

<1>Alice in Wordland¹ (1/1) 7 points

Polysemy is the capacity of a word to have different (but, possibly related) meanings (or senses) based on its usage in a given context (sentence or paragraph). For example, consider the following paragraph:

Mary is reading the **newspaper** that she buys each morning. John bought this **newspaper** last year and fired some staff from the editorial committee. As it starts to rain, Mary covers her head with the **newspaper**.

Here the word **newspaper** has three different senses based on its usage in the three different sentences, respectively:

- a) A daily publication that contains news
- b) A business firm that publishes news
- c) The physical object/ paper

Task 1. Now, consider the following two paragraphs. Each of them has a mystery word (termed **word1**, and **word2**), which may have different senses based on its usage in a sentence. Work out the mystery word and its senses from each paragraph.

1) I **word1** that this is an exciting time of my academic journey, but sometimes I **word1** scared of the unforeseen future. Anyway, I need to **word1** approval for my vacation. Then, I have to **word1** to the airport to pick up my sister. Do you want me to **word1** some drinks for you before I leave?

Answer: The mystery **word1** is _____

2) This is a **word2** time for Matt to upgrade the walls of his house. But, he needs a **word2** carpenter for this purpose. His **word2** friend Adam, who is also a **word2** person, should be able to help him in this regard. They will have a **word2** time this summer.

Answer: The mystery **word2** is _____

Task 2. There are *five* instances in paragraph 1) above in which **word1** is used. Pair each instance with another word that could be substituted for **word1** in each instance, i.e., without a change in meaning. Your answer will have *five* distinct words. Do the same for the *five* instances of **word2** in paragraph 2). NOTE: Ignore whether your substitute word 2 should be preceded by 'a' or 'an'.

Instance	Substitute word1
1	
2	
3	
4	
5	

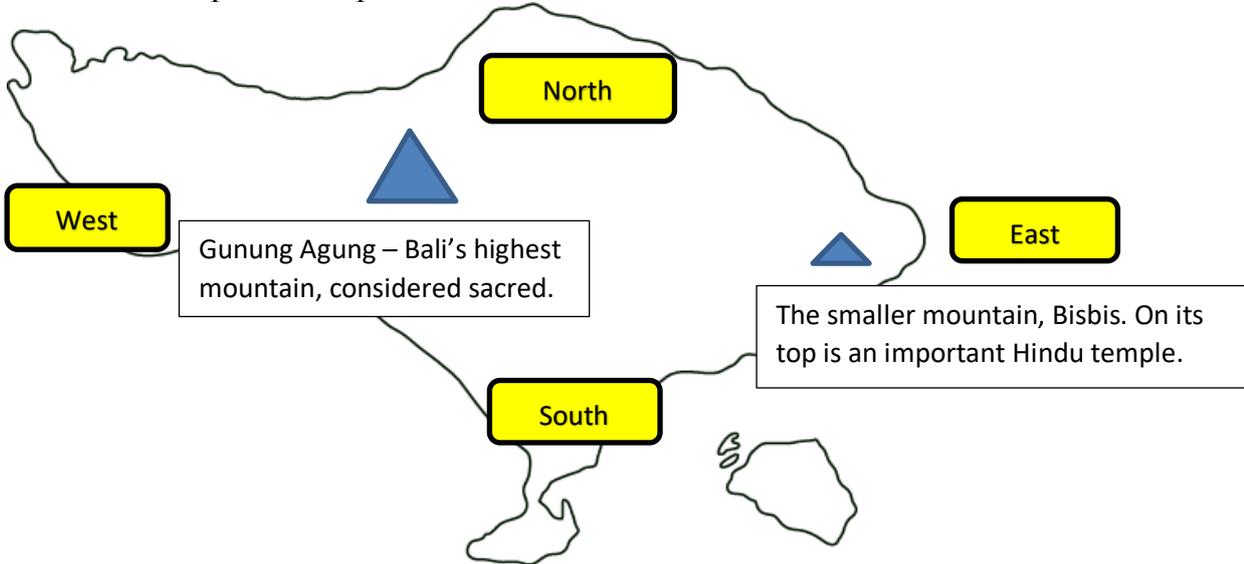
Instance	Substitute word2
1	
2	
3	
4	
5	

¹ Created by Sadid Hasan.

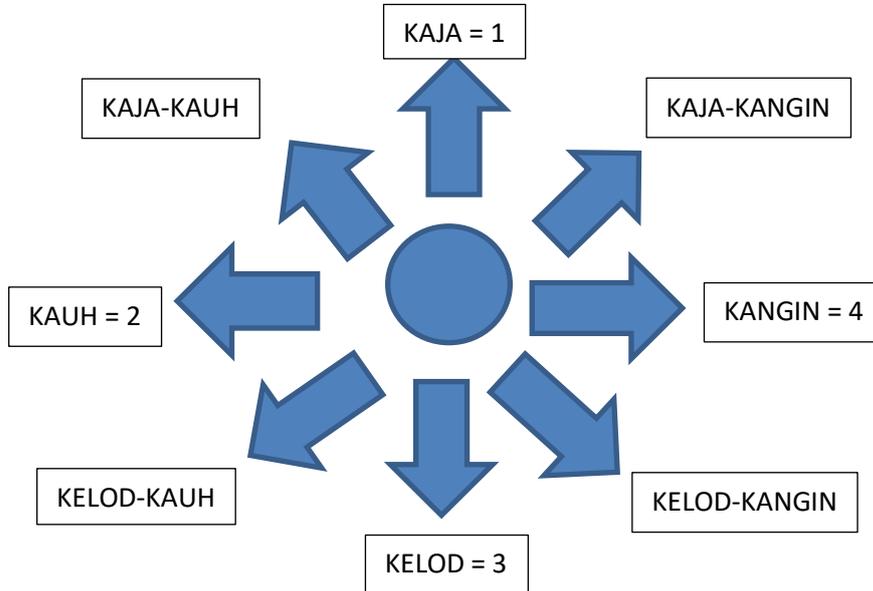
<2> Finding your bearings in Bali² (1/5) 24 points

