# Case in Conflict: Embedded Subjects in Mongolian*

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**Abstract**. In Mongolian the subject of embedded object clauses can occur not only in the morphologically unmarked form, but also in the accusative. Sidestepping the question whether these NPs are raised to object position, we focus here on the conditions underlying this alternation. The results of two questionnaires indicate that the accusative is clearly preferred if the embedded subject is immediately preceded by and more prominent than the matrix subject (otherwise both the unmarked and the accusative forms are possible and there is no clear preference). We explain this by the interaction of three principles: (i) the PROMINENCE PRINCIPLE (P1), stating that the most prominent NP in a sequence of NPs is the matrix subject, (ii) the ACCUSATIVE PRINCIPLE (P2), stating that an accusative marked NP is not the matrix subject, and (iii) the FIRST ARGUMENT PRINCIPLE (P3), stating that the first NP in a sequence of NPs is the matrix subject. If the first NP in a sequence of NPs is followed by a more prominent morphologically unmarked NP, then P1 and P3 conflict, predicting low acceptability judgements. Assuming that case morphology, unlike word order information, overrides the PROMINENCE PRINCIPLE, no conflict arises if the second NP is accusative, resulting in better acceptability judgements.

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# 1 Introduction

In Mongolian, subordinate object clauses are morphologically marked by the accusative suffix *-(i)g* on the subordinate verb.[1]

(1) Bi ene oyutan haana amidar-dag-ig med-ne.
I this student where live-HAB-ACC know-NPST
'I know where this student lives.'

The subject of such subordinate object clauses can occur not only in the morphologically unmarked form (*ene oyutan* 'this student'), as in (1), but also in the morphologically accusative form (*ene oyutn-ig* 'this student-ACC'), as shown in (2):

(2) Bi ene oyutn-ig haana amidar-dag-ig med-ne.
I this student-ACC where live-HAB-ACC know-NPST
'I know where this student lives.'

This alternation in morphological form cannot be explained by analysing both the NP *ene oyutan* of (1) and the NP *ene oyutn-ig* of (2) as direct objects, because direct objects expressed by definite (and demonstrative) NPs must be in the morphologically accusative form:

(3) *Bi ene oyutan med-ne.
I this student know-NPST
Int.: 'I know this student.'

(4) Bi ene oyutn-ig med-ne.
I this student-ACC know-NPST
'I know this student.'

For a Japanese alternation similar to that in (1) and (2) Kuno (1976) proposed that in the unmarked form the NP is the subject of the subordinate clause, while in the morphologically accusative form it is (raised to be) the direct object of the superordinate clause. In von Heusinger et al. (to appear) we argued at length that the accusative NP in (2) should not be analysed as subject to object raising, but as an accusative subject of the subordinate clause, which may in some cases scramble

[1] We have used the following glosses based on the Leipzig Glossing Rules: ABL = ablative, ACC = accusative, CVB = converb, DAT = dative, GEN = genitive, HAB = habitual, INF = infinitive, INS = instrumental, NOM = nominative, NPST = non-past, PRS = present tense, PST = past tense

into the superordinate clause.[2] The aim of this paper is to investigate the conditions under which the accusative on subjects of embedded (object) clauses can be omitted - an issue that is orthogonal to the question of whether the NP *ene oyutn-ig* in (2) is raised from subject to object position. If the NP *ene oyutn-ig* in (2) is analysed as raised to object we want to find out under what conditions it raises – if it is analysed as an accusative subject of the subordinate clause we want to know under what conditions it can be accusative as opposed to being morphologically unmarked.

The results of the questionnaires that were used to investigate the conditions underlying this alternation indicate that the accusative on the subject of an embedded object clause (embedded subject, for short) can be omitted either (i) if the matrix subject and embedded subject are not adjacent or (ii) if they are adjacent and the matrix subject is higher than the embedded subject on the definiteness scale or animacy scale. Put differently, the accusative cannot easily be omitted if the two NPs are adjacent and the second NP is higher than the first NP on either definiteness or animacy scale. In order to explain this pattern of omission we assume the following three principles:

(P1) PROMINENCE PRINCIPLE: the most prominent argument in a sequence of adjacent arguments (the highest argument on the definiteness or animacy scale) has the most prominent grammatical function, i.e. matrix subject.

(P2) ACCUSATIVE PRINCIPLE: an accusative marked NP is not the matrix subject.

(P3) FIRST ARGUMENT PRINCIPLE: the first NP in a sequence of NPs is interpreted as the matrix subject.

We propose that (i) that there is a default and defeasible inference to the effect that the argument which is highest on the definiteness or animacy hierarchy is the matrix subject (P1), (ii) the function of the accusative marker is to indicate that the argument is not the matrix subject (P2) and (iii) that the information about syntactic function contributed by word order (P3) differs in status from the information contributed by case morphology. If the ACCUSATIVE PRINCIPLE overrides the PROMINENCE PRINCIPLE, then no conflict can arise if the two principles disagree on which NP the matrix subject is. On the other hand, if the FIRST ARGUMENT PRINCIPLE does not override the PROMINENCE PRINCIPLE, then we can explain the difficulty in omitting the accusative from an adjacent but more prominent embedded subject as resulting from a conflict between the FIRST ARGUMENT PRINCIPLE and the PROMINENCE PRINCIPLE.

If the function of the accusative in Mongolian (and possibly in other SOV languages, too) is to indicate that the NP does not bear the matrix subject role, this would be somewhat unusual since case markers are assumed to either distinguish

[2] For further details on when subject of subordinate clauses scramble into the superordinate clause, see von Heusinger et al. (to appear, section 4).

arguments of the same predicate from one another or to identify semantic or pragmatic properties of the argument. According to de Hoop and Malchukov (2008, p. 567) "[t]he identifying strategy makes use of case morphology to encode specific semantic/pragmatic information about the nominal argument in question", whereas "[t]he distinguishing strategy is a more specific strategy that is used for distinguishing between the two core arguments of a transitive clause, i.e. the subject and the object".

