Your name:

The UK Linguistics Olympiad 2017

Round 2 Problem 4. Muddled hieroglyphs

Why was it so hard to work out how Egyptian hieroglyphs worked? Here's a taste of the complexities in the system, which explain why it was such a leap forward not only when Champollion deciphered the hieroglyphs in 1822, but even more impressively when the Phoenicians developed their alphabet out of the hieroglyphic system. The Egyptian system was extremely complicated because there were eventually 5,000 different 'glyphs' (shapes) which were combined in complicated and inconsistent ways to represent words. Each hieroglyph-pattern might combine glyphs relating to its meaning, to its grammar, and/or to its pronunciation.

The first table illustrate all the main possibilities for relating a **hieroglyph-pattern** (in the first column) to a **word** (defined by pronunciation and meaning in the second and third columns).

	/yw/	is
	/nfr/	happily
	/nfr/	good, beautiful
	/nfrt/	cows

You will notice that the pronunciations in the second column don't include any vowels; this is because, although Egyptian (like every other language) had vowels in speech, the vowels weren't shown in the writing so we can't show them either. (There are many different 'transliteration' systems for hieroglyphs, most of which use our vowel symbols to show special Egyptian consonants; the system used here is an adaptation to show the lack of vowels more clearly.) In the following data, /3/ indicates a non-English consonant produced in the back of the throat.

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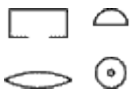
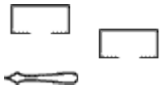
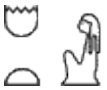
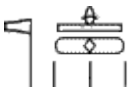
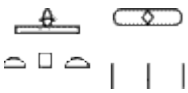
Q.4. The tables below show more words written in hieroglyphs, but although the words in the second table (A-N) pair pronunciations and meanings correctly, the tables don't show how the words are paired with the hieroglyph-patterns (1-14) in the first table. The challenge for you is to work out this pairing and enter it in the answer sheet. Only 13 of the hieroglyph patterns can be correctly paired, so you will have one hieroglyph pattern and one word left over.

1		2		3	
4		5		6	
7		8		9	
10		11		12	
13		14		15	
16					

A	/hmt/	female slave	B	/nw/	gifts	C	/pr/	house
D	/hm/	male slave	E	/pr3/	palace	F	/pr3/	pharaoh
G	/hmntr/	priest	H	/hmntr/	priestess	I	/prt/	procession
J	/prt/	seed	K	/pr/	to go out	L	/hms/	to sit down
M	/prt/	winter-season	N	/hmt/	woman	O	/htpt/	offerings
P	/htpntr/	divine offerings						

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Problem 2.4 Muddled hieroglyphs (answer blank)

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

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Solution and marking.

Scoring: one point for each correct cell (max 16)

1	2	3	4	5	6	7	8
M	J	I	E	F	C	K	---
9	10	11	12	13	14	15	16
L	N	D	G	A	H	P	O

Commentary

This problem illustrates the inefficiency of the hieroglyph system, in that it requires a lot of guesswork because there's so little that's systematic. However, there are clues which will take you into the data.

