

Nineteenth International Linguistics Olympiad

Castletown (Isle of Man), July 25–29, 2022

Team Contest Problem

Part I (25 points)

Ch'ongö Nogöltae is a 17th-century Manchu textbook published by the Chosön dynasty government of Korea. It features fictional dialogues between a Korean merchant Kim and a Chinese man Wang.

Here is an excerpt from the book and its Roman transcription.

¹ سيوفا سينا بر سلاوفا لليا ² ود عممولاكسا صسا ريسا عر لليا
³ صر ⁴ سوفا رينيوفا ⁵ بر
 سكرود صسا ريسا عر لمتسا ⁶ ود ⁷ سكر ولكر سكر عر لمتسا
⁸ صر ⁹ يمهفيمر ولكر ييتسا
 فاير سلايو سنا بوهجر دهاستسا ¹⁰ ود ¹¹ سكرولككيرا كوهجر لسيجر صمهفو لليا ريلانيسر
¹² سكر رهو صر سكرير دهاستساو سمر ¹³ رهو سناو ¹⁴ بر هجر صر ولكر يسهيسمر
 رينر رينر صر دهاستساو ¹⁵ ود ¹⁶ سكرولككيرا [...]
¹⁷ رينر سكر عمولاكسا ¹⁸ ميناو عمولاكسا ¹⁹ بر لو ²⁰ رهوفاو
²¹ جر كر سلسا ²² كسر يسيهمر ²³ رينر ليهير رجهتسم صر
²⁴ بر سكر
²⁵ لكر ر وصبيا ²⁶ سكر سكر سكر سكر سكر سكر سكر سكر
²⁷ رينر سكر سكر سكر سكر سكر سكر سكر سكر
²⁸ رينر سكر سكر سكر سكر سكر سكر سكر سكر
²⁹ رينر سكر سكر سكر سكر سكر سكر سكر سكر

¹ amba age si aibici jihe ² bi coohiyan* wang ging[†] ci jihe ³ te absi genembi ⁴ bi gemun hecen i baru genembi ⁵ si atanggi wang ging ci juraka ⁶ bi ere biya ice de juraka ⁷ si ere biya ice de jurafi ⁸ te hontohon biya hamika bime ainu teni ubade isinjiha ⁹ emu gucu tutafi jime ofi ¹⁰ bi elhešeme aliyakiyame yabure jakade tuttu jime goidaha ¹¹ tere gucu te amcame isinjimbio akūn ¹² ere uthai tere gucu inu ¹³ sikse teni jihe ¹⁴ si bodoci ere biyai manashūn gemun hecen de isinambio isinarakūn ¹⁵ bi adarame bahafi sambi ¹⁶ abka gosifi beye elhe oci isinambi dere [⋯]

¹⁷ meni ere coohiyan i gisun oci ¹⁸ damu coohiyan i bade teile baitalambi ¹⁹ i jeo[‡] be duleme nikan i bade jici ²⁰ gubci yooni nikan i gisun ofi ²¹ we ya aika emu gisun fonjime ohode ²² yasa gadahūn i šame jabume muterakū oci ²³ gūwa niyalma membe ai niyalma seme tuwambi ²⁴ si ere nikan i bithe be tacirengge ²⁵ eici sini cihai tacimbio ²⁶ sini ama eniye taci sembio ²⁷ meni ama eniye taci sehe kai ²⁸ sini tacihangge udu aniya oho ²⁹ mini tacihangge hontohon aniya funcehe

* coohiyan = “Korea” ← Mandarin 朝鮮 [tʃʰawsjen].

† wang ging = “Wangging” (city) ← Mandarin 王京 [waŋkiŋ]; present-day Seoul, South Korea.

‡ i jeo = “Ijeo” (city) ← Mandarin 義州 [itʃəw]; present-day Ŭiju, North Korea.