Balinese is one of the languages spoken in Indonesia, mostly on the island of Bali, and on some of the neighbouring islands. It has just over 3 million speakers altogether.

Below is a simplified map of the island of Bali.



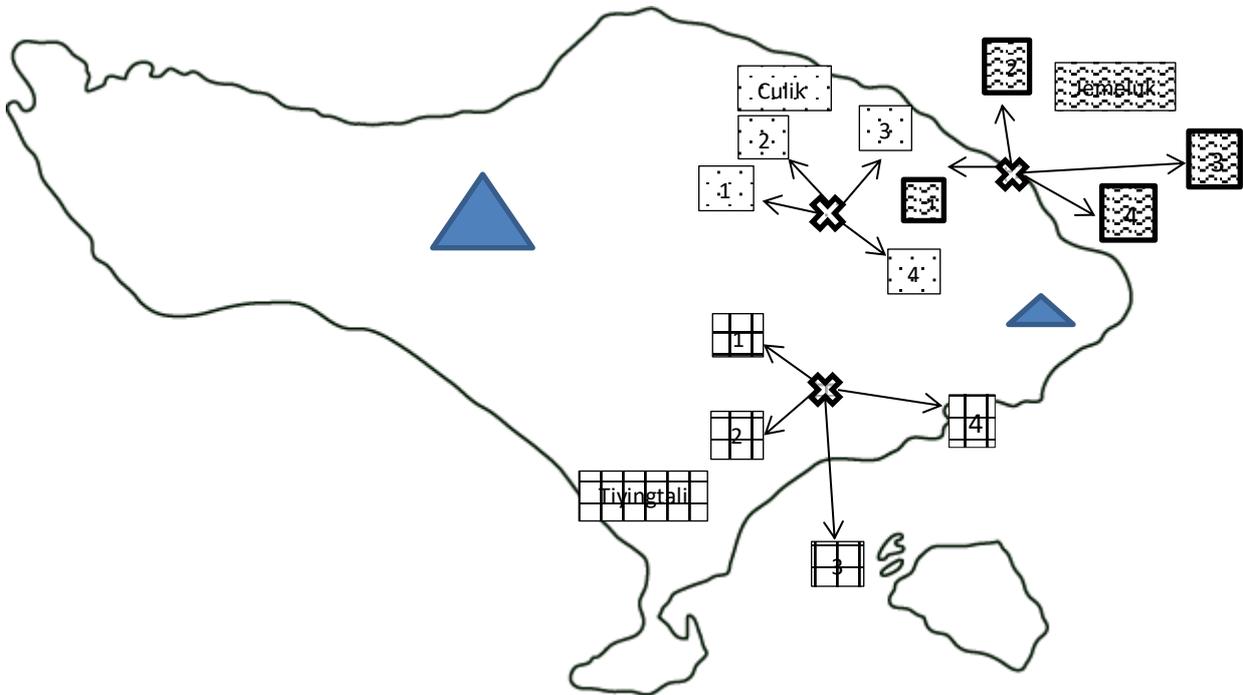
Just as we can use the points of the compass (North – North/East – East etc.), you can use a similar pattern for the Balinese orientation system:



