

# Greek ordering

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## Aims and methods

This study looks at a number of problems related to Greek ordering. It aims to derive the standard praxis from a representative samples culled from Greek dictionaries. To make comparison easier we have concentrated on a number of terms that bring one or more of the relevant problems into focus. An outline of the historical background of Greek lexicography will be added in an enlarged version of this study.

- Ordering of diacritical marks. Directionality on level 2
- Word-by-word versus letter-by-letter: What is preferred?
- Uppercase vs. lowercase on level 3. Clear rules?
- Treatment of the final sigma  $\zeta$  in relation to the normal (closed)  $\sigma$

The lemmata (dictionary entries) selected for this exercise and the respective sorting issues are:

- ῥισσα vs. ῥσσα and ῥττα vs. ῥττα<sup>1</sup> – treatment of breathing and accent mark combinations
- Ἀιδης / ἄδης,<sup>2</sup> ᾠδω and ὁάδιος – treatment of *iota adscriptum* and/or *iota subscriptum* in combination with upper-/lowercase distinction<sup>3</sup>
- ḷ, ḹ, ḹ̄, ḹα, ḹαται<sup>4</sup> – treatment of breathing and accent marks and *iota subscriptum*
- εἰμί vs. εῖμι – treatment of breathing and accent marks
- πρῷ vs. πρῳ<sup>5</sup> – treatment of *iota adscriptum* and *iota subscriptum* in series
- δόλιος vs. Δολίος and δόλων vs. Δόλων – treatment of upper-/lowercase pairs (connected, in the first example, with a difference of accent position)
- τίς vs. τιζ<sup>6</sup> – treatment of accented and unaccented (toneless) lemmata
- νομός vs. νόμος, τομός vs. τόμος, τροπός vs. τρόπος, φορός vs. φόρος – ordering of identical base letter sequences with different accent patterns
- πρός, προσ- – treatment of preposition and prepositional prefix ending in  $\sigma$  in alphabetical sequence

Other lemmata are quoted if deemed appropriate.

Comma-delimited lists are to be read as ordered lists which reflect the sequence of the dictionary in question.

The dictionaries taken into account may be grouped as follows:

- *Stephanus* has to be considered as a lexicographical monument. The compilation of this thesaurus during the years 1560–1572 by Henri Estienne (Paris) marks the beginning of Greek lexicography in Western Europe. In 1831, the thesaurus was enlarged and reedited under the direction of the publisher A.F. Didot in Paris. The entire lexicographic tradition in the field of Classical Greek linguistic and literary studies has been based on *Stephanus*, in the first place *LSJ* (its most recent supplement volume is *LSJRevSuppl*), for the time being the reference work par excellence in Classics, and the other major dictionaries: *Bailly* is the most important French dictionary, frequently referred to also in Spain and Italy. Representative works of German scholarship are *Pape* and, particularly for didactic use in school today, *Benseler*, *Gemoll97*, and *Menge*. *Bauer* is the reference dictionary in New Testament studies all over the world. In the Russian philological tradition, a work of great concern is *Dvoreckij*.

<sup>1</sup> The σσ and ττ versions are dialectal variants.

<sup>2</sup> These are but an upper-/lowercase pair.

<sup>3</sup> The short diphthong οι is, however, ordered as such: Ἀθως, οι... The same is valid for the variant Ἀίδης.

<sup>4</sup> Homographs of different meanings are generally unified in this list. An example is ḹ, signifying both an interjection and »or«.

<sup>5</sup> These are variant graphic representations of one lemma.

<sup>6</sup> τί / τι are ignored. The grave accent is, in case of toneless words quoted in isolation, indicates that the word in question behaves as clitic but may carry the accent in top of a clitic sequence.

