exactly one null operator moves from an in-situ *wh* expression to its scope position in narrow syntax. At LF, the *wh* question is interpreted via the operator unselectively binding the *wh* expressions in situ as variables. In-situ *wh*-island effects like the one in (59) occur when the operator associated with the only *wh* expression ('what' in (59)) is forced to move from its base position inside the *wh* island to the scope position hosted by the matrix Q particle. Adding another *wh* phrase outside of the *wh* island repairs the effect: in (60), the null operator can move from the *wh* expression external to the *wh* island to the scope position in the matrix clausal periphery. This option is not possible in (61), since both *wh* expressions are inside the island.

As mentioned above, the landing site of this operator (i.e., the scope of the *wh* expression) is closely connected to the position of the Q particle in *wh* questions. In a simplex sentence, the operator simply moves to the matrix spec-ForceP headed by the Q particle. In a construction where a *wh* expression in an embedded clause takes matrix scope, such as (62), the operator undergoes successive-cyclic movement from the base-generated position in the embedded clause to the specifier of the matrix ForceP, passing through the intermediate CP edge, as shown in (63).

(62) [$_{+Q}$ *Nawčaa-∅* [*Zayaa-g* ***ali*** ***nom-ig*** *unš-san gej*] *khel-sen* ***be***]*?*
Nawčaa-NOM Zayaa-ACC which book-ACC read-PST C say-PST Q
Matrix scope: 'Which book did Nawčaa say that Zayaa read?'

(63) [$_{CP}$ [$_{ForceP}$ Op$_x$ [$_{IP}$ … [$_{CP}$ … [$_{IP}$ … [… t$_x$ *wh*$_x$ …]]]] Q]]

5.2 A derivational approach to locality in LDS

This section provides the analysis for the locality patterns in the two types of Khalkha LDS. Building on Kitahara 2000, Kitahara 2002, and Saito 2003, I implement a derivational approach to scrambling chains. I assume that a movement chain is created via copy and deletion (Chomsky 1993) and an element undergoing movement in syntax carries with it a collection of features. An overt DP, for example, has a phonetic feature P and a feature D that enables it to

have reference and participate in binding/coreference relations (Saito 2003). Furthermore, the properties of the head (e.g., γ) of a landing site (spec-γP) can determine which feature(s) of the moved phrase are retained or deleted at that landing site for interpretation (e.g., operator features are retained at operator positions). Meanwhile, there are also certain features that drive narrow-syntax movement and do not directly interact with LF interpretation (e.g., EPP).

To see how this works, consider English *wh* movement in a sentence like *Who did John see?*. The *wh* expression moves overtly from its in-situ position to spec-CP. In addition to being a DP, the *wh* expression *who* is equipped with an operator feature O_{wh}, which enables the *wh* expression to be interpreted as an operator once it is moved to the specifier of a CP headed by an interrogative complementizer. In addition, it possesses a separate *wh* feature. The positing of this *wh* feature is motivated by the idea that in successive-cyclic movement, the intermediate C heads (and potentially other phase heads), despite not being interrogative complementizers themselves, are equipped with a corresponding feature that drives movement of an embedded *wh* phrase to their specifier (e.g., Chomsky 2000, McCloskey 2000, and McCloskey 2002). This *wh* feature is assumed to be semantically inert, that is, deleted once it is satisfied, prior to LF interpretation. Thus, a simple *wh*-movement derivation would be modeled as follows.

(64) $[_{CP}$ *Who*$_1$ $[_{C'}$ *did* $[_{IP}$ *John see* *who*$_1$ ...]]]*?*

P, O_{wh}, ~~*wh*~~, ~~D~~ ~~P~~, ~~O_{wh}~~, ~~*wh*~~, D

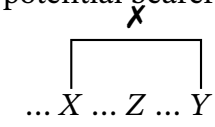
(Based on Saito 2003: 490)

The movement of *who* carries with it a set of features $\{P, O_{wh}, wh, D\}$. The P feature is retained at the landing site of the chain and deleted at the tail, deriving the fact that this is an instance of overt movement. Assume further, following Saito 2003, that deletion is constrained by the properties of the landing site, such that features remain in positions where they are valued or selected. In (64), the feature O_{wh} is retained at spec-CP because this is an operator position headed by an interrogative C that can value the O_{wh} feature on the *wh* phrase.[18] The movement of *who* is driven by the *wh* feature, which deletes prior to LF interpretation. Finally, the D feature is selected at the complement position of the verb *see* and is neither valued nor selected at spec-CP. Therefore, D is deleted at the head of the chain and retained at the tail.[19]

[18]This process can be made more concrete by positing that the O_{wh} feature is valued at the specifier of the interrogative C, because +Q spec-CP is an operator position. Alternatively, an Agree-based model can be posited, where the interrogative C probes for the O_{wh} and *wh* features on the *wh* phrase, driving subsequent movement of the *wh* phrase to spec-CP.

