# The Problem

- While the vast majority of metrical Greek epitaphs use a single prosodic pattern, a fairly important group uses polymetric patterns
  - Hexameters + pentameters
  - Hexameter + trimeters
  - Elegiac couplets + trimeters

- When?
  - 4th cent. Attica (usually 4-6 lines)
  - Manuscript tradition (Critias, 5th cent.)
  - Late Hellenistic and Roman (10 or more lines arranged in strophes)

# Research questions

- What effect is achieved by using polymetric patterns in 4th Attic epitaphs?

- How do grammatical structures interact with metrical structures to create such effects?

- Do the same conclusions apply to polymetric inscriptions in other genres?

The question of personal names:
Critias, later 5th century BC (frg. 4 West)
Elegiacs, line 2 is a trimeter

καὶ νῦν Κλεινίου υἱὸν Ἀθηναῖον στεφανώσω
  Ἀλκιβιάδην νέοισιν ὑμνήσας τρόποις·
οὐ γάρ πως ἦν τοὔνομ' ἐφαρμόζειν ἐλεγείωι,
  νῦν δ' ἐν ἰαμβείωι κείσεται οὐκ ἀμέτρως.

And now I will crown the son of Cleinias the Athenian, Alcibiades, whom I have celebrated in a new way; for there was no way of fitting his name in elegiacs, but now it will be in iambics, and it is not unmetrical.

# Accomodations for personal names

- In Greek and Latin poetry, accommodations are quite common when personal names do not conform to a particular meter
  - lengthening, shortening, even splitting the name between different lines

- In polymetric epitaphs, the personal names can be found in both parts of the epigram
  - The names themselves are accommodated to the meter

[Φιλ]όστρατος Φιλοξένου
   παῖς πατέρος σαυτοῦ πατρὸς ἔχων ὄνομα,
καὶ παραμύθιον ἦσθα | παρωνύμιόν τε γονεῦσι,
Νεολλαρίων, δαίμων δέ σ᾽ ἀφείλετο πᾶσι ποθεινόν.

Philostratus the son of Philoxenus. Child of your father bearing the name of his father, you were a comfort and you bore the nickname of Neollarion for your parents, but the divinity took you away, missed by all.

- Both hexameters are fully dactylic except for the second foot of the second, synaeresis for Neollarion