- Two long-term lexicographical projects are currently running: *LfgrE* is being elaborated by the team of the Thesaurus Linguae Graecae as a specialized dictionary, published beforehand while the compilation of a new thesaurus as a successor of *Stephanus* has been postponed. *DGE* is conceived as a new comprehensive dictionary based upon a thorough revision of the semantic structure of the lemmata.
- Modern Greek lexicography using polytonic notation must be represented first by the Athens Academy Dictionary (*LexAkad*) which, however, did not proceed beyond the letter gamma yet. *Georgopapadaku*, an important monolingual dictionary, appeared in 1980 for the last time in polytonic orthography. *Tsukanas, Pring, Chorikov/Malev* are examples of major Greek, English and Russian bilingual dictionaries, the German works *Wendt* and *UnivWb* have been published by Langenscheidt and consequently are widely used both in German speaking countries and in Greece.

In the following examination of the lemma groups established above, a particular dictionary is quoted only in case it provides for significant evidence. Many dictionaries discard proper names altogether so that upper-/lowercase pairs cannot be found. *Stephanus* puts the initial letter of any lemma in uppercase. Furthermore, didactical dictionaries tend to present individual inflected forms as separate lemmata while works designed primarily for expert use list inflected forms in a header of the lemma article labelled by the quotation form exclusively.

## Classical Greek

ἄσσα vs. ἄσσα and ἄττα vs. ἄττα

- *Stephanus* No data available: non-didactical dictionary.<sup>7</sup>
- *LSJ* ἄσπρος, ἄσσα II. ἄσσα, ἀσσαριαῖος, ..., ἄτρωτος, ἄττα (A) II. ἄττα), ἄττα (B), ἄτταβυγάς
- *LSJRevSuppl* ἄσπρόχρους, ἄσσα, ἀσσκονικτεί, ἄσσον, Ἀσσύριος
- *LSJItalian* ἄσσα, ἄσσα, ..., ἄττα, ἄττα
- *Bailly* ἄσπρις, ἄσσα, ἄσσα, Ἀσσα, Ἀσσάκανοι
- *Pape* ἄσσα, ἄσσα, ..., ἄττα, ἄττα
- *Benseler* ἄσσα, ἄσσα, ..., ἄττα, ἄττα
- *Gemoll97* ἄσσα, ἄσσα and ἄττα, ἄττα, ἄττα
- *Menge* ἄσσα, ἄσσα, Ἀσσᾶ, ..., ἄττα, ἄττα, ἄττα
- *Dvoreckij* ἀ-σπουδή, ἄσσα, ἄσσα, Ἀσσάρακος, ..., ἄτρωτος, ἄττα, ἄττα, ἄτταγχας
- *DGE* ἄπρόχρους, ἄσσα ο ἄσσα, Ἀσσα, Ἀσσαγέτης, ..., ἄτρωτος, ἄττα, ἄττα, Ἀττα, Ἀττάβας

Commentary: Most dictionaries sort the pronominal forms ἄσσα, ἄσσα / ἄττα, ἄττα according to an apparently graphical hierarchy of the breathing marks (*spiritus lenis* before *spiritus asper*), but put the noun ἄττα »father« after the pronominal forms. The reverse ordering of the pronouns is observed as well: This is a morphological hierarchy of pronoun types, ἄσσα being an indefinite relative pronoun (always accented), ἄσσα a clitic indefinite pronoun. The former type is considered as »stronger«. This criterium could have been applied by the other dictionaries, too, when they sort the morphologically weaker form before the stronger one.

