Cotextual Cues for the Annotation of Perspective in Livy's *Ab Urbe condita*

Simon Aerts

Ghent University (UGent), Department of Linguistics,
2, Blandijnberg, Gent, 9000, Belgium; simon.aerts@ugent.be

The current paper examines the statistical correlation between a number of cotextual cues and the latent variable of perspective in a corpus of episodes taken from Livy's narrative. The possible perspectives (external, internal, scenic camera-eye, immersive eyewitness and distanced eyewitness; cf. "focalization" in narratological studies) featured in Latin historiographical narratives are introduced and hypothesized to co-occur with a number of lexical (e.g. evaluative, descriptive), deictic (e.g. proximal, distal) and grammatical (e.g. voice) elements in the cotext of events and situations occurring in the main narrative tenses (especially the perfect, imperfect, and present indicative). During the analysis, statistical tests are used to ascertain the combined impact of these cues on (a) Livy's choice of verb tense and (b) the linguist's annotation of perspective. While the former is objectively observable, the latter relies on the functional linguist's interpretation as a non-native speaker. Therefore, an additional test is used to show the correlations between the different narrative tenses and the perspectives to corroborate the results. This paper's findings pave the way for a more systematic and objective annotation method for the latent variable of perspective in Latin narratives. Its argumentation is built on the statistical tests performed on the data gathered in close readings on a larger scale. From those close readings, some examples are provided in the current paper to illustrate specific or challenging concepts.

Keywords: Latin tense system, tense and aspect, Systemic Functional Linguistics, perspective, text linguistics, corpus linguistics, multivariate statistics, linguistic proxies, Conditional Inference Tree, Livius.

1. Introduction: interpreting interpersonal meaning in Latin narratives

When investigating the Latin narrative tenses from a theoretical approach based in Systemic Functional Linguistics (SFL)[1] and its three metafunctions (cf. Aerts 2018),[2] especially innovative but at the same time tricky is the interpretation of the interpersonal

---

[1] See e.g. Halliday & Matthiessen (2014), Thompson (2014), and Bache (2008).

[2] In other papers (Aerts 2018, section 3; Aerts forthcoming, section 1), I proposed that in Latin, both tense and aspect were grammatical categories expressed by the morphology of the verb tenses, both with a semantic potential on three levels of meaning. Grammatical aspect revolves around the representation of states of affairs (SoAs) as (un)terminated on the ideational level, around their presentation with global view (as an indivisible whole) or partial view (as a background frame) on the textual level, and around a viewpoint (see below, section 2). Tense concerns the temporal structure of reality (i.e. establishing the link with the moment of speaking/writing (S) as ultimate ground) on the ideational level, the status of independent foreground event or secondary background event on the textual level, and a vantage point, from which the story-world is narrated, e.g. in the speech moment (looking back with hindsight) or in the story-world (as a virtual eyewitness).

meaning of "perspective" (P) as conveyed by the language used by the author. The grammatical categories "tense" and "aspect" may both be considered to have an interpersonal dimension of meaning, i.e. the expression of a vantage point (e.g. looking back from the moment of speech/writing[3]) and the expression of a viewpoint (from without or from within), respectively (cf. Aerts 2018, 124–125; Aerts forthcoming, section 1). However, for Latin we cannot rely on judgements about the correlation between tense/aspect and the sense of perspective one may experience; nor can we rely on tense/aspect alone for our annotation of P, because the aforementioned correlation is exactly what we are trying to assess. Therefore, we must scan the author's language for "perspective cues" in the surrounding cotext. For this purpose, I have scrutinized eight narrative episodes from Livy's *Ab urbe condita*[4] in an attempt to find a statistically significant correlation between certain (combinations of) cotextual cues and the annotation of P. The texts in that case study are "The rape of the Sabine virgins" (1. 9–13; N[5] = 158), "Horatius Cocles" (2. 10; N = 39), "Defeat of the Hernici" (7. 7–8; N = 59), "The Battle at Sentinum" (10. 27–29; N = 128), "The Battle at Luceria" (10. 35–36; N = 104), "The Battle at Cannae" (22. 44–50; N = 147), "Hostile camps in North-Africa" (30. 3–6; N = 110), and "Roman fleet at Utica" (30. 9–10; N = 64), amounting to about 7.200 words and 489 observations of the indicative of the relevant narrative tenses, out of a total of 808 finite[6] verb forms annotated for P.

2. The interpersonal meaning of "perspective" in Latin narratives

The morphology of the Latin verb tenses and the combination of aspecto-temporal interpersonal meanings allow for five different perspectives potentially taken on the narrated events (cf. Aerts forthcoming).

On a preliminary note, the expression of interpersonal meaning in narratives should be conceived of as optional: if an author wants to focus on ideational (termination) and/or textual meaning (foreground vs. background[7]), we could say that the perspective (P) is "neutral".

The actual marked Ps are, in terms of effect on the audience, quite comparable to the narratological idea of "focalization", although there are important differences in terms of methodology and theoretical concepts. First, events narrated from an "external perspective" (P1) are not expected to have a high impact on the psyche of some conscience nor to appeal greatly to the senses, but rather to occur with observations, evaluation, commen-

---

[3] In this paper, the terms "speech moment" and "moment of speech/writing" (S) are always used to refer to the moment of communication, which is considered to include both the author's act of writing and their audience's act of listening/reading.

[4] For our research, the relevant OCT-editions (Ogilvie 1974; Conway & Walters 1919; Briscoe 2016; Conway & Johnson 1935) were consulted. Of the 808 observations in our corpus, only 35 (4,33 %) occur either in potentially relevant alternative readings in the manuscripts, or in a cotext which contains elements with a potentially relevant alternative reading. Of these 35 data points, only 2 appear in examples cited in this paper; notes 46 and 49 explain our preferences as regards these examples. Nevertheless, all 35 data points that could potentially influence the statistics, have been left out of the calculations.

[5] The symbol "N" refers to "sample size", i.e. the number of observations within a certain corpus, subcorpus or sample.

[6] Some observations are morphologically not actually *finite*, e.g. the historic infinitives and participles *used* as such.

[7] For the notions of foreground and background, see e.g. Fleischman (1990, Chapter 6, Part I).

tary, comparisons, etc. which originate from a story-external source of knowledge.[8] The tense expected to occur most often with P1 is the perfect tense (pf. ind.), combining an aspectual interpersonal meaning of "viewpoint from without" with a temporal interpersonal meaning of "vantage point in the speech moment" ($E < S$[9]).

Second, the narrator may want to opt for the "internal perspective" (P2), which invites the reader/listener to experience the events from the point of view of a story-internal character. The language thus appeals to the perceptive senses as well as the emotions and thoughts of a character (or group of characters), who need to be explicitly "given"[10] for us to be able to identify with them. The temporal interpersonal meaning is an "identification with a story-internal character" ($E = R$[11]), combined with an aspectual "viewpoint from within". These are the values associated with the imperfect indicative (impf. ind.).

Third, the impf. ind. may also be used when there is no character "given" to identify with. Its temporal interpersonal meaning is then "$E = R < S$", retaining the link with the speech moment. The idea is that the narrator ("R") is displaced to the story-world in the past (the part "$R < S$" in the formula), from where he transmits the events he is witnessing (the part "$E = R$" in the formula) to the audience in the speech moment "S." Inspired by de Jong and Nünlist (2004, 64–65), I have called this the "scenic camera-eye perspective" (P3). In particular, the language is expected to appeal to the senses as well as the psyche of a more neutral but internal observer, and to contain comments only insofar as they can be made without story-external knowledge.

Fourth, in the "immersive eyewitness perspective" (P4), the present indicative (pr. ind.) combines the temporal interpersonal meaning of "temporal illusion of proximity" ($E = S$) with an aspectual interpersonal meaning of "viewpoint from within". The idea is that the audience is "immersed"[12] into the story-world while the narrator shows them the events without any mediation. He does not provide commentary or evaluations; the audience is left to draw their own conclusions, often by the mere shock of experiencing them themselves, i.e. virtually.

Fifth, and finally, the pr. ind. — which is considered neutral in terms of aspect[13] — combines its only temporal interpersonal meaning with an aspectual interpersonal meaning of "viewpoint from without" in the "distanced eyewitness perspective" (P5). The audience and narrator are again witnessing the events, but they remain at the sideline (or more panoramically, on top of a hill, cf. de Jong and Nünlist 2004, 64–65), commenting on the events.

