VERB-ECHO ANSWERS IN MONGOLIAN*

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1. Introduction

In this paper, we investigate Verb-Echo Answers (VEAs, hereafter) in the Khorchin dialect of Mongolian spoken in Inner Mongolia (Mongolian, hereafter), a typical example of which is illustrated in (1).[1]

(1) Q: Batu-bol Bayatur-i sigümjile-gsen uu?
Batu-TOP Bagatur-ACC criticize-PST.ADN Q

'Did Batu criticize Bagatur?'

A: Sigümjile-jai.
criticize-PST.CON

(Lit.) 'Criticized.'

With (1Q) as its antecedent, (1A), where only a verbal complex is stranded, means that Batu criticized Bagatur despite the fact that both the subject and the object are phonologically empty. Given that Mongolian is a radical *pro*-drop language (Takahashi 2007, Sakamoto 2012, 2017, in press), it appears to be intuitive to consider (1A) as involving *pro*-drop of the subject and the object as shown in (2).[2]

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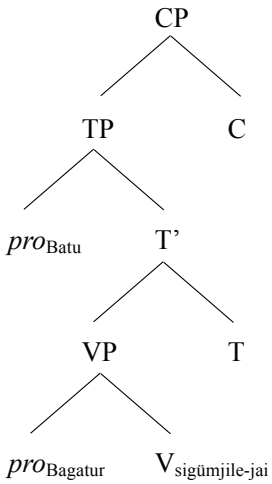
[1] Abbreviations used in the text are as follows: ACC = accusative; ADN = adnominal; C = complementizer; CL = classifier; CON = conclusive; COP = copula; DAT = dative; GEN = genitive; NEG = negation; NML = nominalizer; NOM = nominative; NPST = non-past; PASS = passive; POL = polite; PST = past; Q = question particle; SFP = sentence final particle; TOP = topic.

[2] Takahashi (2007) and Sakamoto (2012, 2017, in press) argue that argument ellipsis, where arguments can directly undergo ellipsis (cf. Oku 1998, Kim 1999, among many others), as well as *pro* is operative in Mongolian grammar. Given this, (1A) can also be derived via argument ellipsis of the subject and the object. In the following discussion, however, the distinction between *pro* and argument ellipsis is not crucial, so I will just refer to the *pro* strategy for expository purposes.

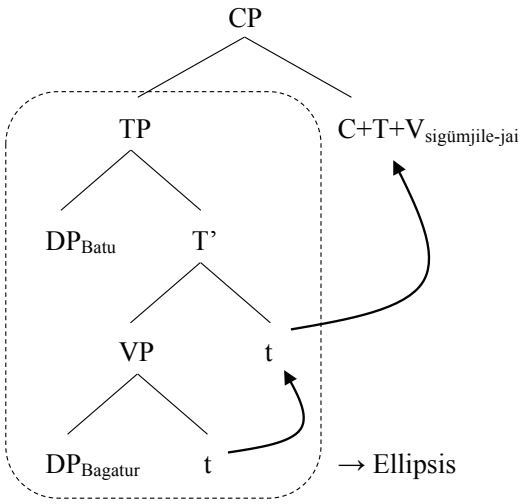
(2) *Pro*-drop Analysis



Here, the subject and the object are replaced by a null pronoun *pro*, being interpreted as Batu and Bagatur, respectively.

However, there is an alternative analysis of the VEA construction which has been extensively explored by Holmberg (2016). He claims that sentences like (1A) are derived through a combination of overt V-raising and ellipsis. For example, (1A) is analyzed as in (3).

(3) Overt V-raising + Ellipsis Analysis



Here, V has overtly raised to C via T, which is followed by ellipsis of the TP including the subject and the object, as a result of which the surface string of (1A) is derived. Crucially, there is no need to utilize *pro* for the phonological absence of the subject and the object under this analysis.

In this paper, we investigate the syntactic properties of VEAs in Mongolian and determine how they can be best accounted for. In section 2, we introduce two diagnostics in the literature to differentiate the *pro* analysis in (1) and the V-raising + ellipsis analysis in (3), i.e. (i) the availability of the null adjunct reading (Sugimura 2012) and (ii) intolerance of voice mismatch (Sato and Hayashi 2018), and then demonstrate that the latter analysis gains empirical support. Further, building on Merchant (2013), we show that there is syntax in ellipsis sites of VEAs in Mongolian, claiming that they are best explained under the structural analysis of ellipsis. In section 3, building on Koizumi (2000), we discuss what appears to be a non-constituent coordination in Mongolian to examine whether overt V-raising to C, which is a prerequisite for the structural analysis of VEAs, is operative in Mongolian grammar. Section 4 concludes the paper.

2. Pro or Ellipsis? VP-ellipsis or TP-ellipsis?

2.1 Null Adjunct Reading

The first diagnostic that we adopt to distinguish the *pro* analysis in (1) from the ellipsis analysis in (3) comes from the availability of the null adjunct reading in VEAs. It has been observed that manner adverbs by themselves cannot be phonologically empty in radical *pro*-drop languages, for example in Japanese as in (4) (cf. Oku 1998, Saito 2007, Funakoshi 2016).

(4) Context: Taro and Hanako are at a bar, having ordered red wine and white wine, respectively. Soon after a waiter brought their wine to the table, Taro got a call from their boss and it turned out they have to go back to their office due to an urgent issue. Taro told Hanako that they should finish their wine quickly and leave for their office.

a. Taroo-wa subayaku akawain-o non-da.
Taro-TOP quickly red.wine-ACC drink-PST

‘Taro drank red wine quickly.’

b. *Demo Hanako-wa Δ_{subayaku} sirowain-o noma-nakat-ta.
but Hanako-TOP white.wine-ACC drink-NEG-PST

(Int.) ‘But Hanako did not drink white wine quickly.’

