

Problem 1 Finnish, Estonian and Livonian

Finnish sentence structure:

- [N_A] + **on** + [N_B]**[-(i)sta]** + [*in the X direction*] *A is in the X direction of B.*
 [N_A] + **on minusta** + [*in the X direction*] *A is in the X direction of Me.*
Olen + [N_B]**[-(i)sta]** + [*in the X direction*] *I am in the X direction of B.*

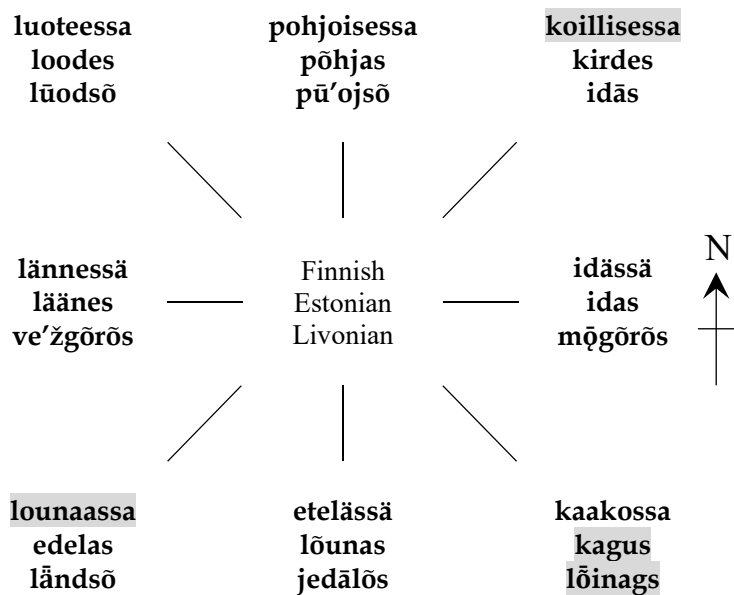
Estonian sentence structure:

- [N_A] + **on** + [N_B]**[-(i)st]** + [*in the X direction*] *A is in the X direction of B.*
 [N_A] + **on minust** + [*in the X direction*] *A is in the X direction of Me.*
Olen + [N_B]**[-(i)sta]** + [*in the X direction*] *I am in the X direction of B.*

Livonian sentence structure:

- [N_A] + **u'm** + [N_B]**[-(õ)st]** + [*in the X direction*] *A is in the X direction of B.*
 [N_A] + **u'm mi'nstõ** + [*in the X direction*] *A is in the X direction of Me.*
U'm + [N_B]**[-(õ)st]** + [*in the X direction*] *I am in the X direction of B.*

The expression of [*in the X direction*] in each language:



Shaded words are absent in this problem.

Janīna	Erkki	Grizelda	Kaija
Henrik	Sakari	Kristina	Kalevi
Johan	Arvo	Viktors	Simo
Tõnis	Ülo	Davis	Yrjö



Answer

(a)

S : **Sakari**

E : **Kristina**

L : **Viktors**

(3 pt) [1 point for each question. 0.5 point is deducted for misspelling the names.]

(b)

1. **Erkki u'm Ülost pü'ojisõ. / Ülo u'm Erkkist jedälõs.**

2. *Indescribable.*

3. **Kalevi on Yrjõst põhjas. / Yrjö on Kalevist lõunas.**

4. **Janīna u'm Viktorsõst lüodsõ.**

(8 pt) [2 points for each question. 1 point is deducted for each misspelling unrelated to semantic meaning. 0 points if the meaning is incorrect.]

(c)

5. **Vesiputous on maatilasta pohjoisessa.**

6. **Laidunmaa on vesiratasista kaakossa.**

(4 pt) [2 points for each question. 1 point is deducted for each misspelling unrelated to semantic meaning. 0 points if the meaning is incorrect.]

(d)

X : **Tõnis**

Y : **Davis**

(3 pt) [1.5 points for each question. 1 point is deducted for misspelling **Tõnis**. 0.5 point is deducted for misspelling **Davis**.]

(e)

The answer is D. Livonian **ve'žgōrōs** “in the west” and **mōgōrōs** “in the east” contain **ve'ž** “water” and **mō** “land”, which are cognate with Finnish **vesi** and **maa** respectively.

(2 pt) [No partial credit.]