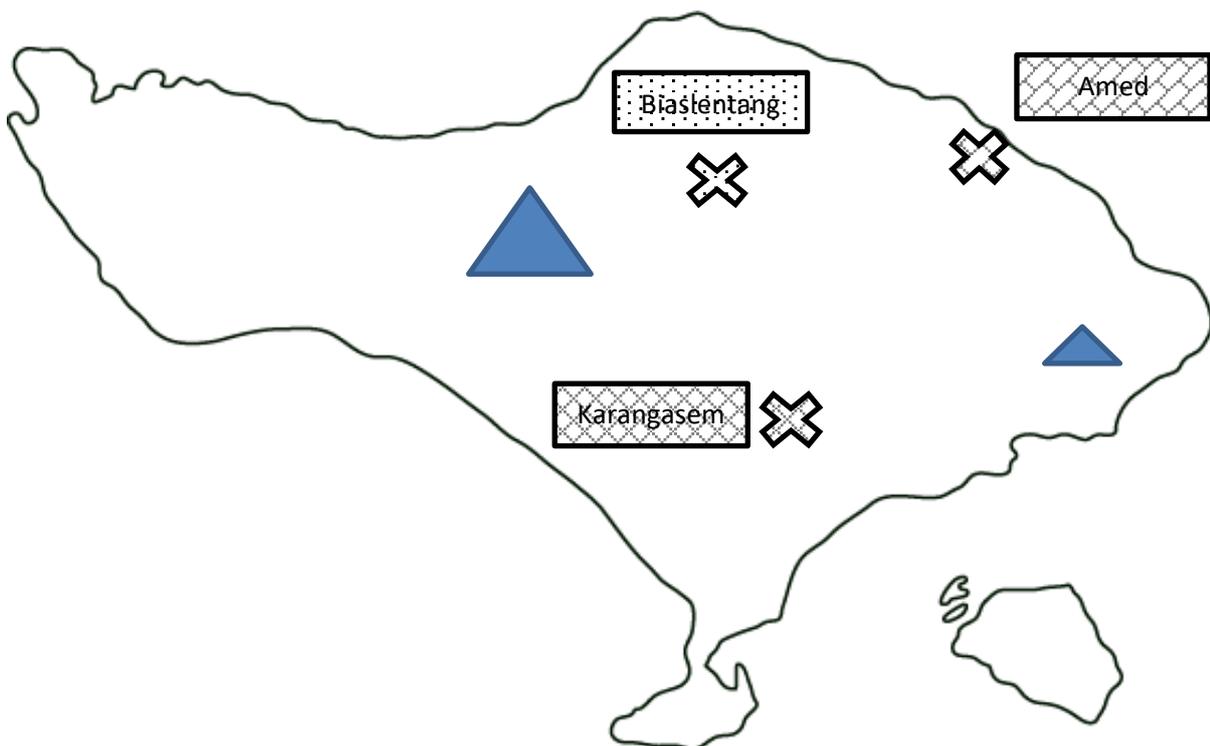
² Created by Babette Newsome (NACLO).

<2> Finding your bearings in Bali (2/5)

Look at the orientations in the villages of Tiyingtali, Culik, and Jemeluk on the map below. Each village is marked with an X, and the directions are drawn from the centres of the respective X-es. The directions are represented by numbers: 1 = Kaja, 2 = Kauh, 3 = Kelod and 4 = Kangin. NOTE: The length of the arrows is not important – they vary to make the diagram as clear as possible.

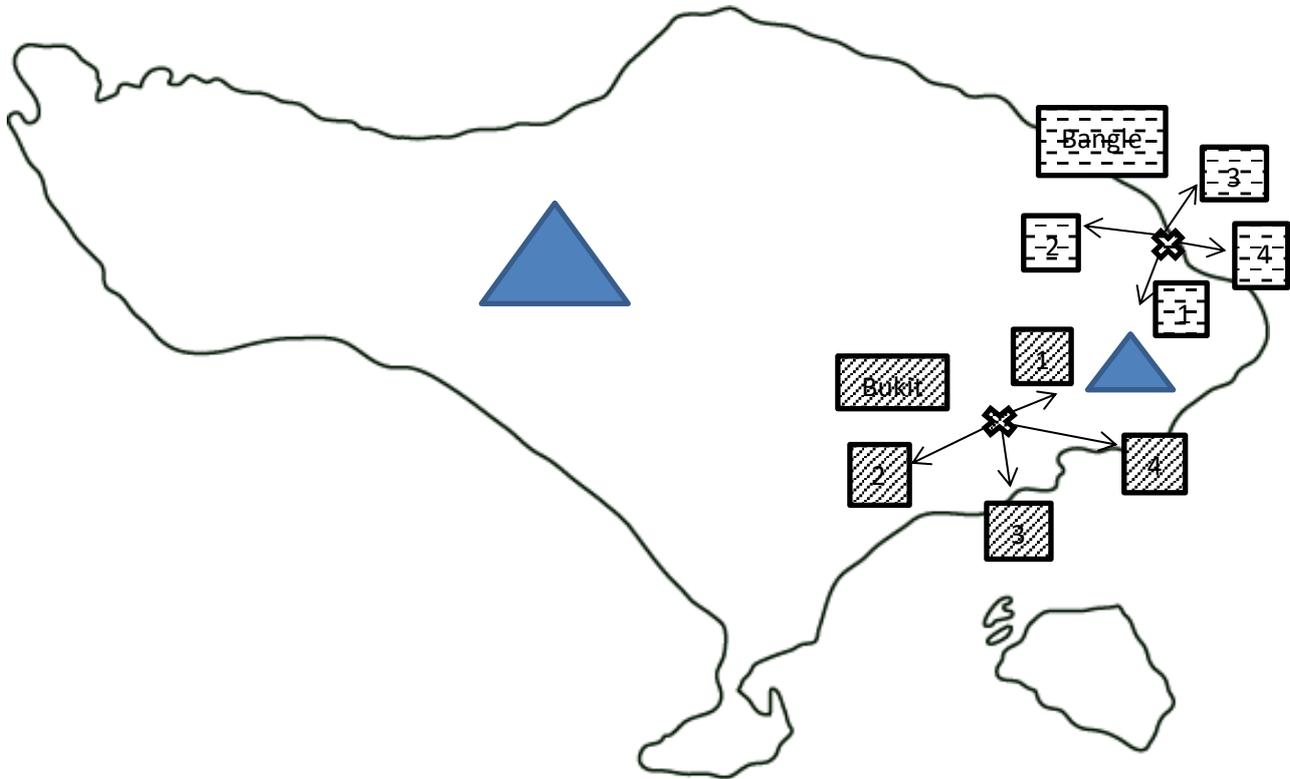


Task 1. Write & draw in the picture the Kaja and Kelod orientations for the 3 villages marked on the map below: Biaslentang, Karangasem, and Amed. Each village’s location is marked with an X. You can use the numbers 1 for Kaja and 3 for Kelod.