Ἄιδης / ἄιδης, ἄιδω

- *Stephanus* Ἄδηρίτως, Ἄδης, Ἄδης, Ἄδης [scr. Ἄιδης], Ἄδησαι, Ἄδησίδες, Ἄδηφαγέω, ..., Ἄδυτος, Ἄδω, Ἄιδω, Ἄδώμητος
- *LSJ* ἀδήριτος, Ἄιδης (or ἄιδης), ἀδήσω, ..., ἀδυτος, ἄιδω, ἀδώμητος, ἀδών
- *LSJRevSuppl* ἀδήμων, ἀδής, Ἄιδης or ἄιδης, ἀδηφάγέω
- *LSJItalian* ἀ-δήριτος, ἄιδης (o Ἄιδης), ἀδήσειε, ..., ἀ-δυτος, ἄιδω, ἀδών, Ἀδων
- *Bailly* ὀδήριτως, ἄιδης, ἀδήσω, ἀδηφαγέω, ..., ἀδύφωνος, ἄιδω, ὀ-δώμητος
- *Pape* ὀ-δήριτος, Ἄιδης, ἀδήσειε, ..., ἀ-δυτος, ἄιδω, ὀ-δώμητος, ἀδών
- *Benseler* ὀ-δήριτος, Ἄιδης (ἄιδης), ἀδηφαγία, ..., ἀδυτος, ἄιδω, ὀδών
- *Gemoll97* ὀ-δήριτος, Ἄιδης, ἀδήσειε, ..., ἀ-δυτος, ἄιδω, ὀδών
- *Menge* ὀ-δήριτος, Ἄιδης, ἀδήσειε, ..., ἀ-δυτον, ἄιδω, ὀδωνιάζω

<sup>7</sup> The lemma sequence Ἅτρωτας, Ἅττα, Ἅτταβυγάς (and 46 other personal names with Ἅττα- as first composition member) contains Ἅττα »father«.

- Bauer ἀδημονέω, ἄδης, ἀδιάκριτος, ..., ἀδυσβάστακτος, ἄδω, ἀεί
- Dvoreckij ἀδηρίτως, ἄδης ήπιι Ἀιδης, ἀδήσω, ..., ἄδυτος, ἄδω, Ἀδων
- LfgrE No data available for historico-phonological reasons.<sup>8</sup>
- DGE ἀδήριτος, Ἀιδης, ἄδης, ..., ἄδυτος, ἄδω, ἄδωμητος

Commentary: The long diphthong written Αι<sup>9</sup> α, αι is treated in all the dictionaries as equivalent to a simple α vowel letter. The uppercase notation of the proper name Ἀιδης is always part of the same lemma, the internal order of these entries depending of the dictionary's conventions in handling proper names (e.g. in *Dvoreckij*), or, in case the dictionary does not exhibit proper names at all, reflects an ad-hoc decision of the lexicographer (as in *LSJ*). In the lemma sequences quoted, the breathing marks do not determine the order in any way.

ἢ, ἢ, ἴ, ἵα, ἵαται

- Stephanus Ἡ, Ἡ οὐ, Ἡτε, Ἡκεν, Ἡτι, Ἡπου, Ἡὲ, Ἡ, Ἡπερ, Ἡ, Ἡπου, Ἡ, Ἡτ, Ἡαρ, Ἡβαιὸς, Ἡβάσκω
- LSJ ἢ, ἢ, ἢ, ἢ, ἢα, ἡαρινός
- LSJRevSuppl ἢ, ἢ, ἢ, ἡβαδόν
- LSJItalian ἢ, ἢ, ἢ, ἢ, ἢ, ἢα, ἡα, ἡβα
- Bailly ἢ, ἢ, ἢ, ἢ, ἢ, ἢ, ἢα, ἡβα, ἡβαιός, ἡβάσκω
- Pape η, ἢ, ἢ, ἢ, ἢ, η, ἢ, ἢα, ἡα
- Benseler ἢ, ἢ, ἢ, ἢ, ἢ, ἡα
- Gemoll97 ἢ, ἢ, ἢ, ἡα, ἡαται
- Menge ἢ, ἢ, ἢ, ἢ, ἢ, ἡα
- Bauer ἢ, ἢ, ἢ, ἢ, ἢ, ἢα, ἡα, ἡαται, Ἡβᾶ, ἡβαιόν
- LfgrE ἢ, ἢ, ἢ, ἡαρινός
- DGE Volume not available yet.