With (4a) as its antecedent, (4b) cannot mean that Hanako did not drink white wine quickly, and instead it can only mean that Hanako did not drink white wine at all. This indicates that the manner adverb *subayaku* ‘quickly’ by itself cannot be a target for *pro*-drop. Given this, Sugimura (2012) claims that sentences like (5) provide a strong support for the claim that VEAs in Japanese involve ellipsis rather than *pro*-drop.

(5) Q: Kimi-wa subayaku akawain-o non-da no?
you-TOP quickly red.wine-ACC drink-PST Q

'Did you drink red wine quickly?'

A: Noma-nakat-ta-yo!
drink-NEG-PST-SFP

(Lit.) 'Not drank.'

As a reply to (5Q), (5A) can mean that the speaker did not drink red wine quickly, which in turn suggests that the manner adverb *subayaku* 'quickly' is silently interpreted (call this interpretation the null adjunct reading) in this case, in contrast to (4). Under the *pro*-drop analysis, (5A) would be analyzed as follows.

(6) *[$_{CP}$ [$_{TP}$ *pro*$_{I}$ [$_{NegP}$ [$_{VP}$ *pro*$_{quickly}$ *pro*$_{red.wine}$ V$_{drank}$] Neg] T] C]

However, this is not a possible configuration because manner adverbs cannot be *pro*-dropped as has already been shown in (4): *pro*$_{quickly}$ is not an available option. Sugimura then argues that unlike the *pro*-drop analysis, the V-raising + ellipsis analysis can straightforwardly account for the availability of the null adjunct reading in (5A), as illustrated in (7).[3]

(7) [$_{CP}$ ~~[$_{TP}$ I [$_{NegP}$ [$_{VP}$ quickly red.wine t$_{V}$] t$_{Neg}$] t$_{I}$]~~ C+T+Neg+V$_{drank}$]

Here, V undergoes raising to C via Neg and T, which is followed by TP-ellipsis. Crucial for us here is that the ellipsis site includes the manner adverb in question, thus being able to accommodate the null adjunct interpretation. Therefore, sentences like (5A) suggests that VEAs involve overt V-raising + ellipsis, not just involving *pro*-drop.

Let us now turn to the case of Mongolian. First, Mongolian manner adverbs by themselves cannot be *pro*-dropped in the same way as Japanese, as shown in (8).

(8) Context: Bagatur and Ulagan are at a bar, having ordered wine and apple wine, respectively. Soon after a waiter brought their wine to the table, Bagatur got a call from their boss and it turned out they have to go back to their office due to an urgent issue. Bagatur told Ulagan that they should finish their wine quickly and leave for their office.

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[3] Sugimura originally proposed that sentences like (5A) involve V-raising to T followed by VP-ellipsis. Thus, (5A) would be analyzed as in (i) under her original proposal.

(i) [$_{CP}$ [$_{TP}$ *pro*$_{I}$ [$_{NegP}$ ~~[$_{VP}$ quickly red.wine t$_{V}$]~~ t$_{Neg}$] T+Neg+V$_{drank}$] C]

In (i), the subject is not elided but instead *pro*-dropped. At this point, we cannot tell whether (5A) is derived as in (7) or (i), but see section 2.2 for an argument for the former derivation.

a. Baɣatur-bol qurdun-iyar üjüm-un ariqi-yi uuɣu-jai.
Bagatur-TOP quickly grape-GEN alcohol-ACC drink-PST.CON

'Bagatur drank wine quickly.'

b. *Ulaɣan-bol $\Delta_{\text{qurdun-iyar}}$ almurad-un ariqi-yi uuɣu-ɣsan ügei.
Ulagan-TOP apple-GEN alcohol-ACC drink-PST.ADN NEG

(Int.) 'Ulagan did not drink wine quickly.'

With (8a) as its antecedent, (8b) can only mean that Ulagan did not drink apple wine at all, and it cannot mean that Ulagan did not drink apple wine quickly. This shows that manner adverbs cannot be a target for *pro*-drop in Mongolian. Keeping this in mind, let us consider whether VEAs in Mongolian can accommodate the null adjunct reading. The relevant example is shown in (9).

(9) Q: Batu-bol ariqi-yi qurdun-iyar uuɣu-ɣsan uu?
Batu-TOP alcohol-ACC quickly drink-PST.ADN Q

'Did Batu drink alcohol quickly?'

A: Uuɣu-ɣsan ügei.
drink-PST.ADN NEG

(Lit.) 'Not drank.'

As a reply to (9Q), (9A) can yield the null adjunct reading: it can mean that Batu did not drink alcohol quickly. If (9A) were derived via *pro*-drop, it would be mysterious why the relevant interpretation is available (cf. (6)), but if (9A) is derived via V-raising + ellipsis, the observed interpretation straightforwardly follows, as illustrated in (10).

(10) $[_{\text{CP}}$ ~~$[_{\text{TP}}$ Batu $[_{\text{NegP}}$ $[_{\text{VP}}$ quickly wine $t_{\text{V}}]$ $t_{\text{Neg}}]$ $t_{\text{T}}]$~~ C+T+Neg+V_{drank}] [= (9A)]

Here, the V *uuɣu-ɣsan* 'drank' undergoes overt raising to C followed by TP-ellipsis. Crucial for us here is that the TP-ellipsis site includes the manner adverb *qurdun-iyar* 'quickly,' thus being able to account for the null adjunct reading in question.

As has already been noted in footnote 2, however, it is not quite clear whether TP or VP has undergone ellipsis in the above VEA examples. In other words, we could analyze (9A) as involving V-raising to T, not to C, followed by VP-ellipsis, not TP-ellipsis, as illustrated in (11).