3. Cotextual cues as perspective proxies[14]

While aspecto-temporal values such as termination and textual structure are largely directly observable, perspective (P) is a latent variable, for which the annotation depends considerably on the interpretation of the reader. Since we cannot rely on native speakers'

---

[8] These characteristics are very similar to those of Adema's (2019, 28–30) report mode.

[9] The notation of temporal relations, *in casu* "event time before speech time", draws on Reichenbach (1947).

[10] For the notion of "givenness", see e.g. Gundel (2003).

[11] The literal sense is "event time simultaneous to reference point". The speech time S is deliberately left out of the formula, as the speech moment plays no part in the interpersonal temporal meaning here.

[12] For the concept of "immersion", see e.g. Allan, de Jong, and de Jonge (2017, 34–37).

[13] See Haverling (2010, 474).

[14] Examples referred to within this section, can be found cited in section 4 below.

judgments, we should rely not on what we as Latinists have learned about the Latin tenses, but on observable material in the cotext, i.e. "cotextual cues". These cues consist of lexis (adjectives, nouns, adverbials, verb process types), deictic indications (proximal, distal, deictic tense usage) and grammatical items (voice, subject animacy).

3.1. Lexical cues

Tucker (1998, Chapter 7.3) discusses a number of adjective categories — within an SFL framework — that are relevant for the interpretation of P. "Comparative lexis" (COMP) offers a comparison between the events of the current story-world scene and events happening at a different location or time. "Evaluative lexis" (EVA) offers a certain evaluation of the events of the story-world on the part of a certain "evaluator", which can be either story-internal or story-external. In addition, non-evaluative information that could not have been known to a story-internal evaluator is also categorized as external EVA. "Descriptive lexis" (DESC), i.e. words appealing to the perceptive senses of a potential observer, stimulates a mental visualization of the narrated events on the part of the audience. "Personal lexis" (PERS), i.e. words appealing to the emotions, mind or experience of an observer, stimulates a mental or emotional experience of the events.

The relevance of these lexis types for the interpretation of perspective is confirmed in literature on cognitive poetics (e.g. Stockwell 2002, Chapter 4). COMP and external EVA are expected to occur with a viewpoint from without, which is the aspectual interpersonal value contributing to P1 and P5 (cf. Stockwell 2002, 54). Because these Ps are expressed, by default, by the perfect and pr. ind. respectively, COMP and external EVA are also expected to occur especially with these two tenses. Accordingly, P2, P3 and P4 are expected to occur with a complete lack of external EVA and COMP, because of the viewpoint from within. An internal evaluation, however, is more likely to accompany P2 and P3 (Stockwell 2002, 44) rather than P4: in the latter, the cognitively immersed audience is on their own in forming an opinion on the narrated events (Aerts forthcoming, section 2). DESC is expected to occur with all perspectives except P1, and therefore especially with the impf. ind. (because of the viewpoint from within) and pr. ind. (because of the temporal illusion of proximity). PERS is expected to occur especially with P2 and P3 and the correlated impf. ind. (viewpoint from within, cf. Stockwell 2002, 53).

Halliday and Matthiessen (2014, Chapter 5) and Thompson (2014, Chapter 5.2) provide a categorization of verb types within SFL. Material processes (MAT) are verbs of "doing" or "happening", mental processes (MEN) are verbs of "thinking", "feeling", "desiring", and "perceiving", verbal processes (VER) are verbs of "saying", relational processes (REL) are verbs of "being" and "having", behavioural processes (BEH) are verbs of "(physiologically or psychological) behavior", and existential processes (EXI) are verbs of "existence" (see notes 35 to 40). Material and verbal processes are "perceptible" *par excellence* and are expected to be correlated to P4 and P5 and therefore to the pr. ind. (cf. Allan, de Jong & de Jonge 2017, 41). Mental processes are usually quite internal, so they are predicted to occur especially with P2 and P3 and therefore in the impf. ind. (Stockwell 2002, 53).

Another lexical phenomenon is the use of temporal adverbials (e.g. temporal location, duration) in the cotext. When events are narrated from a viewpoint from within,

mediation of the narrative with temporal adverbials is unlikely (cf. Fleischman 1990, 124). The presence of these is therefore expected to be negatively correlated to P2 and P3 (and therefore the impf. ind.) and with P4.

3.2. Deictic cues

Concerning deixis, Fillmore (1997) and Anderson and Keenan (1985) discuss a range of (English) words which express a relation to the speech situation or "deictic center": proximal indicators (PROX), i. e. words such as *now, here, tomorrow* and *to come*, are usually in opposition with distal indicators (DIST) such as *then, there, the next day* and *to go* (see also McIntyre 2006, Chapter 4.4). Whereas DIST, used in a narrative set in a certain story-world, assert the distance between that story-world scene and the world of speech/ writing, PROX suggest an assimilation between those two worlds. As Anderson & Keenan put it: "[N]otions such as "near to the speaker" may be interpreted not only in the literal, physical sense, but also by extension to "psychological proximity", i.e., vividness to the mind of the speaker" (1985, 278).

Starting from the cognitive concepts materialized in the English words mentioned in the literature cited above, I have been looking out for similar words and constructions in the Latin texts during my close reading. Some of the more frequently occurring PROX were *iam* (in the sense of "now" (see example (14), section 4.2), as opposed to the more text-structuring meaning "already" (see example (7), section 4.1), *dexter/laeuus*, *hinc* (see example (6), section 4.1), *(con)uenire* (see example (14)), and *proximus* (see example (14)). These are expected to be a sign of either a temporal illusion of proximity or an identification with a story-internal character (i. e. P4 and P5, and P2; cf. Stockwell 2002, 53–54). Therefore, they are expected to occur especially with states of affairs (SoAs) in the pr. ind. and impf. ind. Frequently attested DIST were *postero die* "the next day" (see examples (7)), *tum* (in its temporal-locative sense "at that moment", as opposed to its text-structuring sense "next, and then" as in example (6)), *ibi* "there", and *eo* "thither". These are expected to occur with a vantage point in the speech moment (i. e. P1), and therefore with the pf. ind. (cf. Stockwell 2002, 53–54).[15]

A final deictic cue is the use of verb tenses to link story-time events explicitly to the speech moment, especially by means of a pf. subj. or an actual or generic use of the pr. ind. Such deictic tense usage may indicate that the story-world SoAs in their textual vicinity are to be viewed from a vantage point in the speech moment, i. e. from an external perspective (P1) (cf. Stockwell 2002, 55).

3.3. Grammatical cues

With regard to grammatical phenomena disclosing a certain value of P, especially the combination of the passive voice with subject animacy seems relevant. As Pinkster (1985, 116–118) already noted, the use of the passive with a (grammatical) Subject whose perspective may be interesting to view the events from, can serve to continue that particular

---

[15] A special case is P3, which is hypothesized to potentially occur with both PROX and DIST because of its temporal interpersonal meaning (E = R < S): the "displaced narrator R" element could evoke PROX, whereas the "audience in the speech moment S" element would allow for DIST as well.

perspective; it can be inferred, then, that the use of the passive with a less interesting Subject may lead to discontinuity of such a P2.[16]

3.4. Aims and purposes of this paper

As previously mentioned, our aim is to ascertain whether the correlations, hypothesized above, between the mentioned cotextual cues and the annotation of perspective are statistically significant. It should be explicitly noted, however, that the annotation of perspective during our close reading of the corpus was already performed on the basis of the available linguistic material in the clause and its immediate, relevant cotext. Therefore, the main aim of this paper is not to provide convincing proof of the worth of the individual cotextual cues for the annotation of interpersonal meanings: the effects of these cognitive concepts on human readership have been discussed in the cognitive literature cited above.[17] Rather, this paper attempts to provide a descriptive, quantitative analysis — supported by statistical tests — of the impact of such cues on the annotation of P, and of the conflicts that may (or may not) arise among them.