Commentary: There are only two dictionaries which seem to apply a graphical hierarchy of diacritics including *iota subscriptum* (*LSJItalian*, *Dvoreckij*), i.e. conformant to the EOR-practice. Most of the others treat *iota subscriptum* as the highest-priority distinction on level 2 in line with the current draft on the Unicode Ordering Algorithm. It must be kept in mind, however, that even in these dictionaries and in others exhibiting a rather unsystematic order from the graphical point of view, the principle the editors adhered to is that of the functional load of the parts of speech. »Weaker« parts of speech sort before »stronger« parts: so e.g. in *Menge* the lemma sequence consists of the following: feminine article, interjection, conjunction, inflected form of the copula or of the verb of existence, inflected form of the narrative tag verb »to tell«, inflected form of the verb »to go«. This is not an absolute ranking, although it represents a kind of common sense in philology. The new *LfgrE* as well follows this practice.

είμι vs. εῖμι

- Stephanus Είμείρομαι, Είμι, Είμι, Είμιν
- LSJ είμι, εῖμι
- LSJRevSuppl είματιστής, είμι, εῖμι
- LSJItalian είμι, εῖμι
- Bailly είμες, είμι, εῖμι, εἰν
- Benseler είμι, εῖμι
- Gemoll97 είμι, εῖμι
- Menge είμι, εῖμι
- Dvoreckij είμι, εῖμι

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<sup>8</sup> In epic language, the long diphthong in Ἀιδης has not developed yet; consequently the spelling is Ἀΐδης. The verb ἄδω appears in the form ὄείδω only.

<sup>9</sup> Stephanus in fact prints an uppercase letter with *iota subscriptum*.

- *LfgrE* εῖμα, εἰμί, εῖμι, εἰνάετες
- *DGE* Volume not available yet.

**Commentary:** There is no dictionary that demonstrates a different sorting of the two verbal forms. In this case again the functional load principle overlies the accent and breathing mark hierarchy, because εἰμί is copula and verbum substantivum, εῖμι the verb »to walk«, in classical Greek being used exclusively as future tense.

#### πρῷ vs. πρωῖ

- *Stephanus* Πρω, Πρῷ, Πρωφαίτερος, Πρώανα, ..., Πρωθώ, Πρωῖ
- *LSJ* πρῷ (or πρῷ), πρωΐ, πρώη, πρωθ-ευρετής, πρωῖ
- *LSJRevSuppl* πρωθύπνιον, πρωΐ, πρωῖζος
- *LSJItalian* πρῷ, πρώᾶν, πρωξός, πρώην, πρωθ-ήβης, πρωῖ
- *Bailly* Πρυτανῖτις, πρῷ, πρωφαίτερον, πρώαν, πρώην, ..., πρωθ-ύστερος, πρωΐ, πρωῖα
- *Benseler* πρῷ, πρώην, πρωθήβης, πρωΐ
- *Gemoll97* πρῷ, πρώην, πρωθ-ήβης, πρωῖ
- *Menge* πρῷ, πρωφαίτατος, πρώην, πρωθ-ήβης, πρωῖ
- *Bauer* πρύμνα, πρωΐ, πρωῖα
- *LfgrE* Volume not available yet.
- *DGE* Volume not available yet.

**Commentary:** Again, these examples show that long diphthong notation with *iota subscriptum* or *iota adscriptum* has no effect on sorting. In contrast, the sequence of long vowel and another vowel (often graphically emphasized by diaeresis) is subject to normal letter-by-letter ordering.

#### δόλιος vs. Δολίος and δόλων vs. Δόλων

- *Stephanus* Δόλιος, Δολίος,<sup>10</sup> ..., Δόλων, Δόλων<sup>11</sup>
- *Bailly* δόλιος, Δολίος, ..., δόλων, Δόλων
- *Benseler* δόλιος, Δολίος, ..., δόλων, Δόλων
- *Gemoll97* δόλιος, Δολίος, ..., Δόλων, δόλων
- *Menge* Δολίος, δόλιος, ..., Δόλων, δόλων
- *Dvoreckij* δόλων, Δόλων
- *LfgrE* δόλιος, Δολίος
- *DGE* Volume not available yet.