(11) $[_{\text{CP}}$ $[_{\text{TP}}$ *pro*$_{\text{Batu}}$ $[_{\text{NegP}}$ ~~$[_{\text{VP}}$ quickly wine $t_{\text{V}}]$~~ $t_{\text{Neg}}]$ T+Neg+V_{drank}] C] [= (9A)]

Under this analysis, the subject *Batu* has been replaced by *pro*. The availability of the null adjunct reading in (9A) thus does not tell us whether (9A) should be analyzed as in (10) or (11).

In the following subsection, however, we introduce another diagnostic proposed by Sato and Hayashi (2018), which not only argues for the V-raising + ellipsis analysis over the *pro*-drop analysis but also shows us that what is elided in VEAs in Mongolian is TP, not VP.

2.2 Voice Mismatch

2.2.1 Intolerance of Voice Mismatch

One of the distinctive differences between TP-ellipsis and VP-ellipsis is related to voice mismatch (cf. Merchant 2001, 2013). In the VP-ellipsis construction, voice (active/passive) in the antecedent clause does not have to be matched with voice in the ellipsis target clause, as shown in (12).

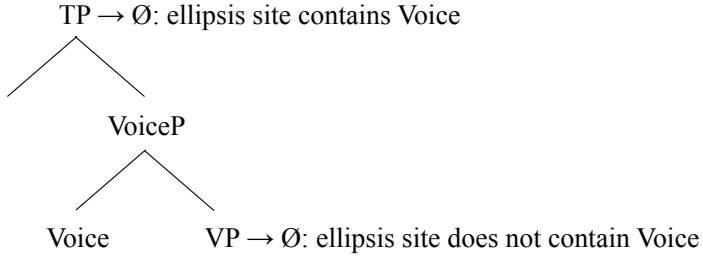
(12) The janitor must remove the trash whenever it is apparent that it should be Δ_{VP}.
(Merchant 2013: 78)

Here, the antecedent clause is in active voice, whereas the ellipsis target clause in passive voice, thus a case of voice mismatch, but the sentence is grammatical. On the other hand, in the TP-ellipsis, i.e. sluicing, construction, voice in the antecedent clause and the ellipsis target clause must be matched as illustrated in (13).

(13) *Someone murdered Joe, but we don't know who by Δ_{TP}. (Merchant 2013: 78)

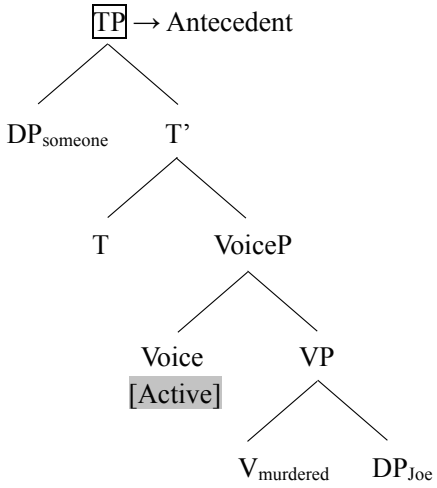
Here, voice is active and passive in the antecedent and the ellipsis target clause, respectively, and it seems that this mismatch makes (13) ungrammatical. Merchant (2013) claims that the contrast between (12) and (13) lies in the size of ellipsis. To be more specific, assuming that VoiceP, which encodes the information on voice (active/passive), is located in a position between TP and VP, he argues that the TP-ellipsis site contains the information on voice in its domain, whereas the VP-ellipsis site does not, as illustrated in (14).

(14)



The impossibility of voice mismatch in TP ellipsis, e.g. (13), can then be accounted for in light of the syntactic identity requirement for ellipsis: the antecedent TP and the ellipsis target TP in (13) cannot count as syntactically identical in that they involve different voice features, i.e. active vs. passive, as illustrated in (15).

(15) a.



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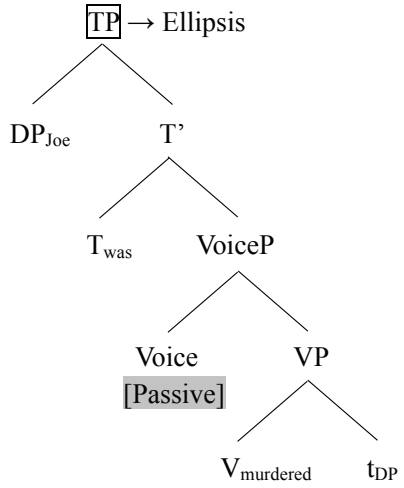
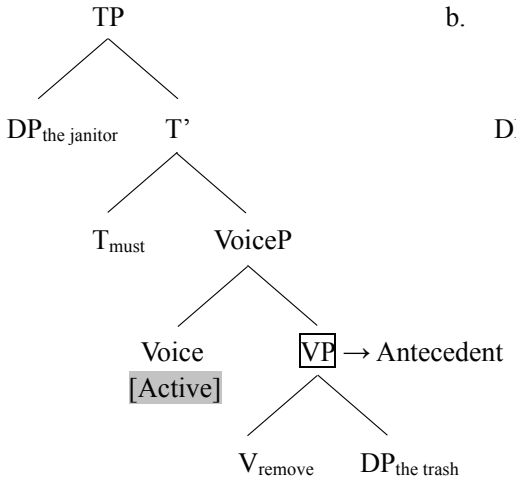


By contrast, voice mismatch should be allowed in VP-ellipsis (cf. (12)) because the syntactic identity requirement is met between the antecedent VP and the ellipsis target VP, as illustrated in (16).

(16) a.