- The last example ('cows') in the first table (in the introduction) suggested that plurality may be shown by three vertical lines. In that example, the lines are in a column, but three examples in the problem data have three vertical lines in a row: |||; since layout in general seems very variable, it's reasonable to assume that these three lines also mark plurality. Three of the hieroglyph patterns (2, 15, 16) include three lines, and three of the translations are plural (gifts, offerings, divine offerings). Hieroglyph patterns 15 and 16 share two glyphs, so let's assume that these are 'offerings' or 'divine offerings'.
- Of these two, 15 starts with a little flag which is repeated, again at the start, in two other patterns: 12 and 14. Maybe this means 'divine', i.e. to do with religion? If so, **15 = P** and **16=O**. The other two patterns could mean 'priest' or 'priestess' (G, H). These contain glyphs representing people who could be men and women, and at a guess G looks more like a man and H like a woman. So **12 = G** and **14 = H**.
- Pattern 12 is the same as 11, apart from the 'divine' flag, so maybe 11 means 'male slave' and 12 means 'male slave of the gods' (i.e. 'male priest'). So **11 = D**. Similarly, 14 is very similar to 13, except for the divine flag, though here 13 has a single vertical line (like the ones in 11 and 12) which is not 14. So **13 = A**.
- Now that we have the glyph for 'woman', we can identify the only other pattern that contains it, 10, as 'woman'. So **10 = N**. We also notice that this glyph occurs with the little half-circle glyph in 10, 13 and 14, which was also found in the pattern for /nfrt/, 'cows' (but not in /nfr/); and that /hmt/, meaning either 'woman' (N) or 'female slave' (A), contains /t/. So maybe the half-circle glyph means /t/ and/or 'female'? The phonetic interpretation fits with the two t's matched by two half-circles in /htpt/, 'offerings' (O=16).
- One way forward now is to develop the idea that the little half-circle is /t/ and to apply this to two glyph patterns that are distinguished only by the half-circle: 7 and 3. If we look through the translations, we find a pair of pronunciations distinguished only by /t/: /pr/ and /prt/. Unfortunately, each of these pronunciation is found in two different words: /pr/ 'house' (C) and /pr/ 'to go out' (K); and /prt/ 'procession' (I) and /prt/ 'seed' (J). However, our two glyph

patterns (3 and 7) also include the walking-legs glyph which makes good sense with 'to go out' (K) and 'procession' (I). So **7 = K** and **3 = I**.

- Most of the remaining glyph patterns contain the rectangle glyph with a gap: maybe a simple ground plan of a house with a door? In that case, one of them presumably means 'house' (C)? The simplest patterns are 5 and 6, but the single straight line is simpler than the club-like glyph, so we can guess that the two-part pattern in 6, consisting of a house-glyph and a straight line (maybe meaning 'one item', as in 11 and 12), means 'house'. So **6 = C**.
- The other pattern with the club-like glyph (5) is also used as part of a larger one (4), which contains a second house-glyph. Among the remaining words, we see a similar relation between 'pharaoh' and 'palace' (meaning 'pharaoh's house'). So **5 = F** and **4 = E**.
- This leaves just four patterns to identify. 1 and 2 are clearly related because both share three glyphs:
    - the house-glyph found in /pr/ 'house'
    - a mouth-shaped glyph
    - the half-circle glyph found in /hmt/, /prt/ and so on, which may indicate /t/.
- Given this similarity, we can assume that they correspond to meanings J (/prt/ 'seed') and M (/prt/, 'winter-season'). If so, we might guess that the mouth-shaped glyph can mean /r/, with /p/ for the house-glyph and /t/ for the half circle. To decide how to pair the patterns and words, we notice that 2 contains the three vertical lines of plurality, indicating countability or multiplicity; and it also contains a plough. So maybe 2 means 'seed' and 1 means 'winter-season'? If so, **1 = M** and **2 = J**.
- This leaves just two patterns: 8 and 9, and two words: B (/nw/ 'gifts') and L (/hms/, 'to sit down'). We know that one pattern and one word will remain unassigned, so we need to decide which of pattern is assigned to a word. The evidence supports **9 = L**:
    - The little man seems to be sitting, so in this case the relevant fact is that he's sitting rather than that he's a man.
    - The first glyph (reading from the top) in 9 is the same as the first glyph in 10, /hmt/ 'woman'. So maybe this glyph means /h/, or even /hm/, as in L: /hms/.
    - We know from the very first example (in the introduction) that /w/ is indicated by a little bird. (At least, this is the most likely interpretation because the word concerned, /yw/ 'is', has so little meaning.) So if one of the remaining patterns did spell /nw/ 'gifts' (B), we might expect a little bird; but neither of the remaining patterns contains one, so they probably don't represent word B.
- So pattern 8 and word B are unassigned.