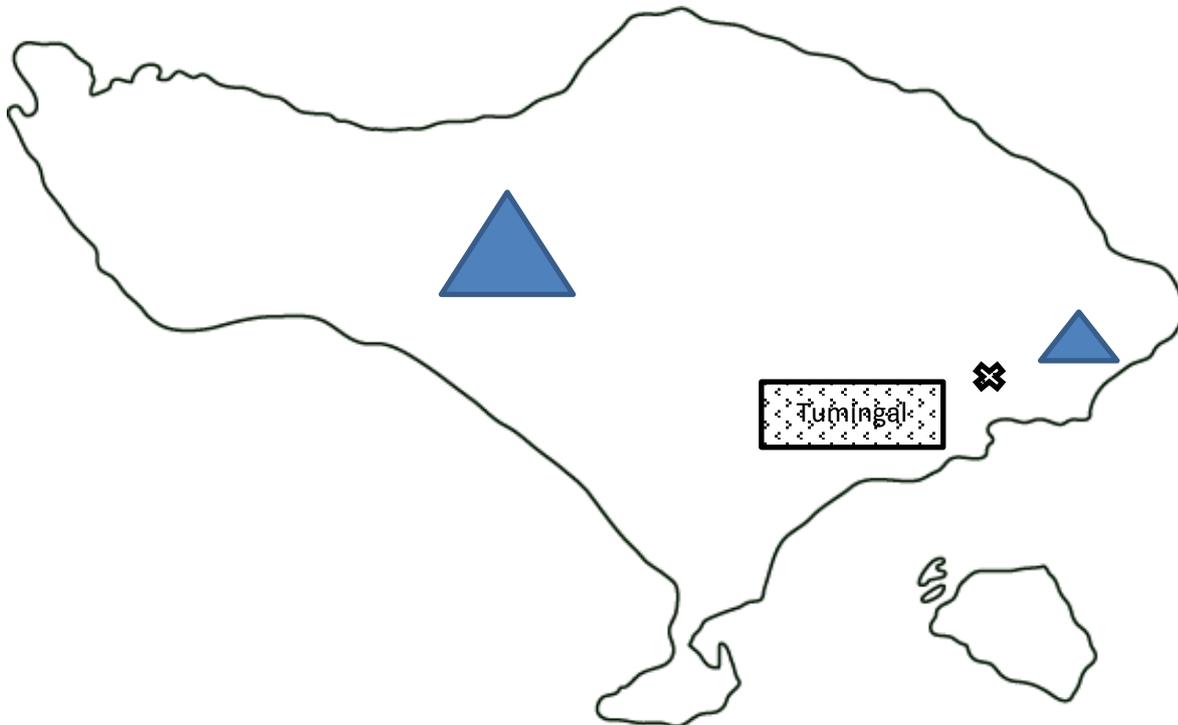


<2> Finding your bearings in Bali (3/5)

Look at the following examples of Bukit and Bangle villages.



Task 2. Fill in the Kaja (1), Kelod (3), and Kangin (4) orientations for Tumungal:



<2> Finding your bearings in Bali (4/5)

Task 3. Look at the relevant maps again. Imagine you are in Biaslentang. Which direction is Tiyingtali from Biaslentang?

