OL

LO MALTA

Linguistics Olympiad

The Problem Solvers' Challenge

PRACTICE SESSION 2

Give yourselves around ½ hour per puzzle

PUZZLES

Answer as many of the questions as you can: read the instructions carefully.

Use pen and paper to note down your observations as you work towards.

Puzzles

1. Free the Friulian three   Dick Hudson & Harold Somers
2. Georgia's always on my mind   Harold Somers
3. Transitions   Harold Somers
4. Basquing in the sun   Aleka Blackwell
5. Making a mark in Choctaw   Babette Newsome

Puzzle 1: Free the Friulian three   (15 points)

Friulian is sometimes referred to as a dialect of Italian, but it is sufficiently different to be classed as a separate language, spoken by around 600,000 people in Northeast Italy.

Study the following Friulian phrases, then fill in the blanks in the table below.

my house	*la mê cjase*
the houses	*lis cjases*
the bicycle	*la biciclete*
your bicycles	*lis tôs bicicletes*
our tickets	*i nestris tagongs*
my job	*il gno lavôr*
my sister	*mê sûr*
our brother	*nestri fradi*
your cousin	*to cusin*
my sisters	*lis mês sûrs*
our Irish grandmother	*la nestre ave irlandese*
my cousins	*i miei cusins*
our Irish cousin	*i nestri cusin irlandês*

(a) our house		(f) your sister	
(b) the ticket		(g) our cousins	
(c) my bicycle		(h) our jobs	
(d) your brother		(i) the ticket	
(e) my Irish sister		(j) my brother	

Puzzle 2: Georgia's always on my mind (20 points)

Tbilisi is the capital of Georgia, a country in the Caucasus region of Eurasia.

On the next page is a list of (some of) the stations on its subway (underground) system, written in Georgian, together with the equivalent English names of the stations, though not in the same order. While most of the names are simply transliterated, a few of them are translated and so do not match exactly. Note that **J** is pronounced like the 'y' in 'yes', and that sequences DZ, SH, TS are regarded as single letters.

The Tbilisi metro system – don't worry if you can't read the names on this map, they are reproduced below.

1	ვარკეთილი	A	Aragveli
2	სამგორი	B	Avlabari
3	ისანი	C	Didube
4	არაგველი	D	Gotsiridze
5	ავლაბარი	E	Guramishvili
6	სადგურის მოედანი	F	Isani
7	რუსთაველი	G	Marjanishvili
8	მარჯანიშვილი	H	Medical University
9	ნაძალადევი	I	Nadzaladevi
10	დიდუბე	J	Rustaveli
11	გურამიშვილი	K	Samgori
12	სარაჯიშვილი	L	Sarajishvili
13	ტექნიკური უნივერსიტეტი	M	Station Square
14	სამედიცინო უნივერსიტეტი	N	Technical University
15	გოცირიძე	O	Varketili

B1. Match up the station names 1-15 with their equivalents A-O. [15 points]

| Add the letter corresponding to the equivalent English station names of each of the Georgian station names 1-15 below.					
1		2		3	
4		5		6	
7		8		9	
10		11		12	
13		14		15	

B2. How is the station name translated here as 'Station Square' pronounced in Georgian? [3 points]

B3. How is the Georgian word for 'Medical' pronounced? [2 points]

Puzzle 3: Transitions   (20 points)