Since the conditions governing the accusative-nominative case alternation on subjects of object clauses are different from the conditions underlying the differential object marking of direct objects, we will begin by summarising in section 2 the conditions for differential object marking in Mongolian. In section 3, we will introduce some case alternations on subjects of subordinate clauses, and will then focus on the case alternation on subjects of object clauses. Based on native speaker intuitions about this case alternation we formulated some generalisations, which we tested by means of a written and then a web questionnaire. In sections 4 and 5 we present the questionnaires and their evaluation. In section 6, we propose an explanation of the phenomenon of accusative omission on subjects of object clauses. Section 7 concludes.

## 2 Differential case marking in Mongolian

Modern Mongolian is an SOV language with nominative-accusative alignment. The subject of matrix clauses is morphologically unmarked (nominative), whereas the direct object is either morphologically accusative or morphologically unmarked.[3] In particular, the direct object must be ACC-marked if it is expressed by a pronoun, a name or a definite NP, and it may be ACC-marked if it is indefinite, with the preference depending mainly on specificity. See Guntsetseg (2009) for a detailed description of the factors conditioning differential object marking in Modern Mongolian.

(5) Tuya **ene** **hun*(-ig)** med-ne.
Tuya this person-ACC know-NPST
'Tuya knows this person.'

[3] To avoid potential confusion, we emphasise that the glosses indicate morphological case, not syntactic case (see e.g. Spencer 2008 for a clear exposition of the relevance of this distinction). So, the lack of glossing information on some direct objects simply indicates that this object is morphologically unmarked, and should not be taken to imply that it is in the syntactic case nominative.

(6) Tuya **neg** **oyut(a**)n(**-ig)** med-ne.
Tuya a student-ACC know-NPST
'Tuya knows this person.'

The subjects of subordinate clauses can be realised in different cases. For example the subject of a relative clause can be either morphologically unmarked, genitive (GEN) or ablative (ABL) (7), whereas the subject of adverbial clauses is either morphologically unmarked or ACC (8).

(7) Bi **jerunhiilegch/-in/-ees** bich-sen zahia-g unsh-san.
I president/-GEN/-ABL write-PST letter-ACC read-PST
'I read the letter which the president wrote.'

(8) **Bold/-ig** ir-sn-ii daraa bi yav-na.
Bold/-ACC come-PST-GEN after I go-NPST
'I will go after Bold comes.'

Note that in (8) the embedded clause is a complement of the postposition *daraa* ('after'), making it unlikely that the matrix verb *yav-na* ('go-NPST') somehow governs the embedded subject *Bold* if it is accusative marked. To the extent that these subordinate clauses are structurally similar to the object clauses to be discussed in the next section, they appear to provide evidence against an analysis of the embedded subjects as being governed by the matrix verb.

So in Mongolian there are different case alternations on subjects of subordinate clauses, but no case alternation on subjects of main clauses.

## 3 Case alternation on subjects of object clauses

In this paper we will focus on the case alternation on subjects of object clauses. Object clauses are propositional complements suffixed with the accusative marker *-ig*, as illustrated in (9).

(9) Bi ene oyutn-ig haana amidar-dag-**ig** med-ne.
I this student-ACC where live-HAB-**ACC** know-NPST
'I know where this student lives.'

The object clause may occur either after the matrix subject (10a) or before it (10b).

(10) a. **Bi** ene oyutn-ig haana amidar-dag-ig med-ne.
I this student-ACC where live-HAB-ACC know-NPST
'I know where this student lives.'

b. Ene oyutn-ig haana amidar-dag-ig **bi** med-ne.
this student-ACC where live-HAB-ACC I know-NPST
'I know where this student lives.'

As can be seen from these examples, the subject of such an object clause can be realised in the accusative, but under certain conditions the accusative suffix on the subject may be omitted, leading to an accusative-nominative case alternation on subjects of object clauses.

(11) a. Bi **ene** **oyutn-ig** haana amidar-dag-ig med-ne.
I this student-ACC where live-HAB-ACC know-NPST
'I know where this student lives.'

b. Bi **ene** **oyutan** haana amidar-dag-ig med-ne.
I this student where live-HAB-ACC know-NPST
'I know where this student lives.'

Note that unlike English subordinate clauses, the embedded object clauses in Mongolian do not have a clause-initial complementiser. Together, the fact that Mongolian is verb-final and the fact that embedded object clauses do not have a clause-initial complementiser allow for the possibility that the embedded subject immediately follows the matrix subjects, resulting (in some cases at least) in a temporary uncertainty about the grammatical function of the second NP. For example, immediately after parsing the NP *ene oyutn-ig* ('this student-ACC') in sentence (11a), this NP could be understood as the object of the main clause, which would not be possible if the two NPs were separated by a clause-initial complementiser.

From a syntactic point of view two questions should be asked about the structure of these object clauses. The first question is whether all instances of non-finite verb forms occurring in these object clauses are to be analysed as infinitives, and the second is whether the accusative subject of the object clause has raised to the object position of the main verb.

If all non-finite verb forms occurring in this construction are analysed as infinitives, then one could claim that this construction is an *Accusativus Cum Infinitivo* (ACI), as has been done in e.g. Binnick (1979, Section 3.4). If this were the case, then it would not be obvious how to account for the fact that some verb forms can occur as main verbs (12) whereas others cannot (13):

(12) a. Tuya ene hun hulgai **hii-sn**-ig med-ne.
Tuya this person theft do-PST-ACC know-NPST
'Tuya knows that this person did the theft.'

b. Ene hun hulgai **hii-sen**.
this person theft do-PST
'This person did theft.'

(13) a. Tuya ene hun hulgai **hii-h**-ig har-san.
Tuya this person theft do-INF-ACC see-PST
'Tuya saw this person do(ing) the theft.'

b. *Ene hun hulgai **hii-h**.
this person theft do-INF
Int.: 'This person is doing the theft.'

See also Koptjevskaja-Tamm (1993, p. 37) for another argument why these non-finite verb forms should not be analysed as infinitives in Mongolian.

Concerning the second question, there is an important difference between accusative subjects of subordinate clauses and accusative objects (of main or subordinate clauses). If for example a demonstrative NP is the direct object of a main clause, then the accusative cannot be omitted (14a), but if the same demonstrative NP is the subject of an embedded object clause, then the accusative can be omitted (14b). Therefore, the claim that the subject of the object clause has raised to the object position of the main clause leaves this difference unexplained.

