The *Theaetetus* as a Narrative Dialogue?

i. Introduction

The recent study of Plato's *Cratylus* by Sedley has offered us exceptional evidence of the later revision of a fairly early work by Plato.[1] Earlier the works of Holger Thesleff gave prominence to the idea that two of Plato's longer dialogues, now preserved in the direct or dramatic manner of presentation, were originally written in narrative form, and then later converted to dramatic form as the result of a significant revision.[2] I here wish to demonstrate the extent to which recent computer-analysis of Plato's vocabulary, undertaken for entirely different purposes, is able to support Thesleff's thesis. Narrative and dramatic form may be seen as distinguishing two sub-genres of Plato's work, even though some narrative works have been provided with a limited 'frame' in dramatic form and some dramatic works contain reported conversations that have taken place or might take place. The fact that the difference in sub-genre may not consistently be obvious to the reader does not alter the expectation that a somewhat different linguistic mix will generally apply. Such variations within a wider genre are well known, and, in a Chapter entitled 'Extending the description: variation within genres', Douglas Biber considers the range of variation under five main headings, the second of which is 'Narrative versus Non-Narrative Concerns'.[3]

With regard to the *Theaetetus* the theory of such a revision from narrative to dramatic form is initially made credible by the strange little *prooemion*, which makes reference to Euclides' having written only the words of the speakers, removing Socrates' narrative and with it the repetitive use of expressions like 'I said' and 'He agreed.' Here is the passage (142b5-c5):

> ἐγραψάμην δὲ δὴ οὑτωσὶ τὸν λόγον, οὐκ ἐμοὶ τὸν Σωκράτη διηγούμενον ὡς διηγεῖτο, ἀλλὰ διαλεγόμενον οἷς ἔφη διαλεχθῆναι. ἔφη δὲ τῷ τε γεομέτρῃ Θεοδώρῳ καὶ τῷ Θεαιτήτῳ. ἵνα οὖν ἐν τῇ γραφῇ μὴ παρέχοιεν πράγματα αἱ μεταξὺ τῶν λόγων διηγήσεις περὶ αὑτοῦ τε ὁπότε λέγοι ὁ Σωκράτης, οἷον "καὶ ἐγὼ ἔφην" ἢ "καὶ ἐγὼ εἶπον," ἢ αὖ περὶ τοῦ ἀποκρινομένου ὅτι "συνέφη" ἢ "οὐχ ὡμολόγει," τούτων ἕνεκα ὡς αὐτὸν αὐτοῖς διαλεγόμενον ἔγραψα, ἐξελὼν τὰ τοιαῦτα.

> This is how I wrote the discussion, not with Socrates narrating it to me in the way that he was narrating it, but conversing with those he said he conversed with. He said these were Theodorus the geometrician and Theaetetus. So in order that the bits between their words should not cause problems in the writing, whenever Socrates said something about himself, like 'And I said' or 'And I spoke', or again about the interlocutor, [noting] that 'He concurred' or 'He didn't agree'—for this reason I wrote as if he were having the discussion with them, removing such bits.

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[1]   Sedley (2003), 6-16.

[2]   Thesleff (2007) and Thesleff (2003) for the *Gorgias*; Thesleff (1982), 83-87, 125-7, 152-7, for both dialogues.

[3]   Biber (1988), 181; other variations are 'Involved v. Informational Production', 'Explicit v. Situation-Dependent Reference', 'Overt expression of Persuasion', and 'Abstract v. Non-Abstract Information'. All have potential significance for the analysis of Plato's Language.

It is quite obvious at the outset that what is envisaged is a narrative *by Socrates* (as in *Charmides*, *Euthydemus*, *Lysis*, *Protagoras*, and *Republic*) rather than by another of those present, an alternative strategy of which we have three examples: Phaedo, Aristodemus and Pythodorus in the *Phaedo, Symposium* and *Parmenides* respectively. The choice of two possible *first person* introductions to Socrates' words and two possible *third person* introductions to the expressions of assent confirms this impression. It is claimed that Euclides has saved himself tedious work by 'removing such things' (*exelôn ta toiauta*, 143c5). The anonymous commentator on the dialogue knew of an alternative 'rather frigid' introduction that circulated in antiquity, which began with the words 'Boy, bring me the book about Theaetetus',[4] which must also have highlighted the book and the way in which it had been written.[5]

The *Gorgias* contains no such evidence as this, but 447c9 has been seen as marking a scene-change that could only have been effectively established through narrative presentation. Other reasons have been given for supposing a revision,[6] though the present author had not been convinced that there was sufficient reason for supposing an original narrative version. Arguments have included those based on language, shifting subject-matter, and fluctuations in dramatic date.[7]

As part of a project investigating the authorship of the *dubia* Terry Roberts and I had created modified versions of a number of the more 'Socratic' of Plato's dialogues, including *Apology*, *Charmides*, *Crito*, *Euthydemus*, *Euthyphro*, *Laches*, *Lysis*, *Meno* and *Republic I*.[8] As will be seen, five of these involve dramatic presentation, and four involve primarily narrative presentation.[9] Counting each occurrence of a given verb, noun, pronoun, or adjective as a single word (regardless of inflexions), we analysed the most frequent vocabulary items (up to 200) by two different means. Either the commonest words (usually the commonest 100) in the entire group were employed, or else a set of words was chosen in such a way as to exclude those that were only needed by an author for discussion of particular types of subject matter. This would leave the kind of words that were considered to be needed for any type of discussion, including conjunctions, prepositions, particles, pronouns, demonstratives, a few of the commonest verbs such as 'to be' and 'to become', some adverbs, and a very small selection of adjectives (usually those which were the root of common adverbs that had

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[4]   Anon *Tht*. III.28-37, for which see Bastianini and Sedley (1995).

[5]   One supposes that the commentator would have been quick to mention it if that prologue had been introducing a book in narrative rather than dramatic form.

