

(19.9.21)

The use of Greek in selected writings of Kepler (Astronomia nova, Eptitome astronomiae Copernicanae and Harmonice mundi)

- 1) „Answer“ to Pierre de la Ramée (Petrus Ramus, † 1572 who had attacked Copernicus in his *Scholarum Mathematicarum* II, p.50), immediately after the title page of AN, p.6 C: *non igitur μυθολογεῖ Copernicus, sed serie παραδοξολογεῖ, hoc est, φιλοσοφεῖ: quod tu in Astronomia desiderabas.*¹
- 2) AN I, 5, p.21 (p.82 C.): *quod nihil nos impedit, qui hic tantum προγυμναζόμεθα*²,
- 3) HM IV 5, Axiome 2, p.135 (242 C): *Deinde Tetragonus etiam sibi ipsi ἀντιπέποιθε.*³
- 4) HM V, 9, 2: Epiphonema, p.243 (362 C): „Hactenus igitur de Dei Creatoris opere nobis ἐπιπεφωνήσθω.
- 5) Cic. Att. I 19, 3: *quid enim ego aliorum in me ἐπιφωνήματα exspectem cum haec domi nascantur*
- 6) HM V 3, p 187 (299 C), after Plutarch (conv. 8,2 718 b - c) ut *Plato scripsit, aeternam exercens geometriam.*
- 7) HM I, Def. 15, p. 10 (23 C) *Qui sequuntur gradus⁴, omnes appellantur ἄλογοι, Ineffabiles. Interpretes Latini verterunt, Irrationales, magno ambiguitatis et absurditatis periculo. Nos sepeliamus hunc vocis usum*
- 8) Epitome I, p.5 (25 C) *Deus conditor suam essentiam, suamque voluntatem erga hominem ex parte, ἀλόγῳ quodam scriptionis genere propalavit atque depinxit.*
- 9) Copernicus, De revolutionibus, title page, original edition: ἀγεωμέτρητος οὐδεὶς εἰσίστω, misquoting the alleged inscription⁵ on the door to Plato's Academy: οὐδεὶς instead of μηδεὶς. The same mistake is found on the title page of Johannes Bayer's Uranometria.
- 10) Kepler, AN, full title: *Astronomia nova αἰτιολογητὸς seu Physica coelestis, tradita commentariis de Motibus stellae Martis.*⁶
- 11) Title page of HM V: 13 lines from Galen, De usu partium III (p.174 Heiberg = 236-238 K.) followed by a Latin translation. Kepler modifies and translates Galen's ἱερὸν λόγον, ὃν ἐγὼ τοῦ δημιουργήσαντος ἡμᾶς ὕμνον ἀληθινοῦ συντίθημι: *Sacrum sermonem, hymnum Deo Conditori verissimum ordior*
- 12) Plato, Theat. 151e: σκεψώμεθα, γόνιμον ἢ ἀνεμιαῖον τυγχάνει ὄν, i.e.: „whether it is fertile or a wind egg“ (my translation).

¹ Donahue p.28 „Thus Copernicus does not mythologize, but seriously presents paradoxes, that is, he philosophises. Which is what you wish of the astronomer.“

² Donahue: „This should prove no impediment to us, since we are only performing a preliminary exercise here.“

³ Caspar p.232 „Weiterhin ist das Viereck zu sich selbst reziprok“.

⁴ Scil. Gradus scientiae; Caspar translates (already „Nachbericht“ to his edition, p.487) „Grade der Wißbarkeit“.

⁵ For the sources see Saffrey.

⁶ Donahue (p. 1s.) doubts that this title is actually the one chosen by Kepler, but would an editor have made up a Greek word to use as an important part of the title? For the formation, cf. the term ἀπολόγητος used by Kepler in a marginal note on AN IV, p.269 (348 C).

- 13) Kepler HM IV 1, p.115 (219 C): *subsistentia et constantia* (μόνιμα *non* γόνιμα *lego*), *an in ventos evanida, et spectra potiùs quam vera?*
- 14) François Viète (Franciscus Vieta), title: *Apollonius Gallus seu Exsuscitata Apollonii Pergaei* περὶ Ἐπαφῶν *Geometria* (Paris 1600)
- 15) AN II, 16, p.95 (156 C) *Existent acuti Geometrae VIETAE similes, qui magnum aliquid esse putabunt hujus methodi ἀτεχνίαν. Id enim et PTOLEMAEO et COPERNICO et REGIOMONTANO objectum in hoc negotio a VIETA. Eant igitur et schema Geometrice ipsi solvant, et erunt mihi magni Apollines.⁷ Mihi sufficit ad quatuor vel quinque conclusiones ex uno argumento (in quo quatuor obeservationes et duas hypotheses insunt) extruendas, id est, ad viam e labyrintho remeandam, pro lumine Geometrico filum ἄτεχνον (quo tamen ad exitum dirigaris) ostendisse.⁸*
- 16) AN IV, 46, p.218 (292 C.) *multiplex hic occurrit ἀμηχανία,⁹*
- 17) AN IV 220 (294 C.): *age, subsidium ab ἀτεχνία petamus.¹⁰*
- 18) AN IV, 47, p.223 (296-297 C): *Hic igitur accersendus nobis e Tragoedia θεὸς, immo vero λόγος τις, ἀπὸ μηχανῆς*
- 19) AN IV, 47, p.226 (299-300 C) *quia nobis per Geometriam non patet liber exitus, paciscemur cum ἀτεχνία.¹¹*
- 20) AN IV 48, p.235 (310 C.): *Contra cum pigeret ἀτεχνίας multiplicis.¹² See also IV, 49, p.235 (310 C).*
- 21) AN IV, 49, p. 235 (310 C): *qualem ἀγεωμέτρητον anticipationem in caeteris ejus operibus hactenus non invenimus¹³.*
- 22) AN IV, 49, p.238 (318 C.): *certumque est, quae illic ut ἀγεωμέτρητα suspecta habuimus, nihil nobis sensibile incommodasse.¹⁴*
- 23) AN IV, 59, p. 293 (374 C.), at the end of § 14: *Demonstratio ut certissima, ita ἄτεχνος est et ἀγεωμέτρητος, quantum quidem attinet hanc partem, de progressu intermediorum augmentorum. Cuperem, ut caetera, sic hanc quoque*