(14) a. Tsagdaa ene hulgaich***(-ig)** bari-san.
Police this thief-ACC arrest-PST
'The police arrested this thief.'

b. Bi ene hulgaich**(-ig)** tsagdaa-d bari-gd-san**-ig**
I thisthief-ACC police-DAT arrest-PASS-PST-ACC
med-ne.
know-NPST
'I know that this thief was arrested by the police.'

In this paper we do not have to take a stand on these questions about the proper analysis of the non-finite verb form and the subject of the object clause, since as it turns out the main questions that concern us here, namely under what conditions

the accusative is omitted from the subject of the object clause and why, appear to be independent of the answer to these questions.

In the next two sections we will present two questionnaires, the first written and the second via the internet, that we performed in order to investigate the conditions under which the accusative marker on the subject of object clauses can be omitted, and in the last section we will propose an explanation for why the accusative marker can be omitted under these conditions.

# 4 First questionnaire

## *4.1. Conditioning factors*

So let us turn to the conditions under which the accusative on the subject of the object clause may or may not be omitted. The first observation, based on the intuition of one of the authors, is that the accusative on the embedded subject of (15) cannot easily be omitted, whereas the accusative on the same embedded subject can be omitted in (16):

(15) a. Ene bagsh **Tuya-g** ire-h-ig hus-ej
this teacher Tuya-ACC come-INF-ACC want-CVB
bai-na.
be-NPST
'This teacher wants Tuya to come.'

b. ?Ene bagsh **Tuya** ire-h-ig hus-ej bai-na.
this teacher Tuya come-INF-ACC want-CVB be-NPST
'This teacher wants Tuya to come.'

(16) a. Bi **Tuya-g** ire-h-ig hus-ej bai-na.
I Tuya-ACC come-INF-ACC want-CVB be-NPST
'I want Tuya to come.'

b. Bi **Tuya** ire-h-ig hus-ej bai-na.
I Tuya come-INF-ACC want-CVB be-NPST
'I want Tuya to come.'

Put differently, in (15) there is a clear preference for using the accusative, whereas in (16) both the accusative and the nominative subject appear equally acceptable. Note that in (15) the embedded subject *Tuya-g* ('Tuya-ACC') is higher on the definiteness scale (DS) of Aissen (2003, p. 437) than the matrix subject *ene bagsh* ('this teacher').

(DS) Pronoun > Name > Definite > Indef. Specific > Indef. Nonspecific

On the other hand, in (16) the embedded subject *Tuya-g* ('Tuya-ACC') is lower on the DS than the matrix subject *bi* ('I'). The underlying generalisation appears to be that if matrix and embedded subjects are adjacent, then there is a preference for accusative marking of an embedded subject if the embedded subject is higher than the matrix subject on the definiteness scale.

## *4.2 Method*

To test this generalisation, we designed a written questionnaire, which we describe below. The results will be presented and discussed in subsection 4.3.

### 4.2.1 Design

The two independent factors were (i) the case on the embedded subject, with the two values NOM or ACC, and (ii) the relative definiteness of matrix subject (MS) and embedded subject (ES), with the two values MS > ES or MS < ES. The dependent factor was the acceptability judgement.

### 4.2.2 Materials

Each of the four conditions was tested with three sentences, instantiating subjects with different positions on the definiteness scale, but with the same relative definiteness, as shown in Table 1:

| Cond. | Relative definiteness | Case ES | Definiteness MS | Definiteness ES |
|---|---|---|---|---|
| 1 | MS > ES | NOM | Pronoun | Name |
| | | | Pronoun | Definite |
| | | | Name | Definite |
| 2 | MS > ES | ACC | Pronoun | Name |
| | | | Pronoun | Definite |
| | | | Name | Definite |
| 3 | MS < ES | NOM | Name | Pronoun |
| | | | Definite | Pronoun |
| | | | Definite | Name |
| 4 | MS < ES | ACC | Name | Pronoun |
| | | | Definite | Pronoun |
| | | | Defínte | Name |

*Table 1: Conditions of the first questionnaire*

The sentences in (17) are from the first questionnaire. Sentence (17a) is one of the items used for the condition 2: the accusative marked embedded subject is a definite NP and thus lower on the definiteness scale than the matrix subject which is a pronoun. Sentence (17b) is one of the items used for the condition 3, in which the nominative embedded subject is a name and is thus higher on the definiteness scale than the matrix subject, which is a definite NP.

(17) a. Bi ene huuhd-ig duula-h-ig huse-j bai-na.
I this child-ACC sing-INF-ACC want-CVB be-NPST
'I want this child to sing.'

b. Ene bagsh Tuya duula-h-ig huse-j bai-na.
this teacher Tuya sing-INF-ACC want-CVB be-NPST
'This teacher wants Tuya to sing.'

### 4.2.3 Participants, procedure and scoring

One half of the 320 participants were students from the University of Ulaanbaatar, and the other half consisted of employees and civil servants, also from Ulaanbaatar. The 12 sentences were distributed across 4 questionnaires. These items were mixed (i) with items for another experiment on differential object marking in Mongolian and (ii) with filler sentences. Every questionnaire was answered by around 80 participants. The participants had to judge on a scale from 1 (very bad) to 6 (very good) how good the sentences sound.

### 4.2.4 Data analysis

The data were analysed by means of a crossed 2-way between-subjects analysis of variance.

## *4.3 Results*

We found a significant effect of case ($F(1,887) = 84,6$; $p < 0,001$), a significant effect of relative definiteness ($F(1,887) = 4,4$; $p < 0,05$), and a significant interaction between case and relative definiteness ($F(1,887) = 10,5$; $p < 0,001$). While there was no significant difference between the accusative marking of embedded subjects higher than matrix subjects and the accusative marking of embedded subjects lower than matrix subjects, we found a significant difference between the nominative marking of embedded subjects depending on the relative definiteness. If the embedded subject was higher on the DS than the matrix subject, then nominative marking was significantly worse than if the embedded subject was lower on the DS than embedded subjects. In fact the mean of nominative marked embedded subjects which are higher on the DS than the matrix subjects is around 2, which is similar to the mean for the ungrammatical filler sentences. Moreover, the accusative marking was on average judged better than the nominative marking, both if the embedded subject was higher and when it was lower than the matrix subject.