**Commentary:** Those dictionaries which comprise proper names, show individual preferences to sort the proper name before or after the appellative noun, the majority presenting the lowercased noun first. A lexical explanation in the context of a didactical dictionary may account for the apparently inconsistent treatment in *Gemoll97*: In the second sequence, δόλων is a rare word the pupil will not meet frequently in the texts, whereas the name of the Homeric hero claims the pupil's attention. One should not, however, overestimate this issue; a simple error in *Gemoll97* is at least as probable as such a sophisticated reasoning.

#### τίς vs. τις

- *Stephanus* Τίς, Τὶς
- *LSJ* τις (τι), (τίς, τί)
- *LSJItalian* TΙΣ
- *Bailly* τίς, τὶς
- *Benseler* τίς, τὶς
- *Gemoll97* τίς, τὶς
- *Menge* τίς, τὶς
- *Dvoreckij* τίς, τὶς

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<sup>10</sup> This is the proper name: Δολίος, ὁ, Dolius, Penelopae servus ap. Hom. Od. Δ, 735.

<sup>11</sup> This is the proper name: Δόλων, ωνος, ὁ, Dolo, Eumedis filius, [...].

- *LfgrE* Volume not available yet.
- *DGE* Volume not available yet.

**Commentary:** Only *LSJ* depart from the convention settled by *Stephanus* when they put the unaccented lemma (often marked by varia) before the corresponding accented one. *LSJItalian* establishes a generic or »archi-« lemma, printing ΤΙΣ in uppercase letters as a sort of cover symbols. With τίς vs. τις three principles take effect: the functional load principle, the principle of morphological value (interrogative pronoun [historically] primary, indefinite pronoun secondary) and the accent mark hierarchy.

νομός vs. νόμος, τομός vs. τόμος, τροπός vs. τρόπος, φορός vs. φόρος

- *Stephanus* Νομὸς, Νόμος – Τομὸς, Τόμος – Τροπὸς, Τρόπος – Φορὸς, Φόρος
- *LSJ* νομός, νόμος – τομός, τόμος – τροπός, τρόπος – φορός, φόρος
- *Bailly* νομός, νόμος – τομός, τόμος – τρόπος, τροπός – φόρος, φορός
- *Pape* νομός, νόμος – τομός, τόμος – τρόπος, τροπός – φορός, φόρος
- *Benseler* νομός, νόμος – τόμος, τομός – τρόπος, τροπός – φόρος, φορός
- *Gemoll97* νόμος, νομός – τομός, τόμος – τροπός, τρόπος – φόρος, φορός

**Commentary:** In most of the dictionaries consulted here, the ratio which determines the order of νομός, νόμος, – τομός, τόμος, etc. is »accentological«, not morphological. According to the doctrine of the Alexandrian grammarians a barytone word is weaker than an oxytone word. In terms of letter-by-letter ordering, the same result is achieved by a level 2 sorting with »forward« directionality. However, whereas *Stephanus* and *LSJ* show an absolutely consistent treatment of these words, the other dictionaries deviate in a few cases. On the other hand, *Benseler* seems to favor the reverse order, but nevertheless has νομός, νόμος. In a didactical dictionary, priority of the oxytone noun may be justified by the frequency of occurrence in the texts (for the learner, νόμος, τόμος, etc. are more important than νομός, τομός, etc.). *Gemoll97* as well tends to sort oxytone nouns first. There are no morphological or semantic explanations for the inconsistencies in both *Benseler* and *Gemoll97*.<sup>12</sup>

πρός, προσ-

- *Stephanus* Πρὸς, Προσάββατον, Προσαγάζομαι
- *LSJ* πρός, προσάββατον, προσάγαλλω, προσάγματι
- *LSJRevSuppl* πρός, προσάγιος, προσάγρευσις
- *LSJItalian* πρός, προσάββατον, προσαγανακτέω
- *Bailly* πρός, προ·σάββατος, προσ·αγγάλλω, προσ·αγανακτέω
- *Benseler* πρός, προ·σάββατον, προσ·αγγέλλω, προσαγόρευσις, προσαγορευτέος
- *Gemoll97* πρός, προ·σάββατον, προσ·αγγέλλω, προσαγόρευσις
- *Menge* πρός, προ·σάββατον, προσ·αγγέλλω, προσαγόρευσις
- *LfgrE* Volume not available yet.
- *DGE* Volume not available yet.