4. Case study: methodology and results

The eight narrative episodes which constitute the corpus for the current case study (see section 1), were read closely with the three-dimensional meaning potential of the verb tenses and the theoretical observations on cotextual cues in mind. The total number of SoAs annotated positively for P (i. e. the corpus with the name *data*) is 760, of which 511 tokens are indicative forms.[18]

The pf. ind. ("A", N = 177), impf. ind. ("B", N = 120), and pr. ind. ("C", N = 143) constitute the outcome (or "dependent") variables in the first part of the analysis (section 4.1). In addition, the indicatives in the corpus *data* include 55 pluperfect tense forms — including *ictus fuerat* (Liv. 22. 49. 1) as an early attestation of the innovation in the passive analytic forms of the *perfectum* stem — and 16 tense forms that could — morphologically — be both pr. ind. and pf. ind. ("CA").[19]

Other than indicatives, *data* includes (i) 158 subjunctives, (ii) 67 past participles and 22 ("historic") present infinitives used as finite verb forms, and (iii) 2 forms that are morphologically ambiguous between the ("shortened") pf. ind. and the present infinitive: *avertere* (Liv. 10. 28. 8) and *ostendere* (Liv. 10. 36. 10).

The gathered data was subjected to a number of statistical tests. For multivariate impact analyses, the model of the Conditional Inference Tree (CIT) was used; for monovari-

---

[16] Importantly, however, as Pinkster also concludes, the author is free to apply this idea: such an association may be simply a tendency.

[17] Within a cognitive-functional paradigm, the effects of these cues are not language-specific: the cognitive concepts expressed by the English words in the examples cited in the secondary literature, as well as their cognitive effects on the readership, are considered to be — at least to a considerable extent — transferable to many other languages.

[18] These numbers include the exclusion of 35 data points for which there were potentially relevant alternative readings in the manuscripts (see note 4).

[19] The semantics of the pluperfect tense is not expected to be correlated independently to perspective and the cotextual cues that are investigated in this paper. The "CA" forms are excluded from the tests in the first part of our analysis as well, because these would influence the results in an undesired way ("noise").

ate impact analyses, the X^2 (Chi-squared) Test of Independence was considered more appropriate. The software used for the statistical analysis is *R Studio*[20] with the additional packages *rattle,*[21] *partykit*[22] and *corrplot.*[23]

4.1. The correlations between cotextual cues and verb tense selection

The first part of the analysis consisted of evaluating the hypothesized correlations between the observable variables of cotextual cues described in Section 3, and the observable variable of verb tense. For this part, a first subcorpus was made (*data1*, N = 440) which contains only the observations with the verb in the pf. ind. (A), impf. ind. (B) and pr. ind. (C).

First, the combined (i. e. multivariate) impact of "voice" and "subject animacy" on verb tense selection was analyzed (see section 3.3). Example (1) illustrates why this correlation is hypothesized to be statistically significant:

(1) *Ita ut imperauerat signa sub occasum solis efferri* **sunt coepta**; *ad primam ferme uigiliam agmen* **explicauerunt**; *media nocte—septem enim milia itineris* ERANT— *modico gradu ad castra hostium* **peruentum est**. (Liv. 30. 5. 3)[24]

"In accordance with the orders he had given the standards **began** to be set in motion just before sunset; at about the first watch they **deployed** the column. At midnight — for it WAS a march of seven miles — proceeding at a moderate speed **they reached**[25] the enemy's camp."[26]

During the close reading of our corpus, the use of the morphologically passive form with an inanimate grammatical subject (e.g. *sunt coepta* "began" and *peruentum est* "they reached"; see note 25) seemed to occur especially in the pf. ind. (A). The Conditional Inference Tree (CIT) investigating the statistical significance of the combined impact of "voice" and "subject animacy" is represented in Figure 1.

The CIT shows that 84 of the 440 perfect (A), imperfect (B) and present (C) indicatives in the corpus[27] only have an active form and occur most often in the impf. ind. (node 5; e.g. *erat* "he was"). Since most of these tokens are forms of *esse*, this should not surprise

---

[20] R Core Team. *R: A language and environment for statistical computing.* R Foundation for Statistical Computing, Vienna, Austria, 2018. URL https://www.R-project.org/.

[21] Williams, G. J. *Data Mining with Rattle and R: The Art of Excavating Data for Knowledge Discovery.* New York, Springer, 2011.

[22] Hothorn, T. and Zeileis, A. Partykit: A Modular Toolkit for Recursive Partytioning in R. *Journal of Machine Learning Research*, 16, 3905–3909, 2015.

[23] Wei, T. and Simko, V. *R package "corrplot": Visualization of a Correlation Matrix (Version 0.84).* 2017. Available from https://github.com/taiyun/corrplot.

[24] In the examples quoted in this paper, forms in the pf. ind. will be in **boldface**, forms in the impf. ind. in SMALL CAPS, and forms in the pr. ind. underlined. Forms that could be both pr. ind. and pf. ind. are **bold and underlined**.

[25] *Peruentum est* "they reached" is an impersonal passive without a grammatical Subject and has no equivalent translation in English. In my view, this construction could be used to superimpose inanimacy on the SoA if an animate logical subject (*agmen* "the column") was not meant to be in focus.

[26] The translations of the examples quoted in this paper draw heavily on the Loeb editions (Foster 1919; Foster 1924; Foster 1929; Moore 2002); they were adapted whenever necessary to support the argumentation.

[27] For each test in section 4.1, some data points in *data1* may have been excluded simply because they were annotated with a value "NA" (i. e. *no answer*) and/or "NR" (i. e. *not relevant*) for the input (i. e. "independent") variables in the test in question, in this case "voice" and "subject animacy". The resulting datasets with relevant exclusions (if any) are provided with an additional suffix related to the number of the test and Figure in this paper (e.g. *data1_1*).
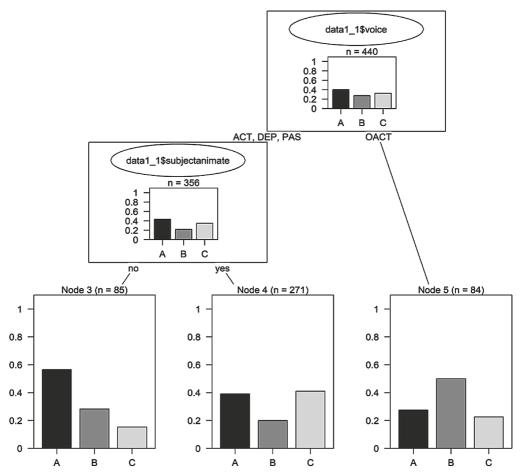
Fig. 1. The combined impact of voice ("active", "active_only",[28] "passive", "deponent") and subject animacy ("yes",[29] "no") on verb tense selection.

us: the impf. ind. of *esse* is often used simply (and primarily) to depict the background.[30] In addition, verbs which *do* have a passive conjugation (N = 356) occur far more often with the pf. ind. (N = 48) than with the impf. ind. (N = 24) or the pr. ind. (N = 13) if the subject is inanimate (N = 85[31]); if the subject is animate (N = 271), however, the pr. ind. gains considerable ground (N = 111) and even trumps the pf. ind. (N = 106), with the impf. ind. being used for 54 out of 271 observations. However, there is no clear indication in the CIT about the role of voice in all this.

---

[28] The label "active only" was used for the voice of verbs which have no passive forms (e.g. *esse* "to be").

[29] These "animate" subjects also include nouns which refer to more abstract collectives of animate beings (e.g. *legatio* "embassy").

[30] For the concept of metafunctional hierarchy in narratives, see Aerts (forthcoming, section 3).

[31] For reasons of incomplexity, this number contains data points in the impersonal passive; the reasoning behind such an aggregation is that the effect of both constructions on tense selection and perspective is hypothesized to be the same (see note 25).

Second, the correlation between the variable "process type" and verb tense selection was analyzed. Examples (2) and (3) illustrate the two hypotheses concerning process types put forward in section 3.1, i. e. a positive correlation between MEN and the impf. ind. (B), and positive correlations between MAT and VER on the one hand, and the pr. ind. (C) on the other hand.

(2) *Nusquam benigne legatio **audita est**: adeo simul* SPERNEBANT, *simul tantam in medio crescentem molem sibi ac posteris suis* METUEBANT. (Liv. 1. 9. 5)

"Nowhere **was** the embassy **heard** willingly. In fact men SPURNED, at the same time that they FEARED, both for themselves and their descendants, that great power which was then growing up in their midst."