Given below is its English translation:

Wang: ¹ *Mister* [lit. *big elder brother*], *where did you_{sg} come from?*

Kim: ² *I came from Wangging of Korea.*

Wang: ³ *Now where are [you] going?*

Kim: ⁴ *I am going to the imperial palace [= capital city of China].*

Wang: ⁵ *When did you_{sg} depart from Wangging?*

Kim: ⁶ *I departed at the beginning of this month.*

Wang: ⁷ *You_{sg} departed at the beginning of this month, ⁸ now it has been almost half a month, why have [you_{sg}] just arrived here?*

Kim: ⁹ *As a friend [of mine] was delayed and coming [late], ¹⁰ I was traveling slowly to wait [for him], and because of this [my] coming has taken such a long time.*

Wang: ¹¹ *Is that friend now catching up, or not?*

Kim: ¹² *This is that very friend. ¹³ [He] came just yesterday. ¹⁴ If you_{sg} do the math, will [we] arrive at the imperial palace by the end of this month, or not?*

Wang: ¹⁵ *How would I know? ¹⁶ If Heaven has mercy [on us], and [our] bodies are sound, [we] will arrive.*

Kim: ¹⁷ *As to this Korean language of ours, ¹⁸ [it's] used only in the Korean land; ¹⁹ if [one] passes Ijeo and arrives at the Chinese lands, ²⁰ everything is only [in] the Chinese language, so ²¹ when anyone asks something [lit. a word], ²² if [my] eyes vacantly stare and [I] can't answer, ²³ what kind of people would the others see us as?*

Wang: ²⁴ *[So,] that you_{sg} study Chinese books — ²⁵ did [you_{sg}] study of your(sg) own will or ²⁶ did your(sg) parents tell [you_{sg}] to study?*

Kim: ²⁷ *My parents [lit. our father and mother] told [me] to study, indeed!*

Wang: ²⁸ *How many years has been your(sg) study?*

Kim: ²⁹ *My study has exceeded half a year.*

Here are some additional sentences in Manchu from the same book:

30. *afaha alban de kiceme yabufi hergen baharangge udu labdu bicibe baharakūngge inu bi*
31. *aika duleke aniya adali elgiyen bargiyaha bici gemu jeterengge bufi ulebumbihe*
32. *amba age sain menggun be bucina ere menggun umesi juken adarame baitalambi*
33. *be morin be tataha boode ulebume genembi si bithe araha manggi mini tataha boode benju*
34. *bi inu donjici ere aniya ubade usin jeku be asuru bargiyahakū sembi*
35. *bi sinde fulu inu burakū komso inu burakū sunja yan oci uthai tob seme teherere hūda*
36. *booi jasigan tumen yan i aisin salimbi*
37. *coko hūlaha manggi ilifi uthai yabuki*
38. *ere honin de enteke mangga hūda be gaiki seci funiyehe sain honin be udu hūda de uncambi*
39. *gemun hecen i jetere jaka hajio elgiyūn*
40. *gucuse ilicina coko ilanggeri hūlafi abka gereme hamika*
41. *jakūn fun menggun de emu hiyase šanyan bele sunja fun menggun de emu hiyase je bele*
42. *juwe fun menggun de emu ginggin honin yali bumbi sere*
43. *muse tubade dedume yoki aikabade duleme geneci cargi orin ba i sidende niyalma boo akū*
44. *niyengniyeri yacin sijigiyan šanyan ceri dorgi etuku be etumbi*
45. *orho turi gemu bi turi oci sahaliyan turi orho oci jeku orho*
46. *orho turi haji ba oci ilan duin jiha menggun be baitalambi*
47. *sain sirgei araha boro genggiyen bocoi suje boro ninggude aisin dingse hadafi etumbi*
48. *si tere kubun be da bade udu hūda de udafti wang ging de genefi udu hūda de uncambi*
49. *si uttu balai gaire naka bi udu hūdašara niyalma waka ocibe ere suje hūda be gemu sambi*
50. *sini ere geren morin ihan dobori dari jetere orho turi uheri udu jiha baibumbi*
51. *suweni geren šusai dorgi de nikan i niyalma udu coohiyan i niyalma udu*
52. *ubaci gemun hecen de isinarangge amba muru sunja tanggū ba funcembi*
53. *uncara niyalma majige eberembu udara niyalma jai sunja yan be nonggime bu*

Given below are their English translations in arbitrary order:

- A. *Among your(pl) many classmates, how many are Chinese and how many are Korean?*
- B. *Are things to eat scarce or abundant at the imperial palace?*
- C. *For eight **fen** of silver [they give] one **dou** of millet; for five **fen** of silver [they give] one **dou** of white rice.*
- D. *It is said that for two **fen** of silver [they] give one **jin** of lamb meat.*
- E. *Let us go there to sleep. If [we] pass [there], over there are no people or houses in a span of twenty **li**.*
- F. *Roughly five hundred **li** are left to arrive at the imperial palace from here.*
- G. *How many **qian** in total are spent on straw and beans for these many horses and cattle of yours to eat every night?*
- H. *If one is in a place where straw and beans are scarce, one spends three to four **qian** of silver.*

- I. *At what price do you_{sg} buy that cotton at the place of origin and [then] at what price do you sell [it] when you go to Wangging?*
- J. *There are both straw and beans — the beans are black beans and the straw is straw from crops [lit. ‘crop straw’].*
- K. *Let us wake up and immediately leave after the rooster crows.*
- L. *If [we] had harvested abundantly like last year, [we] would have given [you] all something to eat and fed [you].*
- M. *I also heard that, this year, field crops were not much harvested here.*
- N. *Friends, could you wake up? The rooster has crowed three times and the sky has almost become bright.*
- O. *Mister, could you give [me] good silver? This silver is very flat — how would [I] use it?*
- P. *A letter from home is worth ten thousand **liang** of gold.*
- Q. *Seller, reduce [the price] a bit. Buyer, again add five **liang** [of silver] and give.*
- R. *If [you] wish to be paid such an expensive price for this sheep, at what price do [you] sell a sheep with good wool?*
- S. *You, stop trying to be paid arbitrarily like this. Even though I am not a broker, I know all about this price of silk.*
- T. *I will neither give more nor give less to you. Five **liang** [of silver] is exactly the right price.*
- U. *We will go to feed the horses at the inn. After you_{sg} write the document, send [it] to my inn.*
- V. *Even though those who go to work at the assigned jobs and get [government] positions are very many, there are also those who do not get [a position].*
- W. *[We] wear blue long-sleeved garments and white gauze inner garments in spring.*
- X. *Hats made of good threads and light-colored silk hats—[we] rivet gold brooches on top and wear [them].*

(a) Determine the correct correspondences.

(b) Here are some Manchu sentences from a fictional math textbook featuring conversion of units of measurement and basic operations (+, −, ×). Translate into English:

- | | |
|--|---|
| 54. <i>ilan minggan ninggun tanggū jušuru,
juwe ba, ishunde teherebumbi</i> | 56. <i>ilan tanggū nadanju duin ginggin de
jakūn tanggū dehu juwe ginggin be
nonggici, bahara ton udu</i> |
| 55. <i>orin hule i dorgici emu hule ilan moro
hiyase be ekiyebuci, juwan jakūn hule
uyun hiyase nadan moro hiyase
funcembi</i> | 57. <i>ninju duin fun be tofohon de kamcime
bodoci, uyun yan ninggun jiha be
bahambi</i> |

(c) Write in the Manchu script:

- | | |
|---|---|
| 58. <i>manju hergen</i> ‘Manchu script’ | 62. <i>tanggūt tacikū</i> ‘Tangut school’ |
| 59. <i>monggo tala</i> ‘Mongolian steppe’ | 63. <i>tiyan ju gurun</i> ‘India’ |
| 60. <i>tumen ula</i> ‘Tumen river’ | 64. <i>huhu hoton</i> ‘Hohhot’ (city) |
| 61. <i>i i niyalma</i> ‘Yi people’ | 65. <i>cicihar hoton</i> ‘Qiqihar’ (city) |

Part II (25 points)

The *Imperially Commissioned Mirror of the Manchu Language* is an 18th-century monolingual Manchu dictionary published by the Qing emperor Kangxi.