[6]   Tarrant (1982), and especially Tarrant (1994), 118 n.28, where it is reported that the rather formal verbal forms in $-\tau\acute{\epsilon}o\nu$, characteristic mainly of *Republic* and works usually held to postdate it (*Crito* being a significant exception), occur in the *Gorgias* only from the point where the argument with Polus concludes (480e x 3), but are quite common thereafter (around 1 per Stephanus page) as if suddenly discovered by the author. I claimed that the first verbal occurs only after Polus has spoken his last word, though in fact he has one line left. There is no question that there were occasions when verbals could have been used prior to 480e, attracting instead alternatives such as $\delta\epsilon\hat{\iota}$ and $\chi\rho\acute{\eta}$. Later it will be important that no verbal occurs in *Gorgias* blocks 1-5, and only at 499e in block 9.

[7]   The only important anachronism is the reference to Archelaus of Macedon at 471a-d and 525d, since the references to Euripides' play *Antiope* are likely to be fully in accord with a date in the mid 420s, Tarrant (2008).

[8]   Long dialogues involving layers of very different material like *Protagoras* and *Symposium* had never been intended to be included, nor had dialogues generally agreed to be 'middle-period' such as *Phaedo*. The *Hippias Minor* and *Ion* appeared close to each other but otherwise anomalous, and are not discussed here.

[9]   The *Euthydemus* sets its narrative within a dramatic frame.

been treated as the same word). These were given the status of 'function-words', and they were usually about half of the commonest 200 words. Certain function-words were clearly needed more in narrative dialogues, such as those employed in expressions indicating a change of speaker, while the particle ὦ that precedes a vocative was employed more in dramatic dialogues. These were deliberately omitted from function-word analyses, and results examined with and without the article owing to its ability to constitute over 10% of the entire vocabulary, and so to have a disproportionate effect on the results.

While the principal purpose of the project was to establish means of comparing dialogues of virtually unchallenged authenticity with those of a broadly 'Socratic' type that have been widely suspected of being wholly or partly by another author, such as the dialogues of Tetralogy IV, the *Theages*, *Hippias Major*, *Clitophon*, and *Minos*, analyses were sometimes limited to nine or fewer 'unproblematic' Platonic dialogues in order to test the degree to which coherence might be expected within the individual dialogues, and whether there were closer affinities between some dialogues than between others. Unless tests required preset sections, each work was automatically divided into blocks of 2000 words (roughly 6 Stephanus pages), though the program used allowed the final block to run to 3999 words. Where relevant to the test works might be broken at a point determined by a change of discourse, initially involving only *Crito*, broken at 50e rather than at 48d (2000 words), into *Crito* A and B. That is because Socrates thereafter speaks largely without interruption, imagining an address to him by the personified Laws of Athens. Later, observing the atypical nature of the second block of *Meno*, we isolated the mathematical section where Socrates elicits correct answers from a slave, and also the passage where Socrates examines Anytus. This resulted in five separate files (*Meno* A-E) rather than four blocks. The short aberrant *Meno* B (slave) was usually disregarded thereafter.

If we had successfully excluded dialogues not written wholly by Plato, then differences detected in analysis were likely to be associated with (1) sub-genre, (2) chronology, (3) types of subject-matter,[10] or (4) constraints that Plato faced in getting his message across. For instance, the *Apology* was presented largely in the form of a courtroom speech, so that it had to be regarded as a sub-genre not otherwise represented. Even so, block 2 contained the cross-examination of Socrates' opponent Meletus, so a large proportion of the block reverted to something more typical of Socrates' discussions. Hence block 2 was likely to appear at a short but significant distance from the other three blocks of the work. Those three tended to appear close to *Crito* B and *Laches* 1, which both gave prominence to long continuous speeches.

An example where similarity of subject-matter might be playing a part involves *Charmides* 3 (from 164c) and 4 (from 169e). Throughout these two blocks there has been a shift from attempted ethical explanations of what it is to be sensible (*sôphrôn*) to attempted epistemological ones. This may therefore offer an explanation of why our analyses often placed *Charmides* 3-4 close to the bulk of the *Meno*, another dialogue that investigates the epistemological foundations of ethics, and at some distance from *Charmides* 1-2. However, in function-word analysis words that would normally be subject-related have been excluded, so that the proximity should be

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[10] Initially some tests did not exclude subject-relevant words; occasionally a preposition or demonstrative could become relevant to subject-matter in more technical discourse.

explained in other terms. Common subject-matter may stem from a period of composition, or result in the choice of a particular type of discourse. In point of fact it was primarily the undifferentiated 100-word analysis, later abandoned, that placed *Charmides* 3-4 close to *Meno* B, C, and E.

Finally let me give an example of the constraints that Plato faced. *Lysis* 3 (from 215a) contains some especially tricky argumentation and some important but relatively difficult ideas. The argument may therefore often seem quite tortuous. One case of how this affects the vocabulary mix is that the single line 218d10 consists of 11 words, including 4 x φίλος, 2 x οὔτε, and 2 x the article. Such diction, if sustained, can skew results. In these cases it is prudent to expect results to be a little eccentric when subjected to computer analysis. Fortunately whole works of undisputed authorship are seldom much affected in this way, so that there are always some parts that appear to offer examples of natural Platonic writing.

The Computer's Separation of Dramatic and Narrative Dialogues
It had been noted when just the nine dialogues were employed that analyses, even those of function-words that had excluded those typical of a particular kind of presentation, tended to show up the difference between dramatic and narrative dialogues. In factor analysis, carried out with the widely used statistics software package SPSS, this difference was usually captured in factor 2. The following chart includes also the first five blocks of the *Theaetetus* at an early stage of processing, divided into 2000-word blocks as usual. The abbreviations *Rep*1-4 all apply to *Republic* book I. Look for more monologic material to the left, and rapid dialogic material to the right; also for dramatic dialogues in the top half, and narrative dialogues mostly in the lower half.
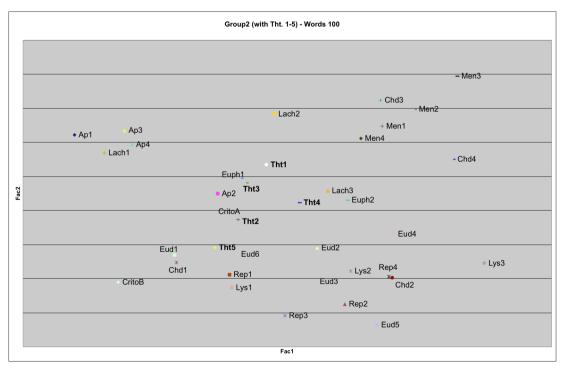