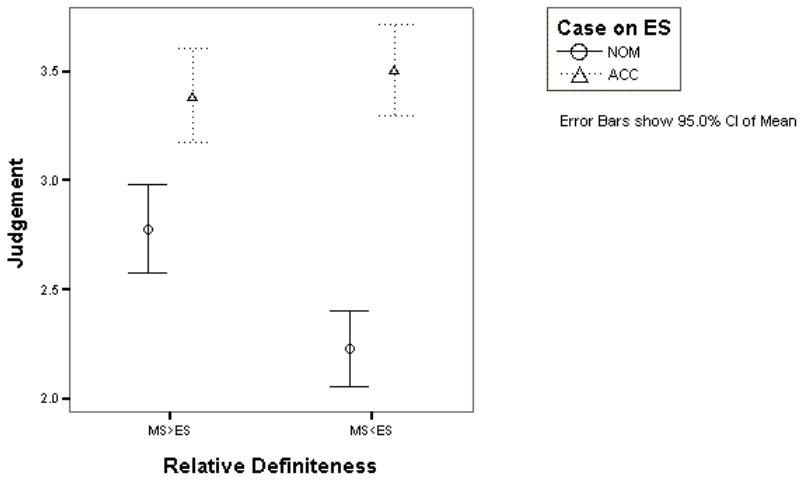


*Figure 1: Interaction between case and relative definiteness*

With the influence of the relative definiteness of the embedded subjects on nominative marking (or equally on the omission of the accusative marking) established at least for these lexicalisations, the next question is whether this difference holds also when the two subjects are not adjacent. Moreover, since high definiteness and high animacy often correlate, it is worth examining whether relative animacy of matrix and embedded subjects is also a factor conditioning the omission of the accusative marker. To find this out, we designed a second questionnaire which will be discussed in the next section.

# 5 Second questionnaire

## *5.1 Conditioning factors*

With the second questionnaire we wanted to investigate the following two questions. Firstly, does relative animacy of matrix and embedded subjects influence the accusative-nominative alternation on the embedded subject? If this is the case we should find a difference in the marking of embedded subjects, depending on whether or not they are higher on the animacy scale (AS) than the matrix subjects.

(AS) human > animal > inanimate

In (18) the embedded subject is lower on the AS than the matrix subject, in (19) the matrix and embedded subjects are both human and thus on the same position on the AS, and in (20) the embedded subject is higher on the AS than the matrix subject.

(18) **Tuya neg shiree(-g)** end bai-sn-ig har-san.
Tuya a table-ACC here be-PST-ACC see-PST
'Tuya saw a table was here.'

(19) **Sarnai neg oyut(a)n(-ig)** end amidar-dag-ig med-ne.
Sarnai a student-ACC here live-HAB-ACC know-NPST
'Sarnai knows that a student lives here.'

(20) **Ene GPS bagaj neg hun(-ig)** haana yamar gazar
this GPS instrument a person-ACC where which place
bai-gaa-g todorhoil-j chad-dag.
be-PRS-ACC determine-CVB can-HAB
'This GPS instrument can determine where a person is.'

Secondly, does the adjacency of matrix and embedded subject influence the accusative-nominative alternation on the embedded subject? If this is the case, then we should find a difference in the marking of the embedded subject, depending on whether it is adjacent to the matrix subject (21) or not (22)-(23).

(21) **Neg** **bagsh** **Tuya(-g)** hicheel-d idevhtei
a teacher Tuya-ACC lesson-DAT diligently
orolzo-h-ig sanuul-av.
participate-INF-ACC warn-PST
'A teacher warned that Tuya has to participate diligently at the lesson.'

(22) **Neg** **bagsh** unuudur **Tuya(-g)** hicheel-d idevhtei
a teacher today Tuya-ACC lesson-DAT diligently
orolzo-h-ig sanuul-av.
participate-INF-ACC warn-PST
'Today, a teacher warned that Tuya has to participate diligently at the lesson.'

(23) **Tuya(-g)** hicheel-d idevhtei orolzo-h-ig **neg**
Tuya-ACC lesson-DAT diligently participate-INF-ACC a
bagsh sanuul-av.
teacher warn-PST
'A teacher warned that Tuya has to participate diligently at the lesson.'

## *5.2 Method*

To answer these questions we designed a questionnaire with acceptability judgements on a scale from 1 (very bad) to 4 (very good) as the dependent variable, and with case, relative definiteness, relative animacy and adjacency as independent variables. To keep the experiment manageable, we investigated the case preferences for subjects of intransitive embedded clauses only.

### 5.2.1 Design

Independent factors:

- Adjacency
  - 1: embedded subject immediately follows matrix subject
  - 2: matrix and embedded subjects are separated by an adverb
  - 3: matrix subject follows the embedded clause
- Relative definiteness
  - MS>ES: matrix subject higher on definiteness scale than embedded subject
  - MS=ES: matrix and embedded subject have equal definiteness
  - MS<ES: matrix subject lower on definiteness scale than embedded subject
- Relative animacy
  - MS>ES: matrix subject higher on animacy scale than embedded subject
  - MS=ES: matrix and embedded subject have equal animacy
  - MS<ES: matrix subject lower on animacy scale than embedded subject
- Case on subject of subordinate clause:
  - nominative
  - accusative

Dependent factors:

- acceptability judgement

### 5.2.2 Materials

For each of the 54 conditions (shown in Table 2) below we used exactly one item.