# Questions of Layout
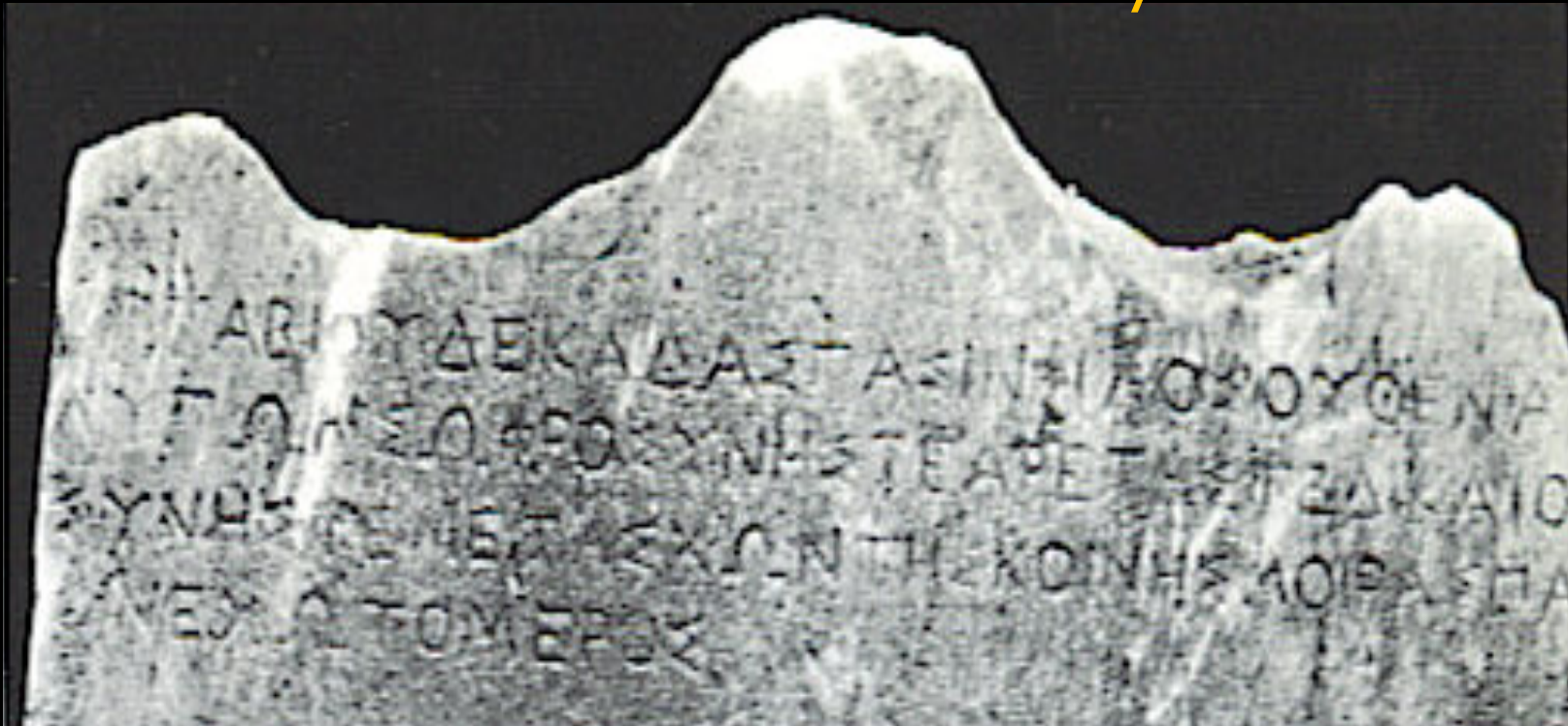


Epitaph, Eleusis, ca. 350 BC (CEG 554), two hexameters + 1 pentameter

ἑπτα βίου δεκάδας πᾶσιν φίλος οὐθένα | λυπῶν
σωφροσύνης τε ἀρετῆς τε δικαιο | σύνης τε μετασχὼν
        τῆς κοινῆς μοίρας πᾶσιν ἔχω τὸ μέρος
(name underneath, lost)

I spent seven decades of life without sorrow and being dear to all, upholding good measure and excellence and justice, and now I have my share of the fate that is common to all.

# Treebank that inscription!

- Treebanking allows for the production and analysis of granular data on a question
  - Manual analysis
  - Machine actionable

- The data can help answer my questions:
  - Use of specific grammatical structures
  - Frequency of metrical patterns
  - Cross-reference grammar and meter
    - Enjambment
    - Grammatical unity of the metrical line

# The case of Enjambment
Some statistics (Tsagalis, table A, p. 303)

| Type 0 | Type 1a (adding internal) | Type 1b (adding external) | Type 2 (clausal) | Type 3 (necessary) | Type 4 (violent) | Total[224] |
|---|---|---|---|---|---|---|
| 32 (ph) | 10 (ph) | 6 (ph) | | 8 (ph) | | 24 (ph) |
| 3 (hp) | 37 (hp) | 7 (hp) | 9 (hp) | 63 (hp) | 17 (hp) | 133 (hp) |
| 14 (hh) | 18 (hh) | 6 (hh) | 3 (hh) | 10 (hh) | 5 (hh) | 42 (hh) |
| 1 (pp) | 5 (pp) | | | | 1 (pp) | 6 (pp) |
| Total: 50 | Total: 70 | Total: 19 | Total: 12 | Total: 81 | Total: 23 | |
| 19.60% | 27.45% | 7.45% | 4.70% | 31.37% | 9.01% | |

ph: enjambment between pentameter and hexameter
hp: enjambment between hexameter and pentameter
hh: enjambment between two hexameters
pp: enjambment between two pentameters