**Commentary:** There is no special treatment of final sigma in any of the dictionaries. Part of the works introduce morphological separators in order to indicate the segmentation of prepositional prefix and nominal or verbal lexeme: These separators do not interfere in sorting.

<sup>12</sup> In the lexicon of Classical Greek, there are of course further examples of different accent patterns applied to the same base letter sequence. Since these pairs of nouns, at least with regard to the philological and paleographical evidence, do not show different semantics, current lexicography from *Stephanus* onwards makes up one single lemma, presenting the other accent pattern either immediately in the leading line of the dictionary article or discussing it in a note in the end of the article (often semantic distinctions are claimed by ancient grammarians, without the manuscript tradition being in line with those definitions). In the first case, the order of the two forms may imply the lexicographer's sorting preference, but more probably the attestation frequency and/or historico-linguistic arguments determine which accent pattern characterizes the dictionary entry. The practice of the dictionaries varies considerably and is at any rate irrelevant to a hierarchy of accent and breathing marks. Examples: ἄγροικος : ἀγροῖκος, γέλοιος : γελοῖος, ἔρημος : ἔρημος, ἔτοιμος : ἔτοιμος, ὅμοιος : ὁμοῖος, μόχθηρος : μοχθηρός, πόνηρος : πονηρός, μῶρος : μωρός.

## Modern Greek

## "Αιδης / ἄδης

- *LexAkad* ἀδημοσίευτος, "Αἰδης, ἀδηφαγία
  - *Dēmētrakos* ἀδήριτως, "Αἰδης, ἀδηφαγέω
  - *Georgopapadaku* ἀδήριτος, "Ἀδης, ἀδηφαγία
  - *Pring* ἀδήν, ἄδης, ἀδηφάγος

Commentary: In polytonic dictionaries of Modern Greek, "Αιδης / Ἀιδης behave as observed above in the classical dictionaries. In works from the second half of our century, however, *iota subscriptum* is generally omitted.

ἢ, ἦ, ἤ, Ἠα, Ἠαται

- *LexAkad* Volume not available yet.
  - *Dēmētrakos* ḡ, ṣ, ḫ, ḥ, ḭ, Ḯ, Ḱ, ḱ, Ḳ, ḳ, Ḵ, ḵ, ḷ, Ḹ, ḹ, ḻ, Ḵα, Ḵ
  - *Georgopapadaku* ḡ, ḫ, ḯ, ḩβη
  - *Tsukanas* ḡ, ṣ, ḫ, ḩβη
  - *Pring* ḡ, ṣ, ḩβη
  - *Chorikov/Malev* ḡ, ṣ, ḫ, ḥ, ḭ, Ḫβη
  - *Wendt* ḡ-, ḫ, ḥ, ḭ, ḩβη
  - *UnivWb* ḡ, ṣ

Commentary: The lemma sequence exhibited by *Dēmētrakos* is rather confusing and in fact unsystematic. Otherwise the functional load principle is valid, the morphologically weakest lexeme coming first (ἡ feminine article), the others following according to their functional value. Only *Georgopapadaku* appears to follow a graphical hierarchy of diacritics.

*πρός, προσ-*

- *LexAkad* Volume not available yet.
  - *Tsukanas* πρὸς, προσαγόρευσις, προσάγω
  - *Wendt* πρός, προσ-, προσαγόρευση, προσάγω

Commentary: The evidence is the same as with the classical dictionaries.

εἰς, εἴς

- *LexAkad* Volume not available yet.
  - *Tsukanas εἰς, εἴς*
  - *Wendt εἰς, εἴσ-, εἴς*

**Commentary:** This is another example where considerations of both functional load and breathing mark hierarchy determine the order.

κοῦφος, κουφός

- *LexAkad* Volume not available yet.
  - *Tsukanas* κοῦφος, κουφός
  - *Wendt* κοῦφος, κουφός

Commentary: This is a Modern Greek example substituting for the νομός / νόμος, τομός / τόμος etc. pairs in Classical Greek. But here the word accented on the first syllable is invariably sorted before.

