

ANALYSES OF KOCH 1936 SEQUENCE

This is the sequence of characters used by Koch in 1936 with rank order of difficulty (in English) of each character underneath:

KOCH 1936

L F C K R D P X Y Q B G A N Z U V W J H S I E O M T

29 33 23 19 17 22 36 21 32 30 25 31 5 8 28 26 10 35 34 13 9 4 1 7 6 3

(121) First 5

(21) Last 5

The sequence is weighted heavily to the front with difficult letters. It has the highest rank (121) of first 5 characters of any sequence we studied. That would appear inconsistent with Koch's recommendation that difficult characters should be introduced in or after the first third of the training, but not at the end of the sequence. The inconsistency is likely the difference between German and English.

Koch found that "*although not uniformly among all learners, the sound patterns for x, y, p, q were very frequently relatively difficult to grasp.*"

Those characters are indeed introduced in or after the first third of the training, but not at the end of the sequence. The rank order of difficulty for the end of the sequence is strikingly easy. It has the lowest rank (21) of last 5 characters of any sequence we studied.

The placement of H S I E (a reverse dit challenge) and O M T (a reverse dah challenge) is inconsistent with Koch's recommendations and bears further analyses.

H S, U V and W J are "similar" and their placement in the sequence is inconsistent with Koch's recommendations:

"Those Morse code symbols whose sound patterns are confusingly similar can be difficult for the beginner to distinguish at a higher speed." "Letter combinations such as s and h, or u and v, or d and b should be avoided."

The most striking finding is the heavy use of mirror images (LF, KR, PX and AN). Koch addressed mirror images and described them favorably:

"Such characters, whose optical symbol are mirror images, give little possibility of confusion as acoustic shapes despite their optical similarity."

The takeaways of the Koch 1936 sequence are:

- (1) Difficult characters were introduced after the first third of the training.
- (2) Easy characters were introduced at the end of the training.
- (3) Reverse dit and dah challenges were used.
- (4) Similar characters were used.
- (5) A high number of mirror images were used.