Chart 1: Nine 'early' dialogues with five *Theaetetus* blocks: commonest 100 words

It will be seen that factor 1, represented by the horizontal X-axis, has a connection with how *discursive* or *dialogic* the material was. The anomalous block of *Apology*

that appears furthest to the right includes the cross-examination of Meletus in addition to informal speech. The first block of *Laches* (to 184c) also includes quite a lot of material in the form of informal speeches rather than elenctic or dialectical argument, and there are only 13 changes of speaker. *Crito*B begins with the speech of the Laws of Athens at 50a, which fills most of the final part of the dialogue, while even *Crito*A contains many longer speeches between 44b and 46a. *Charmides*1 (to 158e) and *Euthydemus*1 (to 277b) include much material of a straightforward narrative form, with Socrates' Zalmoxis speech (156d1-157c6) also occurring within the former. The sophisms in the *Euthydemus* do not begin until 275d2, when the first block is already well advanced. Next to block 1, block 6 (from 300b) is furthest left, and more than half of it is the narrative coda (from 303b1) and the reflective discussion (in dramatic form) with 'Crito' (304b6–307c4). Block 1 (to 333a) is also easily the furthest to the left of the *Republic I* blocks, and it has much straightforward narrative as well as the exchange with Cephalus that includes several longer speeches (328c5-331d1) and only 12 changes of speaker. The furthest block to the left of the *Theaetetus* is block 5 (166b-172b), which contains almost all of the long speech made on behalf of Protagoras—about one third of the block.

On the right of the chart we discover blocks containing simply presented question-and-answer argument, particularly *Lysis*3 (from 215a) and *Charmides*4 (from 169e). Also here falls *Meno*3 (82d-88e), which contains much of the very plain cross-examination of the slave (to 85b) and concludes with a rapid exchange with Meno on the convergence of knowledge and excellence (from 87c). In general more *argumentative* blocks of a dialogue find their way to this side of the graph, so that in the case of *Republic I* it is block 4 (from 344d, containing most of the argument with Thrasymachus after his long *rhêsis*) that is positioned furthest to the right.

Thus the difference in language-mix that the computer finds to be most substantial accompanies the shift from longer speeches (including narratives) to rapid-fire arguments, and this accounts for much of the separation according to factor 1. But what lies behind the difference charted according to factor 2, the second most obvious difference that SPSS detected? It is easily noticed that everything at the bottom is written in narrative form, except for *Crito* B, where the speech of the 'Laws of Athens', of which it largely consists, is a hypothetical conversation *reported* by Socrates and therefore resembles a narrated dialogue. Most blocks of the narrated dialogues are placed in the lower half, the exceptions being *Charmides* blocks 3 and 4, which we have previously identified as being somehow special. Most of the dramatic dialogues are found in the upper half; in fact only *Theaetetus* block 5 is found entering into the bottom third, thus infiltrating the main group of narrated dialogues. Here are the actual figures according to which factor 2 has been mapped:

Position	Type	Block	Abbrev.	Factor 2
1	D	Meno (3)	Men3	1.97
2	N	Charmides (3)	Chm3	1.62
3	D	Meno (2)	Men2	1.49
4	D	Laches (2)	Lach2	1.42
5	D	Meno (1)	Men1	1.24
6	D	Apology (3)	Ap3	1.18
7	D	Apology (1)	Ap1	1.11
8	D	Meno (4)	Men4	1.06
9	D	Apology (4)	Ap4	0.97
10	D	Laches (1)	Lach1	0.85
11	N	Charmides (4)	Chm4	0.76
12	D	Theaetetus (1)	Tht1	0.67
13	D	Euthyphro (1)	Euph1	0.48
14	D	Theaetetus (3)	Tht3	0.41
15	D	Laches (3)	Lach3	0.29
16	D	Apology (2)	Ap2	0.25
17	D	Euthyphro (2)	Euph2	0.15
18	D	Theaetetus (4)	Tht4	0.12
19	D	Theaetetus (2)	Tht2	-0.13
20	D	CritoA (1)	CritA	-0.13
21	N*	Euthydemus (4)	Eud4	-0.34
22	D	Theaetetus (5)	Tht5	-0.54
23	N	Euthydemus (2)	Eud2	-0.55
24	N	Euthydemus (6)	Eud6	-0.64
25	N	Euthydemus (1)	Eud1	-0.65
26	N	Charmides (1)	Chd1	-0.76
27	N	Lysis (3)	Lys3	-0.78
28	N	Lysis (2)	Lys2	-0.89
29	N	Euthydemus (3)	Eud3	-0.93
30	N	Republic I (1)	Rep1	-0.94
31	N	Republic I (4)	Rep4	-0.97
32	N	Charmides (2)	Chm2	-0.99
33	D*	CritoB (1)	CritB	-1.05
34	N	Lysis (1)	Lys1	-1.13
35	N	Republic I (2)	Rep2	-1.38
36	N	Republic I (3)	Rep3	-1.54
37	N	Euthydemus (5)	Eud5	-1.68

Table 1: Factor 2 positions of Dramatic and Narrative Blocks

This makes it obvious that the blocks of the narrative dialogues have, with a few exceptions, been separated out from the blocks of dramatic dialogues. Since *Crito*B itself consists mainly of a report of a hypothetical conversation, and the imaginary speech of Protagoras may have skewed *Theaetetus*5, it may be that only *Charmides*3 & 4 should be regarded as exceptions. Furthermore *Euthydemus*5 contains a substantial slab of direct dramatic dialogue between the narrator Socrates and his friend Crito at 290e-293a, meaning that about two fifths of the block have a dramatic character—enough to explain its ambiguous position.