(3) *Quingenti ferme Numidae, (…) repente ex equis <u>desiliunt</u>, parmisque et iaculis ante pedes hostium proiectis in mediam aciem accepti ductique ad ultimos considere ab tergo <u>iubentur</u>. Ac dum proelium ab omni parte <u>conseritur</u>, quieti **manserunt**; postquam omnium animos oculosque occupauerat certamen, (…) auersam <u>adoriuntur</u> Romanam aciem, tergaque ferientes ac poplites caedentes stragem ingentem ac maiorem aliquanto pauorem ac tumultum **fecerunt**.* (Liv. 22. 48. 2–4)

"About five hundred Numidians, (…) suddenly <u>jumped down</u> from their horses; having thrown down their bucklers and javelins at the feet of their enemies, and having been accepted in the midst of the battle line and led to the rear, they <u>were ordered</u> to sit down at the Romans' backs. And as long as the battle <u>was initiated</u> at every point, they **kept** still; after the strife had taken hold of everyone's minds and eyes, they then (…) <u>attacked</u> the Roman battle line from behind, and striking at their backs and hamstrings, **effected** a great slaughter and a terror and confusion that were even greater."

For this (monovariate) impact test, an X^2 Test of Independence was performed (N = 414; X^2 = 53.92, df = NA, p < 0.001[32]).[33] The correlation plot in Figure 2 represents the standardized residuals of these tests.[34]

Based on the sample *data1_2* (N = 414), the pf. ind. ("A", N = 172) seems to be significantly positively correlated to MAT: 108 out of 231 MAT are found in the pf. ind. A significantly negative correlation is the one with REL. The impf. ind. ("B", N = 118), then, appears to be significantly linked to REL and BEH: 51 out of 101 REL and 5 out of 8 BEH occur in the impf. ind. A strong negative correlation, however, seems to exist with MAT. Finally, the pr. ind. ("C", N = 124) appears to be correlated in a significant positive way to VER and MAT: 15 out of 26 VER and 80 out of 231 MAT occur in the pr. ind. Slightly more significant, however, appears to be the negative correlation between the pr. ind. and REL.

The statistical analysis of the remaining lexical cues (COMP, EVA, PERS and DESC) and deictic cues (PROX and DIST and the deictic use of tenses), encounters two issues. Firstly, the annotation process of many of these variables is somewhat problematic, since the author is not obliged to make a choice whether or not to insert a word of each cat-

---

[32] For a X^2 Test of Independence, a *p*-value of less than 0.05 signifies that the results of the test — in this case that the two variables are dependent within our corpus — are statistically significant. In a CIT, only the nodes that are in the same way statistically significant are rendered as output by the software.

[33] For this particular X^2 test, the required assumptions were not met. The reported *p*-value is the outcome of an adapted X^2 test with a simulation of the *p*-value (for further reading, see Hope 1968, 583 ff.).

[34] The correlation plots in this paper are set to display the exact standardized residuals only when they are significant, i. e. lower than –2 for a negative correlation (black), and higher than +2 for a positive correlation (grey); however, if they are not significantly low or high, the size of the circle may still help the reader to grasp the strength of the correlation.
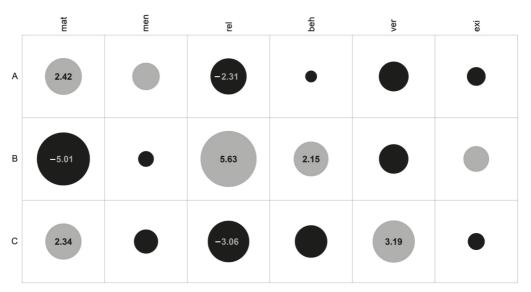
Fig. 2. The impact of process type ("material"[35] "mental"[36] "relational"[37] "behavioural"[38] "verbal"[39] "existential"[40]) on verb tense selection

egory in every clause. Therefore, a positive value (i.e. the presence of such a cue), is often much more relevant in the analysis than a negative one (i.e. its absence). Secondly, these cues are very specifically expected to show a correlation to the P taken on the events, i.e. interpersonal meaning. Working within the three-dimensional framework of meaning described above, we should always take into account the possibility that ideational and textual meanings could also influence the process of verb tense selection; these considerations on the part of the author would have been independent from the perspective cues investigated in this paper (see also note 30).

The third and fourth tests, then, analyzed the hypothesized correlations between verb tense selection on the one hand, and COMP (illustrated in example (4) for the pf. ind.) and EVA (illustrated in example (5) for the impf. ind.) on the other hand.[41]

(4) *Sub equestris finem certaminis **coorta est** peditum pugna, primo et uiribus et animis par dum* CONSTABANT *ordines Gallis Hispanisque.* (Liv. 22. 47. 4).

"Toward the end of the cavalry engagement the fight of the infantry **began**, at first equal in strength and spirit, as long as the Gallic and Spanish ranks STOOD FIRM."

---

[35] E.g. *facere* "to make, to do", *dare* "to give", *capere* "to take", *opprimere* "to overwhelm", *parare* "to prepare", *oriri* "to (a)rise", *uenire* "to come", *descendere* "to come down", *fugare* "to rout", *proficisci* "to set out".
[36] E.g. *cogitare* "to think", *desiderare* "to wish", *timere* "to fear", *uidere* "to see".
[37] E.g. *esse* "to be", *appellare* "to call", *habere* "to have, to consider", *posse* "to be able", *tenere* "to hold".
[38] E.g. *pugnare* "to fight", *opperiri* "to (a)wait".
[39] E.g. *dicere* "to say", *referre* "to report".
[40] E.g. *erat* "there was", *stetere* "there stood".
[41] Personal lexis (N=439; X^2=3.98 df=2, p=0.14) and DESC (N=439; X^2=0.10, df=2, p=0.95) did not pass the tests of independence, i.e. they do not appear to be correlated to verb tense selection within our corpus. For this reason, the correlation plots of these X^2 tests were not included at this point.

(5) *Legatis quos mitteret ad Syphacem calonum loco primos ordines spectatae uirtutis atque pru-*
dentiae seruili habitu MITTEBAT, *qui dum in conloquio legati essent (…) specularentur mo-*
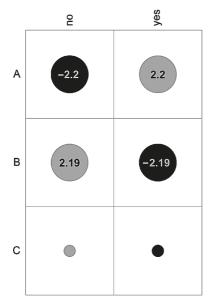*remque simul noscerent stationum uigiliarumque (…). (Liv. 30. 4. 1–3)*

"With the legates whom [Scipio] kept sending to Syphax he WOULD SEND some first centuri-
ons of attested courage and discretion as servants and garbed as slaves, that while the legates
were in conference they might take note (…) and discover their practice as regards outposts
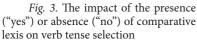and sentries (…)."

In example (4), the switch from the end of the cavalry battle, narrated just before,
to a previous point in time and a different point in space where the infantry battle
began, indicates the ability of an external observer to narrate the events with a certain
overview (i. e. viewpoint from without). In example (5), the extra finality in the rela-
tive clause containing the (prospective) subjunctive forms *specularentur* "take note"
and *noscerent* "discover" indicates Scipio's intentions or purposes for *mittebat* "he sent
[repeatedly]".

For the correlation between the tenses and COMP (N = 439; X^2 = 6.42, df = 2,
p = 0.04) and EVA (N = 431; X^2 = 36.96, df = 4, p < 0.001), the correlation plots in Figure 3
and Figure 4 represent the standardized residuals of the performed tests.

Based on the relevant samples, the presence of COMP and the presence of external
EVA are positively correlated to the pf. ind. (A), whereas the absence of COMP and the
presence of internal EVA is positively correlated to the impf. ind. (B).

In the fifth and sixth tests, the hypothesized correlations were evaluated between verb
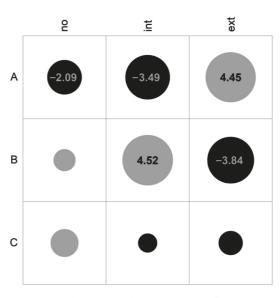tense selection on the one hand, and deictic indications (illustrated for PROX[42] in example

Fig. 3. The impact of the presence
("yes") or absence ("no") of comparative
lexis on verb tense selection

Fig. 4. The impact of evaluative lexis ("internal" or
"external") or its absence ("no") on verb tense selection

---

[42] E. g. *hinc aut illinc* "on this side or that side".

(6) and for DIST[43] in example (7)) and deictic tense usage[44] (also illustrated in example (7)) on the other hand (see section 3.2).

