Contiguity Theory and the word order of reduced nominals in Mongolian

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Abstract: This paper discusses the word order properties of object nouns and adverbs in Mongolian. As is well known, the accusative case marker appears only sometimes on the object. I review Guntsetseg's (2016) in depth discussion on differential object marking and pseudo noun incorporation in Mongolian and present some prior work on the prosody of these two constructions (Barrie and Kang, 2022). I show that a caseless non-specific object can be separated from the verb by at most a low VP-adverb. A case-marked or specific, caseless object cannot appear between the verb and a low VP-adverb. Furthermore, a case-marked or specific, caseless object can appear above a higher, temporal adverb, but a caseless, non-specific object cannot. I analyze these facts within a Contiguity Theoretic framework (Richards, 2016) starting with the premise that a caseless non-specific object is an *n*P and that case-marked or caseless, specific object is a full KP. I argue that an *n*P object must be contiguity prominent with its selector, the verb, only and that a KP object must be contiguity prominent first with the verb and then with *v*, which assigns it accusative Case. I show that maintaining contiguity prominence gives rise to the patterns discussed.

Introduction

Guntsetseg (2016) has shown that Mongolian has both differential object marking (DOM) and pseudo noun incorporation (PNI). Existing proposals of these two phenomena fail to account for the word order differences in these two constructions (Baker 2014; Levin 2015). I propose that the word order patterns of PNI and DOM structures in Mongolian can be accounted for within the framework of Contiguity Theory (Richards 2016). In brief, the PNI object is an *n*P, which must establish a contiguity relation with the phonological phrase, φ, created by VP. A full KP object also establishes a contiguity relation with φ_{VP}, but must further establish a Contiguity relation with VoiP, which assigns Case to the object KP. The relatively tight adjacency observed between a verb and its PNI object reduces to the lack of any later operations that break the Contiguity relation between the verb and the object *n*P.

The gist of the analysis is as follows. Following previous work in Barrie and Kang (2022) I assume that a PNI object is a bare *n*P and a full object is a KP. This includes objects that do not appear with case marking as they exhibit DOM. This earlier research also clearly shows a prosodic difference between PNI objects, which obligatorily scope low, and DOM objects, which do not appear with case marking but scope high. Here, I propose that the object, be it *n*P or KP must satisfy Contiguity Prominence in the sense of Richards (2016). As with other head-final languages, Mongolian phonological phrases, φ, are left active. Thus, a goal must appear at the left edge of φ to be Contiguity Prominent with it. The *n*P must be Contiguity Prominent with V, which allows for short scrambling, but no more. Thus, the *n*P must remain close to the verb.

The KP must also be Contiguity Prominent with VoiP, which assigns accusative Case to it. This requires the KP object to move higher. As such, a KP cannot be adjacent to the verb if VP adverbs are present.

The remainder of this paper is structured as follows. Section 2 gives the background of the study. The structure and prosodic facts of DOM and PNI in Mongolian are discussed. Section 3 presents previous analyses of PNI in general and shows that they cannot account for the Mongolian facts. Section 4 presents the necessary aspects of Contiguity Theory. Section 5 presents the analysis of PNI and DOM in Mongolian within a Contiguity Theoretic framework. Section 6 is a brief conclusion.

Background

This section introduces the concepts of differential object marking and pseudo noun incorporation and then goes on to discuss previous research on the syntactic and prosodic properties of PNI and DOM in Mongolian. Some aspects of the theoretical underpinning of the analysis are also presented.

DOM and PNI

Differential object marking (DOM) is a phenomenon in which the appearance of case marking on the object depends on a variety of factors, such as specificity, animacy, and humanness to name some of the more familiar properties implicated in triggering DOM. Bossong (1991) first identified this phenomenon. Consider the following Spanish examples (Fábregas 2013: 1).[1] Unless a more accurate label for the case marker is generally accepted for a given language, it is marked as CASE here to remain neutral. Note that the differential object marker in Mongolian is generally regarded to be accusative case, so will be marked as ACC.

(1)	a.	Encontré	un	problema.	
		I.found	a	problem	
		'I found a problem.'			
	b.	Encontré	a	un	superviviente.
		yesterday	CASE	a	survivor
		'I found a survivor.'			

Based solely on these two examples, it appears that animacy triggers DOM in Spanish. The actual situation is much more complex, with much dialect variation. See Fábregas (2013) for details.