πενία, πενιά

- *LexAkad* Volume not available yet.
  - *Tsukanas πενιὰ, πενία*

**Commentary:** In contrast with the former word pair, the word accented on the final syllable comes first. This is an inconsistency in *Tsukanas*.

## Conclusions

The idea to differentiate between σ and ζ is contrary to all available evidence, both for Modern and for Classical Greek. They are just two glyph variants.<sup>13</sup> Whether they are distinguished on level 2 or level 3 is purely a matter of personal taste. The evidence offers no clue one way or the other. However, as most »modified« forms are distinguished on level 2, this is in our eyes the logical position to go for.

Both vowel + *iota adscriptum* and vowel + *iota subscriptum* are treated as equivalent to their base letters on level 1. The η-examples demonstrate that in most cases it is treated as the highest-priority distinction on level 2 in line with the practice of the tables of the current draft of the Unicode Ordering Algorithm,<sup>14</sup> though we find two examples in line with the EOR-practice.<sup>15</sup> Stringency within a draft should thus be given priority in our view.

All evidence points to a clear preference for »forward« directionality on level 2.

As far as we can infer from the material a graphical hierarchy of diacritics, the following general statements are to be made:

Simple diacritics appear before combinations of that diacritic with other diacritics.

The »most important« diacritics are breathing marks which determine groups of diacritics.<sup>16</sup> This is in line with the treatment in both the European Ordering Rules and the tables of the Unicode Ordering Algorithm. As combinations between breathing mark and acute / grave are frequent indeed in polytonic Greek, this is of no small importance for producing a culturally acceptable ordering sequence.

From this point of view, the relative order does not seem to follow a consistent practice, though some preferences can be established: *spiritus lenis* comes usually (but not always) before *spiritus asper*. The acute usually precedes the grave.<sup>17</sup>

In cases where we are unable to justify the order by a specific hierarchy of diacritics, we recognize that different, non-(ortho)graphical principles govern the ordering ratio. This is in the first place the functional load principle, which establishes a hierarchy of the parts of speech. »Weaker« parts of speech (e.g. articles, interjections) precede »stronger« parts of speech.

Additionally, the handling of accented and unaccented lemmata often depends of the morphological value. The unaccented form, normally showing clitic behavior, may be regarded as »weaker« and so precede the »stronger«, accented form, but the dictionaries also provide examples for the reverse reasoning, when the unaccented form is treated as a derivation from the accented form.

All such considerations cannot be applied in textdata processing without the word meaning being determined by a parser. Since polytonic Greek data *can* be sorted by an algorithm relying on diacritical marks, however, we certainly are allowed to postpone a thorough study of these non-graphical principles.

There is no unanimous practice as to the ordering on level 2, where we find both »backward« and »forward« directionality (*vομός* vs. *vόμος*). Here the word typology of ancient grammarians according to the accent patterns influences lexicography.

A clear preference of upper- vs. lower case cannot be deduced from the evidence, though the majority of examples points to »small before capital«.

Spaces and hyphens (the latter being morphological separators introduced by modern philology only) are consistently ignored. In other words, all dictionaries use letter-by-letter ordering.

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<sup>13</sup> It may be interesting that the »beta code« of the renowned database project Thesaurus Linguae Graecae (University of California, Irvine) does not differentiate between σ and ζ in its transcription, though very exact in every other respect. Both are rendered as »s«.

<sup>14</sup> The *iota subscriptum* U0345 has class 220, whereas accents above the letters have class 230 (thanks to Ken Whistler for this information).

<sup>15</sup> These are in *Menge* and *LSJItalian*. These dictionaries are likewise the most consistent with respect to ordering.

<sup>16</sup> The one exception is sometimes the *iota adscriptum* (qv).

<sup>17</sup> This is in line with current practice in both the EOR and the Unicode Ordering Algorithm, but at variance with statements from ΕΑΟΤ.

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