> (6) *Tunc inter primores duorum populorum res <u>geritur</u>; quidquid hinc aut illinc communis Mars belli <u>aufert</u>, multiplex quam pro numero damnum <u>est</u>. Volgus aliud armatorum, uelut delegata primoribus pugna, euentum suum in uirtute aliena <u>ponit</u>. Multi utrimque <u>cadunt</u>, plures uolnera <u>accipiunt</u>.* (Liv. 7. 8. 1).
>
> "The struggle then <u>lay</u> between the best men of both nations, and whatever losses the chance of war <u>inflicted</u> on this side or that side <u>were</u> serious out of all proportion to their number. The common herd of soldiers, as though they had made over the battle to their betters, <u>rested</u> their future on the bravery of thers. Many on both sides <u>fell</u> and more <u>took </u>injuries."

> (7) *Id uero indignum **uisum**[45] ab tumultuario auxilio iam etiam castra Romana terreri, ut ea modo una causa ne extemplo transirent flumen derigerentque aciem tenuerit Romanos quod summa imperii eo die penes Paullum fuerit.[46] Itaque postero die Varro, cui sors eius diei imperii* ERAT, *nihil consulto collega signum **proposuit** instructasque copias flumen **traduxit**, sequente Paullo quia magis non probare quam non adiuuare consilium* POTERAT. (Liv. 22. 45. 4–5)
>
> "This **came across** as truly outrageous, that now even a Roman camp should be terrorized by irregular auxiliaries, so that only that one reason withheld the Romans from immediately crossing the river and forming up the line, namely that the highest command was with Paulus that day. The next day, therefore, Varro, who HAD the lot of that day's command, having consulted his colleague about nothing, **put forward** the standard and **brought** his formed up troops **across** the river, while Paulus followed, because he COULD more easily not approve than not help the plan."

In example (7), *tenuerit* and *fuerit* indicate that a vantage point is taken in the moment of speech, i. e. Livy's (and his audience's) present: these perfect subjunctive forms with past time reference should be interpreted as explicitly anterior to the speech moment.[47]

The X^2 Tests of Independence indicate that deictic indications, if present at all (N = 90; $X^2 = 16.865$, df = 2, p < 0.001), and deictic tense usage (N = 415; $X^2 = 24.15$, df = 2, p < 0.001) are highly significantly correlated to verb tense selection. The correlation plots in Figure 5 and Figure 6 represent the standardized residuals of these tests.

Based on the relevant samples, the presence of PROX appears to be significantly positively correlated to the use of the pr. ind. (C), while the same seems true for DIST and the
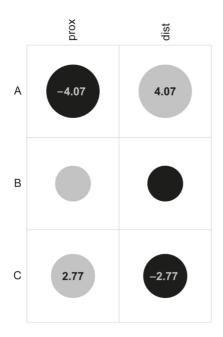
---

[43] E. g. *eo die* "on that day", *postero die* "on the following day", *eius diei* "of that day".
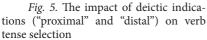
[44] E. g. *tenuerit* "withheld" and *fuerit* "was".

[45] Although past participles like *uisum* "it appeared" are, in my close readings, usually considered merely as a past participle rather than a pf. ind. with ellipsis of a form of *esse*, such a use of the participle almost exclusively occurs with the function of stating events in a much more simple and economic way in Livy's narrative ("participium economicum", cf. Aerts submitted). In this passage, therefore, a case could yet be made for the interpretation of *uisum* as *uisum (est)*.

[46] Briscoe (2016) mentions an alternative reading of *fuit* for *fuerit*. In that case, the effect of *tenuerit* would not change, nor would the data or the outcome of the statistical tests.

[47] See note 3.

Fig. 5. The impact of deictic indications ("proximal" and "distal") on verb tense selection
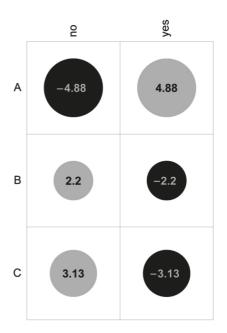

Fig. 6. The impact of the absence ("no") or presence ("yes") of deictic tense usage in the cotext on verb tense selection

pf. ind. (A). In addition, deictically used tense forms are very likely to occur in the cotext of SoAs in the pf. ind., but quite unlikely to occur near an impf. ind. (B) or pr. ind. (C).[48]

As the last test of the first part of our analysis, the hypothesized correlation between the presence of a temporal adverbial and tense selection was evaluated (see section 3.1). Example (8) illustrates the hypothesis put forth above:

(8) *Carthagini* ERAT *quidem ingens terror, et circumferentem arma Scipionem omnibus finitimis raptim perdomitis ipsam Carthaginem repente adgressurum* CREDEBANT. *Itaque et muri* REFI-CIEBANTUR *propugnaculisque* ARMABANTUR, *et pro se quisque quae diutinae obsidionis tolerandae sunt ex agris* <u>conuehit</u>.[49] (Liv. 30. 9. 3–4)

"At Carthage there WAS a veritable panic, and they BELIEVED that Scipio, whose forces were circling about them, after swiftly vanquishing all their neighbours would suddenly assail Carthage itself. Accordingly the walls WERE REPAIRED and ARMED with battlements; and people each for themselves <u>brought in</u> from the country what was needed in order to endure a long siege."

In example (8), the temporal structure of the timeline made up of *reficiebantur* "were repaired", *armabantur* "were armed" and *conuehebat* "brought in" (see note 49) is not me-

---

[48] Note that all of the *actual* and *generic* present tense (C) forms, which refer to e.g. geographical facts (N = 24), have been left out of the count of "C" within *data1_6* because they are considered "noise": they *are* a cotextual cue, they are not *influenced* by one.

[49] Both Conway & Johnson (1935) and Walsh (1986) mention *conuehebat, conuehebant, and conuehebantur* as alternatives to *conuehit* in the manuscripts; however, I follow — and attempt to support with my analysis — Walsh (1986) in his preference for *conuehebat* over *conuehit*.

diated by an external narrator; rather, these events were many and all around an internal observer on the spot.

The X^2 Test of Independence indicates that the use of a temporal adverbial is significantly correlated to verb tense selection (N = 434; X^2 = 47.52, df = 8; p < 0.001; see note 33). The correlation plot in Figure 7 represents the standardized residuals of the test.
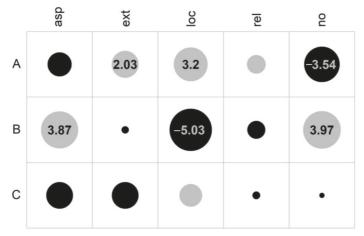

Fig. 7. The impact of the absence ("no") or presence of a temporal adverbial ("aspectual",[50] "extent",[51] "location",[52] "relative")[53][54] on verb tense selection

Based on the sample *data1_7* (N = 434), a significant positive correlation seems to exist between the pf. ind. (N = 174) and all but aspectual temporal adverbials: 6 out of 8 adverbials of temporal extent ("duration") and 57 out of 107 adverbials of temporal location are found with a verb form in the pf. ind. (cf. also the strong negative correlation to the *absence* of a temporal adverbial). The impf. ind. ("B", N = 118), then, appears to be significantly linked to either the use of aspectual adverbials or the absence of any temporal adverbial: 7 out of 8 aspectual adverbials and 92 out of 273 SoAs without a temporal adverbial selected the impf. ind. Importantly for our hypothesis, however, a significant negative correlation seems to exist between the impf. ind. and the presence of an adverb of temporal location.

4.2. The correlation between the narrative tenses and perspectives

The second step of the analysis was to show the correlation between the observable variable of verb tense and the latent variable of perspective. For this, a X^2 Test of Independence was conducted on the subcorpus *data2*, which includes only those data points in the pf. ind., impf. ind. or pr. ind. and with an unambiguous annotation for one of the

---

[50] E. g. *iam* "already", *non iam* "not anymore", *nondum* "not yet".
[51] E. g. *per multos annos* "for many years", *diu* "for a long time".
[52] E. g. *postero die* "the next day", *ad primam uigiliam* "by the first watch".
[53] E. g. *tunc, inde* "(and) then, next", *primo … deinde … denique* "first …, then …, finally …".
[54] See Mittwoch, Huddleston & Collins (2002, sections 6–9) for this classification of temporal adverbials.

