

The UK Linguistics Olympiad 2018

Round 2 Problem 2 Nivkh

Nivkh (also known as Gilyak) is a language (apparently unrelated to any other language) spoken by approximately 1,000 people in Outer Manchuria. In the following problem, someone called Balda (a male Nivkh name) needs supplies quickly because he must leave for a long journey immediately, where he must accomplish many quests. If he doesn't have all of these items, he will not be able to complete the quests he has been assigned. Figure out how to say what Balda is asking for so that he can get going in time! Note that p' , t' , and k' are single sounds in Nivkh.

Here are some Nivkh statements and (in a different order) their English translations, followed by some further Nivkh nouns.

1.	ñi ʈoxekiɟ
2.	ñi həhəqxeɟ
3.	ñi itəfk'ekiɟ
4.	ñi ñeflənjkxeɟ
5.	ñi ñəqxeɟ
6.	ñi p'eznəixekiɟ
7.	ñi ʈzyəfk'ekiɟ
8.	ñi təpilaʈoxekiɟ
9.	ñi həzaqoxekiɟ
10.	ñi liysk'ekiɟ
11.	ñi təfk'ekiɟ
12.	ñi ʈəqxeɟ
13.	ñi ñivraxekiɟ
14.	ñi ñmuxekiɟ
15.	ñi ʈznəixekiɟ
16.	ñi aʈoxekiɟ
17.	ñi ñit'ulvəhəqxeɟ
18.	ñi ʈzaqoxekiɟ
19.	ñi ʈpilaʈzyəfk'ekiɟ
20.	ñi amuxekiɟ
21.	ñi həqxeɟ
22.	ñi ʈeflənjkxeɟ
23.	ñi ʈliysk'ekiɟ

A.	I need this big fish
B.	I need my cap
C.	I need your branch
D.	I need my hut
E.	I need my winter cap
F.	I need my boat
G.	I need a fish
H.	I need your big bear
I.	I need a house
J.	I need your wolf
K.	I need my branch
L.	I need a cap
M.	I need my own picture
N.	I need a wolf
O.	I need that boat over there
P.	I need your bear
Q.	I need that cap
R.	I need that knife
S.	I need that fish over there
T.	I need his/her house
U.	I need your knife
V.	I need your picture
W.	I need your cap

həjk	hare
ʈif	track
ʈus	meat
fləŋg	ash
zrovs	nail

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Q.2.1. Match the Nivkh statements 1-23 to their English translations A-W.

Q.2.2. Translate the following into English:

- a. ñi ʧpilamuxekiɖ
- b. ñi həzyəfk'ekiɖ
- c. ñi təfləŋgxeɖ
- d. ñi p'eʧusk'ekiɖ
- e. ñi ahaqxekiɖ

Q.2.3. Translate the following into Nivkh:

- a. I need your big track.
- b. I need my knife.
- c. I need that cap over there.
- d. I need your hare.
- e. I need my nail.

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Problem 2 Nivkh

2.1	1	2	3	4	5	6	7	8	9	10	11	12
	13	14	15	16	17	18	19	20	21	22	23	
2.2	a.						b.					
	c.						d.					
	e.											
2.3	a.						b.					
	c.						d.					
	e.											

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Solution and marking.

Scoring (max 43)

- 2.1 1 point for each correct cell (max 23)
- 2.2 2 points for each correct answer. (max 10)
 - 1 point with one word wrong
- 2.3 2 points for each correct answer. (max 10)
 - 1 point with one letter wrong.

2.1	1	2	3	4	5	6	7	8	9	10	11	12
	G	Q	T	K	B	M	P	A	R	N	I	W
	13	14	15	16	17	18	19	20	21	22	23	
	D	F	V	S	E	U	H	O	L	C	J	
2.2	a. I need your big boat						b. I need that bear					
	c. I need this big ash						d. I need my own meat					
	e. I need that cap over there											
2.3	a. ñi ʈpilaʈifk'ekiɖ / xekiɖ						b. ñi ñzaqoxekiɖ					
	c. ñi ahaqxekiɖ						d. ñi ʈajkxekiɖ					
	e. ñi ñzrovsk'ekiɖ / xekiɖ											

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Commentary

(From NACLO solution – presumably written by the author.)