# Words of Caution from Tsagalis...

- We are dealing with two related but not completely homologous metrical patterns:
  - dactylic hexameter
  - elegiac couplet

- Fourth–century Attic epitaphs are composed in dactylic hexameters, elegiac couplets, or pentameters awkwardly followed by either a single hexameter or even another pentameter

# Questions/Issues

- This table does not take into account double use of enjambment in single poems (e.g. CEG 509)

- Can we get more granular data on these cases of enjambment?

- How does the enjambment figure within the overall rhythm and structure of the poem?

- What does this data reveal about the status of these "awkward" metrical patterns?
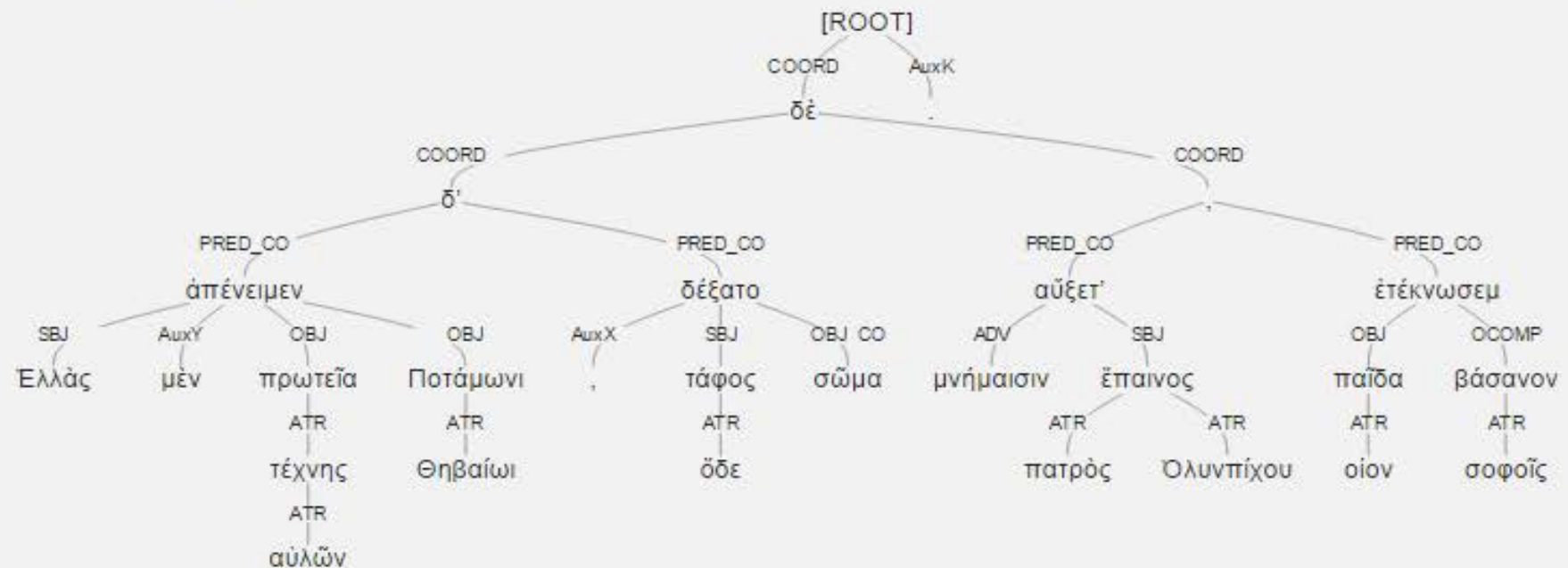
# Treebank of CEG 509 (ca. 350 BC)