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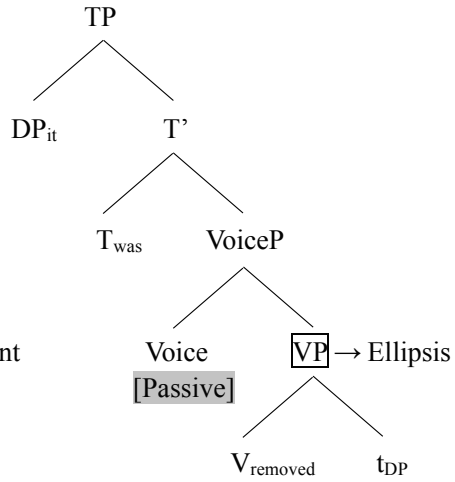

More specifically, the Voice head is outside of the VP-ellipsis site, so that different values of voice (active/passive) do not matter for syntactic identity in the VP-ellipsis case unlike the TP-ellipsis case.

Given the above discussion, Sato and Hayashi (2018) investigate an interaction between VEAs in Japanese and voice mismatch. Consider the following data.

(17) Q: Anata-no gakka-wa John-o yatoi-mashi-ta ka?
you-GEN department-TOP John-ACC hire-POL-PST Q

'Did your department hire John?'

A[1]: Hai. Yatoi-mashi-ta-yo.
yes hire-POL-PST-SFP

(Lit.) 'Yes. Hired.'

A[2]: *Hai. Yato-ware-mashi-ta-yo.
yes hire-PASS-POL-PST-SFP

(Lit.) 'Yes. Was hired.'

The question sentence (17Q) involves active voice. Then, that the answer sentence (17A[1]), which involves active voice, is a felicitous reply to (17Q) but (17A[2]), which involves passive voice, is not indicates that VEAs in Japanese disallow voice mismatch.

Sato and Hayashi then drew two conclusions from the above observation. First, they argue that VEAs are derived via a combination of V-raising + TP-size ellipsis, not VP-size ellipsis. Thus, (17A[2]) is analyzed as in (18).

(18) [$_{CP}$ ~~[$_{TP}$ John [$_{VoiceP(passive)}$ [$_{VP}$ by.my.department t_V] t_{Voice}] t_T]~~ C+T+Voice+V_{drank}] [=(17A[2])]

Here, V undergoes raising to C followed by ellipsis of TP. Crucial for us here is that voice in the antecedent clause (17Q) (= active) and voice in the ellipsis target clause (17A[2]) (= passive) are different and the Voice head is included inside of the TP-ellipsis domain. Given the syntactic identity requirement for ellipsis, the ungrammaticality of (17A[2]) can then be straightforwardly accounted for: the antecedent TP in (17Q) and the ellipsis target TP in (17A[2]) cannot count as syntactically identical due to the different values of voice (cf. (13) and (15)).

Second, they claim that *pro*-drop is not even an option for VEAs. To be more specific, if *pro*-drop were an available option in VEAs, (17A[2]) could be analyzed as in (19), whose non-*pro*-drop counterpart is shown in (20).[4]

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[4] In order to derive (17A[2]) under the *pro*-drop analysis, we have to replace both *John* and *watasi-no gakka-ni* 'by my department' by *pro*. One might then wonder whether a *by*-phrase in passive can be a target for *pro*-drop. The following example shows that it actually can.

(i) John-ga Toyota-ni saiyoos-are-ta-no-wa sit-te-ita-ga,
John-NOM Toyota-by hire-PASS-PST-NML-TOP know-PROG-PST-but
Bill-ga $\Delta_{Toyota\text{-}ni}$ saiyoos-are-ta-no-wa sira-nakat-ta.
Bill-NOM hire-PASS-PST-NML-TOP know-NEG-PST

'I knew that John was hired by Toyota, but I did not know that Bill was hired by Toyota.'

Although the *by*-phrase *Toyota-ni* is phonologically dropped in the second conjunct, it is interpretable. This means that a *by*-phrase can be a target for *pro*-drop in Japanese, which in turn indicates that the configuration in (19) is in principle possible.

(19) $[_{CP}\ [_{TP}\ pro_{John}\ [_{VP}\ pro_{by\ my\ department}\ V_{was.hired}]\ T]\ C]$

(20) Hai. John-wa watasi-no gakka-ni yato-ware-masi-ta-yo.
yes John-TOP I-GEN department-by hire-PASS-POL-PST-SFP

'Yes, John was hired by my department.' [cf. =(17A^2)]

In (19), the subject and the *by*-phrase are replaced by *pro*. Given that the non-*pro*-drop counterpart (20) is a felicitous reply to (17Q) (sounds a little bit redundant though), we have to attribute the ungrammaticality (or intolerance of voice mismatch) of (17A^2) to *pro*-drop. Therefore, once we take *pro*-drop as an available option for VEAs, we have to account for why *pro*-drop is related to intolerance of voice mismatch.[5] By contrast, as has already been shown, once we assume that VEAs are derived via involving TP-ellipsis, that (17A^2) is ungrammatical receives a straightforward explanation under the syntactic identity requirement for ellipsis.

In sum, based on the ungrammaticality of (17A^2), Sato and Hayashi argue that in the VEA construction, (i) what is elided is TP and (ii) *pro*-drop is unavailable.

Keeping the above discussion in mind, let us now turn to an interaction between VEAs and voice mismatch in Mongolian. If VEAs in Mongolian involve TP ellipsis in the same way as VEAs in Japanese, it should also disallow voice mismatch. This prediction is actually borne out, as shown in (21).[6]

(21) Q: Čin-u yeke suryaγuli-bol yamar nige kelen-ü erdemten-i
you-GEN university-TOP someone linguist-ACC
kölüsle-gsen uu?
hire-PST.ADN Q

'Did your university hire any linguist?'

A^1: Teimü. Kölüsle-jei.
yes hire-PST.CON

(Lit.) 'Yes. Hired.'