The diagram on the next page represents a "transition network". The circles represent "states" while the boxes represent sequences of letters that can be "generated" from any given state, as indicated by the lines (the "transitions"). The aim is to start at "S" and get to the end state "0". For some boxes there is a choice of transition. The lines are directional (it would have been even more messy to add the arrowheads), so note that you can only enter a state from the front (left). For example, you can go from "ty" to "S", but not the other direction. As you can see, by following the paths you can generate the names of some numbers in English.
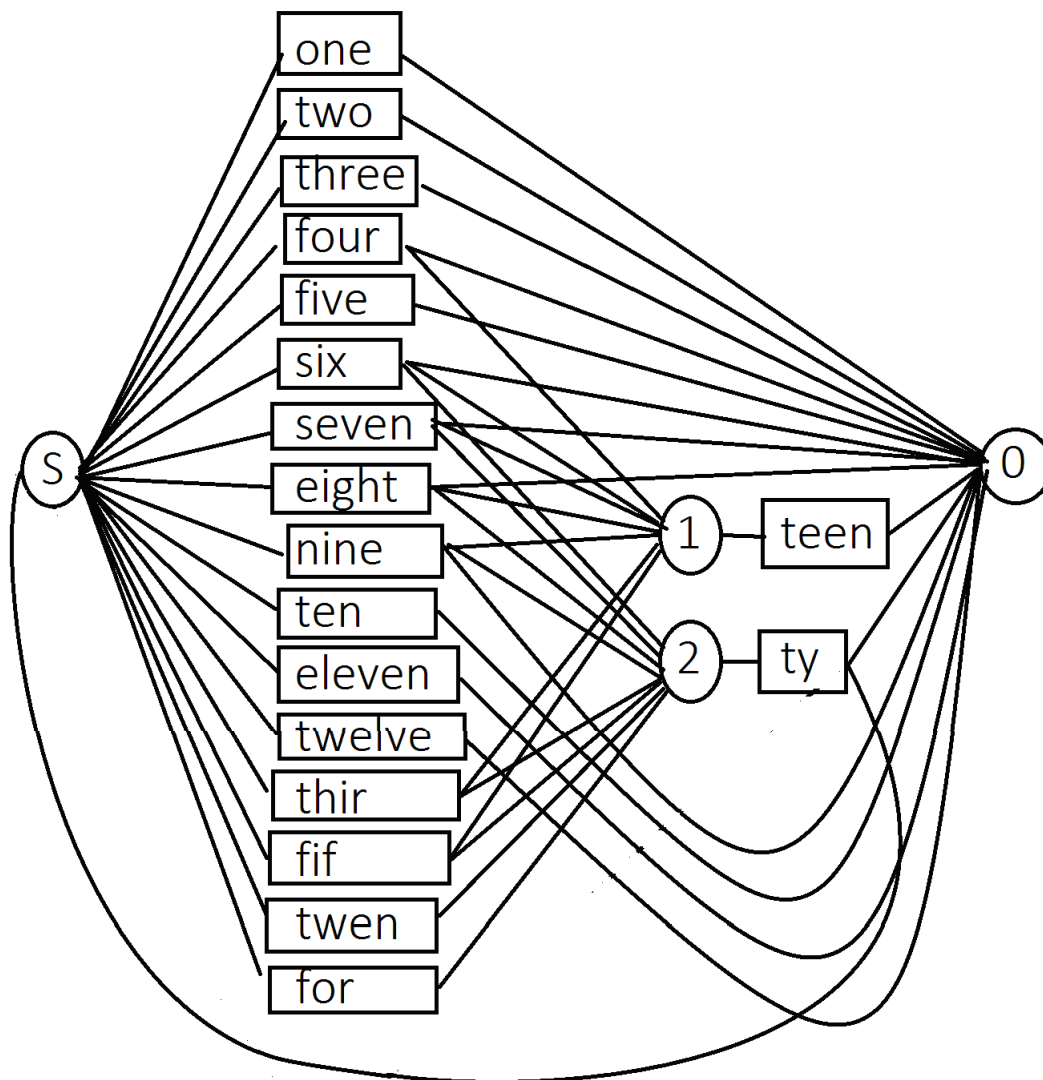
The above diagram is already quite messy, and it can be represented more neatly by a set of rules as below. Each rule is identified (in square brackets) but this is ONLY for ease of reference in answering the questions. Apart from that each rule consists of a state (the symbol before the ":"), a sequence of letters, and then, after the arrow ("→") a list of states to which you can then move. Starting at position "S", you generate the text indicated, and then continue to any ONE of the rules whose start state is listed after the arrow. State "0" is a special case meaning "finish".

[a]	S: one → 0		[j]	S: ten → 0
[b]	S: two → 0		[k]	S: eleven → 0
[c]	S: three → 0		[l]	S: twelve → 0
[d]	S: four → 0,1		[m]	S: thir → 1,2
[e]	S: five → 0		[n]	S: fif → 1,2
[f]	S: six → 0,1,2		[o]	S: twen → 2
[g]	S: seven → 0,1,2		[p]	S: for → 2
[h]	S: eight → 0,1,2		[q]	1: teen → 0
[i]	S: nine → 0,1,2		[r]	2: ty → S,0

So, for example, starting at S we can generate "fourteen" by taking rule [d] to state 1, then rule [q] to finish. We cannot generate "twelveteen" because rule [l] only allows one way to progress, namely to finish.