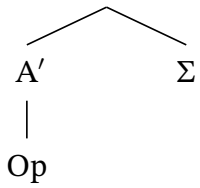
[19]The English representation (64) assumes that a *wh* phrase both moves to spec-CP and functions as an operator there. Therefore, a *wh* phrase in English has O_{wh} in addition to *wh*. The featural specification for a Khalkha *wh* phrase differs from that in English. As articulated in section 5.1, Khalkha Mongolian involves a null operator moving to the scope position, instead of the *wh* phrase itself. In this case, the null operator bears O_{wh}, and the *wh* expression, interpreted in situ, bears *wh*.

This approach derives the island effects in scrambling examined here. Following among others Rizzi 1990, Chomsky 1995, Rizzi 2001, and Rizzi 2004a, I assume that the *wh*-island effect in *wh* LDS and the lack of it in ordinary LDS should be handled in terms of Relativized Minimality. The core intuition behind Relativized Minimality is that a local structural relation between two elements X and Y is blocked if a third element, Z, intervenes between them and Z is a potential bearer of the relevant relation:

(65) 

While early formulations of Relativized Minimality distinguished broadly between heads and phrases and whether a phrase is in an A or A′ position. (Rizzi 1990), subsequent developments have introduced a more granular hierarchy of features to account for more complex A′ interactions. Specifically, Abels 2012 (see also Starke 2001 and others) argues that syntactic features are organized into sub-class–super-class relationships. Under this approach, a moving element carrying only a general super-class feature is blocked by any intervening element of that same class. An element carrying a more specific sub-class feature may bypass a super-class intervener, meanwhile acting as an intervener for all elements within both its own sub-class and the broader super-class (Abels 2012: 248).

Building on Bailyn 2020, I implement a version of this approach for the current analysis and suggest that the classification needed to derive the LDS facts in Khalkha Mongolian is the following.[20]

(66) a. 

b. A′: *wh*
Op: O_{wh}

Building on Grewendorf & Sabel 1999, Kawamura 2004, and Bailyn 2020, I assume the Khalkha featural inventory contains a scrambling feature Σ. This feature is responsible for driving ordinary LDS.[21] While Σ drives syntactic movement, it does not directly interact with LF and

[20] Features that are not immediately relevant to the current analysis are omitted. For a detailed discussion of the organization of a more comprehensive feature inventory, see Starke 2001, Boeckx & Jeong 2004, Rizzi 2004a, Abels 2012, Rizzi 2013b, and Bailyn 2020.

[21] An alternative is to assume that ordinary LDS is not feature driven (e.g., Saito 1989, Fukui 1993, and Saito & Fukui 1998). However, claiming this raises additional fundamental questions about grammar that are beyond the scope of this article. Under current Minimalist assumptions, if ordinary LDS is indeed associated with the specifier of a particular functional head like Asp, one would expect LDS to be driven by a feature hosted by that head. I appreciate the discussions with an anonymous reviewer that helped clarify this aspect of the analysis.

deletes prior to interpretation. In the classification (66), Σ is an independent class from what I label as A′. A′ has a sub-class Op, which contains operators (similar to quantificational elements in the formulation of Rizzi 2004a). O_{wh} is a member of the sub-class Op, which entails that it is also A′. In contrast, the *wh* feature only belongs to the super-class A′. This organization is compatible with the idea that O_{wh}, unlike *wh*, has an operator-like behavior that has consequences for semantic interpretation.[22]

The featural organization in (66) makes two predictions. First, movement involving Σ will not interact with any A′ features, since the two are independent of each other. Second, an O_{wh} intervener will block movement involving *wh*. Both predictions are borne out by the LDS patterns in Khalkha Mongolian.