## Three hexameters followed by a pentameter

# (Experimental) display correlates meter and grammar

# The Structure of CEG 509

- 3 hexameters with closing pentameter
- 4 lines organized around 4 verbs
- Verbs are coordinated in pairs which are further coordinated among themselves
- 2 instances of enjambment
- hh adding internal between the two first lines
  - 1 of 18 cases in CEG 2
- hp adding external between lines 3-4
  - 1 of 7 cases in CEG 2
  - Pentameter is part of a couplet, but nonetheless plays the role of closing line with a change in rhythm
  - Line breaks on support correspond to metrical lines

CEG 509, Athens, Archaeological Museum, inv. 1962

ΕΛΛΑΣΜΕΝΠΡΟΤΕΙΑΤΕΝΝΗΣΥΛΛΟΝΑΦΕΝΔΥΜΕΝ
ΘΗΒΑΙΟΙΠΟΥΛΛΩΝΤΑΦΟΣΔΟΔΕΛΕΞΑΤΟΣΑΙ
ΛΤΡΟΣΔΕΜΝΗΜΑΙΝΑΣΥΝΤΙΧΟΥΑΥΞΕΤΕΠΑΙΝΟΣ
ΟΙΟΝΣΤΕΚΝΩΣΕΜΠΑΙΔΑΣΟΦΟΙΣΒΑΣΑΝΟΝ
ΠΑΤΡΟΚΛΕΙΑΠΤΑΜΩΝΟΣΓΥΝ

# Underlying Treebank Data

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  <uri>http://data.perseus.org/sosol/users/Marie-Claire%20B</uri>
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# Transcription Text with Markup

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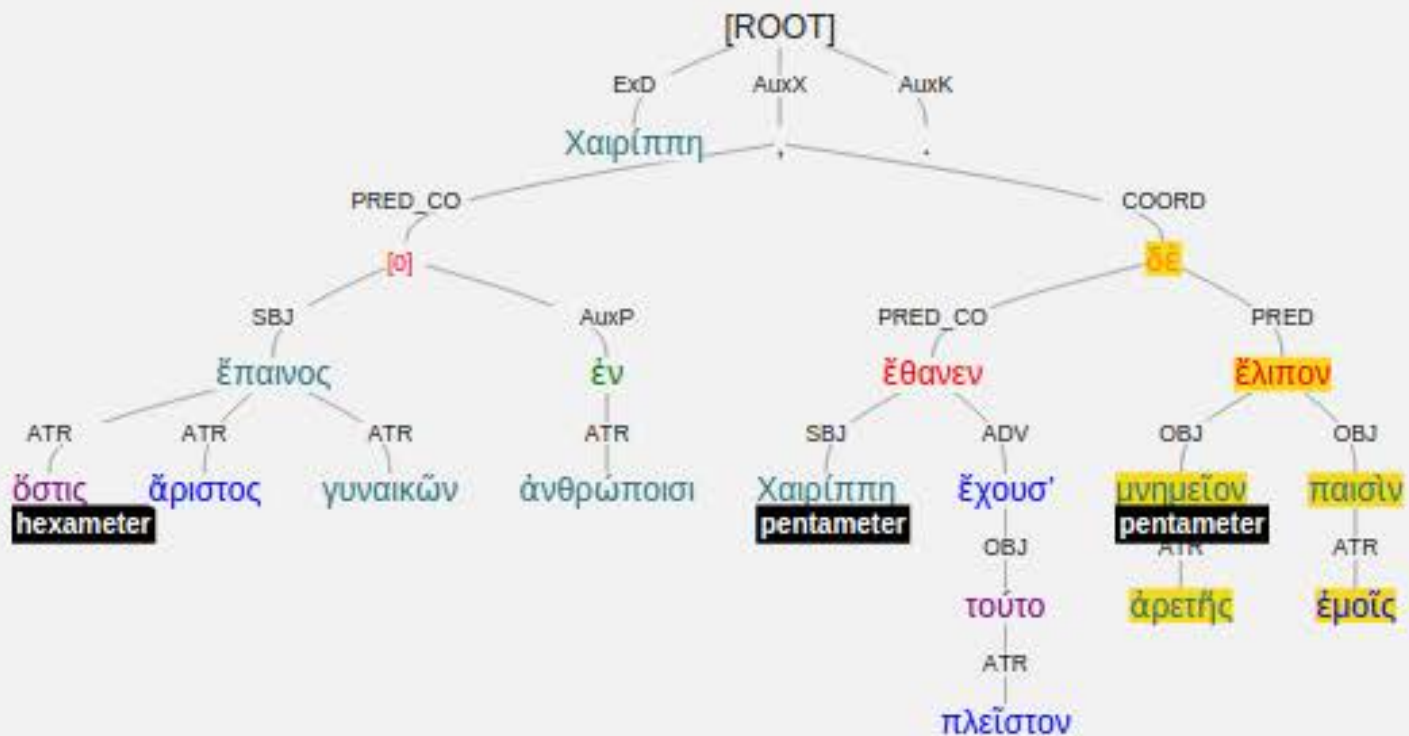
# Further examples: CEG 493 (early 4th cent. BC)