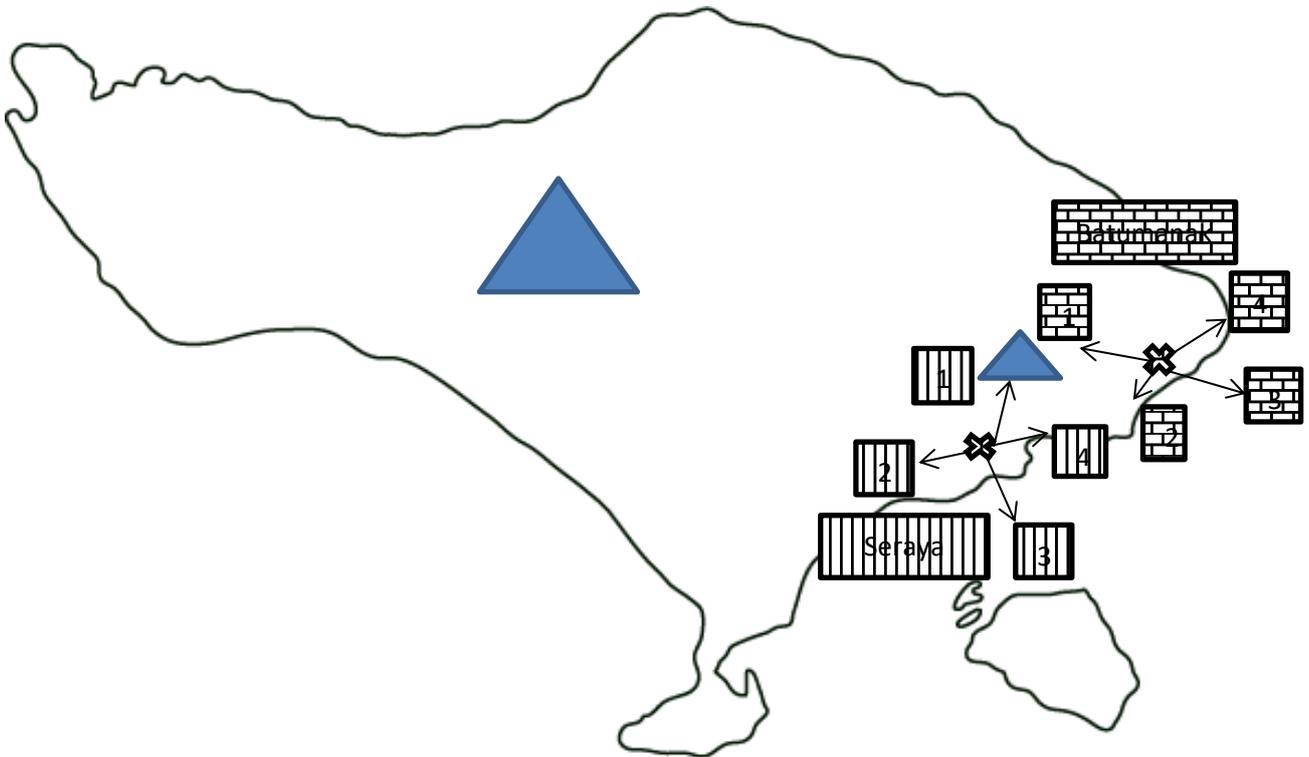
Use one of the eight cardinal directions: Kaja, Kaja-Kangin, Kangin, Kelod-Kangin, Kelod, Kelod-Kauh, Kauh, or Kaja-Kauh.

Task 4. If you are in Tiyingtali what direction is Mt Bisbis? Again, choose one of the eight cardinal directions: Kaja, Kaja-Kangin, Kangin, Kelod-Kangin, Kelod, Kelod-Kauh, Kauh, or Kaja-Kauh.

Task 5. Identify at least one disadvantage the Balinese orientation system has compared to English's North-East-South-West orientation system?

<2> Finding your bearings in Bali (5/5)

Linguists assumed “Kaja” meant “to mountain or uphill”. So the “opposite” of “Kaja”, namely “Kelod”, must mean “away from the mountain or downhill”. However, this was an incorrect interpretation of “Kelod”.



Task 6. What interpretation would you suggest for “Kelod” considering the orientations of the four directions in Batumanak and Seraya?

<3> Are you OK with N'ko?³ (1/2) 22 points

The N'ko script was invented (or rediscovered, depending on sources) by Guinean Souleymayne Kanté in 1949, who wanted to challenge the racist assumption that Africans were cultureless because their languages didn't have their own script. Today, N'ko is still used to write Maninka, as well as Dyula and Bambara, which are all languages from the Mande language family spoken across a range of West African nations: Burkina Faso, Gambia, Ghana, Guinea, Ivory Coast, Liberia, Mali, Senegal, and Sierra Leone. These are all tone languages, but the tones (which are usually indicated by diacritics) have been omitted in this problem, to make it simpler. 'ɔ' is a vowel pronounced like the 'o' in 'hot'.

The name of the script in N'ko, which means 'I speak', is ɔʔɔ; its inventor's name is ʌbɪʔ.

Below are 12 regional names given in transcription on the left, and on the right the corresponding names in N'ko, but in a jumbled-up order. The information given under "Description" is just for your interest: it does not relate to the solution.

Name in transcription		Description	Name in N'ko	
1	Konakiri	Conakry – capital of Guinea	ɪɔɔʌʔ	A
2	Kindia	town in Guinea	ɔɔɪɔʔ	B
3	N'sérégbédé	city in Guinea	ɪʔɪʔɪʔ	C
4	Soromaya	town in Guinea	ɪʔʌɔʔ	D
5	Faranna	city in Guinea	ʔʔɪɪʔʔ	E
6	Djigoué	town in Burkina Faso	ɪʔʔɪ	F
7	Tomboutou	Timbuktu – city in Mali	ɔɔɪʔʔ	G
8	Bisawo	Bissau – capital of Guinea-Bissau	ɪʔʔʔɪ	H
9	Abidjan	city in Côte d'Ivoire	ʊʊɔʔʔ	I
10	M'praeso	town in Ghana	ʊʊɔʔ	J
11	Gbésoba	town in Guinea	ʔʊʔ	K
12	Guekedou	city in Guinea	ʌʊʔʔ	L
13	Sénégal	country in west Africa	ʔɪʔʌʔ	M
14	M'bour	city in Senegal	ʌʊʔʔ	N

Task 1. Match up the names 1-14 with their N'ko equivalents A-N by writing the corresponding number in rightmost column in the above table.

³ Created by Babette Newsome (NACLO).