In contrast to the Spanish data shown above, the following Kannada data (Lidz 2006: 11) show that specificity can also influence DOM.[2]

[1] The following abbreviations are used in this paper. Note that some of the glosses have been changed from the source documents to maintain uniformity in the current discussion. ABS – absolutive, ACC – accusative, CASE – case, EMPH – emphatic, ERG – ergative, F – feminine, FUT – future, HAB – habitual, INF – infinitive, LOC – locative, NEG – negative, NOM – nominative, NPST – non-past, PL – plural, PST – past, SG – singular

[2] This is not meant to imply that specificity does not play a role in DOM in Spanish. See Fábregas (2013) and López (2012) as the details are too complex to go into detail here.

(2) a. Naanu pustaka haDuk-utt-idd-eene.
I.NOM book look.for-NPST-be-1SG
'I am looking for a book.' (specific or non-specific)
b. Naanu pustaka-vannu haDuk-utt-idd-eene.
I.NOM book-ACC look.for-NPST-be-1SG
'I am looking for a book.' (specific only)

While a number of factors have been implicated in DOM, I follow López (2012) and assume that DOM is affected by lexical semantic properties (animacy and humanness) only. The object is a full KP, and the absence of case marking is due to allomorphy of the case marker, which is affected by features such as [animate] and [human]. Specificity, I propose, does not play a role in DOM, but rather in pseudo noun incorporation, which we discuss next.

Pseudo noun incorporation (PNI) was first labelled as such by Massam (2001) in her discussion of Nieuan. Consider the following examples from Massam (2001:157), citing Seiter (Seiter 1980).

(3) a. Takafaga tūmau nī e ia e tau ika.
hunt always EMPH ERG he ABS PL fish
'He is always fishing.'
b. Takafaga ika tūmau nī a ia.
hunt fish always EMPH ABS he
'He is always fishing.'

PNI has similar semantic properties to traditional noun incorporation (in the sense of Baker 1988), but does not exhibit morphological incorporation of the sort found in Mohawk (Massam 2001; Dayal 2011; 2015). Crucially, the object in PNI is necessarily non-specific. I argue that a PNI noun is always *n*P. The crucial difference here, then, is that a DOM object (with or without overt case marking) is always a KP, and a PNI object, which is necessarily non-specific and lacks case, is always an *n*P.

The Syntax-Prosody Interface

I adopt here the basic framework of Contiguity Theory (Richards 2016; Branan 2018). In particular, the discussion here relies on the following two principles.

(4) a. Given a probe α and a goal β, α and β must be dominated by a single φ, within which β is Contiguity Prominent.
b. α is Contiguity-Prominent within φ if α is adjacent to a prosodically active edge of φ.

I make one crucial adjustment to Contiguity Theory here. Prosodic categories in Contiguity Theory are based on Match Theory, a theory of the syntax-phonology interface that relates all syntactic phrases, XPs, to phonological phrases, φ (Selkirk 2009; 2011; Elfner 2015). Instead, I adopt a version of Match Theory in which phases map to prosodic categories (Kratzer & Selkirk 2007; Newell 2008; Compton & Pittman 2010; Newell & Piggott 2014; Weber 2020; 2021). There is no consensus on which syntactic phase maps to which prosodic category. I assume that there is cross-linguistic variation in the assignment of prosodic categories to phase type and adopt the conclusion from Barrie and Kang (2022) that KP and *n*P map to a phonological word, ω, and that *v*P maps to a phonological phrase, φ.

DOM and PNI in Mongolian

Guntsetseg (2016) has shown that Mongolian has both DOM, (5), and PNI, (6). Consider the following examples (Guntsetseg 2016: 86, 61).

(5) a. Öčigdör Tujaa gudamžin-d neg zaluu-g üns-sen.
yesterday Tuya street-LOC one guy-ACC kiss-PST
'Yesterday, Tuya kissed a certain guy in the street.'

b. Öčigdör Tujaa gudamžin-d neg zaluu üns-sen.
yesterday Tuya street-LOC one guy kiss-PST
'Yesterday, Tuya kissed a (certain) guy in the street.'

(6) Bi öčigdör nom unš-san.
I yesterday book read-PST
'Yesterday, I did book-reading.'

According to Guntsetseg, DOM in Mongolian relies on a variety of factors such as animacy and specificity; however, as discussed above, I assume that obligatorily non-specific caseless nouns are always PNI. Prosodic evidence will be discussed that bears on this distinction. A PNI object is always non-specific and never appears with case marking regardless of animacy. See Guntsetseg for further morphophonological evidence for the distinction between DOM and PNI in Mongolian.

