

Title: What can mathematics do for Tocharology? — A new analysis of fragment B 388

1. The precise topic to be treated:

The precise size and metrical structure of B 388 will be determined based on a quantitative analysis of numerous tocharian manuscripts.

2. The author's contribution to the problem:

Based on the author's work, the following results are achieved:

- (1) According to a quantitative analysis of fragments B 107, 133, 255, and 290 which are comparable with B 388 with respect to (a) the number of lines, (b) the length, (c) the width, (d) the average width of an akṣara, (e) the horizontal position of the string-hole on the manuscript, the relative position of the string-hole has a significantly small variation coefficient (5.10%) and could be regarded as a constant value. The corresponding p -value is 0.0007, which is very significant statistically. So a consistent relative position of the string-hole really exists. The hypothetical value would be 0.243 for B 388.
- (2) The whole length of the fragment is then $93.4 \div 0.243 = 384$ (mm). The theoretical number of akṣara in one line would be $384 \div 6.4 = 60.0$. Based on the existing verse numbers on B 388 (71, 75, 78 and 82) and the situation in line a3 the metrical structure could then be determined, and it is 10 | 11 | 10 | 11.
- (3) Based on the results above, the line a2 could be correctly segmented and translated. The other lines are also analysed syntactically based on the suggested meter.
- (4) A linguistic and philological commentary is furnished for the verbal phrases meaning “sow something” in Khotanese, Sanskrit and Tocharian. A new explanation and translation for *vairuḍiṣṣe* in line a4 is suggested: TB *vairuḍi-* comes from skt. *vairūḍhi-*, which is attested in *Ratnagotravibhāga* (Jikidō Takasaki 1966: 373f).
- (5) The transliterations of line a3, a5, a6, a8, b1, b5, b6 are improved along with palaeographical commentaries.

3. The relationship of the work to previous scholarship on the topic:

- (1) The mistakes in the edition of Sieg and Siegling for this fragment are analysed systematically and then corrected. The problematic but by all adopted (e.g. in Gerd Carling 2000: 80 and CEToM) translation of K.T. Schmidt (1974: 438) for a2 “Er säte dort nahe bei dem Sitz des Alleswissenden die Wurzeln in die Erde” could be corrected.
- (2) Die Interpretation von Lambert Isebaert (1980: 71) and Douglas Q. Adams (DTochB: 623) concerning *vairuḍiṣṣe* are commented based on the middle indic and sanskrit materials.

4. The author's specific conclusions and their relevance for the field of Indo-European Studies:

The text edition of Sieg and Siegling (and Thomas) could be improved with respect to the metric observations stating that, the verse number is missing. Based on a correct understanding of the size and metric structure of metrical fragments, the research concerning the syntax of tocharian language could be carried out more faithfully. The actual scenario of tocharian meter and scribal carelessness could be corrected to some extent.

Name: Tao Pan

Institutional Affiliation:

Ludwig-Maximilians-Universität München

Lehrstuhl für Historische und Indogermanische Sprachwissenschaft