[5] See Sato and Hayashi (2018) for the observation that *pro*-drop does allow voice mismatch in contrast to VEAs.

[6] The non-elliptical counterpart to (21A^2) is grammatical as in (i) (somewhat sounds redundant though).

(i) Teimü. yamar nige kelen-ü erdemten-Ø min-ü yeke suryaγuli-d kölüsle-gde-jei.
yes someone linguist-NOM I-GEN university-by hire-PASS-PST.CON

(Lit.) 'Yes. Some linguist was hired by my university.'

A^2: *Teimü. Kölüsle-gde-jei.
yes hire-PASS-PST.CON

(Lit.) 'Yes. Was hired.'

With the active question (21Q) as its antecedent, the active VEA ($21A^1$) is grammatical, whereas the passive VEA ($21A^2$) is ungrammatical. Following Sato and Hayashi, we argue that this contrast straightforwardly follows if *pro*-drop is unavailable in VEAs in Mongolian and VEAs are derived via V-movement to C followed by TP ellipsis: ($21A^2$) is excluded because it cannot satisfy the syntactic identity requirement for ellipsis.

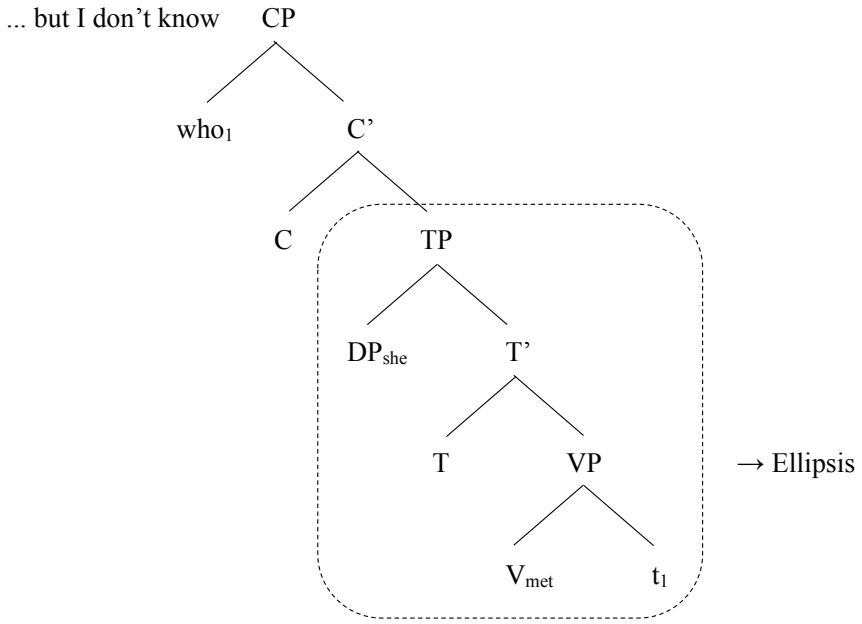
It is worth noting here that it has been really controversial whether head movement exists in head-final languages including Japanese and Mongolian since the movement in question does not affect word order (unlike head movement in head-initial languages like English), but if the V-raising to C + TP-ellipsis analysis of VEAs in Mongolian is on the right track, it follows that syntactic head movement does exist in Mongolian grammar (Sato and Hayashi has in fact concluded that head movement is operative in Japanese grammar based on the above reasoning). However, the analysis in question is built on the hidden assumption that ellipsis sites in VEAs involve silent syntax, thus being able to accommodate a position for a trace of head movement. In the following subsection, we introduce the nonstructural analysis of ellipsis that would analyze VEAs as involving no syntax in ellipsis sites, and discuss whether such an analysis can be empirically maintained. Following the literature (cf. Merchant 2013), we argue that intolerance of voice mismatch in Mongolian VEAs not only shows that what is involved is TP-size ellipsis but also indicates that ellipsis sites of VEAs are silently structured, thus providing us with an argument against the nonstructural analysis of VEAs.

2.2.2 An Argument for Syntax in Silence

In the literature, there are two approaches to ellipsis: the structural analysis (cf. Sag 1976, Williams 1977, Fiengo and May 1994, Chung, Ladusaw, and McCloskey 1995, Merchant 2001, 2013, Chung 2013, among others) and the nonstructural analysis (cf. Keenan 1971, Dalrymple, Sheiber, and Pereira 1991, Ginzburg and Sag 2000, and Culicover and Jackendoff 2005). For example, TP-ellipsis, i.e. sluicing, in (22) is analyzed as in (23) under the former analysis.

(22) Mary met someone, but I don't know who.

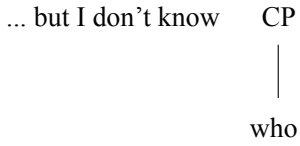
(23) Structural Analysis



Here, the *wh*-phrase *who* has undergone movement to Spec, CP, leaving its trace in the object position, which is followed by TP-ellipsis. Crucial under this analysis is that there is syntax in ellipsis sites. Thus, in (23), the TP-ellipsis site is silently structured and the observed interpretation can be straightforwardly obtained.

On the other hand, the nonstructural analysis claims that there is no syntax in "ellipsis" sites: what we see is what we get. Therefore, the sluicing example (22) is analyzed as in (24) with some simplifications.

(24) Nonstructural Analysis



Here, the sluiced embedded CP just contains the remnant *wh*-phrase *who* and nothing else. As for the observed interpretation, putting technical details aside, the recent advocate of the nonstructural approach, Culicover and Jackendoff (2005), for example, assign featural machinery to the CP node and it is designed to provide us with the interpretation in question (among other things). Under this analysis, the identity requirement between an antecedent and an ellipsis target is necessarily semantic: a phrase can undergo ellipsis if the meanings of the antecedent and the ellipsis target can count as "identical."

