AILO 2017 Training sample set #3

(A) Ye olde Englishe probleme

English has changed a lot since the period in which Germanic languages were brought to Britain over 1500 years ago. In this puzzle, you will look at the way in which the use of pronouns in Old English (the name we give to the varieties of English that existed in Anglo-Saxon times) differs from the use of pronouns in the modern language. Watch out! The word order in Old English is sometimes not the same as in Modern English. Look at the following Old English sentences and their Modern English translations then complete the exercises which follow.

Note: The letter þ is pronounced like 'th' in 'think'.

wit lufodon þæt mægden	we both loved the girl
þæt mægden unc lufode	the girl loved us both
ge lufodon þone cyning	you all loved the king
se cyning inc lufode	the king loved you both
þæt cild we lufodon	we all loved the child
we inc lufodon	we all loved you both
wit eow lufodon	we both loved you all
se æþeling us lufode	the prince loved us all

A1. Translate the following into Modern English. Be sure to distinguish 'both' and 'all' if appropriate.

(a) *se cyning eow lufode*
(b) *ge lufodon þæt mægden*
(c) *wit inc lufodon*

A2. Translate the following into Old English.

(a) the king loved us all
(b) we all loved the prince
(c) we both loved the child
(d) the child loved you both

A3. In Old English there are three different ways to say 'You loved the boy' (A-C) and another three ways to say 'The boy loved you' (D-F). Indicate for each sentence how many people (1, 2, many) are being addressed.

A. *þone cniht ge lufodon*
B. *þone cniht þu lufodest*
C. *þone cniht git lufodon*
D. *se cniht inc lufode*
E. *se cniht þe lufode*
F. *se cniht eow lufode*

(B) Visible speech

Alexander Melville Bell (father of Alexander Graham Bell) invented "Visible Speech" as a more detailed and systematic writing system for English, to help deaf students learn to pronounce spoken language more accurately.

B1. The following words in Visible Speech represent *boot, cogs, peaks,* and *tap*, but not in that order. Which is which?

(a)

(b)

(c)

(d)

B2. What English words are represented by the following?

(a)

(b)

(c)

B3. Write the following words in Visible Speech:

(a) *keep*   (b) *tease*   (c) *spook*

(C) Say it in Abma

Abma is an Austronesian language spoken in parts of the South Pacific island nation of Vanuatu by around 8,000 people. Note that there is no separate word for 'the' or 'he' in these Abma sentences.

Here are some sentences with their English translations, and some further vocabulary items

Mwamni sileng.	He drinks water.
Nutsu mwatbo mwamni sileng.	The child keeps drinking water.
Nutsu mwegau.	The child grows.
Nutsu mwatbo mwegalgal.	The child keeps crawling.
Mworob mwabma.	He runs here.
Mwerava Mabontare mwisib.	He pulls Mabontare down.
Mabontare mwisib.	Mabontare goes down.
Mweselkani tela mwesak.	He carries the axe up.
Mwelebte sileng mwabma.	He brings water.
Mabontare mworob mwesak.	Mabontare runs up.
Sileng mworob.	The water runs.

sesesrakan	teacher
mwegani	eat
bwet	taro (a kind of sweet potato)
muhural	walk
butsukul	palm-tree

C1. Translate the following sentences into Abma.

(a) The teacher carries the water down.
(b) The child keeps eating.
(c) Mabontare eats taro.
(d) The child crawls here.
(e) The teacher walks downhill.
(f) The palm-tree keeps growing upwards.
(g) He goes up.

C2. Translate these Abma sentences into English:

(a) *Sesesrakan mweselkani bwet mwabma.*
(b) *Sileng mworob mwisib.*
(c) *Mwelebte bwet mwesak.*

(D) Grammar rules OK

One way for computers to understand language or for linguists to describe language is to define the language using a "context-free grammar" (CFG) (also called a "phrase-structure grammar"). A CFG is a set of rules for forming sentences. Only sentences that can be "generated" using such a set of rules are then deemed grammatically correct and "well-formed". The "language" defined by the CFG is any and all sentences that a given CFG can generate. S is the starting symbol for each sentence.
Here is an example of a simple CFG:

S → N + V
N → children
N → squirrels
V → sing
V → eat

Each rule says that the element to the left of the arrow can be expanded into (or replaced by) the element(s) to the right of the arrow. By repeatedly replacing symbols, this CFG can expand the symbol S into "squirrels sing", "children sing", "squirrels eat", and "children eat". It cannot, however, generate "children eat squirrels" or "squirrels eat children" or just "children" – you can see that there is no possible sequence of replacements that turns S into any of these.

The following is another slightly more complex CFG. The rules have been numbered for your convenience, but the numbers are not part of the rules.

1. S → NP + VP	2. NP → N	3. NP → D + N
4. NP → NP + CONJ + NP	5. VP → VP + PP	6. VP → VP + CONJ + VP
7. VP → IV	8. VP → IV + PP	9. VP → TV + NP
10. VP → TV + C + S	11. PP → P + NP	12. PP → P
13. IV → runs	14. IV → sits	15. TV → eats
16. TV → catches	17. TV → tells	18. TV → sees
19. TV → chases	20. CONJ → and	21. P → away
22. P → in	23. D → the	24. C → that
25. N → squirrel	26. N → dog	27. N → John
28. N → Mary	29. N → tree	30. N → he

D1. Here is a simple story. Not all the following sentences are, according to the CFG, well formed, meaning they cannot be derived from S by repeated substitution of symbols. Mark each sentence with a tick or a cross to indicate whether they are well-formed (✓) or not (✗).

    a.   John sees the dog and Mary sees the dog.
    b.   The dog sees John and Mary.
    c.   The dog sees a squirrel.
    d.   The squirrel sits in the tree.
    e.   That squirrel sees the dog.
    f.   The squirrel is seen by the dog.
    g.   The dog runs.
    h.   The squirrel in the tree runs.
    i.   The dog chases the squirrel and eats the squirrel.
    j.   The dog eats.
    k.   John sees that the dog eats the squirrel.
    l.   John tells Mary that the dog eats the squirrel.
    m.   The dog sees that John sees that he eats the squirrel.
    n.   And the dog runs away.
    o.   Mary and John chase the dog.
    p.   John chases and catches the dog.
    q.   John eats dog.

D2. Not all of the sentences that this CFG can generate are actually sentences of English. For example, "The dog and the squirrel sits" can be generated but this isn't a correct sentence of English.
Give three more examples of sentences that can be generated by this CFG but are not correct English sentences.

D3. One of the rules in the CFG above is redundant: any sequence of words that can be generated by this rule can already be generated by a combination of other rules. Which is the redundant rule?