Source: <https://catalogingafricana.files.wordpress.com/2012/01/guineepapada1.jpg>

<3> Are you OK with N'ko? (2/2)

Task 2. Write the following names in transliteration (or in their conventional English spelling)

	Name in N'ko	Helpful (?) hint	Transliteration/English
a	𞤲𞤵𞤶	name of language	
b	𞤲𞤵𞤸	name of country	
c	𞤲𞤵𞤸	region of Guinea	
d	𞤲𞤵𞤸	town in Sierra Leone	
e	𞤲𞤵𞤸𞤵	town in Congo	
f	𞤲𞤵𞤸𞤸	name of language	
g	𞤲𞤵𞤸𞤸𞤸	name of country	
h	𞤲𞤵𞤸𞤸	name of language	
i	𞤲𞤵𞤸𞤸	name of country	
j	𞤲𞤵𞤸𞤸𞤸	name of country	

<4>Intergalactic Grammars⁴ (1/4) 42 points

Your job as a linguist in the international space centre is to translate between languages for the international team aboard the *U.S.S. Enterprise*. You suddenly see a light flashing on the switchboard.

"Houston, we have a problem. Houston, we have a problem."

"The Klingons?" you ask.

"Roger that. Klag is frantic. He won't go back to the Pagh until we give him an answer."

"Copy. We are working on it. We will report back ASAP."

You know that the Klingons are grammarians. Not wanting to upset them further, you have to make sure that you translate not only words but syntax (or grammar). Luckily, you have a file of Synchronous Context Free Grammars (SCFGs). An SCFG provides you with two systems of rules for constructing sentences, one system for each language. This way, you can translate not only words, but also syntax, from one language to another.

For instance, using the English to Turkish SCFG below, *a girl read a book* is translated as *bir kiz bir kitap okudu* in Turkish.

English-Turkish SCFG
$S \rightarrow \langle NP_1, VP_2, NP_1, VP_2 \rangle$
$VP \rightarrow \langle V_1, NP_2, NP_2, V_1 \rangle$
$NP \rightarrow \langle \text{a book, bir kitap} \rangle$
$NP \rightarrow \langle \text{a cat, bir kedi} \rangle$
$NP \rightarrow \langle \text{a girl, bir kiz} \rangle$
$NP \rightarrow \langle \text{a turtle, bir kaplumbağa} \rangle$
$V \rightarrow \langle \text{ate, yedi} \rangle$
$V \rightarrow \langle \text{bit, ısırdı} \rangle$
$V \rightarrow \langle \text{chased, kovaladı} \rangle$
$V \rightarrow \langle \text{read, okudu} \rangle$
$V \rightarrow \langle \text{saw, gördü} \rangle$

S = (simple) sentence

V = verb

VP = verb phrase

N = noun

NP = noun phrase

Task 1A. Using *only* terms in the SCFG above, translate this English sentence into Turkish.

English: *A cat chased a turtle.*

Turkish: _____

⁴ Created by Ali Sharman

<4>Intergalactic Grammars (2/4)

Task 1B. Some of the files contain syntax trees instead of lists of rules. Draw in the missing syntax tree for *bir kiz bir kitap okudu.*

Syntax tree for <i>a girl read a book.</i>	Syntax tree for <i>bir kiz bir kitap okudu.</i>
<pre> graph TD S --- NP1[NP] S --- VP[VP] NP1 --- a_girl[a girl] VP --- V[V] VP --- NP2[NP] V --- read[read] NP2 --- a_book[a book] </pre>	

Before you can answer the Klingons, you have to clarify something between the members on board the *U.S.S. Enterprise*. You have already translated something that Elif, who speaks Turkish, told Tovo, who speaks Malagasy, using the following SCFG:

Turkish-Malagasy SCFG

$S \rightarrow \langle NP_1 VP_2, VP_2 NP_1 \rangle$ $VP \rightarrow \langle NP_2 V, V NP_2 \rangle$ $NP \rightarrow \langle \text{bir kaplumbağa, sokatra} \rangle$ $NP \rightarrow \langle \text{bir kedi, saka} \rangle$ $V \rightarrow \langle \text{gördü, nahita} \rangle$ $V \rightarrow \langle \text{ısırdı, nanaikitra} \rangle$ $V \rightarrow \langle \text{kovaladı, nanenjika} \rangle$ $V \rightarrow \langle \text{yedi, nihinana} \rangle$
--

2A. Now, you need to translate the sentence for Elisabeth, who speaks English. Write an SCFG for Malagasy to English that can be used to translate the following sentences:

Sentences
<i>nahita sokatra saka.</i>
<i>nanenjika saka sokatra.</i>
<i>nanaikitra saka sokatra.</i>
<i>nihinana saka sokatra.</i>

Malagasy-English SCFG

<4>Intergalactic Grammars (3/4)

Task 2B. Provide the English translation of these sentences:

<i>nahita sokatra saka.</i>	
<i>nanenjika saka sokatra.</i>	
<i>nanaikitra saka sokatra.</i>	
<i>nihinana saka sokatra.</i>	

It is time to answer Klag.