It is easy to appreciate that certain items of vocabulary are going to be required more for narrative presentation (most obviously verbs of saying), and others for dramatic presentation (where vocatives often introduced by *ô* enable one to follow changes of speaker). Function-word data do not include these problematic forms, so let us see how the Platonic dialogues, here with the slightly problematic *Hippias Major*, are

distributed by an analysis of the function-words. Many features of this graph will seem familiar:
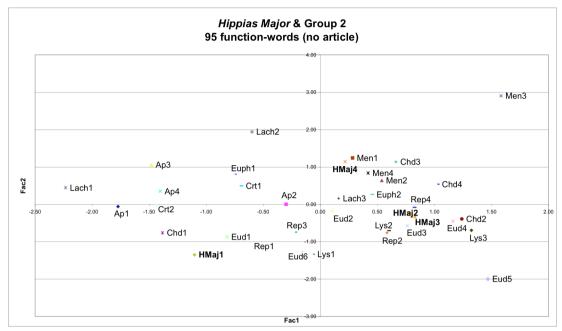

Chart 2: Nine Dialogues with *Hippias Major*

As before *Apology*1, 3, and 4 are found to the left along with *Laches*1, *Crito*2 (now starting at 48d), and *Charmides*1. A new addition to this area is *Hippias Major*1 (HMaj1, to 287c), the end of which coincides with the start of the arguments, confining it to an area in which several half-page speeches are contributed by both Hippias and Socrates. *Meno*3 is well over to the right with other blocks consisting mostly of plain (usually tricky) argument, *Lysis*3, *Charmides*2 & 4, and *Euthydemus*4 & 5. Since *Hippias Major*4 (from 298b) contains some longer contributions, such as the final two speeches, it resembles the final blocks of *Meno* and *Euthydemus* (4 and 6 respectively) in being the closest on this X-axis to the first block. Hence the X-axis is determined according to approximately the same principles as before, though with slight differences due to the targeting of a particular group of words.

Apart from most of the *Hippias Major*, whose authenticity is not wholly agreed upon,[11] the only blocks of dramatic-form dialogues that fall below the 0-line on the Y-axis are *Apology*1 (–0.06) and *Crito*2 (–0.02), neither being typical dramatic-dialogue material. The only blocks of narrative dialogues to fall above this line are *Charmides*3 & 4 (+1.13, +0.54), with *Republic*4 coming close at –0.08. Clearly something has influenced this division into dramatic and narrative dialogues, but the *Hippias Major* seems to have been immune from it. Here once again are the actual figures:

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[11] I prefer to explain the figures without resorting to declaring the work inauthentic, but see them as being loosely related to the suspicions regarding authorship nevertheless.

Position	Type	Dialogue & Block	Factor 2
1	D	Meno (3)	2.90
2	D	Laches (2)	1.94
3	D	Meno (1)	1.24
4	D-HM	Hippias Major (4)	1.14
5	N	Charmides (3)	1.13
6	D	Apology (3)	1.06
7	D	Meno (4)	0.84
8	D	Euthyphro (1)	0.81
9	D	Meno (2)	0.64
10	N	Charmides (4)	0.54
11	D	Crito (1)	0.49
12	D	Laches (1)	0.44
13	D	Apology (4)	0.35
14	D	Euthyphro (2)	0.27
15	D	Laches (3)	0.16
16	D	Apology (2)	0.00
17	D	Crito (2)	-0.02
18	D	Apology (1)	-0.06
19	N	Republic I (4)	-0.08
20	N	Euthydemus (2)	-0.16
21	D-HM	Hippias Major (2)	-0.26
22	D-HM	Hippias Major (3)	-0.32
23	N	Charmides (2)	-0.39
24	N	Euthydemus (4)	-0.45
25	N	Euthydemus (3)	-0.57
26	N	Lysis (3)	-0.69
27	N	Lysis (2)	-0.70
28	N	Republic I (3)	-0.74
29	N	Charmides (1)	-0.76
30	N	Republic I (2)	-0.77
31	N	Euthydemus (1)	-0.87
32	N	Republic I (1)	-1.12
33	N	Euthydemus (6)	-1.27
34	N	Lysis (1)	-1.34
35	D-HM	Hippias Major (1)	-1.35
36	N	Euthydemus (5)	-2.00

Table 2: Factor 2 Distances, including *Hippias Major*

What are we to make of the fact that *Hippias Major* contradicts the expected pattern, emphatically in block 1 and marginally in blocks 2-3? As there appear to be no significant genre differences here, the following possibilities might be considered:

1.   The dialogue was not written at the same period of Plato's creative life, and is therefore not expected to conform with the pattern observed in the other nine dialogues;
2.   The dialogue has been revised in some such way as to account for the distribution of blocks and the placement of block 1 among the narrative dialogues;
3.   The dialogue is not wholly genuine, and therefore will only partly yield the expected results;
4.   The dialogue is not genuine Plato, and is not therefore expected to conform to any pattern visible within Platonic works.

It is possible that the *Hippias Major* was not written during the early-to-middle period as is normally supposed—particularly by those who follow Vlastos' chronology.[12] Thesleff once proposed a date c. 360BC, possibly slightly later, on what seemed plausible historical criteria.[13] This was made easier by the fact that he did not accept Platonic, or at least *wholly* Platonic, authorship, for it is hard to see why Plato should have reverted to an early type of composition at around the age of seventy.[14] And why should a later Platonic work be less coherent? This wide distribution of blocks might be explained according to the idea that the *Hippias Major* is not *wholly* of Platonic authorship. In that case, one presumes, the correctly placed block 4 would, on this theory, be genuine, and the misplaced block 1 would be spurious. Yet, given that the philosophical issue is not discussed until block 2, one has to ask why another author should be contributing a new scene-setting introduction in particular. There may then be some merit in the notion that the dialogue is a later revision, by Plato or at least under his direction, of an earlier sketch—with block 4 perhaps being new material, and blocks 2-3 thoroughly reworked. But, if block 1 is early material, just how early does it have to be in order to be giving results that do not accord with core dialogues that are usually supposed to date from an early or early-middle period themselves?