5.3 Deriving ordinary LDS and *wh* LDS

Consider the case of ordinary LDS. It is allowed to escape *wh* islands and does not exhibit an argument–non-argument asymmetry, because it is driven by Σ and thus may freely proceed across the A′ intervener imposed by the embedded interrogative:

(67) ***Ter nom-ig***$_1$ *Bat-∅* [$_{CP}$ [$_{ForceP}$ Op(A′) *khen öčigdör* ___$_1$ *aw-san be*] *gej*]
that book-ACC Bat-NOM who yesterday buy-PST Q C
nad-aas asuu-san.
1SG-ABL ask-PST

Let us see the derivation for this example step by step:

(68) a. Operator movement in the embedded *wh* interrogative

[$_{CP}$ [$_{ForceP}$ Op [$_{IP}$ ___ who yesterday that book-ACC bought] Q] C]
O_{wh} ~~O_{wh}~~

b. Matrix clause built; ordinary LDS applies

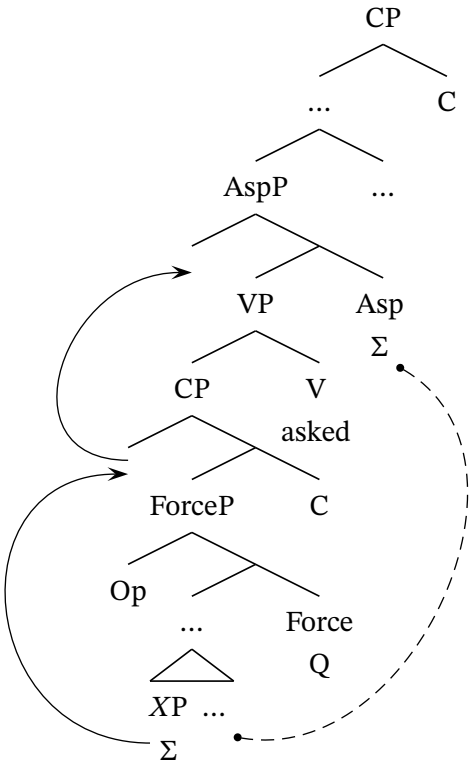
that book-ACC Bat [$_{CP}$ that book [$_{ForceP}$ Op [$_{IP}$ who ... that book bought] Q] C] ask
P, ~~D~~, ~~Σ~~ ~~P~~, ~~D~~, ~~Σ~~ O_{wh} ~~P~~, D, ~~Σ~~

First, the embedded *wh* interrogative is built. As shown in (68a), the null operator Op moves from the in-situ position to spec-ForceP, establishing the scope of the *wh* question. This null Op carries with it the O_{wh} feature, which enables it be to interpreted at spec-ForceP. The O_{wh} feature is deleted at the base position. Next, the matrix clause is built. Since ordinary LDS targets matrix spec-AspP (section 4), I suggest that the probe with the Σ feature that drives LDS

[22] Cf. Bailyn 2020 for a different organization, where Σ is a non-quantificational feature but no separate A′ class is assumed.

is hosted on Asp in Khalkha. Once AspP is introduced at the matrix-clause level, ordinary LDS applies to 'that book,' a phrase that also has a Σ feature. As shown in (68b), the scrambled DP 'that book' carries with it P, D, and Σ features. P is retained at the landing site, deriving the fact that this is overt movement. D is deleted at the landing site and retained at the base position, because D is selected at the object position of the embedded verb 'bought.' Σ deletes after driving the LDS of 'that book' to its landing site, prior to LF interpretation. Although ordinary LDS crosses Op at spec-ForceP of the embedded interrogative, it does not interact with Op due to their different featural specifications: ordinary LDS involves Σ feature, whereas the Op has O_{wh}, a type of A′ feature.[23] This configuration is schematized in the following tree.[24]

(69)



Let us turn now to *wh* LDS. Unlike ordinary LDS, *wh* LDS is sensitive to *wh* islands, displaying a selective locality effect sometimes characterized as an argument–non-argument asymmetry. Rather than resolving the ongoing debates regarding the source of this asymmetry (see footnote 12), the current goal is to leverage the phenomenon to probe the syntactic properties of *wh* LDS. Under the current analysis, the *wh*-island sensitivity of *wh* LDS follows from Relativized Minimality: the dependency established by *wh* LDS is of the same featural type as the

[23]The featural organization adopted here assumes that A′ is a descriptive label and not a theoretical primitive. The weak-island data show that scrambling and operator dependencies are distinct. Any featural analysis for Khalkha must derive the core distinctions among Σ, *wh*, and O_{wh} as outlined here.