How to solve:

Easy step 1

- See that $\tilde{n}i = I$
- See that $xekid = \text{need}$ ($x \tilde{n}k'$ after f and s)
- alternate analysis $zy\text{afk}'$ and $liysk'$ end in k' ($x \tilde{n}k'/\text{after } k'$)
- These analyses might not pop out at first, but they are seeable.

Easy step 2

- Count the nouns in the English translations.
- See that $fish$ shows up 3 times.
- See that cap shows up 5 times.
- See that hut shows up 1 time.
- See that all other nouns show up twice.

Step 3a

- Look for correspondences in the Nivkh data (looking for $fish$, cap , and hut)

Step 3b

- Notice ' $pila$ ' (could initially mean 'big' or 'over there' by factoring out all of the nouns – cap is tricky, but the others are easy)
- Notice $\text{ce } \text{to } 3 \text{ ti mes}$ (after segmentation of $pila$), $\text{to} = \text{fish}$
- Notice $\text{ce } \tilde{n}ivra = \text{my hut}$, so $ivra = \text{hut}$, \tilde{n} means my , which is nice because it goes with $\tilde{n}i=I$
- Notice $\text{ce } (h)aq = \text{hut}$ (5 ti mes) – the h will be tricky

Step 4

- figure out if $pila$ is 'big' or 'over there'
- compare $\text{tpilaz}\text{yafk}'$ and $\text{t}\text{epila}\text{to} = \text{??(that or this)- } pila - \text{fish}$
- Notice that the two words containing $pila$ have different prefixes (t vs. t)
- Look at the other sentences that contain 'big' or 'over there' in their translations.
- $zy\text{afk}' = \text{either boat or bear}$
- Compare $I \text{ need that boat over there}$ vs $I \text{ need that fish over there}$
- Notice that the prefixes don't match
- Compare $I \text{ need this big fish}$ with $I \text{ need your big bear}$
- Notice they have different prefixes, so $t\text{a} = \text{this}$, $\text{t}\text{a} = \text{your}$
- Now you can match up 13 with D , 19 with H , 7 with P and 8 with A , ...

Step 5

- You still have to and a $-\text{to}$ – one means a fish and the other means that fish over there
- Notice a $-\text{mu}$ and $\tilde{n}\text{-mu}$. $\tilde{n}\text{mu}$ is my _____. Of the nouns that appear twice, $boat$, $branch$, and $picture$ have 'my' in their translation.

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- Only 'boat' also goes with 'that over there', none have 'a' translations. So mu = boat, ñ = my, and a = 'that over there'.
- So 1=G, 16=S, 14=F and 20=O

Step 6 : Cap

- aq shows up 5 times (it is haq, and x [22]/after a prefix) :
 - 2: ñi hæ-haq-xekiḍ
 - 5: ñi ñ-aq-xekiḍ
 - 12: ñi ʦ-aq-xekiḍ
 - 17: ñi ñ-it'ulv-haq-xekiḍ
 - 21: ñi haq-xekiḍ
- Meanings :
 - B: 'I need my cap'
 - E: 'I need my winter cap'
 - L: 'I need a cap'
 - Q: 'I need that cap'
 - W: 'I need your cap'
- evident that 12=W, 5=B, 17=E (so it'ulv(h) = winter, but the 'h' shows up in 21 too, so it'ulv)
- a cap vs that cap, we know 'a' = no prefix on fish, and haqxekiḍ is obviously less prefixed than hæhaqxekiḍ, so haq = cap (h deletes)
- after a C, or after 'my' and 'your') hæ = that
- 21=L, 2=Q

Step 7

- hæ-zaqo and ʦ-zaqo = that X and your X, so zaqo = knife and 9=R and 18=U
- liysk' and ʦ-liysk' = a X and your X, so liysk' = wolf and 10=N and 23=J
- ʦ-efl aŋk and ñ-efl aŋk = your X and my X, so 22=C and 4=K
- p'-ezŋai and ʦ-ezŋai = my own X (we haven't seen p' before, but we know ʦ is 'your') and your X, so 6=M and 15=V
- i-təfk' and təfk' = his/her X (by elimination) and a X, so 3=T and 11=I

The only thing left was the vowels of the prefixes of a few forms. I took the offenders out. I modified the answers so that there are 2 right answers for 2 of the Eng to Nivkh translations.