

Adjective Distribution in Mongolian and Japanese

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Abstract This paper tackles how adjectives distribute in Mongolian and Japanese in light of the framework ‘scale structure’. It is explicated that Mongolian resultatives are of three types, i.e. adjective-post resultative, adjective-initial resultative; co-verb resultative. The acceptability of adjectival complements in inherent resultatives runs from ‘Totally open-scale AP’ down to ‘Lower closed-scale AP, Upper-closed scale AP, Totally closed-scale AP’. Mongolian welcomes all layers of adjectives in direct perception expressions. Japanese adjectives are re-categorised into two types, i.e. open-scale adjectives (corresponding to the traditional *i*-adjective) and closed-scale adjectives (corresponding to the traditional *na*-adjective). Though both are capable of rendering an inherent result, the resultatives rendered by open-scale adjectives and closed-scale adjectives present different lexicalisation patterns. Moreover, like Mongolian, derived resultatives are also missing in Japanese. The lack of derived resultatives in Altaic languages is down to the following reason, i.e. Altaic languages are likely to lexicalise the RESULT into the MAIN VERB. In inherent resultatives, there is a connection between CAUSE EVENT and RESULT EVENT, i.e. the verb carries an implication of result. In derived resultatives, a GAP arises between ACTION and RESULT. Regarding direct perception expressions, Japanese seems to welcome both open-scale and closed-scale APs. The perceptual verb 見る *miru* solely delivers the perceived event and is thus deemed objective. 見える *mieru*, on the other hand, cannot fulfil a metaphorical interpretation, and appears to be subjective.

Keywords Scale Structure, Adjectives, Mongolian, Japanese

1. Introduction

Mongolian, an Altaic language, is deemed an exclusively suffixing agglutinative SOP language. Seven cases are mostly used: nominative, accusative, genitive, dative-locative, ablative, instrumental, and comitative. A salient feature of Modern Mongolian lies in the fact that

adjectival complements may directly precede the verbs, as seen in the resultative construction (1).

- (1). Тэр ханаа улаан/улаанаар будсан.
she wall red/red. INSTR paint-PAST
‘She painted the wall red.’

In terms of resultative constructions, two grammatical elements seem capable to indicate result, i.e. adjective and co-verb, which give rise to three types of resultative constructions: (i). adjective-post type [NP₁ V NP₂ AP] (2a); (ii). adjective-initial type [NP₁ AP V NP₂] (2b); (iii) co-verb type [NP₁ V V NP₂] (2c).

(2). Mongolian resultative construction types

a. Adjective-post type [NP₁ V NP₂ AP]

Тэр эрэгтэй төмөр таяг дабдажъ
DEM 1st.masc.sg metal stick pound
урт болгаб.
long PAST
‘He pounded the metal long.’

b. Adjective-initial type [NP₁ AP V NP₂]

Тэр эрэгтэй гутлаа цоортол өмссөн.
DEM 1st.masc.sg shoe broken wear-PAST
‘He wore the shoe (until) it is broken.’

c. Co-verb type [NP₁ V V NP₂]

Тэр эрэгтэй үсээнбийрэн бичиж байгаад хугалсан.
DEM 1st.masc.sg pen write-break-PAST
‘He writes with the pen (until it is) broken.’

In Mongolian resultatives, one issue that is particularly worthy of discussion is that not all adjectives seem capable of indicating a RESULT. In (1b), the adjective *улаан* (‘red’) is tolerated; while the following adjective, *хатуу* (‘solid’) is ruled out.

- (3). *Нууц хатуу биет хөлджээ. (ill-formed)
lake solid freeze-PAST
‘The lake froze solid.’

The different treatments of (1) and (3) are probably down to the resultative construction type as well as the scalar property of adjectives (i.e. adjective *хатуу* ‘solid’ is a closed-scale AP whilst *улаан* ‘red’ is open-scale).

Moving on to Japanese, another deemed Altaic language, RESULT can be rendered via three grammatical elements: (i) a PP (4); (ii) a verb compound, where the change of state is potentially conflated into the main verb (5); and (iii) an AP (6):

(4). Prepositional phrase

Madogarasu o **konagona** ni watta.
Window ACC pieces into break.PAST
'Break the window into pieces.'

(5). Compound verb

Ken wa Hanako o **uchikoroshita**.
Ken TOP Hanako ACC beat-kill.PAST
'Ken beat Hanako to death.'

(6). Adjectival complement

Ken wa gomou o **nagaku** nobashita.
Ken TOP rubber ACC long stretch.PAST
'Ken stretched the rubber long.'

This study intends to explore the distribution of APs; therefore, only constructions like (6) will be tackled.

Regarding Japanese adjectives, traditional linguists consider them as falling into two groups, i.e. *i*-adjectives (7) and *na*-adjectives (8).

(7). (*i*-adjective)

Hanako wa kabe o **shiroku** nutta.
Hanako TOP wall ACC white paint. PAST
'Hanako painted the wall white.'

(8). (*na*-adjective)

Hanako wa kabe o **masshiro ni** nutta.
Hanako TOP wall ACC completely COP paint. PAST
'Hanako painted the wall completely white.'

It appears that both the *i*-adjective and *na*-adjective are allowed to indicate a result in Japanese resultatives.