| Cond. | Case ES | Adjacency | Relative definiteness | Relative animacy |
|---|---|---|---|---|
| 1 | NOM | 1 MS ES (embedded subject immediately follows the matrix subject) | MS>ES | MS>ES |
| 2 | | | MS>ES | MS=ES |
| 3 | | | MS>ES | MS<ES |
| 4 | | | MS=ES | MS>ES |
| 5 | | | MS=ES | MS=ES |
| 6 | | | MS=ES | MS<ES |
| 7 | | | MS<ES | MS>ES |
| 8 | | | MS<ES | MS=ES |
| 9 | | | MS<ES | MS<ES |
| 10 | | 2 MS ADV ES (matrix and embedded subjects are separated by an adverb) | MS>ES | MS>ES |
| 11 | | | MS>ES | MS=ES |
| 12 | | | MS>ES | MS<ES |
| 13 | | | MS=ES | MS>ES |
| 14 | | | MS=ES | MS=ES |
| 15 | | | MS=ES | MS<ES |
| 16 | | | MS<ES | MS>ES |
| 17 | | | MS<ES | MS=ES |
| 18 | | | MS<ES | MS<ES |
| 19 | | 3 ES … MS (matrix subjects follows the embedded clause) | MS>ES | MS>ES |
| 20 | | | MS>ES | MS=ES |
| 21 | | | MS>ES | MS<ES |
| 22 | | | MS=ES | MS>ES |
| 23 | | | MS=ES | MS=ES |
| 24 | | | MS=ES | MS<ES |
| 25 | | | MS<ES | MS>ES |
| 26 | | | MS<ES | MS=ES |
| 27 | | | MS<ES | MS<ES |
| 28-54 | ACC | The same as in conditions 1-27. | | |

*Table 2: Conditions of the second questionnaire*

Sentence (24) was used to test condition 5, sentence (25) was used to test condition 22, and sentence (26) was used to test condition 38 (Case ES: ACC; Adjacency: 2; Relative definiteness: MS>ES; Relative animacy: MS=ES):

(24) Tsetsegee Bold unuudur huduu-nuus ir-sn-ig sons-son.
Tsetsegee Bold today country-ABL come-PST-ACC hear-PST
'Tsetsegee heard that today Bold came from country.'

(25) Ene nom haana zar-agd-aj bai-gaa-g ene oyutan
this book where sell-PASS-CVB be-PRS-ACC this student
asuu-j bai-na.
ask-CVB be-PRS
'This student asks where this book is being sold.'

(26) Sarnai end neg oyutn-ig amidar-dag-ig med-ne.
Sarnai here a student-ACC live-HAB-ACC know-PRS
'Sarnai knows that a student lives here.'

### 5.2.3 Participants, procedure, scoring

The 156 participants were all native speakers of Mongolian, and most of them accessed the questionnaire website by means of an advertisement link placed on a popular Mongolian website (http://www.medeelel.com). The 54 sentences were distributed over 6 questionnaires, so that each participant saw only 9 out of 54 conditions/items. The test sentences were mixed with an equal number of filler sentences in the questionnaires. We collected 26 judgements per item via a web questionnaire, using the WEBEXP2 software, where the participants had to choose 1 (very bad), 2, 3, or 4 (very good), as a response to how good the sentence displayed sounded.

### 5.2.4 Data analysis

The data were analysed by means of a crossed 4-way between-subjects analysis of variance.

### 5.2.5 Results

The first result of the factorial analysis of variance is that there is a significant interaction between the case of embedded subject and adjacency of matrix and embedded subjects ($F(2,1398) = 10,2$; $p < 0,001$), as illustrated in Figure 2.

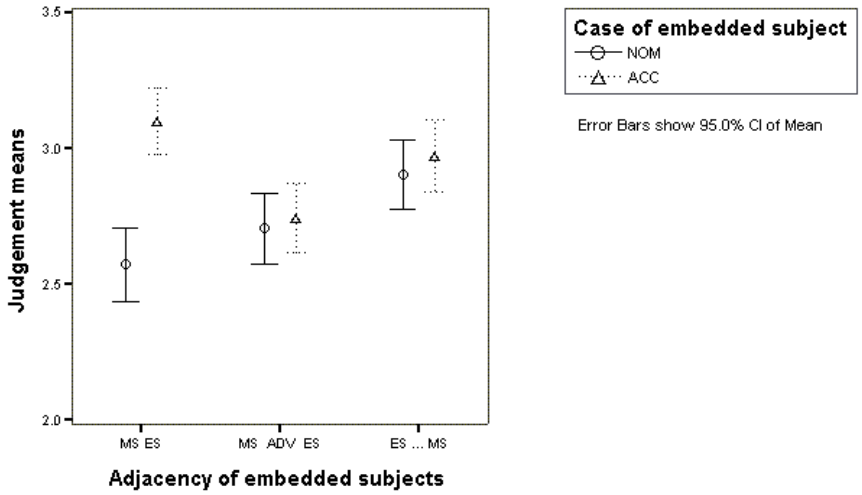


*Figure 2: Interaction between case and adjacency*

This interaction can be interpreted in the following way. Firstly, if matrix and embedded subject are adjacent, then there is a significant preference for ACC-marking of the embedded subject. And secondly, if matrix and embedded subject are not adjacent, then there is no significant preference for ACC-marking of the embedded subject.

The second significant interaction, illustrated in Figure 3, is between the case of the embedded subject and the relative definiteness of matrix and embedded subjects ($F(2,1398) = 10{,}9$; $p < 0{,}001$). Firstly, there is no significant preference for ACC-marked embedded subjects if they are lower on the definiteness scale than the matrix subject. Secondly, there is a slight preference for ACC marked embedded subjects if they have the same definiteness as matrix subjects. Thirdly, there is a statistically significant preference for ACC-marking (half a point on the judgement scale) if the embedded subject is higher on the definiteness scale than the matrix subject.