Reference

Livones.net LIV-EE-LV Dictionary, by Līvõ Kultūr Sidām (The Livonian Culture Centre). Retrieved from <http://www.livones.net/lingua/en/vardnica/>

Norvik, Miina. (2016). Research into Livonian syntax: The results of previous studies and the tasks ahead. *Eesti ja Soome-Ugri Keeleteaduse Ajakiri* 7(1):177-201.

Problem 2 Turkish

Noun suffixes:

-II possessing, characterized by, or providing the quality expressed by the stem

-sIz lacking the quality of the stem

-CI a profession related to the stem

-IIk a storage place or container for an object

The vowel in the suffix (**I**) is either **i**, **ı**, **ü** or **u**, the backness and roundedness of which are the same as those of the vowel in the last syllable of the stem.

	front	back
rounded	ö ü	o u
unrounded	e ı	a ı

For **-CI**, **C** is **ç** if the stem ends with a voiceless consonant. Otherwise, it becomes **c**.

Answer

(a)

1. **sulu** D. *aqueous*
2. **balıkçı** E. *fisherman, fish dealer*
3. **ayakkabıcı** G. *cobbler, shoe dealer*
4. **kalemlik** B. *pencil case*
5. **dişsiz** N. *toothless*
6. **dişli** K. *gear, toothed*
7. **sözlü** H. *oral, verbal*
8. **göz** A. *eye*
9. **sucu** F. *water seller*
10. **sütlük** C. *milk container*
11. **gözcü** I. *lookout, overseer, ophthalmologist*
12. **tuzluk** O. *salt shaker*
13. **odun** L. *wood, firewood*
14. **sonsuz** J. *endless*
15. **kitaplık** P. *bookshelf*
16. **tuzsuz** M. *without salt, little salt*

(9 pt) [1 point is deducted for each incorrect answer.]

(b)

1. *salty* **tuzlu**
2. *woodshed* **odunluk**
3. *dentist* **dişçi**
4. *finite* **sonlu**

5. *spokesperson* **sözcü**
6. *water* **su**
7. *baker* **fırıncı**
8. *bookseller* **kitapçı**
9. *without eyes* **gözsüz**
10. *with [a] newspaper rack* **gazetelikli**

(11 pt) [2 pt for question 10, and 1 pt each for the rest. No partial credit.]

Reference

Göksel, Asli & Kerslake, Celia. (2010). *Turkish: an essential grammar*. Routledge.

Türk Dil Kurumu Sözlükleri (Turkish Language Association Dictionaries) by Turkish Language Association.

Retrieved from <https://sozluk.gov.tr/>

Problem 3 Tibetan

The syllable structure of Old Tibetan can be analyzed as onset + rime.

About onset: The structure is “(preinitial C) + initial C + (postinitial C)”. The number of preceding consonants can be up to two.

preinitial C	b, br, bs, d, g, fi, r, s appeared in this problem.
initial C	Any consonant.
postinitial C	j, r appeared in this problem.

About rime:

Old Tibetan Coda	Lhasa Tibetan		Batang Tibetan		Xiahe Tibetan
	Tone Shape	Coda	Tone Shape	Coda	Coda
∅	Non-final falling	∅	Final falling	∅ ^(*1)	∅ ^(*2)
-d	Final falling	∅ ^(*3) or -ʔ	Final falling	-ʔ^(*3)	∅ ^(*2) or -l
-l	Non-final falling	∅ ^(*3)	Non-final falling	∅ ^(*4)	∅
-n	Non-final falling	∅ ^{(*3)(*5)}	Non-final falling	∅ ^{(*4)(*5)}	-n^(*2)

Shaded ones are absent in this problem.

*1 : i>ɪ , u>ɔ

*2 : i>ə , u>ə

*3 : a>ɛ , u>y

*4 : a>e , u>y

*5 : V>Ṽ

Old Tibetan Voicelessness	Lhasa Tibetan	Batang Tibetan	
		Preinitial C in Old Tibetan	
		Presence	Absence
Voiceless C	High	High	High
Voiced C	Low	High	Low

About tone (the relationship of tone type, tone shape and tone contour):

tone type/tone shape	Non-final falling	Final falling	
High tone	55	52 (Lhasa)	53 (Batang)
Low tone	13	132 (Lhasa)	231 (Batang)

Xiahe Tibetan has no tones.