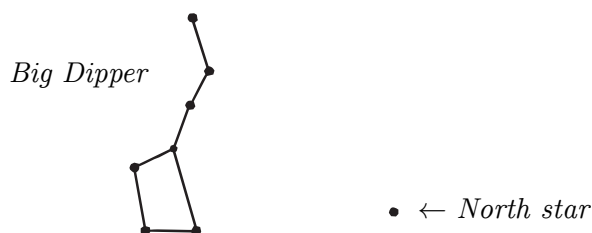
Here are some entries from the dictionary:

66. **abka** *umesi den tumen jaka be elbehengge be, abka sembi.*
67. **alin** *den amba ningge be, alin sembi.*
68. **amargi** *hadaha usiha bisire ergi be, amargi sembi.*
69. **arašan aga** *erin de acabume agaha aga be, arašan aga sembi.*
70. **bolori** *nadan biya jakūn biya uyun biya tumen jaka bargiyara be, bolori sembi.*
71. **cecike** *yaya ajige gasha be, cecike sembi.*
72. **dosimbi** *bata be gidame julesi genere be, dosimbi sembi.*
73. **edun** *abka na i sukdun selgiyebume dara be, edun sembi.*
74. **elden** *šun biya usiha tuwai genggiyen yasa de fosoro be, elden sembi.*
75. **ergen** *beye i da sukdun be, ergen sembi.*
76. **gasha** *juwe bethe dethe funggala bisirengge be, gasha sembi.*
77. **hūda** *udara uncara jakai salire jiha menggun i ton be, hūda sembi.*
78. **ilha** *yaya orho moo i bongko ci fushume ilakangge be, gemu ilha sembi.*
79. **mergen** *sure dacun niyalma be, mergen sembi.*
80. **nadan usiha** ... *amargi de bisire nadan amba usiha be, nadan usiha sembi.*
81. **nimaha** *muke de banjija esihengge jergi jaka be, nimaha sembi.*
82. **niyalma** *abkai banjibuha tumen ergengge i dorgi umesi surengge be, niyalma sembi.*
83. **sahaliyan** *umesi yacin be, sahaliyan sembi.*
84. **se** *orhoda i cikten da i acan i sidende banjija jalan be, se sembi.*
85. **šun** *inenggi tucifi gubci abka na de eldekengge be, šun sembi.*
86. **tanggū** *juwe susai be, tanggū sembi.*
87. **ulden** *alin jakarara onggolo tucire elden be, ulden sabumbi sembi.*
88. **usiha** *dobori abka de sarafi, emke emken i elden bisirengge be, usiha sembi.*
89. **wargi** *šun dosire ergi be, wargi sembi.*

Given below are their English translations in arbitrary order:

- A. **sky** *That which is the highest, and covers all kinds of things is called “sky”.*
- B. **light of dawn** *[When] the light emerges before the mountains are differentiated, [it is] said that “the light of dawn is seen”.*
- C. **sun** *That which emerges by day and illuminates the whole sky and the earth is called “sun”.*
- D. **light** *[That which] is of the sun, the moon, the stars, and fire, and is bright and stings at the eye is called “light”.*

E. **Big Dipper**.....The seven big stars that are in the north are called “Big Dipper”.



F. **much-needed rain**....The rain raining at the right moment is called “much-needed rain”.

G. **wind**.....[That which] blows to spread the spirit of the sky and the earth is called “wind”.

H. **autumn**.....(i)_____

I. **mountain**.....Tall and big things are called “mountains”.

J. **west**.....(ii)_____

K. **north**.....The direction where the North star exists is called “north”.

L. **hundred**.....(iii)_____

M. **to progress**.....Going forward while smashing enemies is called “to progress”.

N. **star**.....Those which are spread over the night sky, and each and every one of which has light are called “stars”.

O. **human**.....(iv)_____

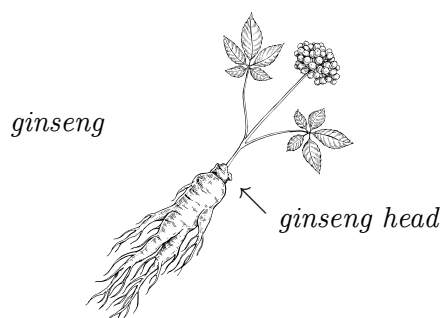
P. **breath**.....The basic spirit of the body is called “breath”.