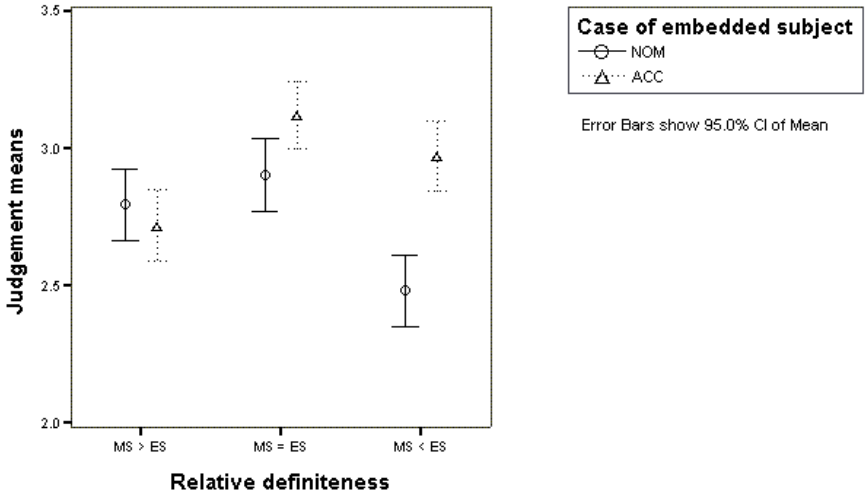


*Figure 3: Interaction between case and relative definiteness*

The third significant interaction, illustrated in Figure 4, is between the case of embedded subject and the relative animacy of matrix and embedded subjects ($F(2,1398) = 14{,}2$; $p < 0{,}001$). Firstly, there is a significant preference for ACC-marked embedded subjects if their animacy is equal to or higher than the animacy of the matrix subject. And secondly, there is no clear preference for NOM or ACC on the embedded subject if it is lower in animacy than the matrix subject.

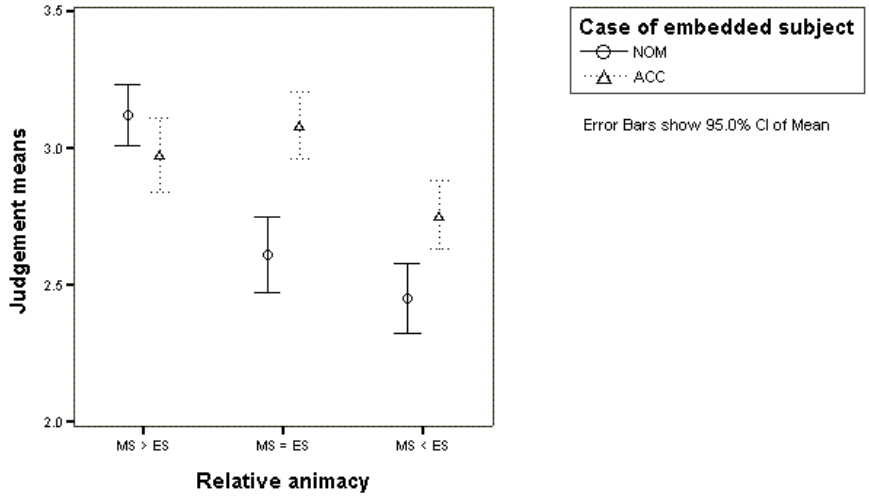


*Figure 4: Interaction between case and relative animacy*

Next we will look more closely at the interaction between case, relative animacy and definiteness if both subjects are adjacent. The three examples where the subjects are adjacent but differ in relative definiteness are repeated below:

(27) **Tuya neg shiree(-g)** end bai-sn-ig har-san.
Tuya a table-ACC here be-PST-ACC see-PST
'Tuya saw a table was here.'

(28) **Tsetsegee Bold(-ig)** unuudur huduu-nuus ir-sn-ig
Tsetsegee Bold-ACC today country-ABL come-PST-ACC
sons-son.
hear-PST
'Tsetsegee heard that Bold today came from countryside.'

(29) **Neg zereg ene buu(-g)** yaj ajilla-dag-ig
a soldier this gun-ACC how function-HAB-ACC
nadad zaa-j ug-sun.
I.DAT show-CVB give-PST
'A soldier showed me how this gun works.'

The interaction between case and relative definiteness if the subjects are adjacent is illustrated in Figure 5:

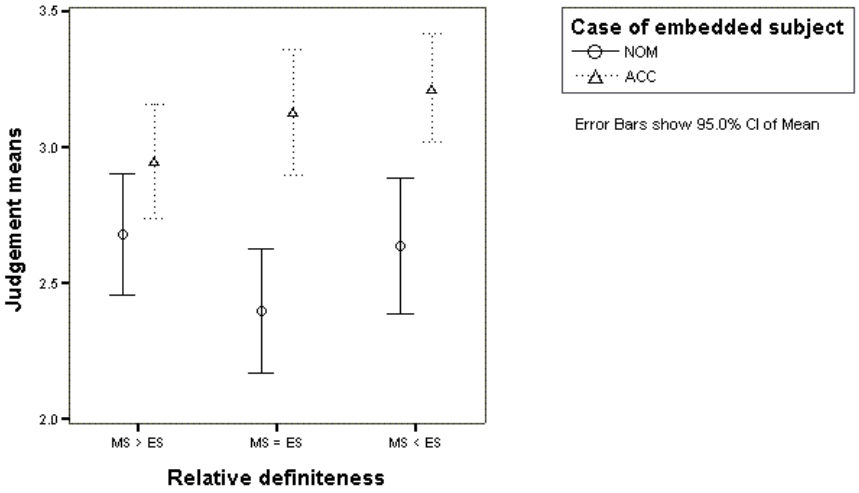


*Figure 5: Interaction between case and relative definiteness of adjacent subjects*

If the two subjects are adjacent, then ACC-marked embedded subjects are significantly preferred **only if** they are equal to or higher than the matrix subject on the definiteness scale.

Finally, we illustrate in Figure 6 the case alternation results if the adjacent subjects have different relative animacy, with the examples repeated below:

(30) **Tuya neg shiree(-g)** end bai-sn-ig har-san.
Tuya a table-ACC here be-PST-ACC see-PST
'Tuya saw a table was here.'

(31) **Sarnai neg oyutn-ig** end amidar-dag-ig med-ne.
Sarnai a student-ACC here live-HAB-ACC know-NPST
'Sarnai knows that a student lives here.'

(32) Ene GPS bagaj neg hun-ig haana yamar gazar
this GPS instrument a person-ACC where which place
bai-gaa-g todorhoil-j chad-dag.
be-PRS-ACC determine-CVB can-HAB
'This GPS instrument can determine where a person is.'