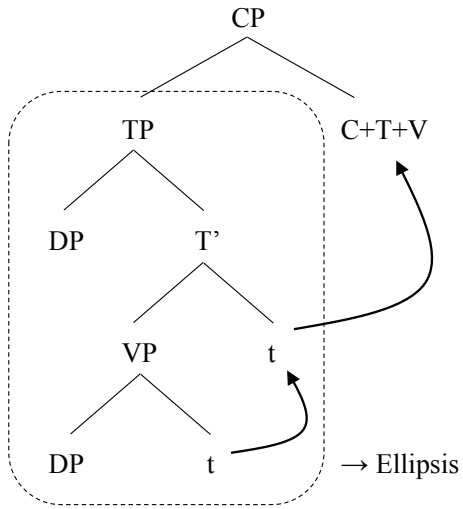
It seems challenging to determine whether silence involves structure or not, but the literature has provided a number of diagnostics to differentiate the above two analyses, one of which is related to voice mismatch. Let us go back to the sluicing example (13), repeated here as (25).

(25) *Someone murdered Joe, but we don't know who by Δ_{TP}. (Merchant 2013: 78)

This sentence is ungrammatical due to voice mismatch: the antecedent TP is in active voice and the ellipsis target TP in passive voice. Recall that we provided an account for intolerance of voice mismatch in TP-ellipsis in light of syntactic identity. Specifically, following Merchant (2013), we claimed that what makes (25) ungrammatical lies in the different values of voice in the antecedent TP and the ellipsis target TP, as illustrated in (15). The explanation there, i.e. the one based on the internal syntax of ellipsis sites, is possible under the structural analysis of ellipsis; however, it is impossible under the nonstructural analysis simply because there is no syntax in ellipsis sites (cf. (24)). Of particular interest for us here is that active and passive clauses are mutually entailing, so that the semantic identity requirement which is posed on the nonstructural analysis of ellipsis would overgenerate since it would always allow voice mismatch. The literature has thus taken intolerance of voice mismatch to be an argument for the structural analysis of TP-ellipsis (= sluicing).

Keeping the above discussion in mind, let us return to VEAs. As has already been shown above, VEAs involve TP-ellipsis, and we have tacitly assumed the structural analysis of ellipsis, as illustarted in (26).

(26) Structural Analysis



Here, V undergoes raising to C followed by TP-ellipsis. However, this is not the only possibility. If we take the nonstructural approach to ellipsis, VEAs could then be analyzed as illustrated in (27) with some simplifications.

(27) Nonstructural Analysis

Under this analysis, we just have a stranded V (and its associates) and nothing else. This means that there is no syntactic head movement of V to C. If this analysis is correct, we end up with losing the evidence for the availability of overt syntactic head movement in Mongolian. However, as shown in (21), VEAs in Mongolian disallow voice mismatch in the same way as TP-ellipsis in English. If intolerance of voice mismatch indicates the presence of syntax in ellipsis sites, as is standardly assumed in the literature, the ungrammaticality of (21A[2]) not only shows that VEAs involve (TP-size-) ellipsis but also provides us with evidence that there is syntax in ellipsis sites of VEAs, which in turn indicates that overt syntactic head movement is operative in Mongolian grammar.

3. Another Argument for Syntactic Head Movement: Coordination

The current analysis of VEAs in Mongolian where V undergoes raising to C as illustrated in (26) makes one immediate prediction: the TP out of which V has undergone raising constitutes a constituent. In this section, we argue that this prediction is in fact borne out on the basis of the data with respect to coordination.

Before we discuss Mongolian data, let us introduce Koizumi's (2000) discussion on Japanese coordination and its relation to the presence of overt V-raising to C. Consider the following data.

(28) a. Mary-ga [[John-ni ringo-o 2-tu] to [Bob-ni
Mary-NOM John-DAT apple-ACC 2-CL and Bob-DAT
banana-o 3-bon]] age-ta.
banana-ACC 3-CL give-PST

'Mary gave 2 apples to John, and 3 bananas to Bob.' (Koizumi 2000: 228)

b. Mary-ga [[suupaa-de piza-o 2-mai] to [sakaya-de
Mary-NOM supermarket-at pizza-ACC 2-CL and liquor.store-at
wain-o 3-bon]] kat-ta..
wine-ACC 3-CL buy-PST

'Mary bought 2 pizzas at a supermarket, and 3 bottles of wine at a liquor store.'
(Koizumi 2000: 229)

In (28a), what is coordinated is a chunk including a dative DP and an accusative DP with its numeral classifier. Given the standard assumption that what can be coordinated is a constituent,

the grammaticality of (28a) indicates that the chunk in question, which appears to be a non-constituent, must be a constituent. Koizumi then argues that (28a) is derived via overt V-raising to T (or *v*) in the across-the-board manner, as illustrated in (29).

(29) [$_{CP}$ [$_{TP}$ Mary [[$_{VP}$ to John apple 2 t$_{V}$] and [$_{VP}$ to Bob banana 3 t$_{V}$]] T+V$_{gave}$] C]

Here, the V *age-* 'give' has been extracted out of each conjunct, undergoing across-the-board raising to the higher head T. (28b) makes the same point: a chunk which contains a locational PP and an accusative DP with its numeral classifier is coordinated with another chunk of the same type, and this means that the chunks in question are constituents. Under Koizumi's analysis, (28b) is derived in the same way as (29). He then claims that coordination involved in (28a) and (28b) provides supporting evidence for the existence of overt V-raising to T (or *v*) in Japanese.

Koizumi further mentions that V can raise not only to T but also to C on the basis of the following examples.