Furthermore, unlike English resultatives, where open-scale APs are ruled out (c.f. 9a),¹ and Japanese licenses open-scale APs, as in (9b):

(9). a. Open-scale APs in English resultatives:

*Taroo stretched the rubber **long**.

b. Open-scale APs in Japanese resultatives:

Taroo wa gomou o **nagaku** nobashita.

It appears that the two languages have the undeniable similarities in favouring open-scale adjective as resultative complements. This is a preliminary illustration that inspires us to investigate adjective distribution in more depth.

This paper is mapped out as follows. Section 2 sheds light on the framework 'lexical conceptual structure' and 'scale structure'. Section 3 categorises Mongolian resultative construction types, then examines the acceptability of adjectival complement. Next, it tackles the distribution of adjectives in direct perception expressions. Section 4 delves into the question of how adjectives are treated in Japanese.

Section 5 highlights the results and concludes the paper.

2. Framework

To set the stage for resultative and direct perception construction, we sketch an overview of previous studies on resultatives. The discussions referred to below focus on resultative constructions, which have long been an important issue in linguistic typological work.

For the past half century, various frameworks have been proposed to achieve a thorough analysis on resultatives. In earlier times, analysis focuses upon the syntactic perspective, representative work includes Chomsky's (1965) 'Aspects Model', Levin and Rappaport Hovav's (1995) 'Projection Approach'. However, this approach appears unable to explain why the unergative verb *laugh* can appear in both 'Mary laughed herself sick' and 'The audience laughed the actors off the stage'. Therefore, later on, a different view, i.e. 'Construction Grammar Approach' was provided by Goldberg (1995). This pioneering attempt has had a significant influence on the study of resultatives and is welcomed among linguists, e.g. Jackendoff's (1997) 'Adjunct Analysis', Rappaport Hovav & Levin's (1998) 'Event Structure Template', and Boas's (2003) 'Dynamic Usage-Based Model'. In the late 1990s, the locus of cross-linguistic diversity transited from syntactic representation to resultative predicates (Vanden Wyngaerd 2001, Boas 2000, Wechsler 2005, etc). Among them, the Japanese linguist Kageyama's (1996, 1999) work is noteworthy. Kageyama classifies the resultative constructions into two types, i.e. inherent resultatives vs. derived resultatives. He gives the Lexical Conceptual Structure (LCS) of each type as follows.

- (10). a. [x ACT-ON y] CAUSE [y BECOME [BE-AT z]]
(inherent resultatives)
b. [x ACT-ON y]
(derived resultatives)

A clear illustration of inherent resultatives and derived resultatives is given below.

(11). Inherent resultatives

a. Bill wiped the table clean.

b. Bill wa teiburu o kirei ni fuita.
Bill TOP table ACC clean COP wipe.PAST

(12). Derived resultatives

a. Sam kicked Bill black and blue.

*Sam wa Bill o aza darake ni ketta.
Sam TOP Bill ACC blue PART COP kick.PAST

¹ Example (12b) is taken from Tsujimura (2001).

Table 1. Mongolian Cyrillic alphabet

а <i>a</i>	б <i>b</i>	в <i>v</i>	г <i>g</i>	д <i>d</i>	е <i>ye</i>	ё <i>yo</i>	ж <i>j</i>	з <i>dz</i>	и <i>i</i>	й <i>y</i>	к <i>k</i>
л <i>l</i>	м <i>m</i>	н <i>n</i>	о <i>o</i>	ө <i>ö</i>	п <i>p</i>	р <i>r</i>	с <i>s</i>	т <i>t</i>	у <i>u</i>	ү <i>ü</i>	ф <i>f</i>
х <i>kh</i>	ц <i>ts</i>	ч <i>ch</i>	ш <i>sh</i>	щ <i>shch</i>	ъ ''	ы <i>i</i>	ь '	э <i>e</i>	ю <i>yu</i>	я <i>ya</i>	

It is pointed out that in inherent resultatives; the result of the theme is implied by the main verbs. For instance, 'wipe' may possibly give rise to the result of 'clean'.

In fact, Kageyama was not the first to classify the type of resultative construction. Many scholars have made similar proposals. For instance, Kageyama (1996) labels the two constructions as 'inherent resultatives' vs. 'derived resultatives'; Washio (1997) refers to them as 'strong resultatives' vs. 'weak resultatives'; Iwata (2006) employs the terms 'argument resultatives' vs. 'adjunct resultatives'; and in Levin & Rappaport Hovav (1995) and Kennedy's (1999) works, 'control resultatives' vs. 'exceptional case-marking resultatives' is used. Moreover, Dimitrova-Vulchanova (2002) employs 'connected resultatives' vs. 'disconnected resultatives' to describe resultatives. All these terms differ slightly but ultimately refer to the same thing. The current paper follows Kageyama's (1996) terminology, i.e. 'inherent resultatives' vs. 'derived resultatives'.

In addition, three writing systems exist in Modern Mongolian, i.e. Todo Bicig (Xinjiang area), Traditional Mongolian alphabet (Hudum) (Inner Mongolia) and Cyrillic Mongolian (Outer Mongolia). This study adopts Cyrillic Mongolian writing. Table 1 provides a list of Mongolian Cyrillic alphabet.