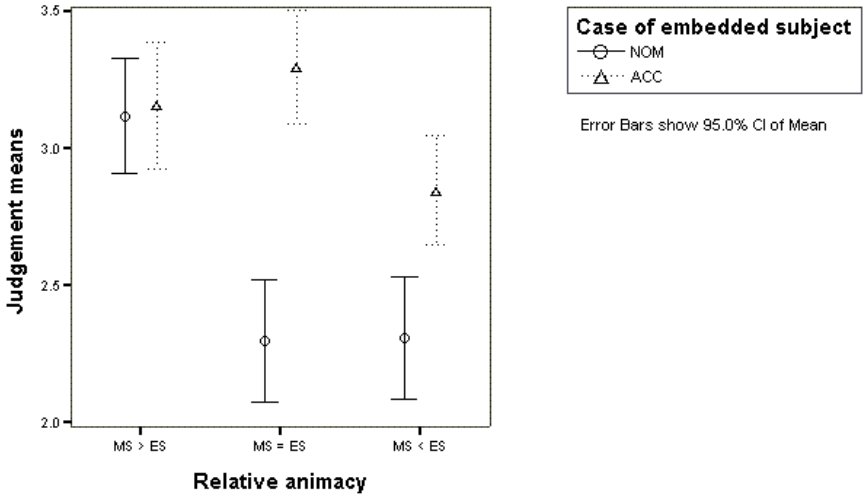


*Figure 6: Interaction between case and relative animacy of adjacent subjects*

Again, the accusative marking on the embedded subject cannot easily be omitted if its animacy is equal to or higher than the animacy of the matrix subject.

Summing up the main results of the two questionnaires, the accusative marking on the embedded subject of an object clause may be omitted in one of three cases:

- if the matrix and embedded subjects are not adjacent
- if the matrix and embedded subjects are adjacent, and the matrix subject is higher than the embedded subject on the definiteness scale
- if the matrix and embedded subjects are adjacent, and the matrix subject is higher than the embedded subject on the animacy scale

Before we proceed with the interpretation of these results, it is necessary to point out that due to the fact that only one item has been tested per condition, we cannot generalise from the judgements about this particular sentence to the acceptability of the condition (or sentence type). For example, since condition 5 (matrix and embedded subjects are adjacent and on the same position on both definiteness and animacy scale) was tested by exactly one sentence, namely sentence (24), we cannot generalise from the judgements for this particular sentence to the judgements of all other sentences satisfying condition 5. Given the experiment setup, we can conclude that if we repeated the same experiment with different participants the results would very likely be the same, but we cannot conclude that if we repeated the experiment with different items per condition, the results would be the same. Due to this limitation we interpret our results as indications (not evidence) on what the omission of the accusative on embedded subjects depends on.

## 6 Interpretation

Why does the omission of the accusative on embedded subjects of object clauses depend on the relative animacy and on the relative definiteness of the embedded subject if both subjects are adjacent? Put differently, why is it easy to omit the accusative if the embedded subject is lower than the matrix subject, but hard (if not ungrammatical) if the embedded subject is higher than the matrix subject? (Remember that if these arguments were direct objects the accusative could not be omitted if the argument is a pronoun, name or definite/demonstrative NP.)

We propose to account for this difference by the interaction of the following principles:

(P1) PROMINENCE PRINCIPLE: the most prominent argument in a sequence of adjacent arguments (the highest argument on the definiteness or animacy scale) has the most prominent grammatical function, i.e. matrix subject.

(P2) ACCUSATIVE PRINCIPLE: an accusative marked NP is not the matrix subject.

(P3) FIRST ARGUMENT PRINCIPLE: the first NP in a sequence of NPs is interpreted as the matrix subject.

The PROMINENCE PRINCIPLE is taken to be a defeasable processing principle motivated by the harmonic alignment of prominence scales.[4] The ACCUSATIVE PRINCIPLE is taken to be a grammatical hard-wired principle, which cannot be overridden by other principles. The FIRST ARGUMENT PRINCIPLE is again taken to be a processing principle that can be overridden. The motivation for this principle is the observation that "in the case of an ambiguity, the first argument is preferentially interpreted as the subject of the clause", as pointed out in Schlesewsky and Bornkessel (2004, p. 1216) and references therein.

Let us now look at the individual structures in turn and see what effect these principles have. In the first structure illustrated in (33) the first NP is higher on one of the definiteness or animacy scales than the adjacent accusative marked NP. The NP in a sequence of NPs which is the most prominent one (the highest on the definiteness or animacy scale) is indicated by boldface.

(33) $\mathbf{NP}_{NOM}\ \mathrm{NP}_{ACC}$

By (P1) the first NP is the matrix subject since it is more prominent, and by (P2) the second argument cannot be the matrix subject. So there is no conflict between what these two principles imply. Secondly, if the structure is as in (34)

(34) $\mathrm{NP}_{NOM}\ \mathbf{NP}_{ACC}$

By (P1) the second NP is the matrix subject as it is the more prominent one, but by (P2) the second NP cannot be the matrix subject, because it is accusative marked. If we assume that case information overrides default information, then no conflict results. Note that if the ACCUSATIVE PRINCIPLE specified that an accusative marked NP cannot be the subject (as opposed to the matrix subject), the subjects of object clauses could not be accusative marked, contrary to fact. It is therefore important to emphasise that the function of the accusative marker in these cases cannot be analysed as (i) distinguishing subject from object or as (ii) indicating some semantic/pragmatic property of the argument, but should be analysed as distinguishing matrix subject from non-matrix subject. If this is correct then the distinguishability of the arguments of a transitive relation proposed e.g. by de Hoop and Lamers (2006), de Swart (2007) and Næss (2007) should be complemented, in Mongolian at least, by the distinguishability of matrix subject from non-matrix subjects.