Finally, it is fairly obvious that spuriousness will lead to a failure to conform consistently to Platonic patterns. We also examined what happens with the addition of 9 blocks that make up the doubtful dialogues of Tetralogy IV: *Alcibiades I*, *Alcibiades II*, *Hipparchus*, and *Amatores* (*Erastae*). The *Alcibiades I* was correctly placed in the dramatic dialogues, and the narrative *Amatores* was placed among narrative dialogues. But both blocks of the *Alcibiades II* and the single-block *Hipparchus* were placed well into the negative area on factor 2, in the company only of dialogues in narrative form. The *Hippias Major* should not be seen as no more Platonic than these, but I cannot discuss this dialogue definitively here, and to do so would involve settling the question of the *Theaetetus* first.[15] In these circumstances we must turn to the *Theaetetus* itself, about which Thesleff held a theory that involved postulating the mature revision of a less developed dialogue, originally written in narrative form.

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[12]   Vlastos (1983), 27 n.2, with 57-58; Ledger (1989), taking the chronological unity of works for granted, has a chronological list (224) that begins with *Lysis*, and places the *Hippias Major* as the fifth work presumed to be authentic, after *Euthyphro*, the doubtful *Minos*, *Hippias Minor*, and *Ion*, and just before the doubtful *Alcibiades I* and *Theages*. Note that this would place it earlier than any works against which we have been measuring it. My 96 Function-word tests, which analyse quite different variables, would place it fairly close to most of these dialogues (less so to *Lysis* and *Ion*) as well as to the doubtful *Hipparchus*. I do not assume that one must interpret this closeness chronologically.

[13]   Thesleff (1976); (1982), 226-8.

[14]   One who might is Denyer (2001), who plausibly places the *Alcibiades I* there, and less plausibly regards it as genuine.

[15]   It would make good sense of both the data and the debate regarding the *Hippias Major*, if that work had originally existed as an eristic sketch in narrative form, revised in accordance with Plato's mature sensibilities and his aversion to contentious attacks on intellectual opponents (as seen in the *Euthydemus* and in the protests that Socrates makes on Protagoras' behalf about his own earlier conduct in the argument at *Theaetetus* 162d5-163a1, 164c7-d2, and 166a2-168c2). That aversion might explain the way in which the author distances the more polite, outward face of Socrates from the elenctic warrior who turns out to be his own *alter ego* as the dialogue progresses (298b-c, 304d). Yet the elenctic Socrates must be present in the background if the humour of the work, the obtuseness of Hippias, and the strength of the arguments are to be brought out. For the *alter ego* see Tarrant (1994), 113; for Socrates' doubles in the *later* Platonic dialogues see Jatakari (1990).

The Complete Theaetetus

Further analysis was applied to the completed *Theaetetus*, here divided up into separate sections with the brief prologue usually omitted. Divisions may be found as Appendix 1. Four samples of the *Gorgias* were added in the belief that the internal consistency of another long work should be tested. Again, the appendix gives the limits of the samples, each about 7 Stephanus pages. One test applied involved 22 of Plato's seemingly favourite function-words. I shall here simply present a table:

Type	Dialogue & Block	Factor 1
N	Lysis (2)	-2.09
N	Lysis (3)	-1.91
T	ThEx6	-1.53
N	Republic1 (4)	-1.24
T	ThEx3 (1)	-1.18
N	Charmides (3)	-1.11
T	ThEx3 (2)	-0.84
T	ThEx7	-0.73
N	Euthydemus (6)	-0.71
N	Republic1 (1)	-0.70
T	ThEx5	-0.70
T	ThEx4 (2)	-0.64
N	Republic1 (2)	-0.53
N	Charmides (2)	-0.46
T	ThEx4 (1)	-0.40
T	ThEx2	-0.35
N	Charmides (1)	-0.32
N	Euthydemus (1)	-0.31
T	ThEx4 (3)	-0.24
D	**Euthyphro** (1)	-0.23
N	Euthydemus (3)	-0.20
N	Lysis (1)	-0.16
N	Republic1 (3)	-0.12
N	Charmides (4)	-0.06
D	Laches (3)	0.08
G	GorgiasB	0.12
G	GorgiasA	0.17
N	**Euthydemus** (2)	0.17
D	Euthyphro (2)	0.21
D	MenoE	0.21
N	**Euthydemus** (5)	0.24
N	**Euthydemus** (4)	0.25
D	Apology (2)	0.26
G	GorgiasD	0.43
D	MenoA	0.46
D	CritoA	0.76
D	CritoB	0.81
D	MenoC	0.81
D	Apology (1)	0.87
D	Laches (1)	0.91
D	Laches (2)	0.95
G	GorgiasC	1.03
D	Apology (3)	1.03
D	Apology (4)	1.63
D	MenoD	1.76
DX	MenoB	3.63

Table 4: SPSS Factor Analysis, 22 Function Words, Factor 1

Factor 1 results place eight out of nine blocks of the *Theaetetus* in the deeper green area occupied otherwise wholly by narrative dialogues, while the final block (Section 4, block 3, 176c-184a) is the closest block in the light green shoulder area. Disregarding the anomalous *Meno*B (the slave-boy demonstration) we find that the mean score for the narrative dialogues is –0.54, the mean for dramatic dialogues is +0.70, and the mean score for the 9 blocks of the *Theaetetus* is –0.73.[16] Overall these figures give it a solid narrative appearance.[17] So if one were to judge from factor 1, one might guess that all blocks come from a narrative dialogue.