In terms of the data, hand-made examples are used. Native speakers checked the examples. Due to numerous dialects in the country, native speakers from the Inner and Outer parts of Mongolia have both been asked to provide judgements. Moreover, a multilingual parallel electronic dictionary is employed: <http://asuult.net/dic/>.

The data for Japanese is drawn from the corpus of *Balanced Corpus of Modern Written Japanese* by National Institute for Japanese language and linguistics.

3. Adjective Distribution in Mongolian

This section begins by looking into the scalar property of Mongolian APs, and their distributions in resultative and direct perception expressions.

3.1. Mongolian Resultative Constructions

As touched upon earlier, Mongolian resultatives are of three types. (i) the adjective-post type [NP₁ V NP₂ AP]; (ii) the adjective-initial type [NP₁ AP V NP₂]; and (iii) the co-verb type [NP₁ V V NP₂]. Before looking into how adjectives distribute in these types, it would be necessary to shed light on the syntactic features of the types.

First, adjective-post resultatives display the following variations: transitive resultatives [NP₁ V_t NP₂ AP], as in (13); and intransitive resultatives [NP₁ V_i NP₂ AP], as in (14).

(13). Transitive resultatives [NP₁ V_t NP₂ AP]

Тэр эрэгтэй төмөр таяг дабдажъ
DEM 1st.masc.sg metal stick pound
урт болгаб.
long PAST
'He pounded the metal long.'

(14). Intransitive resultatives [NP₁ V_i NP₂ AP]

Тэр эрэгтэй өрөөн иниесээр
DEM 1st.masc.sg himself laugh
байжъ Өбчитай болоб.
PROG sick PAST
'He laughed himself sick.'

Note that in intransitive resultatives, when an unaccusative verb denotes the action verb, the CHANGE-OF-STATE EVENT becomes spontaneous, which leads to an anticausativisation phenomenon.² When an unergative verb renders the action verb, the CHANGE-OF-STATE EVENT becomes intentional, giving rise to decausativisation.

We now turn to adjective-post resultatives [NP₁ V NP₂ AP], as illustrated in (15). Six Mongolians from different areas provided the judgement.

(15). а. Тэр эрэгтэй төмөр таяг дабдажъ
DEM 1st.masc.sg metal stick pound
урт болгаб.
long PAST
'He pounded the metal long.'

?b. Тэр эрэгтэй төмөр таяг дабдажъ
DEM 1st.masc.sg metal stick pound
хабтарай болгаб.
flat PAST
'He pounded the metal flat.'

2 The terms *anticausativisation* and *decausativisation* were initially coined by Japanese linguist Kageyama Taro (1996). He defines the them as follows:

a. **Anticausativisation**

The CHANGE-OF-STATE is brought about by the patient itself, therefore the agent and the patient can be identified.

b. **Decausativisation**

The CHANGE-OF-STATE is brought about by external facts. Syntactically, the agent is suppressed and thus is not projected onto the syntactic structure.

с. Тэр эрэгтэй ль сийг сажилажъ сэргээб.
DEM 1st.masc.sg Lisi shake awake-PAST
'He shook Lisi awake.'

?д. Тэр эрэгтэй өбөст газар усулжъ чийг болгаб.
DEM 1st.masc.sg garden water wet PAST
'He watered the garden wet.'

(15a) and (15c) are judged natural, whereas (15b) and (15d) are deemed to be unnatural. If, however, the adverbial, i.e. *жинхэнэ* ('very'), is supplied to the adjectives *хабтагай* ('flat') and *асчийг* ('wet'), the odd expressions (15b) and (15d) can be improved:

(16). а. Тэр эрэгтэй төмөр таяг дабдажъ *жинхэнэ* хабтагай болгаб. (natural)

б. Тэр эрэгтэй өбөст газар усулжъ *жинхэнэ* чийг болгаб. (natural)

Why, then, are the above adjective-post resultatives treated differently? We analysed the 'lexical conceptual structure' and found that each construction displays the following distinction (17 represents 15a and 15c; 18 represents 15b and 15d):

(17). LCS of (15a) and (15c)

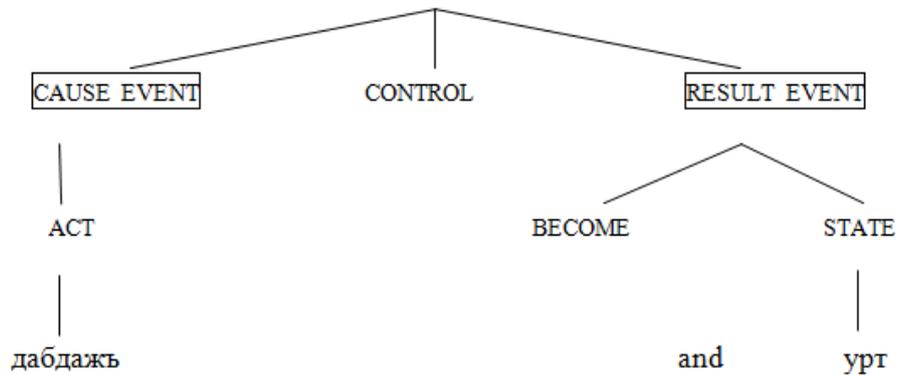
[x act – on y] cause [y become [be-at z]]