Thirdly, if the structure is as in (35)

(35) $\mathbf{NP}_{NOM}\ \mathrm{NP}_{NOM}$

then both by (P1) and (P3) the first argument is the matrix subject, so again no conflict arises. Fourthly if the structure is as in (36)

(36) $\mathrm{NP}_{NOM}\ \mathbf{NP}_{NOM}$

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[4] See Aissen (2003, p. 440) for the notion of harmonic alignment of prominence scales.

then by (P1) the second NP is the matrix subject, since it is the more prominent one, but by (P3) the first NP should be the matrix subject. If we assume that word order does not override the default information provided by (P1), then we predict a conflict in the assignment of grammatical roles.

In other words, we claim that the crucial difference between structures like (34) and structures like (36) is that in (34) the case information overrides the defeasable inference based on relative prominence, whereas word order information cannot override this inference, resulting in conflicting information about grammatical role assignment.

The second question is why the conditions for the omission of the accusative on embedded subjects are dependent on the adjacency of the two subjects. Note that this has been built into the PROMINENCE PRINCIPLE (P1). One possibility is that the assignment of grammatical roles in SOV languages is sensitive to clause boundaries. If a clause boundary (e.g. a clause-initial complementiser) also indicates that certain NPs cannot be the matrix subject, then the accusative would not be necessary to indicate this. On the other hand, if like in Mongolian there is no such clause boundary indicator between two morphologically unmarked NPs, then the PROMINENCE PRINCIPLE may or may not conflict with the FIRST ARGUMENT PRINCIPLE. If the most prominent argument is not the first but the second NP, then the PROMINENCE PRINCIPLE conflicts with the FIRST ARGUMENT PRINCIPLE, and the presence of the ACC can be interpreted as settling the conflict by overriding the FIRST ARGUMENT PRINCIPLE. If on the other hand the most prominent argument is the first NP, then no conflict arises, and the ACC is not necessary for the assignment of the matrix subject role.

To sum up, in order to account for the difference between the acceptability of the structures (34) and (36) we postulated (i) a principle to the effect that the most prominent argument in a sequence of arguments (the highest argument on the definiteness or animacy scale) is the matrix subject, and (ii) a difference in the status of case and word order information about grammatical role assignment – case overrides (the effect of) the PROMINENCE PRINCIPLE so that there is no conflict, whereas word order does not override the PROMINENCE PRINCIPLE, resulting in a conflict of grammatical role assignment.

Since this explanation does not depend on the type of the subordinate clause, it predicts that this case alternation between the morphologically unmarked form and the accusative form on subjects of embedded object clauses should also be found on subjects of other subordinate clause types. To test this prediction we performed a follow-up written questionnaire (in Mongolia, August 2008) comparing this NOM/ACC alternation on subjects of object clauses with the same alternation on subjects of adverbial clauses. The details of the experiment design, method, results and interpretation are discussed in Guntsetseg (to appear). Here we summarize the design and the main results of this experiment.

The four independent variables of the experiment were: case (NOM or ACC), subordinate clause type (object clause or adverbial clause), adjacency (adjacent or non-adjacent) and relative definiteness (were the matrix and subordinate subjects

were PRO-PRO, PRO-DEF, DEF-PRO and DEF-DEF). The dependent variable was the acceptability judgment of the native speakers. The resulting 32 conditions were tested by means of 15 lexicalizations each, resulting in 480 items. These items were split onto 30 questionnaires, which were distributed to 720 native speakers, so that each questionnaire was filled in by 24 participants. The results were analyzed by means of a factorial analysis of variance (by subjects and by items).

The main results of the experiment can be summarized as follows: first, the adjacency of matrix and embedded subjects turned out to be a significant factor not only in object clauses, but also in adverbial clauses: when the matrix subject immediately preceded the embedded subject there was a clear preference for marking the embedded subject as accusative in both object and adverbial clauses, whereas in those cases were the embedded subject did not immediately follow the matrix subject there was no significant difference between ACC and NOM marking. Secondly, we found that the preference for ACC marking on the subjects of adverbial clauses also depends on the referentiality of the embedded subject. What the results also indicate is that the preference of ACC marking does not depend on the referentiality of the matrix subject, so that we can cautiously conclude that what matters is the absolute referentiality of the embedded subject, and not its referentiality compared to that of the matrix subject. And thirdly, we found no significant interaction between the subordinate clause type and case marking – whenever there was a clear preference for ACC marking on the subject of an object clause with a certain combination of factors, there was also a clear preference for ACC marking on the subject of adverbial clauses with the same combination of factors, and whenever there was no clear preference for ACC marking on the subject of an object clause for a certain combination of factors there was no clear preference for ACC marking on the subject of adverbial clauses with the same combination of factors either.

Since we used 15 lexicalizations per condition we can confidently generalize these finding across lexicalizations, i.e. we can be reasonably confident that the observed preference patterns are not a quirk of some lexemes, but hold across lexemes. But most importantly, the result that this NOM/ACC alternation is independent of the type of the subordinate clause supports our explanation of this alternation, since our explanation in terms of the interaction of the three postulated principles does not make reference to the subordinate clause type.

## 7 Conclusions

In Mongolian the conditions under which the accusative on embedded subjects can be omitted are different from the conditions under which the accusative on direct objects can be omitted. On the one hand, with direct objects the accusative can only be omitted if the NP is an indefinite NP, whereas this is not the case for

embedded subjects. On the other hand, the omission of the accusative on embedded subjects depends on the adjacency of this subject to the matrix subject and/or on which of the two NPs is more prominent, which is again not the case for direct objects. We conclude from this that the accusative marking on an NP does not indicate that this NP is a direct object, but that this NP is not the matrix subject. If this is on the right track, then in addition to the other functions case may have (see e.g. Butt (2006), it can also be used to distinguish NPs across clause boundaries – an unusual function of case.

In order to explain why the accusative on embedded subjects of object clauses can be omitted, we proposed (i) a PROMINENCE PRINCIPLE according to which the most prominent NP in a sequence of NPs is the matrix subject and (ii) a difference in the status of case morphology and word order information about grammatical role assignment. The ACCUSATIVE PRINCIPLE overrides the PROMINENCE PRINCIPLE whereas the FIRST ARGUMENT PRINCIPLE conflicts with the PROMINENCE PRINCIPLE, explaining why the accusative cannot easily be omitted from the embedded subject, if it immediately follows the matrix subject and is more prominent than the matrix subject.

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