Q. **sage**.....A clever, sharp person is called “sage”.

R. **price**.....(v)_____

S. **black**.....(vi)_____

T. **ginseng head**.....A node that is created where the stem and root of ginseng meet is called “ginseng head”.



U. **flower**.....Things which unfurl into blossom from the buds of any grass or tree are all called “flowers”.

V. **bird**.....That which has two legs, feathers, and a tail is called “bird”.

W. **chick**.....Any small birds are called “chick”.

X. **fish**.....Various sorts of things living in water and having scales are called “fish”.

(d) Determine the correct correspondences.

(e) Fill in the blanks (i–vi).

Part IV (25 points)

Here are some transcriptions of utterances in Modern Manchu recorded in the 21st century and their English translations in arbitrary order:

100. bi bəl wənčal ba də bələ udaxə
101. bo molin jolum jixəniḡḡə
102. əniḡ ja əxi odun
103. əniḡ sajn lod njam jixə
104. gimu xəčən də tuli əlin də nimiḡ gjak amba
105. jo əlin ilan əlin əl sigdən də bi bitk taxə
106. məsə čumaxə əmbadə bitk xolal ba də jom
107. owu dili xəlbini innamə səjəniḡ aisə gwajdam
108. si siskə buda jəm wəjəmə utka bo wul walin jixə
109. so učuluxə bo učulə ako
110. tələ sim maḡḡə əmbadə fakjixə
111. təsə ələ bitki bə mändə buxo

- A. *It snows very heavily in Beijing in the winter season.*
- B. *Between 2 o'clock and 3 o'clock I read [past tense] a book.*
- C. *I bought rice at the rice market.*
- D. *We came on horseback [lit. riding horses].*
- E. *We will go to school together tomorrow.*
- F. *You_{sg} returned home right after eating a meal yesterday.*
- G. *You_{pl} sang but we did not sing.*
- H. *Very many people came today.*
- I. *He went together with you_{sg}.*
- J. *They gave us this book.*
- K. *In which direction is the wind today?*
- L. *How long does it take to get from here to Harbin by car?*

(g) Determine the correct correspondences.

(h) Translate into English:

- | | |
|-------------------------------|--|
| 112. mində jašixan bo! | 116. əniḡ təsə alin də čičikə sawəxə |
| 113. tələ amba njam wakə | 117. əḡjə nimaxə jəm amə xoni jalı jəm |
| 114. siskə maḡjixə axə axəxə | 118. bo čumaxə čičikal xotun də jom, so jawə də jom? |
| 115. bi iči dolxi otuku udaxə | 119. bi jwan ani oḡḡulo gimu kəčən də banjixə bixə |



Map of the Qing dynasty (circa 1760)

△ Manchu belongs to the Tungusic family. It was spoken by the Manchu tribes in the historical region of Manchuria in Northeast Asia. It was one of the official languages of the Qing empire, which was founded by the Manchus. With the passing of time, Manchu has been gradually replaced by Chinese, leaving only a few dozen native speakers in the current days.

Chinese belongs to the Sino-Tibetan family. Mandarin is a variety of Chinese that was the common spoken language of government officials during the Ming and Qing dynasties.

(Manchu) $c \approx ch$ in *church*; $j \approx j$ in *judge*; $\check{s} = sh$ in *sheesh*; $h = ch$ in German *Bach* or j in Spanish *jalapeño*; $ng = ng$ in *hang*; $y = y$ in *you*; \bar{u} is a vowel.

\check{c} , \check{j} , \check{s} , x , η , j (Modern Manchu) $\approx c, j, \check{s}, h, ng, y$ (Manchu). $\text{ə} = a$ in *comma*. A doubled letter denotes length.

The following Chinese units of measurement were used in the Qing dynasty:

Length	1 li = 1800 chi (\approx 1890 ft.)	1 chi = 10 cun (\approx 12.6 in.)
Mass	1 jin = 16 liang (\approx 1.32 lb.)	1 liang = 10 qian = 100 fen (\approx 1.32 oz.)
Volume	1 shi = 10 dou (\approx 27.4 gal.)	1 dou = 10 sheng (\approx 2.74 gal.)

—Minkyu Kim

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Good luck!