Next, I discuss the word order properties of DOM and PNI. Consider the following examples. In example (7), the pseudo incorporated noun appears adjacent to the verb or can be separated from it by the VP adverb *khurdan* ('quickly'). In example (8), the specific object cannot appear adjacent to the verb. It must appear above the VP adverb or higher

(7) Tujaa (*nom) dandaa (nom) khurdan (nom) khurdan unš-dag.
Tujaa (*book) always (book) quickly (book) quickly read-HAB
'Tuya always reads books quickly.' (does book-reading quickly)

(8) Tujaa (nom-yg) dandaa (nom-yg) khurdan (*nom-yg) khurdan unš-dag.
Tujaa (book-ACC) always (book-ACC) quickly (*book-ACC) quickly read-HAB
'Tuya always reads the/a book quickly.' (definite or specific, indefinite)

Structure of Reduced Nominals

Evidence for the structure of PNI and DOM nouns is found in Barrie and Kang (2022) and in Kang (2023). Crucially, they observe a prosodic boundary between a DOM object and the verb, which is absent between a PNI object and the verb. Note that Barrie and Kang tested both case-marked and caseless DOM objects. PNI was diagnosed by low scope, and DOM was diagnosed by high scope. Examples of test sentences are as follows.

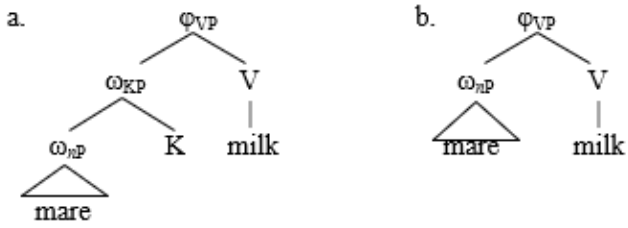
(9) a. Bi guu saa-maar baina ...ali ch guu hamaagui
I mare milk-INF want ...any mare will do
'I want to milk a mare...any mare will do.' [want > ∃]

b. Bi guu(-g) saa-maar baina ...ter tsagaan guu
I mare(-ACC) milk-INF want ...that white mare
'I want to milk a mare...that white mare.' [∃ > want]

Mongolian words are characterized by a characteristic LH contour at the left edge. The precise identity of the domain in which the LH contour is found has usually been described as a phonological word (Svantesson et al. 2005; Janhunen 2012; Karlsson 2014). Barrie and Kang (2022) propose specifically that the LH contour is found at the left edge of a non-minimal ω.

Regardless of case marking in (9)b, a LH contour is found on case-marked objects and high-scoping bare objects. No such contour is found on low-scoping bare objects, however.[3] I adopt the following structures from Barrie and Kang. Again, they propose that the LH contour is found on a non-minimal ω. Thus, it is found on 'mare' in (10)a but not in (10)b.

(10)



Previous Approaches

This section describes previous approaches to PNI, including Levin (2015), Baker (2104), and Clemens (2019), showing that they fail to account for the facts in Mongolian.

Levin and Clemens

Since PNI was first identified in Niuean (Massam 2001) many analyses have attempted to derive the adjacency requirement between the verb and the pseudo incorporated noun (Baker 2014; Levin 2015; Clemens 2019). Levin (2015) offers a particularly well worked-out analysis of adjacency in PNI, so we examine his analysis here. He proposes (2015: 115) the following constraint on nominal licensing.

(11) All categories must be part of a complete extended projection

A non-pseudo incorporated object is a full KP and thus satisfies the constraint in (11). Levin proposes that a pseudo incorporated noun is not a full KP (likely an *n*P or a NumP depending on the language) and is thus not part of a complete extended functional projection. Pseudo incorporation for Levin, then, is the obligatory adjunction of the reduced nominal into the extended verbal projection. As we have seen, however, the pseudo incorporated noun in Mongolian can be separated from the verb by a low VP-level adverb. Thus, Levin's account cannot be extended to the facts in Mongolian.

Likewise, Clemens (2019: 364) offers an analysis of PNI in Niuean that relies on an adjacency constraint between a head and its selected object. She proposes the following Optimality Theoretic constraint.

(12) A head H with a categorial feature [C] and head C with the same [C] feature must constitute a φ-phrase.

[3] See Barrie and Kang for details and for prosodic evidence of the difference between PNI and DOM nominals.