At this moment I should like to present a Minitab-generated dendrogram plotting the relation between the various blocks of our 11 dialogues, based only on the 22 function-words for which it seems that Plato had a greater liking than did some of his imitators, i.e. based on the same raw data as that which we have just been considering, but processed in a different fashion so as to chart 'family resemblances' as it were.
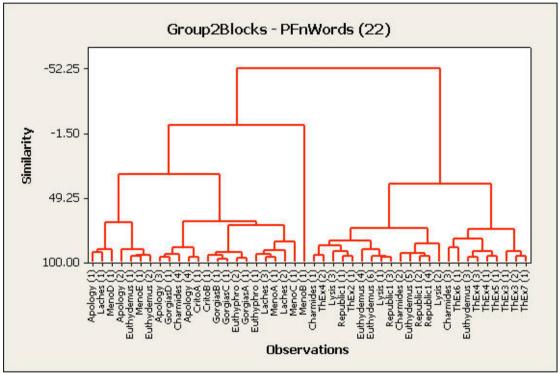

Chart 4: Dendrogram of Blocks, Nine Dialogues plus *Gorgias* and *Theaetetus*

The dendrogram virtually speaks for itself. Whereas it finds greater similarities for three narrative blocks (*Euthydemus*1 & 2, *Charmides*4) among dramatic than among narrative dialogues, it places all other blocks from narrative dialogues in a widely separated 'clan'. Into that clan no block of any dramatic dialogue intrudes other than

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[16] By contrast the *Gorgias* extracts, on factor 1, range between the barely dramatic figures of +0.12 and +0.17 for blocks B and A to the more securely dramatic figures of +0.43 and +1.03 for blocks D and C respectively.

[17] Factor 2 in this case had achieved poorer separation of narrative and dramatic, and resulted in a mean score of –0.57 for the narrative dialogues, +0.56 for the dramatic, and +0.46 for the *Theaetetus*. So there the *Theaetetus* looks more typically dramatic, though individual blocks show considerable variations. The fact that the dialogue scored quite differently on the two factors, both of which were suspected of being relevant to the distinction between narrative and dramatic material, is scarcely surprising if the dialogue is really a dramatic reworking of a narrative dialogue.

those from the *Theaetetus*. Every block of the *Theaetetus*[18] is placed in this clan, most of them as a family that otherwise contains only *Charmides*3 and *Euthydemus*3, though *Theaetetus* extract 2 and extract 4 block 2 are grouped with the main family of narrative blocks, that contains the whole of *Lysis* and *Republic* I plus half the blocks of *Charmides* and *Euthydemus*. This is striking confirmation that there is something 'narrative' in the language-mix of the *Theaetetus* as regards these 22 function-words. It does not turn it into 'a linguistically narrative dialogue' if there is such a thing, but it does highlight a potentially important linguistic affinity that needs explaining. Two explanations come to mind. Either (1) the *Theaetetus* was a dramatic dialogue written over the same period as the narrative dialogues, so as to show similar linguistic trends, or (2) the *Theaetetus* is a revised version of a dialogue that was originally written in narrative form.

An advantage of a 22-word test is that one can quickly check which words have significantly different rates in narrative and dramatic dialogues, and which group *Theaetetus* follows in each case. Of words included, the connective δέ gives the widest difference between groups, as it is frequently used to indicate change of speakers in the narrative format. Across the nine dialogues the difference is 0.95% (2.68 to 1.73). In this case both the *Gorgias* and the *Theaetetus* (2.00), having no need to mark the change of speakers in this way, gave average figures closer to those expected for dramatic dialogues. Less easily explicable is the way that narrative dialogues employ the demonstratives οὗτος and ὅδε less frequently (2.00 to 2.37, 0.16 to 0.39), and the *Theaetetus* has lower figures still (1.40, 0.11). Some 14 of the 22 words showed enough difference between the rates for narrative and dramatic dialogues to warrant consideration,[19] some of them obviously with greater capacity for context-dependent uses than others. Of these the *Theaetetus* overall showed greater proximity to the narrative rate in seven cases, to the dramatic rate in five, with the remaining two cases being inconclusive.

Soon the narrative dialogues were supplemented by *Protagoras* and *Republic* V, and it became possible to take them into account. In this case the *Theaetetus* was split simply into 2000-word blocks without any attempt to distinguish section-boundaries. It continued to show strong affinities with the narrative dialogues. Of the two major arms the right-hand one ultimately connects all 11 blocks of the *Theaetetus* with most of the narrative blocks, with only one other dramatic block included, *Apology*3. All other dramatic blocks are connected by the left-hand arm, into which five blocks of the *Protagoras*[20] and three of the *Euthydemus* have also strayed (mostly into the second family on the left [green]). I present the dendrogram below. Colours were allocated by the program according to its calculation of the ten closest family resemblances. This picks out blocks that do not closely connect with others, such as *Meno*B (slave), and to a lesser degree *Theaetetus*3 (yellow, right). *Theaetetus*1, 4, & 7-11 belong to the blue family on the right.

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[18]   The brief *Theaetetus* Extract 1, consisting only of the dramatic introduction, was not included in the data, as it is too short for valid comparisons. Other extracts cover the entire dialogue.

[19]   δέ, οὗτος, τις (indefinite), εἰ, δή, γίγνεσθαι, τοιοῦτος, πάνυ, δεῖ, ὅδε, ἴσος/ἴσως, εἴτε, ἤδη, ὁμοῖος/ὁμοίως.

[20]   *Prot.*3 belongs to Protagoras' rhesis, and *Prot.*6 to the literary digression, making this material anomalous; in general the *Protagoras* uses a range of types of speech, complicating the data.
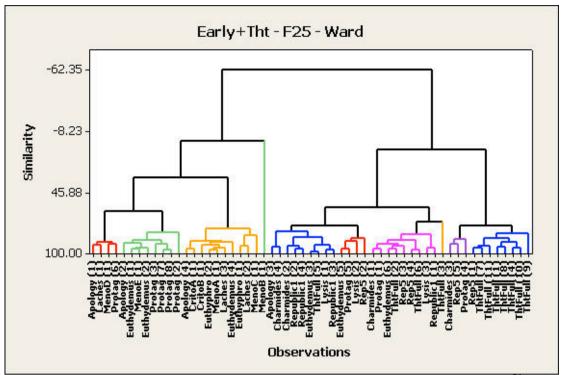
Chart 5: Dendrogram of 2000-word blocks, 11 Dialogues plus *Theaetetus*[21]

That the *Theaetetus* has much in common with the narrative dialogues, and perhaps especially with *Republic* V,[22] is not in doubt. This may be partly a matter of date, but not wholly, since nothing of the kind occurred when the even later *Philebus* was subjected to similar tests. In that case only one out of nine blocks showed an affinity to narrative dialogues.

