

UKLO Round 1 2012

8. Arcturan intergalactic peace message (20 marks)

It is the year 2354 AD, and we are trying to make contact with two alien species, the Centauri and the Arcturans. Although we have never met either species, we have seen their communication for a very long time. Our scientists first received messages from the Centauri. These aliens from Alpha Centauri live in the solar system closest to earth. Their first message was a message of peace: "farok crrrok hihok yorok clok kantok ok-yurp".

Now, we know that the Centauri have been in contact for some time with the Arcturans, who live in another solar system. We have never had contact with the Arcturans, but newly developed technology makes it possible for us to send them a message. We would like to send them, first, a message of peace. Because we do not understand their language, this is not an easy task. However, we do know that the Centauri have been in contact with them for a while and we have intercepted messages which they have sent. These messages include both languages, and are shown in the table below. Here we find 12 sentences in Centauri and their translations in Arcturan. Unfortunately, because we have just been eavesdropping their meaning is unknown, but we do know that the sentences pairs are translations of each other.

| | |
|---|--|
| CEN 1 ok-voon ororok sprok. | ARC 1 at-voon bichat dat. |
| CEN 2 ok-drubel ok-voon anok plok sprok. | ARC 2 at-drubel at-voon pippat rrat dat. |
| CEN 3 erok sprok izok hihok ghirok. | ARC 3 totat dat arrat vat hilat. |
| CEN 4 ok-voon anok drok brok jok. | ARC 4 at-voon krat pippat sat lat. |
| CEN 5 wiwok farok izok stok. | ARC 5 totat jjat quat cat. |
| CEN 6 lalok sprok izok jok stok. | ARC 6 wat dat krat quat cat. |
| CEN 7 lalok farok ororok lalok sprok izok enemok. | ARC 7 wat jjat bichat wat dat vat eneat. |
| CEN 8 lalok brok anok plok nok. | ARC 8 iat lat pippat rrat nnat. |
| CEN 9 wiwok nok izok kantok ok-yurp. | ARC 9 totat nnat quat sloat at-yurp. |
| CEN 10 lalok mok nok yorok ghriok clok. | ARC 10 wat nnat gat mat bat hilat. |
| CEN 11 lalok nok crrrok hihok yorok zanzanok. | ARC 11 wat nnat arrat mat zanzanat. |
| CEN 12 lalok rarok nok izok hihok mok. | ARC 12 wat nnat forat arrat vat gat. |

We want to use this information to translate the original peace message from the Centauri so we can send this to the Arcturans. After some years a reply message in Arcturan is received. It reads: 'totat nnat forat arrat mat bat.' Since it's likely that we on earth will understand Centauri before Arcturan because of the closeness of its solar system, we would like to translate this sentence to Centauri.

Question 8. (Write your answers on the separate answer sheet.)

1. Translate the Centauri message (repeated below) into Arcturan.

CEN: farok crrrok hihok yorok clok kantok ok-yurp.

2. Translate the Arcturan reply (repeated below) into Centauri.

ARC: totat nnat forat arrat mat bat.

8. Arcturan (20 marks)

| | |
|---|--|
| 1 | |
| 2 | |

SOLUTION

How to mark an UKLO script

Terminology

- **target:** the correct answer; e.g. ‘A B C d’ (where X, Y and Z are wrong)
- **script answer:** the answer in the script you’re marking; e.g. ‘A X C D’.
- **point:** a number that you assign, which the spreadsheet eventually translates into a ‘mark’; e.g. 1 for A
- **unit:** a part of the target that carries a point; e.g. A, X and C. Typically a unit is a word, a phrase or a word-part.
- **sign:** a ‘mark’ that you make on each unit in the script.
 - **tick:** on a completely right unit; e.g. on A and C
 - **cross:** on a completely wrong unit; e.g. on X
 - **half:** on a partly right unit; e.g. on D (for d)

Example:

| | | | |
|---|---|---|---------------|
| | | | $\frac{1}{2}$ |
| A | X | C | d |

- **score:** the number you assign to the entire script, following the directions in the marking scheme.

Principles

- Each correct unit or partly right unit in the script answer increases the score.
- Completely wrong units in the script answer are penalised simply by not increasing the score.
 - e.g. A X C d scores 3 because X scores 0.
- Similarly, units in the target that are missing from the script answer are penalised simply by not increasing the score.
 - e.g. A C d scores 3 because only A, C and d score anything.
- But if the script answer contains more units than the target, the surplus units should be penalised.
 - e.g. A B C d X scores 3 because X scores -1, though A B C d score 4.
- No score should be worse than a completely blank answer, so there are no negative scores.
 - e.g. A B C d X Y Z Z Z scores 0, because although each X, Y and Z reduces the score by 1, the effect stops when the score reaches 0.

How to score

1. Follow the marking sheet for
 - recognising units
 - assigning ticks and halves
 - assigning points for ticks and halves.

2. Count the units in the script answer and compare this number with the number of units in the target. If the script answer contains more units than the target, go to 4. Otherwise (i.e. in the vast majority of cases) go to 3.
 3. Add up all the points for ticks and halves. That's the score.
 4. As in 3, but then deduct the number of surplus units, i.e. the difference between the numbers of units in the script answer and in the target.
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8. Arcturan (20 marks, 10 points)

NB There were serious errors in the data on the original question paper, but these have been corrected in the present version.

- Units: single words
- Points per unit: 5/6 (!!! Sorry Calculate the total with 1 per unit, then $\times 5/6$ and round up or down to the nearest .5).
- Accept:
 - any order of words.
 - #2 with or without *crrrok*.
 - *erok* for *wiwok* and *mok* for *clok* (but not both *erok* and *wiwok* or *mok* and *clok*).

| | | |
|---|--|---|
| 1 | jjat arrat bat mat sloat at-yurp | |
| 2 | wiwok/erok rarok nok (crrrok) hihok yorok clok/mok (the 6 target words + <i>crrrok</i>) | 5 |