(30) a. [[Mary-ga ringo-o 2-tu] to [Nancy-ga banana-o
Mary-NOM apple-ACC 2-CL and Nancy-NOM banana-ACC
3-bon]] tabe-ta.
3-CL eat-PST

(Lit.) '[Mary 2 apples] and [Nancy 3 bananas] ate.' (Koizumi 2000: 230)

b. [[Mary-ga John-ni ringo-o 2-tu] to [Nancy-ga
Mary-NOM John-DAT apple-ACC 2-CL and Nancy-NOM
Bob-ni banana-o 3-bon] age-ta.
Bob-DAT banana-ACC 3-CL give-PST

(Lit.) '[Mary 2 apples to John] and [Nancy 3 bananas to Bob] gave.'
(Koizumi 2000: 230)

In (30a), a chunk where a nominative DP, i.e. a subject, and an accusative DP with its numeral classifier is coordinated with a chunk of the same type; in (30b), what is coordinated is a chunk including a nominative DP, i.e. a subject, a dative DP, and an accusative DP with its numeral classifier. What is crucially different between the cases in (28) and the ones in (30) is the presence/absence of a subject within a conjunct. Given the standard assumption that subjects are located in Spec TP, Koizumi analyzes the data in (30) as involving overt V-raising to C in the across-the-board manner. More specifically, (30a) is analyzed as follows.

(31) [$_{CP}$ [[$_{TP}$ Mary [$_{VP}$ apple 2 t$_{V}$] t$_{T}$] and [$_{TP}$ Nancy [$_{VP}$ banana 3 t$_{V}$] t$_{T}$]] C]

Here, V overtly raises to T in each conjunct, and then undergoes across-the-board raising to C.

Thus, if Koizumi's analysis is on the right track, the grammaticality of (30a) and (30b) indicates that V can overtly raise not only up to T but also up to C in Japanese.[7]

Given the above discussion, let us turn to whether coordination in Mongolian provides us with supporting evidence for the existence of overt V-raising. Consider the following examples.

(32) a. Batu-Ø [[Bayatur-du nom-Ø 2-debter] bolun [Ulayan-du
Batu-NOM Bagatur-DAT book-ACC 2-CL and Ulagan-DAT
šikir- 3-keseg]] üg-čei.
candy-ACC 3-CL give-PST.CON

'Batu gave 2 books to Bagatur, and 3 candies to Ulagan.'

b. Batu-Ø [[nom-un delgegür-eče sedkül-Ø 2-debter] bolun
Batu-NOM book-GEN store-from magazine-ACC 2-CL and
[delgegür-eče šikir-ø 3-keseg]] qudaldun ab-čai.
supermarket-from candy-ACC 3-CL buy take-PST.CON

'Batu bought 2 magazines at a book store, and three candies at a supermarket.'

(33) a. [[Batu-Ø nom-Ø 2-debter] bolun [Ulayan-Ø šikir-ø
Batu-NOM book-ACC 2-CL and Ulagan-NOM candy-ACC
3-keseg]] qudaldun abu-čai.
3-CL buy take-PST.CON

(Lit.) '[Batu two books] and [Ulagan 3 candies] bought.'

b. [[Batu-Ø Bayatur-du nom-ø 2-debter] bolun [Ulayan-Ø
Bat-NOM Bagatur-DAT book-ACC 2-CL and Ulagan-NOM
Gerel-du šikir-Ø 3-keseg] üg-čei
Gerel-DAT candy-ACC 3-CL give-PST.CON

(Lit.) '[Batu two books to Bagatur] and [Ulagan 3 candies to Gerel] gave.'

The examples in (32) correspond to (28), and the ones in (33) to (30). That the examples in (32) and (33) are all grammatical indicates that V in Mongolian can raise not only to T but also to C in the same way as V in Japanese (cf. (29) and (31)). That V can overtly raise to C is a prerequisite for the structural analysis of VEAs (cf. (26)), thus the grammaticality of (32) and (33) providing us with an indirect argument for such an analysis.

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[7] Two notes are in order here. First, as he himself notes, Koizumi mentions that if subjects can stay in *v*P in Japanese (cf. Kuroda 1988), the examples in (30) then show that V can raise to a position higher than *v*P in Japanese. Second, overt V-raising is not the only possibility for the coordination cases in (28) and (30) (cf. Takano 2002, Fukui and Sakai 2003, Kobayashi to appear). Thus, the main goal of the following discussion regarding Mongolian coordination would be rather humble: we argue that the Mongolian data with respect to coordination are compatible with Koizumi's V-raising analysis of non-constituent coordination.

4. Conclusion

In this paper, we investigated the syntactic properties of VEAs in Mongolian. First, we showed that in VEAs the null adjunct reading which the *pro*-drop analysis cannot account for is available and voice mismatch is disallowed. We then mentioned that both properties can be accounted for if VEAs involve TP-size ellipsis, neither *pro*-drop nor VP-size ellipsis. Further, we argued that intolerance of voice mismatch leads us to conclude that ellipsis sites of VEAs involve syntax, providing us with supporting evidence for the structural analysis of ellipsis. Then, building on Koizumi (2000), we demonstrated that what appears to be a non-constituent in Mongolian can be a conjunct, being coordinated with another chunk of the same type, and claimed that this can be used to argue for overt V-raising to T and C in Mongolian, which indirectly supports the structural analysis of VEAs.

Appendix: Embedded VEA in Mongolian

In the above discussion, we have focused on VEAs that appear in a matrix clause as in (34A[1]), but VEAs can also appear in an embedded clause, as shown in (34A[2]).

(34) Q: Batu-bol Baɣatur-i sigümjile-gsen uu?
Batu-TOP Bagatur-ACC criticize-PST.ADN Q

'Did Batu criticize Bagatur?'

A[1]: Sigümjile-jai.
criticize-PST.CON

(Lit.) 'Criticized.'