Conclusion

While this study has shown that certain computer-generated tests on the vocabulary mix of the *Theaetetus* (as perhaps two other long dramatic dialogues)[23] place some or all of the parts of those works among a group of narrative dialogues rather than among a similarly sized group of dramatic dialogues, it is ultimately for scholars to determine the reason for these results by other means. It is largely because the two best known of these works have been argued to be revisions of originals in narrative forms that I have given prominence to this theory. In the case of the *Theaetetus* one might infer from the prologue not only that there was such an original, but also that it was

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[21]   The chart is based on 25 Plato-preferred function-words, and like the last employs Ward's methods of separation (widely used, as by Brandwood 1990, 238-42); cf. Ward (1963).

[22]   *Rep*.5.1 alone intrudes into the blue family to the far right containing 7 blocks of *Tht*., while *Tht*.6 is placed extremely close to *Rep*.5.4 and less close to 5.3 in the magenta family.

[23]   When subjected to similar tests *Gorgias* gave much more complex results, which cannot be discussed adequately here. I will do so at a later date. As *Cratylus* is also a long dialogue, with early and later material as argued by Sedley, some effort was made to see how it would perform on similar tests. Since much is made within the dialogue of an alleged inspired tone of Socrates' discourse, inherited from the seer Euthyphro (between 396d and 428c), and since the differences here were striking when subjected to our usual analyses, no confidence in a satisfactory outcome could be entertained. As things were the basic frame, consisting of blocks 1, 8 & 9, usually displayed similar characteristics, as did the unusual blocks 3 to 7 (396c-428c). Only blocks 1 and 9 (precisely where Sedley had argued for manuscripts containing alternative versions) featured among the blocks of the narrative dialogues, though 3, 7 & 8 were also rather ambiguous.

Socrates himself who was originally performing the narration. However, the data might also be explained in terms of these works having been *intended for* publication in narrated form, or written during a period when narrative form was the norm. Such a theory has its attractions, since there is no doubt that what are conceived of as the 'Middle Period' dialogues chiefly used this method of presentation, until the *Parmenides* abandons it mid-way through, the *Phaedrus* manages descriptive feats without it, and the *Theaetetus* tells why it has gone.

In the case of the *Theaetetus* the theory of a revision from a narrative version is likely to involve earlier and later parts. Here is one last 96 function-word dendrogram, linked according to McQuitty's method, which often gives results similar to Ward's, but exaggerates similarities less, and is more likely to place oddities well outside the principal groups. This will show how the parts of the *Theaetetus* cluster into families.
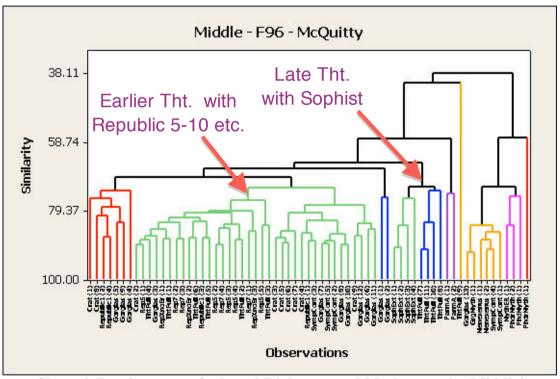

Chart 6: Dendrogram of selected Dialogues and Myths, mostly 'Middle'

Myths are thrown to the right arm, along with related story-like material: the *Menexenus* and two parts of a *Symposium* extract, relating to Aristophanes' story and Socrates' report of Diotima's teaching respectively.[24] The main body of 'middle' material is to be found in the *big green family*, where all parts of *Republic* V, VII, and X (except the myth of Er) occur in its *left* wing, with other parts of the *Symposium* to its *right*. Most Platonists would concede that in general the left wing of this family is likely to be of slightly later origin than the right, and it is here that cluster analysis has placed *Theaetetus*1-6.

Further groups are linked with this main central family at increasing distances. First some blocks of *Gorgias*, *Cratylus* 'frame' blocks 1 & 8, and two blocks of *Republic* I. Next *Gorgias*1-2 are together linked on, further still from the central family. Beyond

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24   My team will discuss this important 'myth voice' elsewhere.

this is added a family that appears to be separated because of late features, with most of *Theaetetus*7-11 and the four-block extract of the *Sophist*, a dialogue that serves as the sequel of *Theaetetus*. The very technical material in part 1 of the *Parmenides* and the principal 'false opinion' block of *Theaetetus* are tagged on at a greater distance still, for reasons that may have little to do with chronology.

If one accepts that there is something chronological contributing to the allocation of families here then it does help one to see which parts of the longer non-homogeneous dialogues are likely to be late or heavily revised. In the case of the *Theaetetus* the majority looks roughly contemporary with the main books of the *Republic*, but from block 7 (beginning 178d) the overall impression is of material written or heavily revised later than the *Republic*, and closer to the late-period *Sophist*. We still have odd allusions here to the midwifery theme that seems to have connected the original dialogue (184a8-b2, 210b10-d1), along with an apparent attempt to link it with the *Euthyphro* as a sequel (210d1-3), but the analytic approach to epistemological matters already reminds one of *Sophist*, and the final seven words of the dialogue override the connection with the *Euthyphro*, and look forward rather to discussions continued in *Sophist* and *Statesman*. Hence the cluster analysis represented by the dendrogram is only confirming what a detailed reading of the dialogue demonstrates.

Now if the original *Theaetetus* were written at the same time as *Republic* II-X, then it would be expected that it would have been written in narrative form. That seems to be confirmed by the actual philosophy, for the early pages of *Republic* III (392c-398b) make it clear that Plato did think carefully about the virtues and vices of different forms of presentation. Dramatic presentation was mimetic, and the Guardians were in no way supposed to be imitating the imperfections of a whole range of other people (394e). Plato at that time appeared to think that narrative presentation avoided several problems, problems affecting the *reader* in particular, and the *Republic* itself adopts that mode of presentation throughout. Occasionally this does seem tedious and redundant as the prologue of the *Theaetetus* seems to imply.