# The Structure of CEG 493

- Metrical lines correspond to lines on support
- Necessary enjambment between hexameter and pentameter
- Second pentameter is a coordinated independent clause
- Shift in subject
- It is therefore a closely woven distich with a repeated independent rhythm in the second pentameter
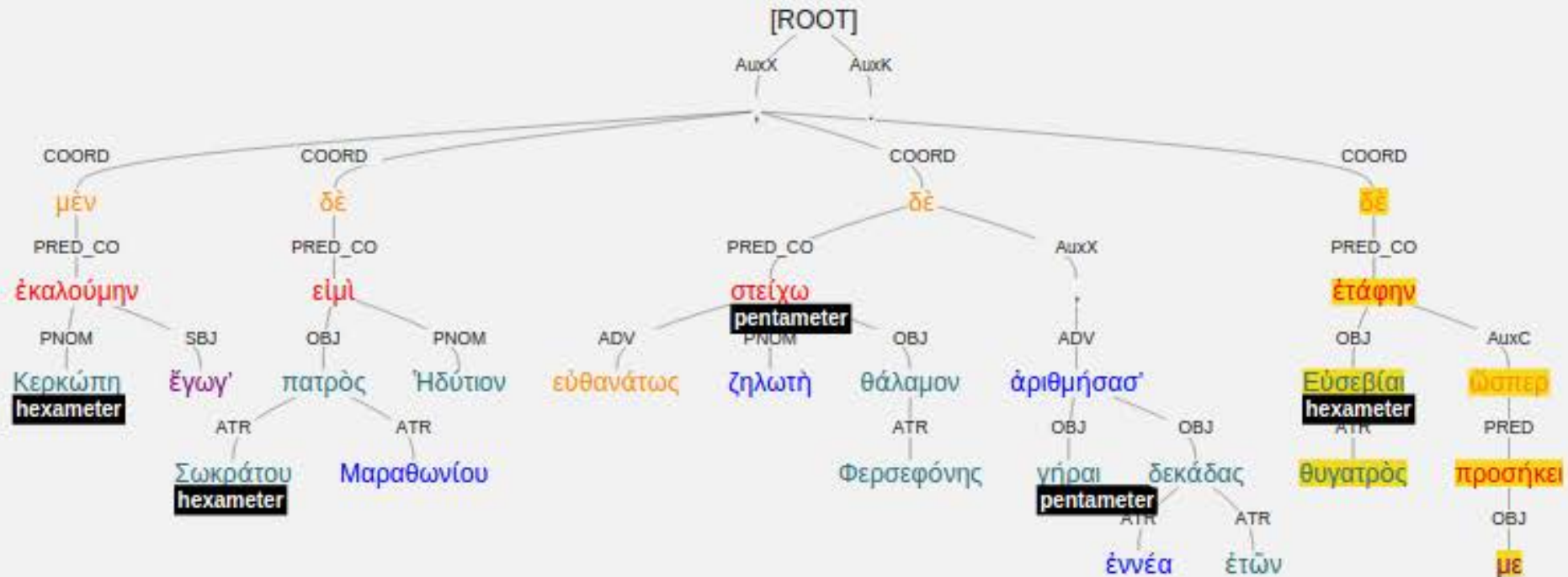
# CEG 592 (ca. 350-317)