C1. Write out the sequence of rules and states followed to generate the following words: For example, for "fourteen" write "d 1 q 0". [12 points]

    (a) sixteen
    (b) ninetythree
    (c) twentyeight
    (d) fifteen

C2. The network above "overgenerates", that is, it allows us to create sequences which are not valid number names. Indicate whether each of the following words can be generated by the network or not. [4 points]

    (a) oneten
    (b) fiftytwelve
    (c) sixteensix
    (d) twentyseventeen
    (e) fortythirty
    (f) eleventythree
    (g) fivety

C3. The above network wrongly generates a misspelling in the case of "eighteen" and "eighty...". Suggest a simple fix for this (i.e. a change to one of the existing rules and an additional rule). [4 points]

Puzzle 4: Basquing in the sun   (25 points)

Basque is a language spoken by around 700,000 people in an area straddling France and Spain, in the western Pyrenees. Linguistically, Basque is unrelated to the other languages of Europe and indeed, is a "language isolate", unrelated to any other known language.

Study the following sentences, shown in Basque together with their translations in English.

Emakumeak gizona ikusi du.	The woman has seen the man.
Zuk umea ikusi duzu kalean.	You have seen the child in the street.
Non ikusi duzu umea?	Where have you seen the child?
Nork ikusi du umea kalean?	Who has seen the child in the street?
Umeak ez du gizona ikusi.	The child has not seen the man.
Emakumeak liburua irakurri du.	The woman has read the book.
Umea etorri da.	The child has come/arrived.
Umea kalean erori da.	The child has fallen in the street.
Igela agertu da.	The frog has appeared.

D1. Translate (a)-(d) into Basque and (e)-(f) into English in the table below: [16 points]

    (a)   The woman has come.
    (b)   The man has seen the woman.
    (c)   The book has not arrived.
    (d)   The street has appeared in the book.
    (e)   *Nork ikusi du gizona?*
    (f)   *Igela kalean agertu da.*

(a) The woman has come.	
(b) The man has seen the woman.	
(c) The book has not arrived	
(d) The street has appeared in the book.	
(e) *Nork ikusi du gizona?*	
(f) *Igela kalean agertu da*	

Basque is a free word-order language. This means that all the phrases shown in Set A below translate into English as 'The child has fallen in the street.' (In English different word order would change the meaning, compare 'The man bit the dog' and 'The dog bit the man', but not so in Basque.)

SET
A   *Kalean umea erori da.*
        Umea erori da kalean.
        Kalean erori da umea.
        Erori da umea kalean.
        Erori da kalean umea.

By contrast, all the phrases in Set B below are considered ungrammatical. That is, a native speaker of Basque would consider these structures unacceptable. Following convention, we mark ungrammatical sentences with an asterisk *.

SET
B   ** Erori umea da kalean.*
      * Erori kalean da umea.
      * Erori umea kalean da.

D2. Briefly explain the restriction which applies to the word order options available in Basque. [3 points]

Now consider the following additional data.

(a) *Gizonak umeari liburua eman dio.*
    The man has given the book to the child.
(b) *Irakasleak umeari liburua irakurrarazi dio.*
    The teacher has made the child read the book.

D3. Translate (a) into English, and (b) into Basque in the table below. [6 points]

(a) *Emakumeak umeari etorrarazi dio.*
(b) The child has given the frog to the woman.

Puzzle 5: Making a mark in Choctaw   (20 points)

Choctaw is a native American language spoken in Oklahoma and Mississippi by around 10,000 people.

Here are some Choctaw sentences with their English translations.

Baliililitok.	I ran.
Baliilitok.	He/she ran.
Baliililih.	I have run / I am running.
Johnat niyah.	John is fat.
Pamat kayyah.	Pam is pregnant.
Baliilih.	He/she has run *or* He/she is running.
Chikayyah.	You are pregnant.
Saniyah.	I am fat.
Hattakat chaahah.	The man is tall.
Hattakat taloowatok.	The man sang.
Hattak chaahah piisalitok.	I saw the tall man.
Hattak chaahah ishpiisatok.	You saw the tall man.

E1. Translate the following into Choctaw: [10 points]

(a) He/she saw John.	
(b) I sang.	
(c) You are singing.	
(d) I am pregnant.	
(e) He/she saw the fat man.	

Here are a few more sentences or phrases in Choctaw:

Sayyit sabashah.	My leg is cut.
Sapiisatok.	He/she saw me.
Issapiisatok.	You saw me.
amofi	my dog
Ofit sayyi sakopolitok.	The dog bit my leg.
Ofit amofi kopolitok.	The dog bit my dog.
Chimanolilitok.	I told you.
Amanolitok.	He/she told me.
Sashkit hattak piisatok.	My mother saw the man.

E2. Translate into English: [10 points]

(a) *Chiyyit chibashah.*	
(b) *chimofi*	
(c) *Amofi ishpiisatok.*	
(d) *Chishki piisalitok.*	
(e) *Amofit chiyyi chikopolitok.*	

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