(18). LCS of (15b) and (15d)

[x act – on y] cause [y become [be-at z]]

The CAUSE EVENT of (15a) and (15c) may directly result in the RESULT EVENT. Moreover, the CAUSE and the RESULT are associated (i.e. CONTROL). (15a) can be described as follows:

Accomplishment (Тэр эрэгтэй төмөр таяг дабдажъ урт болгаб)



On the other hand, the CAUSE and the RESULT in (15b) and (15d) are not associated. To put it another way, there is a gap between the CAUSE and the RESULT. Intriguingly, by supplementing the adverb *жИНХЭНЭ* ('very') to the ill-formed expressions (15b) and (15d), the oddness of the phrasing can be reduced. This is because the extra adverb *жИНХЭНЭ* ('very') temporarily fills the GAP between the CAUSE and the RESULT at a syntactic level; and because the syntactic supplement semantically draws the connection between the CAUSE EVENT and the RESULT EVENT. The process is described in (19).

(19). [EVENT₁ x ACT (ON y)]

↓
CONTROL [EVENT₂ BECOME [y BE AT-z]]

Furthermore, following Kageyama (1996), resultatives like (15a) and (15c) are 'inherent resultatives'; (15b) and (15d) are 'derived resultatives'. Keeping this in mind, it appears that 'derived resultatives' are missing in Mongolian. There are three ways to express a derived resultative: (a) to employ an adverb (e.g. *жИНХЭНЭ*) to temporarily fill the GAP between CAUSE EVENT and RESULT EVENT; (b) to go for a co-verb construction, as in (20); or (c) to use a postpositional phrase, as in (21).

(20). Derived resultatives, denoted by a co-verb construction:

Тэр эмэгтэй уйлаад л байсан.
dem 1st.fem.sg cry-prog-tired-past

(23). [x ACT ON y]CAUSE [y BECOME [y BE AT-z]] (CONTROL carries an implication of z)

↓ 塗る 'paint'	↓ 白く 'white'

'She cried (until she got) tired.'

(21). Derived resultatives denoted by a postpositional phrase:

Тэр эрэгтэй ус хөлдөөж мөс болгов.
dem 1st.masc.sg water freeze solid become
'He froze the water, and the water turned into ice.'

Another member of the Altaic language family, Japanese, also seems to lack derived resultatives, as shown in (22).

(22). a. Inherent resultatives (well-formed)

太郎 は 壁 を 白く 塗った。
Taro wa kabe o siroku nutta.
Taroo TOP wall ACC white paint-past
'Taro painted the wall white.'

b. Derived resultatives (ill-formed)

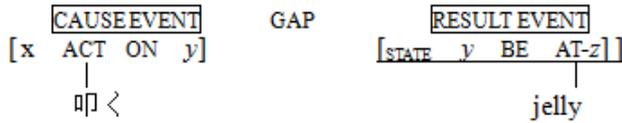
*彼女は 魚 を ゼリー状に 叩いた。
Kanojo wa sakana o zerii joo ni tataita.
She TOP fish ACC jelly COP pound-past
'She pounded the fish into a jelly.'

The lack of derived resultatives in the Altaic language family is possibly because Altaic languages tend to lexicalise the RESULT into the MAIN VERB. To put it another way, the CONTROL part of LCS carries an implication of z. For instance, in (22a), the verb 塗る *nuru* ('paint') implies the RESULT: '壁が白くなる: the wall turns white'. The LCS for (22a) is:

Essentially, in (23), there is a connection between the CAUSE EVENT [EVENT₁ x ACT ON y] and the RESULT EVENT [EVENT₂ y BECOME Z].

In (22b), the ACTION 叩く ('*tataku* pound') fails to lead directly to the RESULT: 'y がゼリー一状になる (the fish turns into jelly)'. Thus, a GAP arises between the ACTION and the RESULT.

(24).



One way to solve the problem is to employ an adverbial, and thus temporarily fill the gap. For LCS, this manipulation would be:

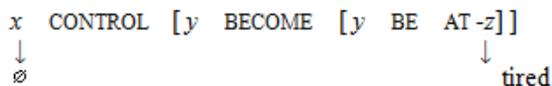
(25) [EVENT₁ x act on y] cause₁ [EVENT₂ y become [change-of-state]] cause₂ [STATE y be at-z]

Another issue worthy of discussion regarding adjective-post resultatives is the phenomenon of decausativisation, c.f. (26):

(26). Тэр эрэгтэй өрөөн өсөрч ядараб.
DEM 1st.masc.sg himself dance tired-PAST
'He danced himself tired.'

During the process of CHANGE-OF-STATE EVENT, the FOCUS moves from the ACTION (V1) to THE RESULT (V2), i.e. the ACTION (*өсөрч*) recedes into the background, while the RESULT (*ядараб*) is brought into the foreground. As a result, decausativisation occurs, c.f. (27):

(27) the process of decausativisation:



Anticausativisation seems impossible in adjective-post resultatives, as illustrated in (28).