(non-neutral) perspectives (N = 378, X^2 = 121.3, df = NA, p < 0.001; see note 33). Figure 8 plots the standardized residuals of this test.
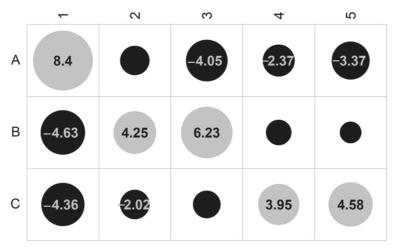

Fig. 8. The correlation between verb tense and perspective

In those cases where a marked choice of perspective was recognized unambiguously during our close reading of the corpus, significantly strong positive correlations can be found, in line with the hypotheses set forth in section 2, between the pf. ind. (A) and P1, between the impf. ind. (B) and P2 and P3, and between the pr. ind. (C) and P4 and P5. Significant strong negative correlations appear to exist especially between the pf. ind. and P3 and between the impf. ind. and pr. ind. on the one hand and P1 on the other hand.

4.3. The correlations between cotextual cues and the annotation of perspective

In the third and final part of our analysis, we will repeat the tests performed in section 4.1 in the same order, but this time with the annotation of perspective as dependent ("outcome") variable instead of verb tense selection.[55] The subcorpus that is used in this section (*data3*) contains all data points for which our close reading resulted in an unambiguous annotation of a marked perspective (N = 596).[56]

First, the CIT in Figure 9 shows the combined (i. e. multivariate) impact of "voice" and "subject animacy" on the annotation of P (see section 3.3).

Node 3 in the CIT suggests that only voice contributes significantly here: SoAs in the passive voice and verb forms that do not have a passive conjugation seem to prefer P1 (122

---

[55] See section 4.1 for all the information regarding the rationale and methodology of the related statistic tests, in case such information was considered unnecessary to be repeated in this section.

[56] Note that the data points in *data3* also contain (historic) infinitives and participles used as finite verbs, as well as subjunctive forms (see section 4.) In addition, observations which are morphologically ambiguous (e.g. *uenit* "he comes/came") were readmitted. The rationale is based on the hypothesis that the correlation between the cotextual cues and "perspective" would exist independently of the morphology of the verb form (cf. note 30).
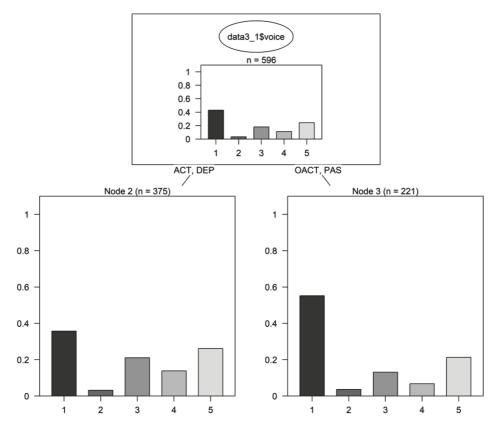
Fig. 9. The combined impact of voice ("active", "active_only", "passive", "deponent") and subject animacy ("yes", "no") on the annotation of perspective

out of 221 observations, i. e. about 55 % of both passive SoAs (N = 122) and SoAs with verbs that have no passive conjugation (N = 99)). However, note that Node 1 (N = 596) shows that P1 was already used in 43 % (i. e. 256 out of 596) of the cases in the sample *data3_1*.

Second, the correlation plot in Figure 10 shows the standardized residuals of the X^2 Test of Independence that evaluated the correlation between process type and the annotation of perspective (N = 593; X^2 = 90.92, df = NA, p < 0.001; see note 33).

Based on the sample *data3_2* (N = 593), P1 (N = 260) and P2 (N = 20) appear to correlate in a significant positive way to REL: out of 128 REL, 72 are narrated from a P1 and 8 from a P2; the latter count also constitutes 40 % of all internally perspectivized events counted unambiguously in our corpus. A significant negative correlation was observed between P1 and MEN. P3 (N = 107), then, appears to be significantly linked to VER and especially MEN: 21 out of 59 VER and 22 out of 50 MEN occur in P3. Significant negative correlations, however, seem to exist with MAT and REL. Finally, P5 (N = 144) appears to be correlated in a significant positive way to MAT, as hypothesized in section 3.1: 99 out of 318 MAT occur in P5. However, the similar positive correlation that we had hypothesized to exist between P5 and VER, appears to be, in fact, strongly negative: VER appear to prefer P4 (N = 66) instead, of which they constitute 14 observations.
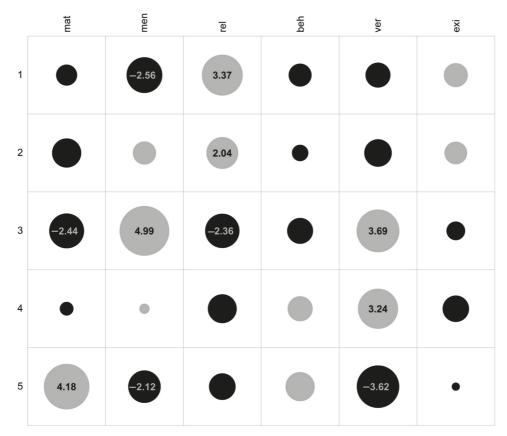
Fig. 10. The impact of process type ("material", "mental", "relational", "behavioural", "verbal", "existential") on the annotation of perspective

	mat	men	rel	beh	ver	exi
1		−2.56	3.37			
2			2.04			
3	−2.44	4.99	−2.36		3.69	
4					3.24	
5	4.18	−2.12			−3.62	

The third and fourth tests of the second part of our analysis evaluate the hypothesized correlations between the annotation of P on the one hand, and COMP (illustrated in example (4) for P1 and in example (9) for P5) and evaluative (illustrated in example (5) for P2 and in examples (10) and (11) for P5 and P1) on the other hand (see section 3.1).

(9) *[Dum altercationibus magis quam consiliis tempus <u>teritur</u>,]*[57] *Hannibal ex acie, quam ad multum diei tenuerat instructam, cum in castra ceteras reciperet copias, Numidas ad inuadendos ex minoribus castris Romanorum aquatores trans flumen <u>mittit</u>.* (Liv. 22. 45. 1–2)

"[While the time <u>was spent</u> with discussions rather than with counsel,] Hannibal <u>sent</u> from the battle line, which he had held formed up till far on in the day, as he withdrew the rest of the troops into the camp, the Numidians across the river to attack the water fetchers of the Romans from the smaller camp."

(10) *Quibus caesis omnibus praeterquam hostili odio etiam ne quis nuntius refugeret, extemplo Scipio neglectas ut in tali tumultu portas <u>inuadit</u>; ignibusque in proxima tecta coniectis effusa*

---

[57] The use of square brackets in the examples is meant to indicate that the bracketed clause should not be regarded as a part of the example which helps to illustrate the use of the perspective in question; such clauses are merely added to provide the reader with the full cotext of passage cited to illustrate the perspective.

flamma primo uelut sparsa pluribus locis **reluxit**, *dein per continua serpens uno repente omnia incendio* **hausit**. (Liv. 30. 6. 4–5)

"When they had all been slain, not only because of an enemy's hatred, but also that no man might escape to tell the tale, Scipio at once <u>burst</u> into the gates, naturally unguarded in such a commotion. And then as firebrands were thrown upon the nearest roofs, the flames pouring out at **blazed** as if scattered over a number of locations; and then creeping along without a break they promptly **consumed** everything in one conflagration."

(11) ***Caesa* aut *hausta* flammis ad quadraginta milia hominum *sunt*, *capta* supra quinque milia,** *multi Carthaginiensium nobiles, undecim senatores; signa militaria centum septuaginta quattuor, equi Numidici supra duo milia septingentos; elephanti sex capti, octo ferro flammaque absumpti.* (Liv. 30. 6. 8–9)

"Slain or **burned** to death **were** some forty thousand men, more than five thousand **captured**, many Carthaginian nobles, eleven senators. Of military standards a hundred and seventy-four were taken, of Numidian horses over two thousand seven hundred. Six elephants were captured, eight destroyed by sword or by fire."

In example (9), the three subordinate clauses indicate the ability of an observer — with an overview of the events taking place below their "top-of-the-hill" position — to make comparisons to other times and places (P5; see section 2). The same perspective was annotated for example (10), where phrases like *ut in tali tumultu* "as (natural) in such a commotion" are considered externally evaluative). In example (11), the evaluation of the casualties of the battle is by definition dependent on a P1, concluding the episode and looking back on the events with hindsight.