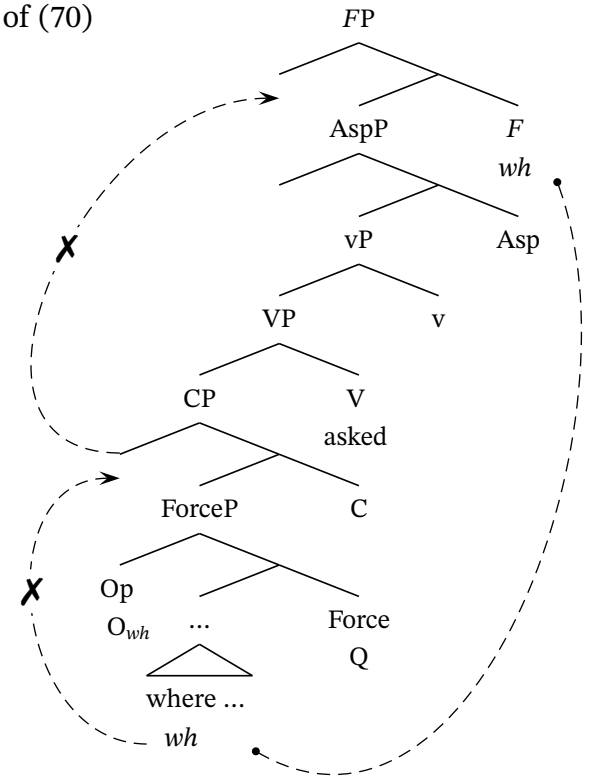
[24]The long-distance Agree dependencies depicted here are rendered compatible with locality conditions like the Phase-Impenetrability Condition (Chomsky 2001) under a version of cyclic agreement (Legate 2005), whereby the dependency is assumed to be built through local steps mediated by intervening phase heads.

operator being crossed at the specifier of ForceP. As an example, consider the ungrammaticality of non-argument extraction in *wh* LDS:

(70) * ***Khaana***$_1$ *suragčid-∅* [$_{CP}$ [$_{ForceP}$ Op(A′) *Čingis khaan-ig* —$_1$ *oršuul-san be*]
where students-NOM Chinggis Khan-ACC bury-PST Q
gej] *bagš-aas asuusan.*
C teacher-ABL asked

The configuration is illustrated as follows, assuming that *wh* LDS is driven by the *wh* probe hosted on *F*.

(71) Derivation of (70)



The attempted *wh* LDS, illustrated with dashed arrows, brings the non-argument *wh* expression to the matrix clause, making a stop at the edge of the intermediate CP due to CP being a phase. Crucially, *wh* LDS involves the feature *wh*, a member of the A′ class. This movement is blocked by the intervening operator at spec-ForceP, carrying the O$_{wh}$ feature. Since O$_{wh}$ belongs to Op, it is also a member of the A′ class; therefore, movement of *wh* crossing an intervening operator is ruled out.

5.4 Further predictions and discussion

5.4.1 Deriving radical reconstruction in *wh* LDS

In this section, I show that the present feature-based analysis also captures a core *interpretive* property of LDS: radical reconstruction. As discussed earlier, Khalkha uses the dedicated

wh particle *be*/*we* to mark a clause as +Q and +*wh* and to indicate *wh* scope. A *wh* question requires this particle. In (72), the embedded clause contains a Q particle, but the matrix clause does not. The *wh* phrase 'who' is base generated in the matrix subject position, outside the scope of the embedded Q particle, and the result is ungrammatical.[25]

(72) Matrix *wh* fails to be licensed by embedded Q

Khen-∅* [$_{+Q}$ *Zayaa-g ter nom-ig unš-san* ***be* *gej*] *asuu-san.*
who-NOM Zayaa-ACC that book-ACC read-PST Q C ask-PST

Intended: 'Who asked [Q that Zayaa read that book].'

Although a *wh* phrase cannot be base generated outside the Q particle's scope, it can be *scrambled* to such a position:

(73) ***Yamar nom-ig*** *Bold-∅* [$_{CP}$ *Zayaa-g* ___$_1$ *aw-san* ***be*** *gej*] *asuu-san.*
what.kind.of book-ACC Bold-NOM Zayaa-ACC buy-PST Q C ask-PST
'Bold asked what book Zayaa bought.'
(Literally: 'What book$_1$, Bold asked [Q Zayaa bought ___$_1$].')

What is striking about (73) is that, despite being outside the embedded Q particle's c-command domain at the surface, the scrambled *wh* phrase still takes embedded scope. This contrasts with (72) and illustrates the radical-reconstruction property of LDS (Saito 1985 and Saito 1989).