Answer

(1)	ad	(2)	i¹³	(3)	y¹³	(4)	a⁵⁵	(5)	ẽ⁵⁵	(6)	y¹³
(7)	i⁵³	(8)	r²³¹	(9)	o⁵³	(10)	a²³¹	(11)	ul	(12)	y⁵⁵
(13)	i⁵⁵	(14)	r⁵³	(15)	u⁵⁵	(16)	o⁵³	(17)	a¹³	(18)	a
(19)	u¹³	(20)	ə	(21)	an	(22)	ə				

(20 pt)[2pt are deducted for each incorrect answer of question (3)(4)(6)(7)(10)(12), and 1pt is deducted for each incorrect answer of the rest. No partial credit.]

Reference

- Jiang, Di (2002). *Research on the History of Tibetan Phonetics*. Beijing: Publishing House of Minority Nationalities. (in Chinese)
- Sun, Hongkai; Ting, Pang-hsin, eds. (2017). *Sino-Tibetan Phonology and Lexicon*. Beijing: Publishing House of Minority Nationalities. (in Chinese)
- Qu, Aitang (1991). *Research on Tibetan Finals*. Xining: Qinghai Nationalities Publishing House. (in Chinese)
- Haller, Felix (1999). A brief comparison of register tone in Central Tibetan and Kham Tibetan. *Linguistics of the Tibeto-Burman Area* 22.2:77-97.
- Huang, Bufan (1995). Conditions for tonogenesis and tone split in Tibetan dialects. *Linguistics of the Tibeto-Burman Area* 18/1:43-62.

Problem 4 Mandarin Shorthand

Mandarin shorthand is transcribed according to the Mandarin syllable structure, which is divided into initials and finals.

[Initials]

<i>b</i>	<i>p</i>	<i>m</i>	<i>f</i>	<i>zh/j</i>	<i>ch/q</i>	<i>sh/x</i>	<i>r</i>
<i>d</i>	<i>t</i>	<i>n</i>	<i>l</i>	<i>z</i>	<i>c</i>	<i>s</i>	
<i>g</i>	<i>k</i>	<i>h</i>		<i>v</i>	<i>ng</i>	<i>y</i>	<i>w</i>

The orange cells are sounds and symbols not used in modern Mandarin, and the light gray cell is the sound that is absent in this problem.

[Finals]

	<i>(-a)</i>	<i>(-o)</i>	<i>(-e)</i>	<i>(-ê)</i>	<i>(-ai)</i>	<i>(-ei)</i>	<i>(-ao)</i>	<i>(-ou)</i>	<i>(-an)</i>	<i>(-en)</i>	<i>(-ang)</i>	<i>(-eng)</i>	<i>er</i>
<i>-i</i> <i>yi</i>	<i>-ia</i> <i>ya</i>	<i>-io</i> <i>yo</i>		<i>-ie</i> <i>ye</i>	<i>-iai</i> <i>yai</i>		<i>-iao</i> <i>yao</i>	<i>-iu</i> <i>you</i>	<i>-ian</i> <i>yan</i>	<i>-in</i> <i>yin</i>	<i>-iang</i> <i>yang</i>	<i>-ing</i> <i>ying</i>	
<i>-u</i> <i>wu</i>	<i>-ua</i> <i>wa</i>	<i>-uo</i> <i>wo</i>			<i>-uai</i> <i>wai</i>	<i>-ui</i>			<i>-uan</i> <i>wen</i>	<i>-un</i> <i>wun</i>	<i>-uang</i> <i>wong</i>	<i>-ong</i> <i>wong</i>	
<i>-ü</i> <i>yu</i>				<i>-üe</i> <i>yue</i>					<i>-üe</i> <i>yuan</i>	<i>-ün</i> <i>yun</i>		<i>-iong</i> <i>yong</i>	

The blue cells indicates that no symbol was designed in this system (the sound is absent in PRC Mandarin but present in Taiwan Mandarin), and the yellow cells share the same symbol due to complementary distribution in modern Mandarin. The light gray cells are the sound that is absent in this problem.




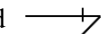
About the green cells (*-ui*, *-uan* and *-uang*): initial + / / , with the starting stroke of the final is moved from the end of the initial symbol to the middle of the initial symbol.