She assumes that syntactic OT constraints are evaluated on a phase-by-phase basis. She further assumes that KP (DP in her terms) is a phase and that *n*P is not. Thus, a full KP undergoes transfer and is not present when the constraint in (12) is evaluated. Thus, no violation is incurred if a full KP object is displaced from the verb that governs it. A reduced object such as an *n*P, however, must appear adjacent to the verb, or a violation of the constraint in (12) would be tallied.

As we can see neither Levin's nor Clemens' approach can explain the lack of strict adjacency of the PNI object and the verb.[4] Furthermore, neither approach addresses the forced displacement of the full KP object. Recall that a full KP object cannot appear between a low VP-level adverb and the verb. We consider next Baker's (2014) approach to covert head movement.

Baker – PF Incorporation

Baker (2014) addresses the observation that some languages require strict adjacency between the pseudo incorporated noun and some languages allow short movement (see also Driemel 2023). Baker proposes that PNI involves head movement of N to V, in the same way that head movement is required for canonical noun incorporation (NI) as in Mohawk (Baker 1988). He argues that head movement is necessary to create an N+V complex head to give rise to the correct semantic interpretation of noun incorporation (pseudo or canonical) in the sense of Dayal (2011). The difference between PNI and NI as in Mohawk is that NI is required for morphological constraints of the language. Head movement is required in PNI purely for semantic reasons.

The mechanism that derives strict adjacency starts with the observation that the noun and the verb are adjacent in all the languages Baker surveys. He assumes the copy theory of movement, in which one copy of a moved syntactic object is deleted. He follows Nunes (2004) and assumes that PF selects the copy with the most deleted features to keep. However, head movement for PNI does not check any features. Nor does it take place to satisfy any morphological requirement at PF. Thus, PF cannot select a copy to delete, so both are kept. In order to avoid a contradiction for linearization, the two copies of the moved head must be string adjacent.

Consider first how this works for Tamil, a language in which the PNI object and the verb must be adjacent.

(13) Tamil, Dravidian (Baker, 2014: 8*f*)

a.	Maala	veegamaa	pustagam	paḍi-cc-aa.
	Mala	quickly	book	read-PST-3F.SG
	'Mala read a book/books quickly.'			
b.	*Maala	pustagam	veegamaa	paḍi-cc-aa.
	Mala	book	quickly	read-PST-3F.SG
	('Mala read a book/books quickly.')			

[4] Note that Clemens' approach may be able to be salvaged if a more highly ranked constraint requires short movement of the PNI object; however, such an approach would require a suite of complex constraints to capture the difference in behaviour between a bare *n*P object and a full KP object.

The pseudo incorporated noun *pustagam* (‘book’) is adjacent to the verb and is the right-most element in the object DP.[5] Baker proposes that the two copies are adjacent, so failure to delete either one will not result in a contradiction in ordering statements during linearization at PF. If the object scrambles to a higher position, however, adjacency is lost, and a non-contradictory set of linearization statements cannot be derived.

Baker notes, however, that in some languages short scrambling is available for the PNI object. Consider the following Hindi example.

(14) Hindi, Indo-European (Dayal, 2011: 137)
Anu bacca nahiiN sambhaalegii.
Anu child NEG look.after-FUT-3F
‘Anu will not look after children.’

Baker argues that the difference between Hindi and Tamil is that Hindi has V-to-T movement, which Tamil lacks. He argues this based on the relative location of negation and the verb. Observe that in Hindi in (14), the verb appears to the right of negation, suggesting it had undergone head movement. In Tamil in (15), the verb is to the left of negation, suggesting it has not undergone head movement.

(15) Tamil, Dravidian
Baala poo-ga-lle.
Baala go-INF-NEG
‘Bala didn’t go, isn’t going.’

Baker argues that once the verb raises to T, it breaks the N+V connection, leaving the DP (KP in our terms) free to raise, which allows the lower copy of N to be deleted.

Recall that Mongolian has short scrambling akin to Hindi. This is possible in Baker’s framework if Mongolian has V-to-T movement. Baker diagnoses V-to-T movement by the relative position of the verb root and negation. Consider the following example.

(16) Ög-öö-güj
give-PRS-NEG
‘did not give’

The order in (16) suggests that Mongolian does not have V-to-T movement. Thus, Baker’s mechanism cannot be carried over to Mongolian. Furthermore, Baker’s proposal does not offer any insight as to why the pseudo incorporated noun can undergo only short scrambling (topicalization notwithstanding) and why the case marked object cannot remain adjacent to the verb. It also offers no insight as to why the full KP object must appear to the left of a low VP adverb. This is the topic of the next section.