For comparison, consider English-type *wh* movement:

(74) [$_{CP}$ *Who*$_1$ [t$_1$ *wonders* [$_{CP}$ ***where***$_2$ [*we bought* ***what*** t$_2$]]]]*?*

(Saito 1989: 194)

The embedded interrogative CP in this example contains two *wh* phrases, *where* and *what*. With *what* staying in situ, *where* in the embedded CP has undergone *wh* movement to the embedded spec-CP. After such movement takes place, giving rise to (74), *where* can only take embedded scope, in contrast to *what*, which can take scope either at the matrix CP or the embedded CP (Baker 1970 and Saito 1989). This shows that English *wh* movement creates a semantically significant operator–variable dependency at LF and lacks radical-reconstruction effects. By contrast, *wh* LDS need not establish such a dependency.

The feature-based derivational approach to scrambling chains is designed to handle this contrast. The implementation here follows the spirit of Saito 2003. *Wh* LDS resembles English *wh* movement in involving a *wh* feature, but—as noted in sections 5.1 and 5.2 and particularly footnote 19—Khalkha *wh* expressions are structured and interpreted differently. Khalkha

[25] One explanation for this restriction (Harada 1972) is that the traces created by LF *wh* movement obey the Proper-Binding Condition (see, e.g., Saito 1989). This constraint can be stated as a more general ban on vacuous quantification (Watanabe 1992).

forms *wh* questions as in (75), via narrow-syntax movement of a null operator (Op) to the relevant scope position, where its operator feature O_{wh} determines *wh* scope. The *wh* expression bears only a *wh* feature and carries no operator feature.

(75) $[_{CP}\ [_{ForceP}\ \underset{O_{wh}}{Op_x}\ [_{IP}\ \ldots\ \underset{wh}{wh_x}\ \ldots\ ]\ Q]]$

This analysis predicts that syntactic movement of a *wh* expression should be independent of its scope interpretation. In particular, *wh* LDS should not affect the scope of the scrambled *wh* phrase—a prediction borne out in (73). A sketch of the derivation is as follows.

(76) a. Operator movement in the embedded *wh* interrogative

$[_{CP}\ [_{ForceP}\ \underset{O_{wh}}{Op}\ \ [_{IP}$ Zayaa $\underset{\cancel{O_{wh}}}{Op}$ what.kind.of book-ACC bought] Q] C]
P, D, *wh*

b. Matrix clause built; *wh* LDS applies

what.kind.of book-ACC Bold $[_{CP}$ what.kind.of book $[_{ForceP}$ Op $[_{IP}$ Zayaa what.kind.of book bought] Q] C] ask

P, ~~D~~, ~~*wh*~~ ~~P~~, ~~D~~, ~~*wh*~~ O_{wh} ~~P~~, D, ~~*wh*~~

The embedded *wh* question is first constructed as in (76a). Scope is fixed by movement of the null operator Op to spec-ForceP, headed by the Q particle. Op carries O_{wh}, which is retained at the landing site and deleted in its base position. Next, *wh* LDS applies as in (76b), first moving the embedded *wh* phrase to the edge of the embedded CP.[26] At this initial step, D is deleted at the landing site but retained at the tail of the chain, which is a selected complement position. A second movement step targets the matrix periphery (spec-*F*P), carrying the remaining P and *wh* features; the copies of these features at the embedded CP edge are then deleted. The matrix functional head *F* values the *wh* feature, which is subsequently deleted at spec-*F*P prior to interpretation. The P feature survives because this is overt movement. Importantly, throughout this derivation, the movement path of the *wh* expression does not matter for scope, since the latter is already determined by the movement of Op and the valuation of O_{wh} feature at spec-ForceP.[27]

[26] This movement crosses Op at spec-ForceP and leads to the argument–non-argument asymmetry of *wh* LDS out of a *wh* island. This configuration is ruled out completely if the *wh* phrase is a non-argument.

[27] At LF the operator needs to bind the *wh* expression as a variable. In this example it does: the copy at the head of the chain has nothing but the P feature, whereas the copy at the tail of the chain has the D feature, allowing this copy to be bound as a variable. In contrast, in a configuration like (72), no successful operator–variable relationship can be established: if an operator is generated at the specifier of the embedded Q particle, the operator does not bind the *wh* phrase since the *wh* expression originates from outside of the embedded clause. If the operator attempts to move from near the *wh* phrase to the matrix-clause periphery, it does not have a proper landing site since the matrix clause is declarative.

5.4.2 Further discussions: beyond Khalkha Mongolian

The analysis developed for Khalkha Mongolian treats *wh* expressions as interpreted in their base positions, bound by a null operator that undergoes movement in syntax to spec-ForceP, a position headed by the question particle. This yields a split between the operator feature O_{wh} and the *wh* feature: the former is located on the null operator, whereas the latter is on the *wh* expression. The separation of these features derives radical reconstruction: a scrambled *wh* phrase may surface outside the embedded Q particle yet still take embedded scope, since scope is determined solely by the operator's landing site (cf. Saito 2003).