# The Structure of CEG 592

- Adding internal enjambment between first and second hexameter
- Necessary enjambment between second hexameter and first pentameter
- Adding external enjambment between first and second pentameter
- Last hexameter is a coordinated independent clause
- Tightly enjambed structure in the first three lines, then repeated rhythm of the pentameter with rather loose enjambment, finally a closing stichic hexameter

A contemporary comparandum:

Paean of Isyllus,
Epidaurus,
ca. 350 BC
IG IV. 1² 128
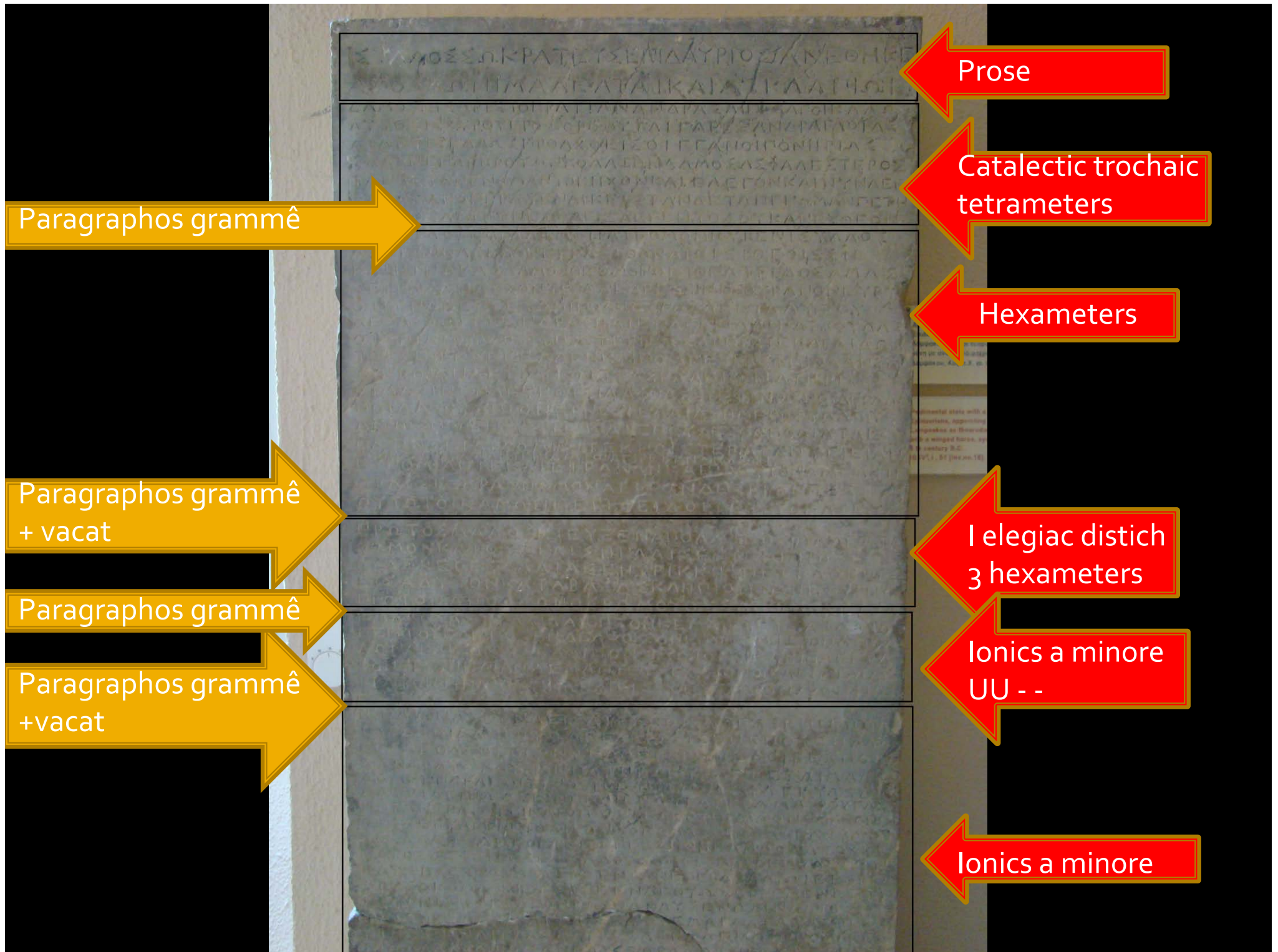
# Lines 27-31:
# 1 elegiac couplet, 3 hexameters