For *wei*, *wan* and *wang*: + / /











For *-o*/*o*, *-io*/*yo* and *-uo*/*wo*: if preceding *m*, *f*, *d*, *t*, *l*, *h*, *zh/j*, *ch/q*, *sh/x*, *r* and *s*, and elsewhere.


Tones are omitted in this problem.



When the initial and the final symbols are in the same direction and have the same thickness, a vertical short

line should be added as a discontinuity symbol. For example, *jue*, *qu*, *ku* and *gao* are transcribed as , ,  and  respectively.

[List of characters in conventional way related to this question]

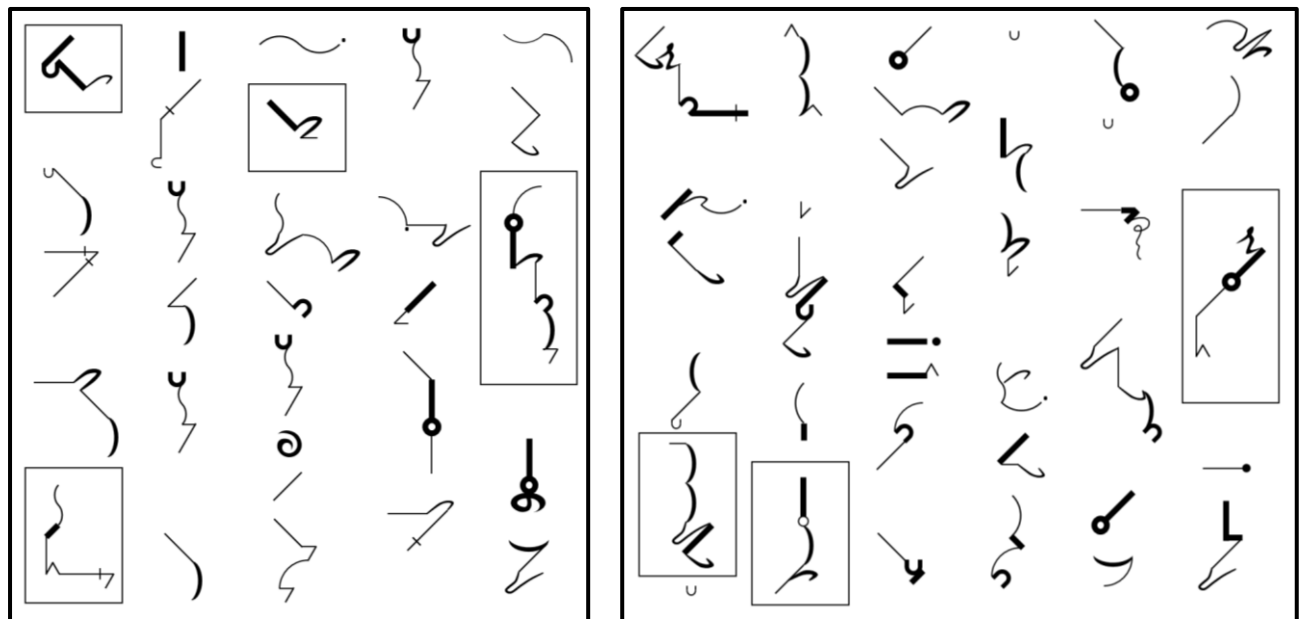
我/吾 <i>wu/wu</i>	你/那 <i>ni/na</i>	他 <i>ta</i>	們 <i>men</i>	不 <i>bu</i>	的 <i>de</i>	個 <i>ge</i>	亦/一 <i>yi</i>	然 <i>ran</i>	人 <i>ren</i>
									

For *yi*,  is applied except for 亦/一.

For *wu*,  is applied except for 吾. Although absent in this problem,  is also applied for 無/武/務/物.

Answer

(a)




[2 pt for *tūn shì zhuàng*, 1.5 pt each for *hǒng táng dà xiào* and *yòu shí jiān qíng*, and 1 pt each for the others.]

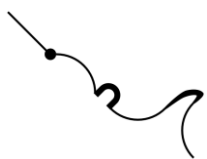
(b)

- 存款 (*cun kuan*)
- 北回歸線 (*bei hui gui xian*)

(2pt) [Tones are omitted if the answers are in Bopomofo or Hanyu Pinyin.]