Wh-in-situ languages, however, vary considerably in their interpretive mechanisms (see, among others, Aoun & Li 1993, Cole & Hermon 1994, Tsai 1994, Dayal 1996, Hagstrom 1998, Tsai 1999, Simpson 2000, Watanabe 2001, and Cheng 2009). This section examines how the derivational approach can model such variation, using Japanese—a language with both *wh* in situ and *wh* LDS, like Khalkha Mongolian—as a test case. The guiding hypothesis is that the interpretation of *wh*-LDS chains is tied to the *wh*-in-situ mechanism of the language. A comparative look at Japanese data confirms this. As is well known, Japanese scrambling exhibits radical-reconstruction effects:

(77) ? [*Dono hon-o*$_i$ [*John-ga* [$_{CP}$ [$_{CP}$ *Mary-ga* t$_i$ *yonda*] *ka*] *siritagatteiru*]]
which book-ACC John-NOM Mary-NOM read Q wants.to.know (*koto*).
fact
'John wants to know which book Mary read.'
(Literally: '[Which book$_i$, John wants to know [Q [Mary read t$_i$]]].')
(Saito 2003: 484)

In (77), the *wh* phrase is scrambled to the matrix-initial position but still receives the embedded reading. Based on data like this, Saito 1989 concludes that scrambling is semantically vacuous. However, Takahashi 1993 observes a different pattern when the matrix clause is also marked by a question particle. Consider the following example.

(78) *John-wa* [$_{CP}$ *Mary-ga* ***nani-o*** *tabeta ka*] *siritagatteiru no?*
John-TOP Mary-NOM what-ACC ate Q wants.to.know Q
Reading 1: 'Does John want to know what Mary ate?'
? Reading 2: 'What does John want to know whether Mary ate?'
(Takahashi 1993: 657; judgment based on Watanabe 2003)

Because Japanese *ka* is ambiguous between a *wh*-question particle and a yes/no-question particle, (78) allows two readings: one in which the embedded clause is a *wh* question (reading 1) and one in which the matrix clause is (reading 2). This ambiguity disappears when the embedded *wh* phrase *nani-o* undergoes LDS:

(79) ***Nani***$_1$***-o*** *John-wa* [$_{CP}$ *Mary-ga* t_1 *tabeta ka*] *siritagatteiru no?*
what-ACC John-TOP Mary-NOM ate Q wants.to.know Q
* Reading 1: 'Does John want to know what Mary ate?'
Reading 2: 'What does John want to know whether Mary ate?'

The *wh* phrase inside the embedded clause has undergone LDS to the matrix-initial position. Crucially, in (79) the *wh* phrase can only take matrix scope, allowing reading 2, and can no longer take embedded scope, which rules out reading 1. Takahashi concludes that at least some instances of LDS of *wh* phrases behave just like *wh* movement (74). In particular, he argues that movement of a *wh* phrase to the initial position of a clause headed by a +*wh* COMP counts as *wh* movement in Japanese.[28]

Although both Japanese and Khalkha Mongolian show radical-reconstruction effects, the Japanese data present a further complication: *wh* LDS targeting a +*wh* COMP behaves like *wh* movement. The precise mechanism responsible for *wh* interpretation in Japanese remains an ongoing discussion (e.g., Lasnik & Saito 1984, Nishigauchi 1986, Nishigauchi 1990, Lasnik & Saito 1992, Tsai 1994, Reinhart 1998, Tsai 1999, Kratzer & Shimoyama 2002, Beck 2006, Kotek 2014, Saito 2017, and Kotek 2019). Here I examine two representative analyses and show that irrespective of specific theoretical assumptions, the derivational approach offers a principled way to model the differences between Khalkha Mongolian and Japanese *wh* LDS.

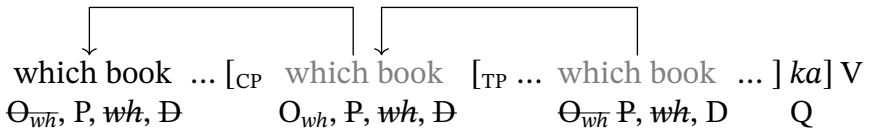
The first approach treats *wh* expressions in Japanese as operators. They are assumed to undergo covert movement to the edge of CP in order to make their contribution to the meaning of the question. Consider, for instance, Saito 2017's analysis, which treats *wh* expressions as operators with unspecified quantificational force. A *wh* expression has an operator feature under this analysis. What consequence does this have for the interpretation of *wh* LDS in Japanese? Consider first the derivation of (77), schematized as follows.