⁷ Donahue, translating *existent* as a present tense „There exist subtle geometers such as Vieta who will think it something great to show the contrived nature of this method. Let them therefore go forth themselves and solve the figure geometrically, and they will be to me great Apolloes.“

⁸ Donahue: „For me it is enough to draw four or five conclusions from a single argument (which includes four observations and two hypotheses); that is, in getting from the labyrinth back to the highway, to show, instead of a geometrical light, a contrived thread, which nonetheless will lead you to the exit.“ I think the translation „contrived“ rather misleading. There is nothing contrived about Ariadne’s method, which, by the way, is still used by cave divers and firemen, among others.

⁹ Donahue: „A multiple obstacle to calculation“. In a footnote, he just adds *ἀμηχανία* (sic).

¹⁰ Donahue: „let us go seek the assistance of a contrivance“, with the added footnote *Ατεχνία*.

¹¹ Donahue: „since there is no way out through geometry, we shall be content with a contrivance.“

¹² Donahue: „Since I disliked the many contrivances.“

¹³ Donahue: „We have hitherto found no anticipation of such lack of geometry in the rest of his works.“

¹⁴ Donahue: „It is certain that wherever we entertained suspicions on the grounds of a lack of geometry, we were not inconvenienced in any perceptible way.“

*particulam, geometrice et ἐντέχνως expediri; sic ut etiam Apolloniis satisfiat.*¹⁵

- 24) AN IV 60, p.300 (381 C) *Mihi sufficit credere, solvi a priori non posse propter arcus et sinus ἕτερογένειαν. Erranti mihi, quicumque viam monstraverit, is erit mihi magnus Apollonius.*¹⁶ And now this particular polemic is finally over, we no longer find uses of ἀτεχνία in AN, just the neutral ἀμηχανία: V, 65, p.312 (396 C).
- 25) HM III 9, p.54 (150 C.): *Nos vero spectamus hic non ἀτεχνίαν Empiricorum, sed Naturae ἀκρίβειαν.*¹⁷
- 26) AN II, 14, p.82 (142 C.): *De Automatopoeorum vero κενυτεχνίαν quid dicemus?*¹⁸
- 27) Epitome III 3, p.313 (197 C): *Australia denominari possent a Borealibus quorum sunt rationes oppositae, ut Ἄντὶ διὰ Μερόης.*

Max Caspar, Johannes Kepler. Gesammelte Werke III, Munich 1937; VI, VII, 19
Max Caspar, Johannes Kepler, Weltharmonik, übersetzt und eingeleitet von Max Caspar, München 1939 (und Nachdrucke)

William Donahue, Johannes Kepler, New Astronomy, translated by William Donahue, Cambridge 1992

Hilmar Trede, Johannes Kepler Harmonice Mundi III. buch, übersetzt aus dem Lateinischen und kommentiert von Hilmar Trede, aus dem Nachlass herausgegeben von Henny Jahn, Dortmund 2011

Henri-Dominique Saffrey, Ἀγεωμέτρητος μηδεὶς εἰσίτω. Une inscription légendaire, REG 81 (1968), 67-87

¹⁵ Donahue: „Although the demonstration is most certain, it is likewise *gauche* and ungeometrical, at least in the part pertaining to the progress of the intermediate increases. As always, I would like to have this small part carried out geometrically and with *finesse*, so that even an Apollonius would be satisfied.“

¹⁶ Donahue: „It is enough for me to believe that I could not solve this a priori, owing to the heterogeneity of the arc and the sine. Anyone who shows me my error and points the way will be for me the great Apollonius.“

¹⁷ Trede translates „Uns kommt es hier nicht auf das rohe Verfahren (ἀτεχνία) der Praktiker an, sondern auf die strenge Genauigkeit (ἀκρίβεια) der Natur.“

¹⁸ Donahue translates : „But what are we to say of the empty artistry of those who made the devices?“ and explains „A lavishly produced book consisting mainly of movable graduated paper wheels, like circular slide rules, by which one could predict planetary positions.“