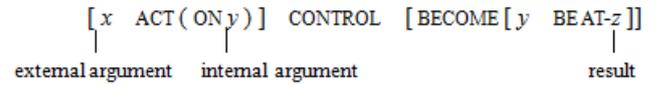
(28) a. Тэр эрэгтэй төмөр таяг дабдажь
DEM 1st.masc.sg metal stick pound
урт болгаб.
long PAST
b. Тэр эрэгтэй ль сийг сажилажь сэргээб.
DEM 1st.masc.sg Li si shake awake-PAST

The failure of anticausativisation in adjective-post resultatives lies in the fact that the ACTION verbs (*дабдажь* 'pound' (28a); *сажилажь*, 'shake' (28b)) denote MANNER and imply a strong agency. The patient cannot therefore be identified by the agent.

Moving on to adjective-initial Resultatives [NP₁ AP V_t NP₂], these can be understood as 'x ACT ON y, until y

BECOME z', where the adjective behaves like an adverbial.³ This type of construction is described in (29):

(29).



Illustrations of this type are provided in (30)–(32):

(30). Тэр эрэгтэй гутлаа цоортол өмссөн.
DEM 1st.masc.sg shoe broken wear-PAST
'He wore the shoes (until they were) broken.'

(31). Тэр эрэгтэй архийг дуустал нь уусан.
DEM 1st.masc.sg pub empty drink-PAST
'He drank the pub empty.'

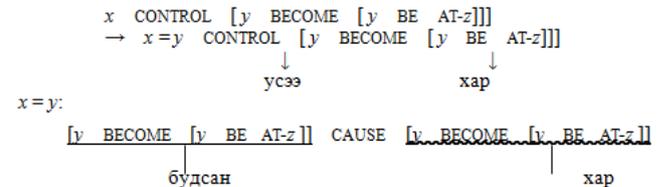
(32). Тэр эмэгтэй үсээ хар өнгөөр будсан.
DEM 1st.femi.sg hair black colour dye-PAST
'She dyed her hair black.'

Adjective-initial resultative constructions like (32) can identify the agent and patient, leading to anticausativised resultatives, as in (33):

(33). Үсээ хар өнгөөр будсан. (anticausativisation)
hair black colour dye-PAST
'The hair has been dyed black.'

The process of anticausativisation of 'Үсээ хар өнгөөр будсан' would be:

(34).



Regarding co-verb resultatives, V1 indicates the ACTION; V2 conveys the RESULT. V1 can be an unergative verb, unaccusative verb, or transitive verb; V2 can be an unaccusative verb or an unergative verb. The argument structure has the following variations:

(35). (I) [Transitive + Unaccusative];
(II) [Unergative + Unaccusative]; or
(III) [Unergative + Unergative].

As touched on earlier, one of the significant roles played by co-verb resultatives is to render derived resultatives, as shown in (36). It may also convey inherent resultatives, as in (37).

³ Mongolian linguist Ce Rima (2007) names it '状态结构' (adverb-predicate structure).

(36). Derived resultatives:

- a. Тэр эрэгтэй үсээнбийрэн
DEM 1st.masc.sg pen
бичиж байгаад хугалсан.⁴
write-break-PAST
He uses (writes) the pen (until it is) broken.
- b. Тэр эмэгтэй ханаа улаанаар будсан.
DEM 1st.femi.sg wall red.INSTR paint-PAST
'She painted the wall red.'

(37). Inherent resultatives:

- a. Тэр эрэгтэй хаалга онгойлгосон.
dem 1st.masc.sg door push-open-past
'He pushed the door open.'
- b. Хаалга онгойсон.
door push-open-past
'The door opened.'

Moreover, both anticausativisation and decausativisation can be licensed by co-verb resultatives, as exemplified by (38) and (39).

(38). Anticausativisation:

- Цэцгийн ваар хагарав.
vase break-broken-PAST
'The vase broke.'

(39). Decausativisation:

- a. Морь гүйж цуцсан.
horse run-die-PAST
'The horse ran (until it) died.'
- b. Тэр эмэгтэй уйлаад л байсан.
DEM 1st.femi.sg cry-PROG-tired-PAST
'She cried (until she was) worn out.'
- c. Тэр эмэгтэй хоолойгоо сөөтөл орилсон.
DEM 1st.femi.sg roar-hoarse-PAST
'She roared (herself) hoarse.'
- d. Хүүхэд уйлж байгаад унтсан.
baby cry-PROG-sleep-PAST
'The baby cried (until he) fell asleep.'
- e. Тэр эмэгтэй нүдээ улайтал уйлсан.
DEM 1st.femi.sg eye cry-red-PAST
'She cried (until) her eyes turned red.'

So far, three types of Mongolian resultatives, (a) adjective-post types, (b) adjective-initial types, and (c) co-verb types, have been demonstrated in the light of the 'lexical conceptual structure'. It has been observed that decausativisation is welcome in adjective-post types, and that anticausativisation is realised in adjective-initial resultatives. The significant role of the co-verb type is to fill the gap of ACTION and RESULT in derived resultatives.

3.2. Adjective Distribution in Mongolian Resultatives

Having drawn a picture of Mongolian resultatives, this section delves into adjective distribution. The discussion will focus on resultatives and direct perception expressions.