(80) a. Embedded clause generated

... [$_{CP}$ [$_{TP}$ ... which book ...] *ka*] V
P, O_{wh}, *wh*, D Q

[28]Takahashi's test is not replicable in Khalkha Mongolian due to a crucial difference between the two languages' question particles. In Khalkha, question particles are not ambiguous as they are in Japanese. The particle *be*/*we* is used exclusively for *wh* questions. An ambiguous configuration in (78) cannot be constructed in Khalkha.

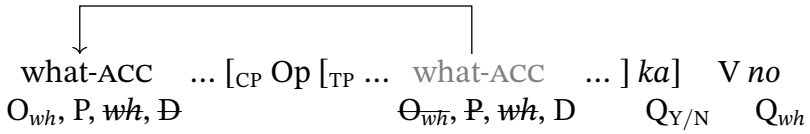
b. *Wh* LDS applies



The derivation starts out in (80a): the *wh* phrase 'which book' is base generated inside the embedded clause, carrying P, *wh*, O_{wh}, and D features. When *wh* LDS applies, shown in (80b), the *wh* phrase is first moved to the embedded spec-CP. This embedded CP is a *wh* interrogative, headed by *ka*. Since the embedded spec-CP is the position where the operator feature O_{wh} is valued and interpreted, O_{wh} is retained there, giving rise to the embedded-*wh*-scope reading. Then, the *wh* expression moves further into the matrix clause. Since the matrix clause is declarative, O_{wh} is deleted, along with *wh* and D. We therefore derive the reading in (77), where the *wh* phrase 'which book' takes embedded scope, despite being scrambled outside of the embedded interrogative at the surface structure.

Under this approach, the ambiguity of (78) arises from covert movement of the *wh* expression either to embedded spec-CP or to matrix spec-CP—the choice being licensed by the ambiguity of *ka*. This has direct consequences for *wh* LDS, as in (79). Reading 2 is schematized as follows.

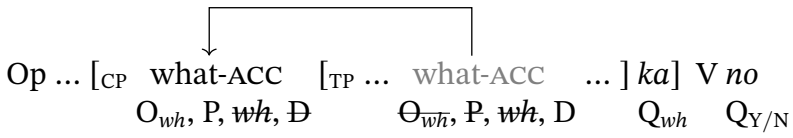
(81) Reading 2 of (79)



When *wh* LDS applies, the *wh* phrase is moved from its base position to its landing site in the matrix clause. Since *wh* expressions are operators, the O_{wh} feature on the *wh* expression will be evaluated and retained at the matrix spec-CP, headed by the Q particle *no* functioning as a *wh*-question operator. This movement is analogous to English-type *wh* movement. This movement also crosses an intervening operator Op at the embedded spec-CP, associated with the yes/no-question particle *ka* in the embedded clause. This causes a mild degradation marked as ? in reading 2.

Under reading 1, the roles of the two question particles are reversed: the embedded question particle marks a *wh* question, and the matrix question particle functions as a yes/no-question particle. Assume that there is also an Op generated at the specifier position of this yes/no particle, just like the scenario in (81):

(82) Reading 1 (unavailable) of (79)



When *wh* LDS applies, the *wh* expression first moves to the specifier of the embedded CP. Since this CP is headed by a *wh*-question particle, O_{wh} is valued and retained there. However, unlike the scenario in (81), where the *wh* phrase can directly move to the specifier of the matrix CP headed by the *wh*-question particle, in (82) further movement into the matrix clause would place the *wh* expression in a position already occupied by the operator associated with the matrix yes/no-question particle. This reading is thus ruled out. This is a version of Simpson 2000's analysis, where it was proposed that the *wh* expression at the higher spec-CP in configurations like (82) causes a featural conflict with the yes/no-question particle at matrix C.