It is my belief that the prologue announces that these problems with dramatic presentation have now been solved. They reduce when one ceases to have Guardians as readers and hands the task to a lector such as the slave in the *Theaetetus* (143b3, c7), and they reduce further if one confines one's speakers to the idealized questioners, lecturers and interlocutors of the dialogues that are normally held to have followed the *Republic*. But the problems disappear entirely when the whole thing is recorded *as if* it were in the voice of Socrates. It is claimed that the account of the conversation *came from* Socrates (142c8-d1), so that Plato's ideal philosopher *controls* the narration.[25] It is then claimed that the writer had written for himself a rough reminder (*hypomnêma*) of that account, supplemented by further modification in the light of relaxed recollection. Such a sketch would surely be made in *dramatic* form, as is confirmed by 143b5-6 ('this is how I wrote the discussion [for myself]'), where the middle voice may be significant as it is exactly the same form (ἐγραψάμην) as at 143a1 when he spoke of rough notes. A sub-final version arises when the account had then been checked on repeated visits from Megara to Athens (143a3, chronologically incompatible with a setting on the same day as the *Euthyphro*) with

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[25] Note in particular that it is *Socrates* who states the case for Protagoras at 166a-168c, not his friend Theodorus.

Socrates himself, so that the ideal philosopher is given several further opportunities to control the account; Euclides made further corrections (ἐπανορθούμην, 143a4: again the middle voice), resulting in the sub-final version ('so that I've got more or less the whole discussion recorded', 143a4-5). There is no direct indication of a version that was recorded in any other manner, unless it can be found the final words of our introductory quotation: τούτων ἕνεκα ὡς αὐτὸν αὐτοῖς διαλεγόμενον ἔγραψα, ἐξελὼν τὰ τοιαῦτα ('for this reason I wrote as if he were having the discussion with them, removing such bits'). The strong verb ἐξαιρεῖν suggests a positive act of removing something that had been there before, not simply of failing to include it.[26]

In the light of this assumption, my conclusion will be that the *Theaetetus* was sketched initially in dramatic form, additions and revisions were made progressively, and corrections were then made, resulting in a later, near-final version, in which *either* Socrates was narrator *or* every word was *as he would have narrated it*. Hence the final work may still be seen as being *in Socrates' voice* even though he does not narrate it as in the *Republic*; thus all characters within the work conduct themselves in a manner that is not beneath a philosopher to imitate, and Socrates is apt to be particularly self-critical. Finally, all doubts about dramatic presentation being a bad influence on members of the Guardian-class are removed by having the task of reading the book given to an educated but unpretentious reader. What the statistical analysis has shown is that the whole *Theaetetus* is stylistically closer to the works that employ the mediating voice of Socrates to narrate a conversation than to the shorter works in dramatic form. It cannot *prove* that it was ever a narrated dialogue, nor indeed can subtle examination of the prologue. But the two together offer a powerful argument in favour of some such theory, and Plato's own philosophy of education-through-literature explains *why* dialogues should have evolved like this. There is, however, no room for certainty, and stylometry can only inform one's thinking. It cannot prove one's theses.[27]

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[26]   I have taken this process described by Plato's character Euclides in the introduction to the *Theaetetus* as illustrating the way in which Plato had brought this dialogue *and any others like it* to fruition. That his fellow Socratic Euclides should introduce it accords with the fact that Euclides was Plato's host (and perhaps mentor) immediately after the death of Socrates, according to a tradition going back to Hermodorus the early Academic (Diogenes Laertius 3.6). This must have been a period when Socratics tried in earnest to remember some of the conversations that Socrates had participated in. Assuming that he had no special motive for detailing Euclides' own methods of composition, it is hard to explain why Plato ever settled on this prologue, apparently after at least one other version as we saw above, unless he meant us to infer something about his own methods. In no other prologue is there such an emphasis on the nature of *this book*.

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Appendix 1
Block Details: Multi-Block Texts
(Works are divided according to 2000-word blocks, except where sections are preset)

Alcibiades I	-109d; -115d; -121e; -128a; remainder
Alcibiades II	-144d; remainder
Apology	-22e; -28b; -34a; remainder
Charmides	-158e; -164c; -169e; remainder
Cratylus	-390b10; -396c6; -403b1; -409c6; -415e1; -422b6; -428c1; -434b4; remainder
Crito (blocks 1&2)	-48d; remainder
Crito (preset, A&B)	-50e; remainder
Euthydemus	-277b; -283a; -288e; -294d; -300b; remainder
Euthyphro	-7d; remainder
Gorgias (preset extracts)	A 449b-456b; B 466a-473a [BB 466a-472a, 472a-481b]; C 488b-496b; D 501d-508d
Gorgias (full)	-453b1; -459c2; -466a1; -472a2; -478b4; -484c3; -490c7; -496e2; -502d10; -508d3; -514d6; -521a2; remainder
Hippias Major	-287c; -293a; -298b; remainder
Laches	-184c; -190c; remainder
Lysis	-209c; -215a; remainder
Menexenus	-240d; remainder
Meno (blocks)	-76c; -82d; -88e; remainder
Meno (preset extracts)	A -82b; B -85b7; C -90b4; D -95a; E remainder
Parmenides part A	-132a11, -137d8
Phaedo Myth	108e4-114c8 (1 block only)
Phaedrus Myth	244a3-256e2 (-250a6; remainder)
Protagoras	-315a7; -321b7; -327e3; -333d4; -339e5; -345e2; -351e8; remainder
Republic I	-333a; -338e; -344d; remainder
Republic V	-455b8; -461c8; -467c10; -473d4; remainder
Republic VII	-520d3; -526d9; -533a5; remainder
Republic X (without Er)	-601b2; -607a7; -614b1; Myth (of) Er = remainder
Sophist (sample only)	-222e7; -230a7; -236e3; -243e8 (4 blocks)
Symposium (sample only)	From 189c2-195b3; -201a5; -206c7;-212c8; remainder (large block)
Theaetetus (blocks)	-148d; -154d; -160c; -166c; -172d
Theaetetus (preset extracts)	1 -143d; 2 -151d; 3 -164c (subdivided at 157c); 4 -184b4 (subdivided at 170c and 176c); 5 -191b; 6 -200d; 7 remainder