As a starting point, we drew a list of the most-used adjectives in Mongolian from the corpus:

- (40) эцсэн (tired) / гүн (deep) / урт (long) / хатуу (hard) / нүцгэн (naked) / үхсэн (dead) / өвчин (sick) / чийг (wet) / хавтгай (flat) / сэрүүн (awake) / хоосон (empty)

The concept of 'scale structure' is adopted to measure their scalar property. The modifiers *жинхэнэ* ('very') and *хагас* ('half') helped with the diagnosis. Three Mongolian native speakers provided the judgements. The results are summarized in (41).

(41). a. *жинхэнэ* (very)

жинхэнэ чийг	(very wet)	[natural]
жинхэнэ эцсэн	(very tied)	[natural]
жинхэнэ гүн	(very deep)	[natural]
жинхэнэ урт	(very long)	[natural]
жинхэнэ хатуу	(very hard)	[natural]
* жинхэнэ өвчин	(very sick)	[unacceptable]
? жинхэнэ хавтгай	(very flat)	[unnatural]
? жинхэнэ нүцгэн	(very naked)	[unnatural]
жинхэнэ үхсэн	(very dead)	[natural]
жинхэнэ сэрүүн	(very awake)	[natural]
жинхэнэ хоосон	(very empty)	[natural]

b. *хагас* (half)

хагас чийг	(half wet)	[unnatural]
? хагас эцсэн	(half tied)	[unnatural]
хагас гүн	(half deep)	[natural]
? хагас урт	(half long)	[unnatural]
? хагас хатуу	(half hard)	[unnatural]
? хагас өвчин	(half sick)	[unnatural]
? хагас хавтгай	(half flat)	[unnatural]
? хагас нүцгэн	(half naked)	[unnatural]
? хагас үхсэн	(half dead)	[unnatural]
хагас сэрүүн	(half awake)	[natural]
? хагас хоосон	(half empty)	[unnatural]

Building on this, we arrived at a four-layer classification of Mongolian adjectives:

- (42). a. Totally open-scale: *эцсэн* (tied), *урт* (long), *гүн* (deep)
b. Lower closed-scale: *чийг* (wet), *өвчин* (sick),
өлөссэнийг (hungry),
хусугсанийг (shaved)
c. Upper closed-scale: *хатуу* (hard), *сэрүүн* (awake),
чайсанийг (pale)
d. Totally closed-scale: *нүцгэн* (naked), *үхсэн* (dead),
хоосон (empty), *хавтгай* (flat)

4 A typological issue is how to identify grammatical category cross-linguistically. Croft (1990) names this *the problem of cross-linguistic comparability*. He argues that semantic and functional criteria are the best solution to this problem. *байгаад* in (55a) and *улаанаар* in (55b) are unaccusative verbs.

In light of the classification, the following section tackles the adjectives distribution. Investigation starts from resultative construction. Tests along with the four different scalar structures of APs are carried out, c.f. (43)-(45). Native speakers again assessed the examples.

(43). Totally open-scale AP

- a. жан сан: төмөр таяг дабдажъ **урт** болгаб.
Zhang san metal stick pound long PAST
'Zhang san pounded the metal long.'
- b. жан сан: өрөөн өсөрч **ядараб**.
Zhang san himself dance tired.PAST
'Zhang san danced himself tired.'

(44). Lower closed-scale AP

- a. жан сан: өрөөн иниесээр байжъ
Zhang san himself laugh PROG
Обчитай болоб.
sick PAST
'Zhang san laughed himself sick.'
- ?b. жан сан: өбөст газар усулжъ **чийг** болгаб.
Zhang san garden water wet PAST
'Zhang san watered the garden wet.'

(45). Upper-closed scale AP

- *a. жан сан: ус хӨ⁵ лдээжъ **хатуу** болгаб.
Zhang san water BA freeze solid PAST
'Zhang san froze the water solid.'
- b. жан сан: ль сийг сажилажъ **сэргээб**.
Zhang san Li si shake awake.PAST
'Zhang san shook Li si awake.'

(46). Totally closed-scale AP

- ? a. жан сан: төмөр таяг дабдажъ
Zhang san metal stick pound
хабтагай болгаб.
flat PAST
'Zhang san pounded the metal flat.'
- b. *Нуур **хатуу_биет** хөлджээ.
lake solid freeze.PAST
'The lake froze solid.'

Perhaps we may arrive at several layers illustrating the acceptability thresholds of Mongolian APs in resultatives, running from 'Totally open-scale AP' down to 'Lower closed-scale AP', 'Upper-closed scale AP', 'Totally closed-scale AP'.

3.3. Adjective Distribution in Direct Perception Expressions

Now we are in the position of engaging in the analysis of adjectives in direct perception expressions. Tests along with the various scalar properties of Mongolian adjectives were carried out and again data were assessed by the native speakers.

(47). Totally open-scale AP

- жан сан ль сийн **ядарагсанийг** үзэб.
Zhang san Li si tired see.PAST
'Zhang san saw Li si tired.'

(48). Totally closed-scale AP

- a. жан сан нохойн **ҮхҮгсэнийг** үзэб.
Zhang san dog dead see.PAST
'Zhang san saw the dog dead.'
- b. жан сан ль сийн **нүцгэн нь олжъ** үзэб.
Zhang san Li si naked see.PAST
'Zhang san saw Li si naked.'