[5] This of course is not clear from the example given. See Baker (2014) for specific examples and a fuller discussion, which cannot be presented here for reasons of space.

Proposal

I propose that the word order facts in Mongolian PNI and DOM fall out from (i) prosodic facts of the language, and (ii) Contiguity Theory (Richards 2016) based on a phase-based version of Match Theory.

Match Theory and Phases

Match Theory is an indirect reference theory of the syntax phonology interface that maps all phrases and heads to prosodic categories as follows (Selkirk 2009; 2011; Elfner 2015).

(17) a. MatchClause: CP corresponds to ι[6]
b. MatchPhrase: XP corresponds to φ
c. MatchWord: X corresponds to ω

I depart from this approach and assume only phases map to prosodic categories (Kahnemuyipour 2004; Newell 2008; Compton & Pittman 2010; Newell & Piggott 2014; Weber 2020; 2021). This is captured by the following constraint. Observe that the whole phase, rather than the sister to the phase head, is mapped to PF (Fox & Pesetsky 2005; Bošković 2016).

(18) MatchPHASE: Given H, a phase head, HP corresponds to τ, a prosodic category, where H and τ vary cross-linguistically.

Barrie and Kang (2022) and Kang (2023) propose specifically for Mongolian that *v*P maps to φ and that KP and *n*P map to ω.

Contiguity Theory

As mentioned, Contiguity Theory is governed by two principles: (i) Probe-Goal Contiguity and (ii) Contiguity-prominence (Richards 2016; Branan 2018).

(19) a. Given a probe α and a goal β, α and β must be dominated by a single φ, within which β is Contiguity-prominent.
b. α is Contiguity-prominent within φ if α is adjacent to a prosodically active edge of φ.

Languages vary as to which edge of a φ is phonologically active. As Branan (2018) discusses, the φ in head final languages tends to be phonologically active on the left edge. He illustrates this in particular for Mongolian. Thus, in order to satisfy Probe-Goal Contiguity, the Goal (which is the *n*P or KP in the current discussion) must appear at the left edge of the lowest φ that dominates the Probe.

Analysis

PNI Objects - nP

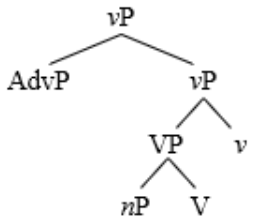
Consider first the derivation of a PNI example with a low VP-adverb.

(20) Tujaa (*nom) dandaa (nom) khurdan (nom) unš-dag.
Tujaa (*book) always (book) quickly (book) read-HAB
'Tuya always reads books quickly.' (does book-reading quickly)

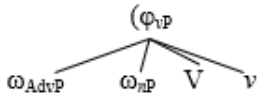
[6] See Ishihara (2022) and Kandybowicz (2020) for evidence against the claim that CP always maps to ι. Since I am not concerned with ι here I do not pursue the matter further.

The PNI object is a bare *n*P and must satisfy Contiguity with the verb that selects it. The categorizing *v* head is a phase head (Marantz 2001), and defines a φ. Furthermore, Branan (2018) shows that the left edge of φ is phonologically active in Mongolian. Observe that the PNI object *n*P is not Contiguity-prominent within φ.[7]

(21) a.

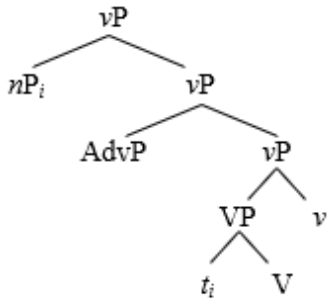


b.



If the *n*P object scrambles above the AdvP in the overt syntax before Spell-Out it will be Contiguity Prominent within φ. This is shown in the following tree with its resultant prosodic structure.

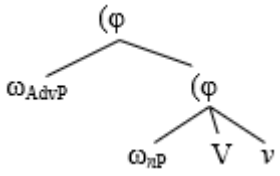
(22) a.



b.

Alternatively, the ω_{AdvP} in (21)b can undergo Contiguity Adjunction as follows.

(23)



[7] I must make the assumption that AdvP is a phase and maps to ω. I leave this topic to future work

Since the PNI object is a bare *n*P and lacks a KP, it does not enter into an agree relation with a Case-assigning functor. With no other movement operation available to the PNI object, it remains in place. Given the two options above, the PNI object is either adjacent to the verb or appears with a VP level adverb intervening between the PNI object and the verb.