The correlation plots in Figure 11 and Figure 12 show the standardized residuals of the X^2 Tests of Independence that evaluated the correlations between the annotation of perspective and COMP (N = 595; $X^2 = 92.97$, df = NA, p < 0.001; see note 33) and EVA (N = 588; $X^2 = 279.12$, df = NA, p < 0.001; see note 33) as highly significant.

The hypothesized correlations (see section 3.1) seem to be confirmed by the data, with the exception of the one between external EVA and P5, for which the positive correlations (in grey) are shared between the absence of all EVA and the presence of external evaluation.

In addition, and in contrast to their role apparent from the first part of our analysis (but see note 30), a significant correlation was found for the variables PERS (N = 595; $X^2 = 21.87$, df = NA, p = 0.001; see note 33) and DESC (N = 595; $X^2 = 102.89$, df = 4, p < 0.001). Especially the presence of DESC was very strongly negatively correlated to P1 (stdres = -9.18), and (to a much lesser extent) to P2 (stdres = −2.26); a significant positive correlation seems to exist between DESC in the cotext and P3 (stdres = 3.13), P4 (stdres = 5.11) and P5 (stdres = 4.96). Example (12) illustrates the positive association between P5 and the presence of descriptive and external EVA:

(12) *Hannibal spem nanctus locis natis ad equestrem pugnam, [qua parte uirium inuictus ERAT,]*[58] *facturos copiam pugnandi consules,* <u>*dirigit*</u> *aciem* <u>*lacessit*</u>*que Numidarum procursatione hostes.* (Liv. 22. 44. 4)

"Hannibal, having conceived hope that the consuls would give him the opportunity of fighting in a location naturally suited for a cavalry fight, [in which part of *vires* he WAS unbeaten,] <u>formed up</u> his battle line and <u>harassed</u> the enemy with a sally of the Numidians."
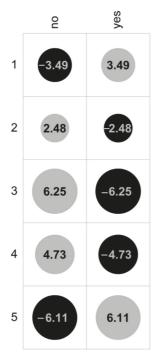
---

[58] See note 57.

	no	yes
1	−3.49	3.49
2	2.48	−2.48
3	6.25	−6.25
4	4.73	−4.73
5	−6.11	6.11

Fig. 11. The impact of the presence ("yes") or absence ("no") of comparative lexis on the annotation of perspective

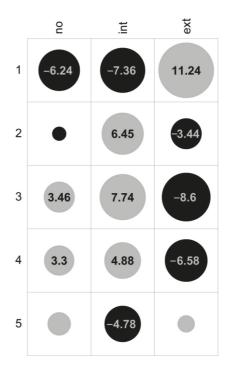|	no	int	ext
1	−6.24	−7.36	11.24
2		6.45	−3.44
3	3.46	7.74	−8.6
4	3.3	4.88	−6.58
5		−4.78	

Fig. 12. The impact of evaluative lexis ("internal" or "external") or its absence ("no") on the annotation of perspective

P5 is indicated by the words *spem … consules* "having … fight", which are considered as an evaluative remark on the part of the narrator, and the words *[derigit] aciem* "[formed up] his battle line" and *procursatione* "a sally", which appeal to the perceptive senses of the audience.

For the presence of PERS in the cotext, a significant positive correlation was found to P2 (stdres = 3.79) and a significant negative one to P1 (stdres = −2.44). In example (13), the positive association between P2 and the presence of PERS is illustrated:

(13) *Nec Scipio ullo tempore hiemis belli opera remiserat, quae multa simul undique eum* CIR-CUMSTABANT. *Vticam* OBSIDEBAT; *castra in conspectu Hasdrubalis* ERANT; *Carthaginienses deduxerant naues; classem paratam instructamque ad commeatus intercipiendos* HABEBANT. (Liv. 30. 3. 3–4)

"Nor had Scipio, at any time during the winter, lessened his military operations, which WERE many and all AROUND him at the same time: he WAS BESIEGING Utica, the camp of Hasdrubal WAS in [his] sight, the Carthaginians had launched their ships, and WERE KEEPING their fleet ready and equipped, in order to intercept [his] supplies."

The perspective of Scipio, whose name is placed (very conspicuously) at the outset of this new passage and who is thereafter constantly referred to with pronouns ("pronominalization" or "subject-chaining", cf. Stockwell 2002, 53–54), is apparent by instances of

PERS such as *opera … quae eum circumstabant* "many [concerns] were around him" and *in conspectu* "in [his] sight".

In the fifth and sixth tests of this second part of our analysis, the hypothesized correlations were evaluated between the annotation of perspective on the one hand, and deictic indications (illustrated for P5 in examples (6) and (14)) and for P1 in example (7)) and deictic tense usage (illustrated for P1 in example (7)) on the other hand (see section 3.2).

(14) *Multi mortales **conuenere**, studio etiam uidendae nouae urbis, maxime proximi quique, Caeninenses, Crustumini, Antemnates; iam Sabinorum omnis multitudo cum liberis ac coniugibus **uenit**. Inuitati hospitaliter per domos cum situm moeniaque et frequentem tectis urbem uidissent, mirantur tam breui rem Romanam creuisse. Vbi spectaculi tempus **uenit** deditaeque eo mentes cum oculis erant, tum ex composito orta uis signoque dato iuuentus Romana ad rapiendas uirgines **discurrit**.* (Liv. 1. 9. 8–10)

"Many people … **came together** for the festival, especially those who lived nearest, the inhabitants of Caenina, Crustumium, and Antemnae. Now the Sabines **came** with all their people, including their children and wives. … When the time **came** for the show, and people's thoughts and eyes were busy with it, the preconcerted attack began. At a given signal the young Romans **darted this way and that**, to seize and carry off the maidens."

In example (14), the PROX *conuenere* "came together", *proximi* "the neighbouring peoples", *iam* "presently",[59] *uenit* "came" (x2), *discurrit* "darted this way and that" strongly suggest a vantage point taken, by the narrator and their audience, at the scene of the events within the story-world.

The tests evaluating the independence between the annotation of perspective on the one hand, and deictic indications, if present at all (N = 140; $X^2 = 125.24$, df = NA, p < 0.001; see note 33), and deictic tense usage (N = 564; $X^2 = 46.37$, df = NA, p < 0.001; see note 33) on the other hand, were statistically significant. The correlation plots in Figure 13 and Figure 14 represent the standardized residuals of these tests.

Based on the relevant samples, the presence of PROX appears to be significantly positively correlated to the annotation of both P4 and P5, while the same seems to hold true for DIST and P1. In addition, deictically used tense forms are very likely to occur especially in the cotext of SoAs narrated from a P1, but quite unlikely to occur if the perspective is P3, P4 or P5.[60]

The last test of the third part of our analysis, concerning the hypothesized negative correlation between P2 and the presence of a temporal adverbial (see section 3.1), indicated that this correlation is not statistically significant within our current corpus (N = 584; $X^2 = 18.06$, df = NA, p = 0.32; see note 33).

---

[59] The interpretation of *iam* as "presently, now" in this passage is due to the tense chosen for the main verb in this clause: in Livy's narrative, *iam* in the sense of "already", i. e. as an aspectual temporal adverbial (see note 50), occurs almost exclusively with the impf. ind. and the pluperfect tense in our corpus. Although the pf. ind., one of the morphologically possible interpretations for the tense of *uenit*, is used in temporal subordinate clauses (e.g. with *postquam*) with the meaning of, indeed, a pluperfect indicative already in Livy's work, the use of the pf. ind. with past-before-past meaning in main clauses is very rare before the development towards Late Latin (cf. Kiss 1982, 11). The interpretation of *uenit* as a pr. ind. and *iam* in the sense of "now" seems much less far-fetched.
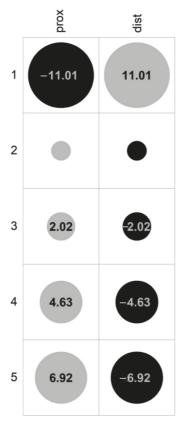
[60] See also note 48.