(49). Upper closed-scale AP

- жан сан ль сийн **чайсанийг** үзэб.
Zhang san Li si pale see.PAST
'Zhang san saw Li si pale.'

(50). Lower closed-scale AP

- a. жан сан ль сийн **өлөссэнийг** үзэб.
Zhang san Li si hungry see.PAST
'Zhang san saw Li si hungry.'
- b. жан сан ль сийн **хусугсанийг** үзэб.
Zhangsan Li si shaved see.PAST
'Zhang san saw Li si shaved.'

The finding brings us to the point that Mongolian welcomes all layers of adjectival complements in direct perception expressions.

3.4. Summary

To summarise, Mongolian resultatives are of three types: (i) adjective-post resultative [NP₁ V NP₂ AP], (ii) adjective-initial resultative [NP₁ AP V NP₂], and (iii) co-verb resultative [NP₁ V V NP₂]. Adjective-initial resultatives can be understood as 'x ACT ON y, until y BECOME z', where the adjective behaves like an adverbial. Decausativisation is tolerated by adjective-post resultatives, while anticausativisation is ruled out. Anticausativisation can be realised in adjective-initial resultatives.

The acceptability of Mongolian APs in resultatives runs from 'Totally open-scale AP' down to 'Lower closed-scale AP, Upper-closed scale AP, Totally closed-scale AP'. Moreover, Mongolian welcome all layers of adjectival complements in direct perception expressions.

4. Adjective Distribution in Japanese

Having drawn a picture of the sensitivity of APs in Mongolian, we are in a better position to engage in the analysis of Japanese data. Our starting point is the scalar property of adjectives.

4.1. Adjectives in Resultatives

Traditionally, Japanese adjectives are divided into two

⁵ хӨ is a co-verb.

groups, i.e. *i*-adjectives (c.f. 51) and *na*-adjectives (c.f.52).

(51). (*i*-adjective)

Taroo wa gomu o **nagaku** nobashita.
Taroo TOP rubber ACC long stretch.PAST
'Taroo stretched the rubber long.'

(52). (*na*-adjective)

John ga musuko o **joobu ni** sodateta.
John NOM son ACC tough COP bring up.PAST
'John brought up his son; his son turns out to be tough.'
(Examples are taken from Uegaki 2009)

This study reclassifies Japanese adjectives into two types, open-scale adjectives and closed-scale adjectives. The predicate of an open-scale adjective is 'ku', e.g. *takai* → *takaku*. The predicate of a closed-scale is 'ni', e.g. *massugu* → *massugu ni*. Examples (51) and (52) represent illustrations of resultatives rendered by open-scale adjectives (51) and resultatives conveyed by closed-scale adjectives (52).

It thus appears that both open-scale adjectives and closed-scale adjectives are possible to render a result in Japanese. Nonetheless, the two types of adjectives represent distinct lexicalisations. The resultatives rendered by an open-scale adjective usually have no endpoint. The closed-scale adjectives constantly co-occur with the copular *ni*. The adjectival complement and the copula *ni* together form the resultative complement. The Japanese copular *ni* is a closed-scale morpheme. Thus, the constructions rendered by closed-scale adjectives involve a CHANGE-OF-STATE that entails an endpoint. Adjectival predicates, along with their lexical representations, are summarised in Table 2.

Table 2. Japanese adjectival predicates along with their lexical representations

AP	Scalar Property	Lexical Representation
<i>i</i> -adjective	Open-scale	AP V _{resultative path}
<i>na</i> -adjective + copula <i>ni</i>	Closed-scale	CP _{resultative path} V _{manner of action}

Another important issue to be addressed is that the above constructions are all inherent resultatives. Derived resultatives are missing in Japanese; neither an adjective nor a postpositional phrase is possible to render a derived result, as in (53):

(53). **Derived Resultatives in Japanese**

*Kanojo wa sakana o **zerii joo ni**
She TOP fish ACC jelly DAT
tataita.
pound.PAST
'She pounded the fish to a jelly.'

The reason why Japanese lacks derived resultatives can be explained the same way as for Mongolian: derived resultatives can only be conveyed by compound verbs, as shown in (54).

(54). Derived resultatives by compound verb

Hanako wa sakana o **zerii joo ni**
Hanako TOP fish ACC jelly DAT
tatakitubushita.
smash-pound. PAST
'Hanako pounded the fish to a jelly.'

4.2. Adjectives in Direct Perception Expression

Two perceptual verbs are often seen in Japanese direct perception expressions, i.e. 見える *mieru* and 見る *miru*. *mieru* is an unaccusative verb and means that a certain view leaps to the eyes. The subject is often denoted by a scene or an inanimate lexicon. In fact, the subject of the unaccusative verb *mieru* is actually the object of the transitive verb 見る *miru*. The subject of *miru* is the observer, often rendered by animate lexicons. Crucially, *miru* delivers a pure perceived event and is therefore incapable to fulfil a metaphorical interpretation. The unaccusative verb 見える, along with modal verbs such as ように (c.f. ~ように見える), or via an auxiliary そうに (c.f. ~ そうに見える), may convey a metaphorical interpretation, in which case the subject of *mieru* can be animate or inanimate. Bearing this in mind, we move on to examine how adjectives distribute in Japanese direct perception expressions. First, open-scale APs appear to be licensed, as illustrated in (55):

(55). Direction perception expression rendered by open-scale APs:

Aki wa sora ga **tooku** mieru.
fall TOP sky NOM distance see
'In fall, the sky appears high.'