Note that the two derivations above make predictions that I have not tested here. Notably, there is a φ boundary present between the *n*P object and the adverb in (23) that is absent in (22)b.

Full KP Objects

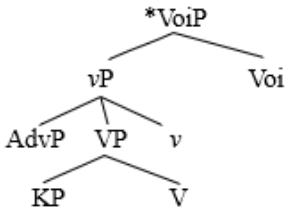
Consider again the example of a full KP object, repeated here.

(24)	Tujaa	(nom-yg)	dandaa	(nom-yg)	khurdan (*nom-yg)	unš-dag.
	Tujaa	(book-ACC)	always	(book-ACC)	quickly (*book-ACC)	read-HAB

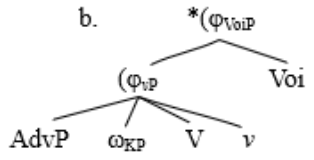
'Tuya always reads the/a book quickly.' (definite or specific, indefinite)

We must consider the probe-goal relation between KP and VoiP, where Voi is a phasal head that introduces the external argument distinct from the verbalizer *v* (Chomsky 2001; Harley 2013; Legate 2014). If KP raises to Spec*v*P as in (26) it becomes Contiguity-prominent in the φ determined by VoiP. As a reviewer notes, this kind of movement was not originally discussed in Richards (2106). Unfortunately, there is no room to discuss the typological implications of using movement to satisfy Contiguity in this way. When the KP raises, it crosses over any *v*P-level adverbs. (Assume AdvP is adjoined to *v*P – ternary branching shown to save space.) If KP remains in situ as in (25) an appropriate φ cannot be formed by Grouping as the Voi head is not a sister prosodic node, nor can one be formed by Contiguity-Adjunction, since KP by hypothesis is a ω, not a φ.[8]

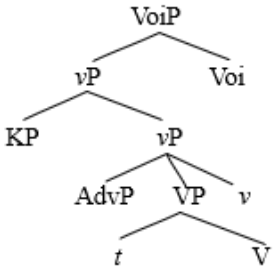
(25) a.

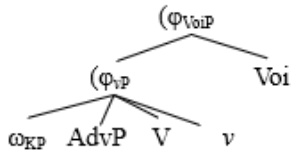


b.



(26)





[8] A reviewer notes that if Grouping is not an option, then it would be predicted that *wh*-in situ is not possible in Mongolian, contrary to fact. Branan (2018: 275) proposes that major Grouping is possible only if it has PF effects. I do not pursue this idea here for lack of space and leave it to future research.

This approach now makes a prediction that if a non-case marked nominal is found above temporal adverb, it must be specific (high-scoping). This is indeed the case as in (27). I submit that the object *güü* ('mare') is a full KP with a phonologically null K head.[9]

(27)	Tujaa	güü	dandaa	khurdan	saa-dag
	Tujaa	mare	always	fast	milk-HAB
	'Tujaa always milks a mare quickly.'				
	[speaker comment: It must be a specific mare.]				

To sum up this section, I have shown that a PNI object is a bare *n*P that must achieve Contiguity Prominence with its selector, V. This allows for short distance scrambling, but no more. A full KP object whether with overt case marking or not (DOM) must achieve Contiguity Prominence with VoiP. As such, it must raise out of VP.

Conclusion

I have shown that the word order of PNI objects and full KP objects are captured under a Contiguity Theoretic framework. Proposals that rely on nominal licensing based on linear adjacency fail for Mongolian. For PNI, the *n*P object must by Contiguity-prominent with its selector, V, which means it must appear at the left edge of the minimal φ that dominates *n*P and V. This constraint captures the fact that Mongolian allows very short scrambling with PNI objects. KP objects must raise to be Contiguity-prominent with Voi (the head that assigns Case to the KP).

Future research will ask if the same approach can account for the strict or nearly strict adjacency requirement for PNI in other languages. Finally, the proposal here captures the effects of Diesing's Mapping Hypothesis (Diesing 1992). The *n*P remains inside the VP layer, while the KP object raises outside. The current proposal is more fine-grained, as it makes testable predictions for when short scrambling of the PNI object is available. In short, this proposal makes testable predictions for DOM and PNI cross-linguistically.

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[9] See López (2012) for a similar approach to DOM in Spanish.

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