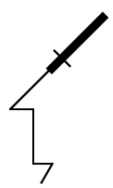
(c)

-  (1.5 pt)


4.  (2 pt)

5.  (1.5 pt)



6.  (2 pt for the first half, and 1 pt for the second half.)

(d)


(1 pt)

Marking Criteria

If the grapheme cannot be determined from the handwriting (e.g., unclear thickness, unclear starting position of the final, ambiguous angle or ambiguous arc, or lack of a discontinuity symbol), it will be judged as incorrect.

Reference

Cai, Xiyong & Cai, Zhang. (1934) *Chinese Stenography*. In Mandarin. Shanghai: Chung Hwa Book Company.

(in Chinese)

Bai, Chenqun. (1941). *A Brief List of Chinese Shorthand*. Peking: Bai Chongguang. (in Chinese)

Problem 5 Penrhyn

The word order is VSO.

[The composition of verb phrase (VP)]

Tense: future **ka/kā**, past **i**.*

Vocie: active **∅**, passive **-hia**.

Imperative mood: **-hia**.

Direction complement: away the speaker **atu**, toward the speaker **mai**.

[The composition of noun phrase (NP)]

Definite article: **te**.

Pronoun:

person	singular	dual	plural
I (<i>exclusive</i>)	au	māua	mātou
I (<i>inclusive</i>)		tāua	tātou
II	ne	kōrua	kōtou
III	ia	rāua	rātou

Interrogative pronoun: *who* **vai**, *what* **aha**.

Noun-proceeding marker:

Object marker: direct object **i**, indirect object **kiā**.

Patient marker of passive voice: **e/ē**.*

Emphasis: **e NP te/tē**.†

Sentence structure:

[ka/kā or i] V NP _A [i NP _B][kiā NP _C]	A [V] B to C.
[ka/kā or i] V- hia NP _A [e/ē NP _B][kiā NP _C]	A <i>be</i> [V] by B to C.
V- hia NP _A [e/ē NP _B][kiā NP _C]	[V] A to C, B!
e aha te/tē V...	What...[V]...?
e NP_A te/tē V...	It's...that [V]....

*Long vowels (**kā**, **ē**) are applied if preceding a word with 2 mora or less, and short vowels (**ka**, **e**) are applied elsewhere.

†Long vowels (**tē**) are applied while preceding **ka/kā**, and short vowels (**te**) are applied while preceding **i**.

Answer

(a)

13. *The flying fish will sleep.*

14. *Take away the man!*

15. *We were made dizzy by Rīnā.*
 16. *It's the alcohol that Tepure will bring here.*
 17. *What did you (sg) bring to us two? / It's the coconut crab that I brought to us two.*
 (6 pt) [2 pt for question 17, and 1 pt each for the rest.]

(b)

18. **tunuhia te māroro ē koe**
 19. **i takeohia te ika ē te kava**
 20. **kā rere atu te tavake**
 21. **kā kave tātou i te tangata kiā vai / ka kavehia te tangata e tātou kiā rīnā**
 22. **e aha tē kā kave mai mātou kiā sokoau / e te ruru tē kā kave mai kōtou kiā sokoau**
 (10.5 pt) [3 pt each for question 21 and 22, and 1.5 pt each for the rest.]
 (2 pt) [2 additional point for **ka/kā, e/ē, te/tē** in question 18~22. No partial credit.]
 (2 pt) [2 additional point for **tātou/mātou** in question 21 and 22. No partial credit.]

Marking Criteria

Incorrect answers are divided into two types:

Type I: Misuse of emphasis, tense, voice/mood and personal pronouns (except for inclusive/exclusive distinctness).

Type II: Missing articles, misuse of direction complements or case particles, mistranslation of verbs and nouns, spelling and capitalization errors.

For each mistake, points are deducted according to the following table.

Mistake	Question 13~17	Question 18~22
Type I	0.5 pt	1 pt
Type II		0.5 pt

The above marking scheme correspond to actual points as follows.

Marking scheme	0	0.5	1	1.5	2	...	19	19.5	20	20.5
Actual points	0	0	0.5	1	1.5	...	18.5	19	19.5	20

Reference

Shibata, Norio. (2003). *Penrhyn-English Dictionary*. Kyoto: Nakanishi.

Yasuda, Ayako. (1968). *The structure of the Penrhyn phrase*. [Unpublished master's thesis]. University of Hawaii.