

Sample solution Mbabaram

Mbabaram is a language of North Queensland, spoken inland from Cairns. It is highly unusual in that through historical change it has lost the first syllables of words, so words are largely monosyllabic - and 'dog' in the data really does mean 'dog', quite independently of English. The language has been worked on by Bob Dixon (1991 in *The Handbook of Australian Languages*, vol.4).

The incorrect sentence is 11. There should not be two words with the *-ul* ending. The correct sentence would be:

mogul dog njab

How do we reach this conclusion? We can use substitution tables to analyse the sentences given. Note that the examples consist of 2 word sentences (which we can assume are intransitive), 3 word sentences and 4 word sentences. We can start by simply producing three substitution tables for each of these three types:

Table 1 – 2 word strings (Intransitive sentences)

dog	lob
mog	lonuŋ
dog	lonə

Table 2 – 3 word sentences

dogul	mog	njab
mogul	dog	njarə
mog	lonə	alŋgi
mog	lob	anmIn
dog	lim	lob
mogul	dogul	njab

Table 3 – 4 word sentences

mog	lim	lob	anmIn
mogul	limul	dog	njaruŋ
dogul	mog	njarə	alŋgi
dogul	mog	njab	anmIn

The first table, which we can take to be of intransitive constructions, shows us that *mog* and *dog* substitute for one another in the same, initial slot. The elements which occur in the second slot all begin with *lo-* - we can't make much of this at present but we might speculate that at least *lonuŋ* and *lonə* are related - different forms of the same word. If

we try to put labels on them we might speculate that the words in the first column are nouns, and those in the second are verbs inflected for various tense forms.

The three word sentences in the second table fall into two main groups. The first two contain two instances of the *mog / dog* group of lexemes, if we assume that *-ul* is an inflectional ending (probably case). We might assume that these are transitive sentences (with two nominal arguments). The second group look very much like table 1 in that they consist of one *mog/dog* word, followed by a *lo-* word, but there is an additional element either after the *mog/dog* word or after the *lo-* word. We might argue that these are really intransitive sentences but that there are some modifying elements which have been inserted. Finally, there is sentence 11, which is already showing up as a puzzle - two *mog/dog* words but with both of them ending in *-ul*.

The four word sentences also fall into distinct subgroups. Sentence 13 patterns like the sentences in table 1, and the expanded intransitive sentences in table 2 - except that it has additional elements both in position 2 and at the end, so it looks like a combination of the two types in table 2, with both optional additional elements. Sentence 10 looks like the expanded intransitives in table 2 except that it is a transitive with the initial element expanded in the same way. And the final two sentences in table 3 pattern like the expanded intransitives in table 2, except that they are transitive sentences expanded in the same way, with the additional element at the end.

So on the basis of this analysis and argumentation and a few creative leaps based on our general knowledge of how languages work, we can postulate the following classes and construction types:

Class A (nouns) = {mog, dog}

Class Bi (intransitive predicate forms) = {lob, lonə, lonuŋ}

Class Bii (transitive predicate forms) = {njab, njarə, njaruŋ}

Class C (nominal modifier) = {lim}

Class D (adverb) = {alŋgi, anmIn}

-ul ending on nouns and nominal modifiers = a case ending
(actually ergative case)

Note the similarities in the endings of the postulated verbs: -b; -r/nə, r/nuŋ

'Phrase Structure Rules' to form sentences would be something like the following:

S -> A Bi

S -> A+ul A Bii

S -> A C Bi

S -> A+ul C+ul A Bii

S -> A Bi D

S -> A+ul A Bii D

We will leave this here, but you could ask yourself:

- how could these rules be further collapsed or abbreviated? (Hint: you need an 'AP' at least)
- what other sentence types would you predict to be able to occur (Hint: could the second A in a transitive sentence also take a following modifier?)

Caveats:

- Of course, the data we have before us here represents a minuscule subset of sentences carefully selected by the person who made up the problem. This therefore makes it easier to reach a solution in the absence of other clues such as meaning.
- Note the clues and assumptions that we are crucially making use of in doing this problem: we are looking at both internal forms of words, including endings, and at order of words within a sentence. We are assuming consistent word order and consistent pairing of form / function.

To satisfy your curiosity, here are the meanings:

Nouns = mog 'Aboriginal man', dog 'dog'

Intransitive verbs = lo-b 'die-future', lo-nə 'die-past' lo-nuŋ, 'die-present'

Transitive verbs = nja-b 'chase-future', nja-rə 'chase-past', nja-ruŋ 'chase-present'

Adjective = lim 'good'

Adverb = alŋgi 'yesterday', anmin 'tomorrow'

-ul is the ergative suffix, which means it marks subjects of transitive sentences

NB: Mbabaram doesn't have determiners that cooccur with nouns like English does (e.g. 'the', 'a', etc.). So that 'dog' can mean either 'a dog' or 'the dog' depending on the context. In the following translations I have used 'the', but this choice is completely arbitrary.

1. The dog will chase the man.
2. The man chased the dog.
3. The dog will die.
4. The man died yesterday.
5. The man is dying.
6. The dog chased the man yesterday.
7. The man will die tomorrow.
8. The good dog will die.
9. The dog died.
10. The good man is chasing the dog.
11. **incorrect sentence**
12. The dog will chase the man tomorrow.
13. The good man will die tomorrow.