English-Klingon SCFG

$S \rightarrow \langle NP_1 VP_2, VP_2 NP_1 \rangle$
 $VP \rightarrow \langle V_1 NP_2, NP_2 V_1 \rangle$
 $VP \rightarrow \langle V_1 S_2, S_2 V_1 \rangle$
 $S \rightarrow \langle C_1 S_2, S_2 C_1 \rangle$
 $C \rightarrow \langle \text{that, 'e'} \rangle$
 $NP \rightarrow \langle \text{the commander, la'} \rangle$
 $NP \rightarrow \langle \text{the Klingons, tlhInganpu'} \rangle$
 $NP \rightarrow \langle \text{the leaders, DevwI'pu'} \rangle$
 $NP \rightarrow \langle \text{a pet, Saj} \rangle$
 $NP \rightarrow \langle \text{the pet, Saj} \rangle$
 $NP \rightarrow \langle \text{a spy, ghoqwI'} \rangle$
 $NP \rightarrow \langle \text{U.S.S. Enterprise, 'ejDo' 'entepray'} \rangle$
 $V \rightarrow \langle \text{caused trouble, SengtaH} \rangle$
 $V \rightarrow \langle \text{had, ghajtaH} \rangle$
 $V \rightarrow \langle \text{know, SovTah} \rangle$
 $V \rightarrow \langle \text{learned, ghojpu'} \rangle$
 $V \rightarrow \langle \text{killed, rIntaH} \rangle$
 $V \rightarrow \langle \text{saw, leghpu'} \rangle$
 $V \rightarrow \langle \text{will battle, ghobrupqa'} \rangle$

C = complementiser

NOTE: The symbol ' in Klingon words such as 'e' represents a sound in that language, so you need to write it as part of a word containing it.

<4>Intergalactic Grammars (4/4)

Task 3. Using the SCFG for English to Klingon, write the Klingon translation of these two English sentences below each.

The leaders know that the Klingons know that the commander learned that a spy saw that the Klingons had a pet.

The pet caused trouble.

The U.S.S. Enterprise will battle the Klingons.

<5> *This and that in Ngarnka*⁵ (1/4) 25 points

Ngarnka is a language of the Northern Territory of Australia traditionally spoken east of Elliott on the Barkly Tableland. It belongs to the Mirndi language family along with Kurdanji, Wambaya and Jingili. Most word types in these languages are complex, made up of several meaningful parts (or morphemes). Among the most complex words of Ngarnka are demonstratives: words for *this*, *that*, *these* and *those*. In English, demonstratives include information about two semantic or meaning features with two feature values each: **NUMBER** (SINGULAR and PLURAL) and **DISTANCE** (PROXIMAL and DISTAL).

Features	NUMBER	DISTANCE
Feature values	SINGULAR	PROXIMAL
	PLURAL	DISTAL

In English, combining one feature value from each feature category results in one of four demonstratives: *this* (SINGULAR + PROXIMAL), *these* (PLURAL + PROXIMAL), *that* (SINGULAR + DISTAL), and *those* (PLURAL + DISTAL). In Ngarnka, demonstratives include information about two more features: **GENDER** and **CASE**. 'Gender' features define the categories or classes that the potential referents of a word belong to, while 'case' refers to contrasting forms of a word that are determined by the words it combines with, e.g., English speakers must use the 'I' form of the pronoun in (i), the 'me' form in (ii), and the 'my' form in (iii) when referring to themselves: (i) I like James; (ii) James likes **me**; (iii) James likes **my** friend.

The features expressed by Ngarnka demonstratives are shown in the table below.

Features	NUMBER	DISTANCE	GENDER	CASE
Feature values	SINGULAR	PROXIMAL	MASCULINE	ABSOLUTIVE
	DUAL (=2)	DISTAL	FEMININE	ERGATIVE
	PLURAL (>2)		VEGETABLE	DATIVE
				NEUTER

Part A: ABSOLUTIVE demonstratives

Below are 8 Ngarnka demonstratives with English translations. All are in the ABSOLUTIVE case used words cited in isolation as well as in some positions in a sentence.

(1)	<i>in-a-kuny-ja</i>	'these (men)'
(2)	<i>arn-a-wulu</i>	'these two (women/trees)'
(3)	<i>ma-yangka-kuny-ma</i>	'those (yams)'
(4)	<i>rna-yangka</i>	'that (woman/tree)'
(5)	<i>am-a-wulu</i>	'these two (yams)'
(6)	<i>rna-yangka-kuny-a</i>	'those (women)'
(7)	<i>ni-yangka</i>	'that (man)'
(8)	<i>rna-yangka-kuny-ja</i>	'those (trees)'

Task 1. Identify the suffixes (=endings) that indicate the **NUMBER** of the demonstrative. (Write *none* if there is no suffix for a given number.):

SINGULAR	
DUAL	
PLURAL	

⁵ Created by David Osgarbi (OzCLO).

<5> *This and that* in Ngarnka (2/4)

Task 2. Identify the parts of the demonstratives that indicate relative **DISTANCE**.

PROXIMAL	
DISTAL	

GENDER is marked in more than one place on the demonstratives: in prefixes and suffixes.

Task 3. Identify all forms of the *prefixes* that indicate the **GENDER** of the demonstratives.

MASCULINE		
FEMININE		
VEGETABLE		
NEUTER		

Task 4. Identify the *suffixes* that indicate the **GENDER (or CLASS)** of the demonstratives.