Πρῶτος Μᾶλος ἔτευξεν Ἀπόλλωνος Μαλεάτα
    βωμὸν καὶ θυσίαις ἠγλάισεν τέμενος.
Οὐδέ κε Θεσσαλίας ἐν Τρίκκηι πειραθείης
εἰς ἄδυτον καταβὰς Ἀσκληπιοῦ, εἰ μὴ ἀφ' ἁγνοῦ
πρῶτον Ἀπόλλωνος βωμοῦ θύσαις Μαλεάτα.
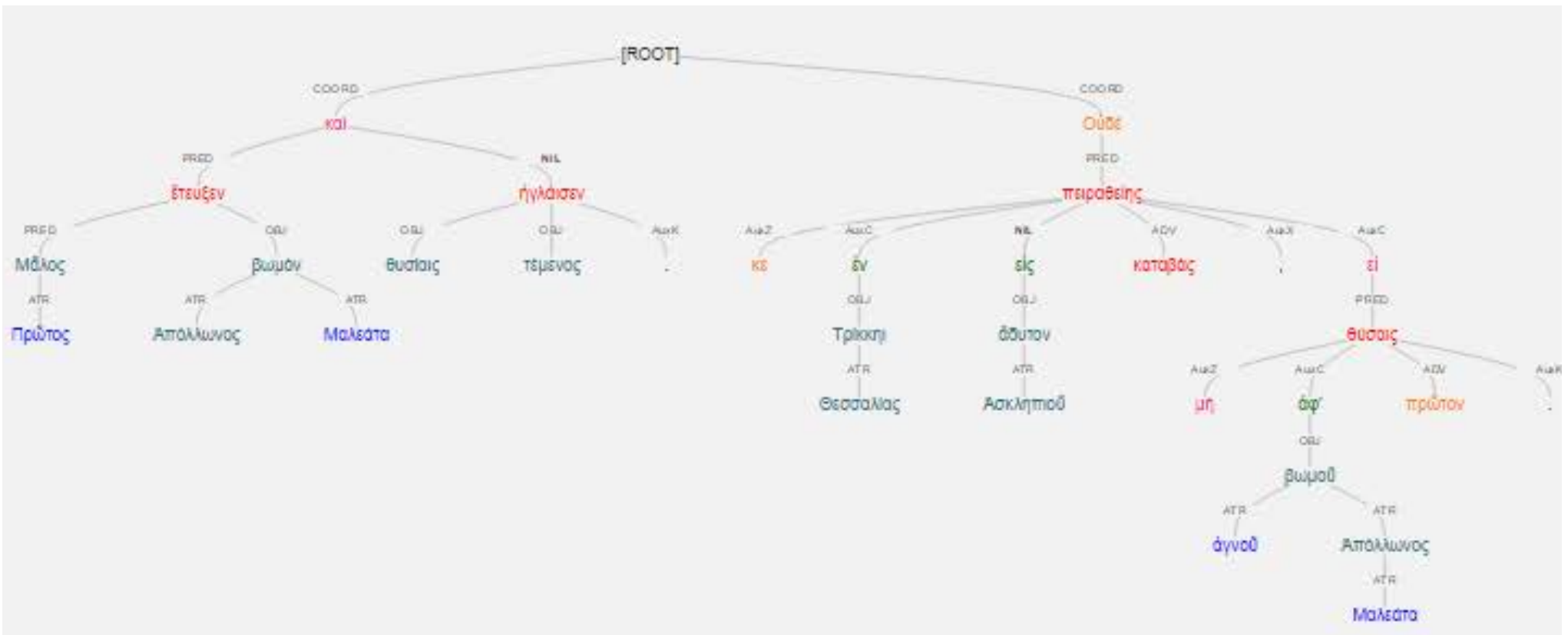
# The structure of lines 27-31