A[2]: [$_{CP}$ Sigümjile-gsen gejü] bodu-na.
criticize-PST.ADN C think-NPST.CON

(Lit.) 'I think that criticized.'

In (34A[2]), only the V *sigümjile* 'criticize' is stranded in an embedded clause, but the sentence can mean that the speaker thinks that Batu criticized Bagatur. In this appendix, we discuss embedded VEAs in Mongolian, showing that it exhibits the same properties that matrix VEAs in Mongolian do.

First, let us consider whether the null adjunct reading is available in embedded VEAs. Consider the following examples.

(35) Q: Batu-bol ariqi-yi qurdun-iyar uuɣu-ɣsan uu?
Batu-TOP alcohol-ACC quickly drink-PST.ADN Q

'Did Batu drink alcohol quickly?'

A: [$_{CP}$ Uuɣu-ɣsan ügei gejü] bodu-na.
drink-PST.ADN NEG C think-NPST.CON

(Lit.) 'I think not drank.'

With (35Q) as its antecedent, (35A) can mean that the speaker thinks that Batu did not drink alcohol quickly. The availability of the null adjunct reading strongly suggests that embedded VEAs as well as matrix VEAs involve ellipsis rather than *pro*-drop in Mongolian (see the discussion in section 2.1).

Next, let us turn to voice mismatch. Recall that intolerance of voice mismatch in Mongolian matrix VEAs was taken to indicate TP ellipsis (see the discussion in section 2.2). Keeping this in mind, consider the following examples.

(36) Q: Čin-u yeke suryaɣuli-bol yamar nige kelen-ü erdemten-i
you-GEN university-TOP someone linguist-ACC
kölüsle-gsen uu?
hire-PST.ADN Q

'Did your university hire any linguist?'

A^1: Teimü. [$_{CP}$ Kölüsle-gsen gejü] bodu-na.
yes hire-PST.ADN C think-NPST.CON

(Lit.) 'Yes. I think that hired.'

A^2: *Teimü. [$_{CP}$ Kölüsle-gde-gsen gejü] bodu-na.
yes hire-PASS-PST.ADN C think-NPST.CON

(Lit.) 'Yes. I think that was hired.'

The antecedent sentence (36Q) involves active voice, and with (36Q) as its antecedent, (36A^1), which involves the active embedded VEA, is grammatical, while (36A^2), which involves the passive embedded VEA, is ungrammatical. The ungrammaticality of (36A^2) then indicates that embedded VEAs as well as matrix VEAs should be analyzed as involving TP-size ellipsis, neither VP-size ellipsis nor *pro*-drop. Furthermore, as discussed in section 2.2.2, that voice mismatch is disallowed can also be considered as an argument for the presence of silent structure in ellipsis sites of embedded VEAs.

As a final note, building on Koizumi's (2000) observation in Japanese, we provide the following data regarding coordination, suggesting that overt V-raising, which is a prerequisite for the V-raising + ellipsis analysis of VEAs, is operative not only in a matrix clause but also in an embedded clause in Mongolian.

(37) a. Batu-bol [CP Baɣatur-Ø [[Ulaɣan-du nom-Ø 2-debter] bolun
Batu-TOP Bagatur-NOM Ulagan-DAT book-ACC 2-CL and
[Gerel-du šikir-Ø 3-keseg]] ügkü-gsen gejü] boduju baina.
Gerel-DAT candy-ACC 3-CL give-PST.ADN C think COP.NPST

'Batu thinks that Bagatur gave [[2 books to Ulagan] and [3 candies to Gerel]].'

b. Batu-bol [CP [[Baɣatur-Ø nom-Ø 2-debter] bolun [Ulaɣan-Ø
Batu-TOP Bagatur-NOM book-ACC 2-CL and Ulagan-NOM
šikir-Ø 3-keseg]] qudaldun abu-ɣsan gejü] boduju baina.
candy-ACC 3-CL buy take-PST.ADN C think COP.NPST

(Lit.) 'Batu thinks that [[Bagatur two books] and [Ulagan 3 candies]] bought.'

In (37a), a chunk in which a dative DP and an accusative DP with its numeral classifier exist is coordinated with a chunk of the same type within an embedded clause, meaning that the embedded chunks in question are constituents. Under the overt V-raising analysis, the embedded clause in (37a) is analyzed as follows.

(38) ... [CP [TP Bagatur [[VP to Ulagan book 2 t_V] and [VP to Gerel candy 3 t_V]] T+V_{gave}] C] ...

Here, the V *ügkü-gsen* 'gave' undergoes raising to T from each conjunct in the across-the-board manner, making the chunks in question a constituent. In (37b), a chunk including a nominative DP, i.e. a subject, and an accusative DP with its numeral classifier is coordinated with a chunk of the same type within an embedded clause. Under Koizumi's analysis, the embedded clause in (37b) receives the analysis illustrated in (39).

(39) ... [CP [[TP Bagatur [VP book 2 t_V] t_T] and [TP Ulagan [VP candy 3 t_V] t_T]] C] ...

Here, the V *qudaldun abu-ɣsan* 'bought' has undergone raising to T in each conjunct and then further raised to C out of the conjuncts in the across-the-board manner. If the analysis illustrated in (39) is on the right track, the grammaticality of (37b) can be considered as a supporting evidence for the existence of overt V-raising to C in Mongolian, which in turn provides us with a base for the structural analysis of Mongolian embedded VEAs.

As far as the above data are considered, embedded VEAs in Mongolian exhibit exactly the same properties as matrix VEAs in that they can yield the null adjunct reading and they do not tolerate voice mismatch. Therefore, it seems safe for us to conclude that both embedded VEAs and matrix VEAs can be fallen under the same analysis: they are derived via overt V-raising to C followed by TP-ellipsis.

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