More illustrations are provided in (56):

(56). Direction perception expression rendered by open-scale AP:

Taroo ni wa Hanako ga **hosoku** mieta.
Taroo DAT TOP Hanako NOM slim see.PAST
'Taroo saw that Hanako is slim.'

(Takezawa 2011)

The perception verb *mieru* indicates an evaluation of the scene, i.e. the sub clause 'Hanako ga hosoi (Hanako is slim)'. Note that the proposition can be false. After all, it is an evaluation by the observer, not a truth. In (56), it can have the following interpretation: Hanako is actually fat, but from Taro's point of view, Hanako is slim. In this regard, *mieru* is somehow subjective. Its transitive partner, *miru* ('to see'), fails to appear in this expression, as *miru* simply renders a true scene.

Not only open-scale APs are licensed: closed-scale APs are also welcomed in Japanese direct perception expressions, as illustrated in (57):

(57). Direction perception expressions rendered by resultative constructions.
closed-scale APs:

- a. Taroo wa kaminoge ga **makkuro**
Taroo TOP hair NOM extremely black
ni mieru.
COP see
'Taroo's hair seems very black.'
- b. Asa no Dooro wa **massugu**
morning GEN road TOP extremely straight
ni mieru.
COP see
'The road in the morning seems very straight.'

Bear in mind that *ni* in (57) functions as a copular. The AP-complement and the copula *ni* together form the perceptual complement. This is exactly the same as *ni* in

5. Summary

This paper has explored the adjective distribution of two Altaic languages, Mongolian and Japanese. The findings can be summarised as follows.

Mongolian resultatives are of three types, i.e. adjective-post resultative; adjective-initial resultative; co-verb resultative. Among them, decausativisation is welcome by adjective-post type; anticausativisation is realised in adjective-initial resultatives. The co-verb type plays the part of rendering derived resultatives. This is summarised in Table 3.

Table 3. Mongolian resultative types

Type	Schema	Anticau.	Decau.	LCS
Adjective-post	[NP ₁ V NP ₂ AP]		○	$ \begin{array}{c} x \text{ CONTROL } [y \text{ BECOME } [y \text{ BE AT } -z]] \\ \downarrow \qquad \qquad \qquad \downarrow \\ \emptyset \qquad \qquad \qquad \text{RESULT} \end{array} $
Adjective-initial	[NP ₁ AP V NP ₂]	○		$ \begin{array}{c} x=y \text{ CONTROL } [y \text{ BECOME } [y \text{ BE AT } -z]] \\ \downarrow \qquad \qquad \qquad \downarrow \\ \text{ACTION} \qquad \qquad \qquad \text{RESULT} \end{array} $
Co-verb type	[NP ₁ V V NP ₂]	○	○	

Table 4. Mongolian adjectives in resultative and direct perception constructions

Scalar property	inherent resultatives	derived resultatives	Direct perception expression
Totally open scale	<i>high</i>	×	○
Lower closed scale	\downarrow		
Upper closed scale		×	○
Totally closed scale		×	○
	<i>low</i>		

Mongolian only tolerates inherent resultatives; derived resultatives are ruled out. The acceptability of adjectival complements in inherent resultatives runs from ‘Totally open-scale AP’ down to ‘Lower closed-scale AP, Upper-closed scale AP, Totally closed-scale AP’. On the other hand, adjectival complements in direct perception expressions are of no diverse acceptability, i.e. all layers of APs appear to be licensed. This is summarised in Table 4.

This study proposed two types of Japanese adjectives, i.e. open-scale adjectives (corresponding to *i*-adjective) and closed-scale adjectives (corresponding to *na*-adjective). The two types of adjective are capable of rendering an inherent result. However, like Mongolian, derived resultatives are ruled out in Japanese. Furthermore, inherent resultatives rendered by open-scale adjectives and closed-scale adjectives present different lexicalization patterns. The resultatives rendered by an open-scale adjective usually have no endpoint. Closed-scale adjectives, on the other hand, may involve a CHANGE-OF-STATE that entails an endpoint.

Regarding direct perception expressions, it seems that Japanese welcomes both open-scale and closed-scale APs. Moreover, there are two perceptual verbs, 見る *miru* (transitive) and 見える *mieru* (unaccusative). 見る *miru* solely delivers the perceived event and is thus deemed objective. 見える *mieru*, on the other hand, cannot fulfil a metaphorical interpretation, and appears to be subjective.

Finally, the lack of derived resultatives in Altaic language family is explained by the fact that Altaic languages are likely to lexicalise the RESULT into the MAIN VERB. In inherent resultatives, there is a connection between the CAUSE EVENT [EVENT₁ x ACT ON y] and the RESULT EVENT [EVENT₂y BECOME Z]. To put it another way, the CONTROL part of LCS carries an implication of z. In derived resultatives, however, the ACTION fails to lead directly to the RESULT; a GAP thus arises between the ACTION and the RESULT.

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