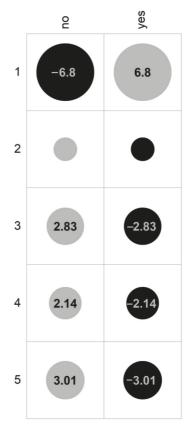*Fig. 13.* The impact of deictic indications ("proximal" and "distal") on the annotation of perspective

Fig. 14. The impact of the absence ("no") or presence ("yes") of deictic tense usage in the cotext on the annotation of perspective

5. Concluding remarks

The aim of this paper was to ascertain whether the proposed methodology of "cotextual cues" for the annotation of perspective is confirmed by the language data I have gathered so far. More specifically, our goal has been to evaluate the strengths of the correlations between the cotextual cues reported in the literature (see section 3) and the observable variables of verb tense selection on the one hand, and the annotation of perspective on the other. Performing statistical tests (the Conditional Inference Tree and the X^2 Test of Independence) on the relevant samples, we have shown that the correlations between verb tense selection and lexical cues — apart from personal and descriptive lexis, and only for the pf. ind. and impf. ind. (but see note 13) — were as we had expected them to be. However, for mental processes in particular, the corpus data did not yield the hypothesized correlation: the many relational processes in the corpus with *era(n)t* probably influenced the correlation between mental processes and the impf. ind. The hypothesized correlations between verb tense selection and deictic cues were also largely confirmed, especially for the pf. ind. and pr. ind. (but see note 15), as well as those with subject animacy (see note 16).

Next, the correlations between the verb tenses and perspectives were shown to be positive/negative and strong where we had hypothesized them to be — despite the principle of metafunctional hierarchy (see note 30).

Finally, all cotextual cues were shown to be correlated to the annotation of perspective as we had anticipated in section 3, except for subject animacy (see again note 16). Concerning process types, the issue with mental processes and the impf. ind. appears resolved: mental processes are strongly correlated to the scenic-camera eye perspective, which, indeed, has many events in the historical present tense when foregroundedness is stressed (see note 30; Aerts submitted, section 3). Interestingly, verbal processes seem correlated to a viewpoint from within (P3 or P4) rather than to a temporal illusion of proximity (P4 and P5); indeed, to hear a character's words implies being cognitively closer than, for instance, on top of a hill. Similarly interestingly, material processes appear to be positively correlated only to P5.

In conclusion, apart from these minor issues, most of which are explainable within our wider three-dimensional framework (Aerts 2018; Aerts forthcoming; Aerts submitted), no significant conflicts were found in any test regarding the value and validity of our framework of cotextual cues for the annotation of perspective in Livy's narrative.

References

Adema S. M. *Tenses in Vergil's* Aeneid. *Narrative Style and Structure*. Leiden, Brill, 2019.

Aerts S. Tense, Aspect and Aktionsart in Classical Latin: Towards a New Approach. *Symbolae Osloenses* 2018, 92, 107–149.

Aerts S. A Three-Dimensional, Systemic Functional Analysis of Tense Usage in Gregory of Tours' *Historia Francorum*. *Acta Antiqua Academiae Scientiarum Hungaricae* 2019, 59, forthcoming.

Aerts S. An SFL-Inspired Corpus-Based Analysis of the Combined Impact of Three-Dimensional Latin tense and Aspect on Verb Tense Selection in Livy's *Ab Urbe Condita*, submitted.

Allan R. J., I. J. F. de Jong, and C. C. de Jonge. From *Enargeia* to Immersion: The Ancient Roots of a Modern Concept. *Style* 2017, 51 (1), 34–51.

Anderson S. R. and E. L. Keenan. Deixis, in: T. Shopen (ed.), *Language Typology and Syntactic Description. Vol. 3: Grammatical Categories and the Lexicon*. Cambridge, CUP, 1985, 259–308.

Bache C. *English Tense and Aspect in Halliday's Systemic Functional Grammar: A Critical Appraisal and an Alternative*. London, Equinox, 2008.

Bentein K. Aspectual Choice with Verba Dicendi in Herodotus' *Histories*. *Emerita* 2015, 83 (2), 221–245.

Briscoe J. (ed. comm.). *Titi Livi Ab Urbe Condita, Vol. 3: Libri XXI–XXV*. Oxford, OUP, 2016.

Conway R. S. and S. K. Johnson (eds. comms.). *Titi Livi Ab Urbe Condita, Vol. 4: Libri XXVI–XXX*. Oxford, OUP, 1935.

Conway R. S. and C. F. Walters (eds. comms.). *Titi Livi Ab Urbe Condita, Vol. 2: Libri VI–X*. Oxford, OUP, 1919.

De Jong I. J. F. and R. Nünlist. From Bird's Eye View to Close-up: The Standpoint of the Narrator in the Homeric Epics, in: A. Bierl, A. Schmitt and A. Willi (eds.), *Antike Literatur in neuer Deutung: Festschrift für Joachim Latacz anlässlich seines 70. Geburtstages*. München — Leipzig, Saur, 2004, 63–83.

Dorey T. A. (ed. comm.). *Titi Livi Ab Urbe Condita Libri XXI–XXII*. Leipzig, Teubner, 1971.

Fillmore C. J. *Lectures on Deixis*. Stanford, CA, CSLI Publications, 1997.

Fleischman S. *Tense and Narrativity: From Medieval Performance to Modern Fiction*. London, Routledge, 1990.

Foster B. O. (ed. comm.) *Livy: In Fourteen Volumes. 1: Books I–II*. Cambridge, Mass., HUP, 1919.

Foster B. O. (ed. comm.) *Livy: In Fourteen Volumes. 3: Books V–VII*. Cambridge, Mass., HUP, 1924.

Foster B. O. (ed. comm.). *Livy: In Fourteen Volumes. 5: Books XXI–XXII*. Cambridge, Mass., HUP, 1929.

Gundel J. Information Structure and Referential Givenness/Newness: How Much Belongs in the Grammar?, in: S. Müller (ed.), *Proceedings of the 10th International Conference on Head-Driven Phrase Structure Grammar, Michigan State University*. Stanford, CA, CSLI Publications, 2003, 122–142.

Halliday M. A. K. and C. M. I. M. Matthiessen. *Halliday's Introduction to Functional Grammar*. Milton Park, Abingdon, Oxon, Routledge, [4]2014.

Haverling G. V. M. Actionality, Tense, and Viewpoint, in: P. Baldi & P. Cuzzolin (eds.), *New Perspectives on Historical Latin Syntax. Vol. 2: Constituent Syntax: Adverbial Phrases, Adverbs, Mood, Tense.* Berlin — New York, De Gruyter, 2010, 277–523.

Hope A. C. A. A Simplified Monte Carlo Significance Test Procedure. *Journal of the Royal Statistical Society: Series B (Methodological)* 1968, 30 (3), 582–98.

Kiss S. *Tendances évolutives de la syntaxe verbale en latin tardif.* Debrecen, Kossuth Lajos Tudományegyetem, 1982.

McIntyre D. *Point of View in Plays: A Cognitive Stylistic Approach to Viewpoint in Drama and Other Text-Types.* Amsterdam — Philadelphia, John Benjamins, 2006.

Mittwoch, A., R. Huddleston, and P. Collins. The Clause: Adjuncts, in: R. Huddleston and G. K. Pullum (eds.), *The Cambridge Grammar of the English Language.* Cambridge, CUP, 2002, 663–784.

Moore F. G. (ed. comm.). *Livy: In Fourteen Volumes. 8: Books XXVIII — XXX.* Cambridge, Mass., HUP, 2002.

Ogilvie R. M. (ed. comm.). *Titi Livi Ab Urbe Condita, Vol. 1: Libri I–V.* Oxford, OUP, 1974.

Pinkster H. The Discourse Function of the Passive, in: A. M. Bolkestein, C. de Groot, and J. L. Mackenzie (eds.), *Syntax and Pragmatics in Functional Grammar.* Berlin — New York, De Gruyter, 1985, 107–118.

Reichenbach H. *Elements of Symbolic Logic.* New York, Macmillan & Co, 1947.

Stockwell P. *Cognitive Poetics: An Introduction.* London, Routledge, 2002.

Thompson G. *Introducing Functional Grammar.* London, Routledge, [3]2014.

Tucker G. H. *The Lexicogrammar of Adjectives: A Systemic Functional Approach to Lexis.* London, Cassell, 1998.

Walsh P. G. (ed. comm.) *Titi Livi Ab Urbe Condita Libri XXVIII–XXX.* Leipzig, Teubner, 1986.