The second approach assumes that Japanese *wh* expressions are interpreted in situ. In some analyses, there is additional narrow-syntax movement of a null operator to the scope position (e.g., Watanabe 1992). Given Takahashi's paradigm along with other empirical facts, Takahashi 1993, Takahashi 1994, and Watanabe 2001 suggest that Japanese may have a dual mechanism, allowing overt *wh* movement of an entire DP in addition to the in-situ interpretive mechanism of *wh* phrases.[29] Simpson 2000 develops an analysis of Japanese *wh* movement along this line. Simpson proposes that a phonetically null but morphologically discrete operator occurs together with *wh* phrases in Japanese and that such an element may optionally detach itself and move independently from the rest of the *wh* phrase. Under this analysis, the ambiguity of (78) can be derived via syntactic movement of the null operator to either the matrix or embedded spec-CP, with the *wh* phrase itself staying in situ. The pattern in (79) would be derived via movement of the *wh* phrase together with the operator. Let us consider how this proposal fares with the current derivational approach to *wh* LDS by again examining the licit reading 2 of (79):

(83) Reading 2 of (79)

a. ... [CP $Op_{Y/N}$ [TP ... Op what-ACC ...] *ka*] V *no*
O_{wh} P, *wh*, D $Q_{Y/N}$ Q_{wh}

b. Op what-ACC ... [CP $Op_{Y/N}$ [TP ... Op what-ACC ...] *ka*] V *no*
O_{wh} P, ~~*wh*~~, ~~D~~ ~~O_{wh}~~ ~~P~~, ~~*wh*~~, D $Q_{Y/N}$ Q_{wh}

[29] The coexistence of movement and in-situ options is suggested to be possible in some languages (e.g., Ancash Quechua, Cole & Hermon 1994).

The derivation has 'what' being base generated inside the embedded clause, carrying P, *wh*, and D features. Together with 'what,' an Op is also generated, carrying O_{wh}. When *wh* LDS applies, it moves the *wh* phrase together with the Op to the matrix-clause landing site. This movement crosses an intervening operator $Op_{Y/N}$ at the embedded spec-CP, associated with the yes/no-question particle *ka* in the embedded clause. This causes a mild degradation marked as ?. Crucially, the matrix spec-CP is headed by a *wh*-question particle. Therefore, the O_{wh} feature on the Op can be valued and retained at the matrix spec-CP, giving rise to the matrix-*wh*-question reading as intended. Reading 1 of (79) is ruled out in a similar way as under the operator analysis of *wh* expressions. Here, the moved constituent carries both the *wh* expression and the operator; this movement may not target the matrix spec-CP headed by the yes/no-question particle, which is filled by the $Op_{Y/N}$ associated with the yes/no question.

The differences between Japanese and Khalkha Mongolian arise from two sources. First, Japanese question particles are ambiguous between a yes/no-question version and a *wh*-question version. This ambiguity permits configurations where two question particles are simultaneously present in both matrix and embedded clauses in Japanese, a structure not observed in Khalkha. Second, the two languages differ in their mechanisms for *wh* interpretation. Japanese may treat *wh* phrases as operators or as in-situ expressions accompanied by an operator, whereas Khalkha employs a null-operator system with a clear division between operator features and *wh* features. The derivational approach to *wh* LDS adopted here captures these contrasts through differences in feature valuation and the nature of the landing sites targeted by movement. It provides a unified framework for modeling cross-linguistic variation even in the face of divergent *wh* interpretive systems.

6 Conclusions

This article has shown that Khalkha Mongolian displays two distinct types of LDS: ordinary LDS and *wh* LDS. These two operations diverge in their behavior with respect to *wh* islands. Ordinary LDS, which moves non-*wh* constituents, is insensitive to *wh* islands, whereas *wh* LDS exhibits an argument–non-argument asymmetry when extracting from them. I further argued that the two scrambling types target different positions in the matrix periphery: ordinary LDS lands in spec-AspP, while *wh* LDS targets a higher position, spec-*F*P.

These distinct landing sites and the features that trigger movement to them account for the differing locality profiles of the two operations. *Wh* LDS is feature-driven A′ movement and therefore subject to intervention by A′ elements such as the null operator in an embedded interrogative, yielding weak-island effects under Relativized Minimality. Ordinary LDS, driven by a scrambling feature Σ rather than an A′-type feature, is unaffected by such interveners.

Finally, by separating the features that drive movement from the mechanism that determines scope, the derivational approach advanced here offers a principled account of radical reconstruction in *wh* LDS. In Khalkha, the scope of a scrambled *wh* phrase is fixed by the po-

sition of a null operator, not the surface position of the *wh* expression, allowing the *wh* phrase to reconstruct for interpretation. This approach further illuminates cross-linguistic variation: languages differ in how operator features are distributed and how *wh* scope is computed, and these differences naturally yield distinct reconstruction and locality patterns. The Khalkha–Japanese comparison suggests that the derivational approach to scrambling chains scales to broader cross-linguistic contexts.

Competing interests

The author has no competing interests to declare.

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