- The distich is enjambed: adding internal

- However, the distich is a rhythmical unit without a link to the following three hexameters, except loosely through οὐδέ

- The three hexameters are united by two instances of necessary enjambment

# Search for an automated method

- github inventory:
  - https://github.com/Marie-ClaireBeaulieu/MetricalInscriptions

- How can we leverage the inventory to answer the research question?

- What are the challenges?

# The analyses presented so far…

- Physical layout
- Orthography
- Epigraphy
- Morphology
- Syntax
- Named-entities, intertextuality, etc.

- These represent a complex, complementary body of analyses.

- Each involves a specific *tokenization* of the text and a specific *deformation* of the text

# Tokenization and Deformation

- Ἀλκιβιάδην
  - Tokenized as: Ἀλκιβιάδην
  - Deformed as: masculine, accusative, singular

- Other deformations are possible for different analyses:
  - Historical-Entity-1234
  - Direct Object

- Metrical Analysis
  - Five tokens: "Ἀλ" + "κι" + "βι" + "ά" + "δην"
  - Each token may be deformed into an expression of metrical value

# If "analysis = tokenization + deformation"

- We can identify unique "analysis objects" that:
  - A. Are precisely and unambiguously aligned to an edition of the text, because we can identify the tokenization with a CTS URN.
    - URN:CTS:NAMESPACE:TEXTGROUP.WORK.VERSION:PASSAGE@SUBREF

  - B. Are uniquely identifiable and organized into collections through CITE URNs.
    - URN:CITE:CITENAMEPSACE:COLLECTION.OBJECTID

  - Because of (B) we can produce, publish, maintain, integrate, and reuse an open-ended body of analyses. Because of (A), all analyses are implicitly aligned to each other.

# Workflows needed for generating analytical collections

- Add a CITE persister to Alpheios/Arethusa for capturing syntactic analyses in terms of:
  - CTS-URN identifying a syntactic token
  - A "deformation" consisting of a morphological analysis
  - A "deformation" identifying a syntactic role in a sentence
  - A CITE-URN creating an Analysis Object in a Treebank collection

# Breakdown:

- syntactic tokens
  - Usually whole words, but also punctuation, partial words (οὐδέ: adverb + conj)

- Morphological analysis
  - identified by a CITE-URN to a collection of morphological identifications.

- Syntactic role in a sentence
  - identified by a CITE-URN to a collection of syntactic roles

- A CITE-URN creating an Analysis Object in a Treebank collection

# Results

- Enhance our ability to treebank difficult texts
  - fragmentary texts, texts in non-standard orthography, etc.

- Integrate syntactic analyses with other analyses
  - e.g. "hexameter half-lines that are complete relative clauses"

- Ensure that every scholarly act can be cited precisely