MASCULINE	
FEMININE	
VEGETABLE	
NEUTER	

Task 5. What is the *feature* that determines whether the **GENDER** suffix is present or not, and what *feature value* causes the **GENDER** suffix to be present?

Feature	
Feature value	

Task 6. Give the translations of the following demonstratives.

'those two (yams)'	
'this (woman/tree)'	
'those (men)'	

Part B: ERGATIVE and DATIVE demonstratives

Demonstratives sometimes appear in other forms according to their role in the sentence. These roles can be related to the feature **CASE**. The **ERGATIVE** is the case for agents who are performing actions on objects such as in example (1). The **DATIVE** case is the case for recipients of objects.

- (1) *Najani* *ngiya* *ina* *yanji* *nganka.*
 hit she_{did}it this.M.ABS dog.M **this.F.ERG**
 This female hit this dog.

<5> *This and that* in Ngarnka (3/4)

The table below provides six additional Ngarnka demonstratives with translations provided. They are in the ERGATIVE and DATIVE cases. The meaningful parts of each demonstrative is separated out by use of hyphens.

(9) <i>nga-nak-a-kuny-a-nka</i>	'to these (women)'
(10) <i>nga-nk-a-wuli-ji</i>	'these two (women) did it'
(11) <i>ni-nk-a-kuny-i-ni</i>	'these (men) did it'
(12) <i>nga-nk-a</i>	'this (woman) did it'
(13) <i>ni-nak-a-wuli-ja</i>	'to these two (men)'
(14) <i>ni-nak-a</i>	'to this (man)'

Task 7. One of the NUMBER suffixes is different from Part A. Identify the suffixes in this new data that indicate the NUMBER of the demonstrative including the new suffix.

SINGULAR	
DUAL	
PLURAL	

Task 8. One of the GENDER prefixes is different from Part A. Identify the *prefixes* in this new data that indicate the GENDER of the demonstrative including the new prefix.

MASCULINE	
FEMININE	

Task 9. One of the GENDER suffixes is different. Identify the *suffixes* in this new data that indicate the GENDER of the demonstrative including the new suffix.

MASCULINE	
FEMININE	

Like NUMBER, CASE is marked in more than one place on the demonstratives: in prefixes and suffixes.

Task 10. Identify the *prefixes* that indicate the CASE of the demonstratives.

ABSOLUTIVE	
ERGATIVE	
DATIVE	

Task 11. Identify the *suffixes* that indicate the CASE of the demonstratives.

ABSOLUTIVE		
ERGATIVE		
DATIVE		

<5> *This and that in Ngarnka (4/4)*

Task 12. What is the feature that determines which CASE suffix is used?

Feature	
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Task 13. Give the Ngarnka translations of the following demonstratives.

'this (man) did it'	
'to these two (women)'	
'to these (men)'	

<6> A Menya Puzzle⁶ (1/2) 30 points

Menya is a Papuan language spoken in the Morobe Province of Papua New Guinea. It is the second most populous of at least twelve languages that constitute the Angan language family. The data in this problem are presented in the orthography or spelling system of the language.

Task 1. Match up the Menya words and phrases to their well-formed English translations. Place the letter corresponding to the correct English translation in the cell to the immediate right of the Menya.

	Menya		English
1.	<i>ai</i>	a.	a very large tree
2.	<i>tāŋga</i>	b.	an important person
3.	<i>yä naqānāŋä</i>	c.	The äkewä is not a large bird.
4.	<i>ymeqä wāŋqä</i>	d.	Cassava plant
5.	<i>moni naqāŋganji</i>	e.	long ago
6.	<i>āmaqä naqä</i>	f.	I wonder if this is a ship or a boat.
7.	<i>yāmbuayä</i>	g.	man
8.	<i>ymeqä qokä</i>	h.	that
9.	<i>äkewi yŋŋä naqä hmanji</i>	i.	sweet potato, yam
10.	<i>aŋga</i>	j.	That is whose house?
11.	<i>yä aŋä</i>	k.	now
12.	<i>buayä</i>	l.	a small child
13.	<i>āmaqä qokä</i>	m.	a house made of wood
14.	<i>tä</i>	n.	son
15.	<i>i</i>	o.	Fines are big these days.
16.	<i>tä sipqäti botqä äwitäti</i>	p.	done
17.	<i>i täqueqä äŋi?</i>	q.	this

⁶ Problem Author: Aleka Akoyunoglou (Blackwell). Reference: Whitehead, Carl (2004). *A Reference Grammar of Menya, an Angan language of Papua New Guinea*, Ph.D. Dissertation, U of Manitoba.

<6> A Menya Puzzle (2/2)

Task 2. Translate into Menya.

a.	'large'	
b.	'small stick' or 'small piece of wood'	
c.	'the boat'	
d.	'a very small bird'	

Task 3. Translate into English.

a.	<i>aŋä naqänäŋä</i>	
b.	<i>iŋga</i>	
c.	<i>hikŋäŋga</i>	

Note: *hikŋä* means 'lad' or 'young man'

Task 4. Within one of the multiword Menya phrases in the data is a single word typically used by Menya speakers to mean 'husband.' Which word is it?