Leonard Brandwood

THE CHRONOLOGY OF PLATO'S DIALOGUES

CAMBRIDGE UNIVERSITY PRESS

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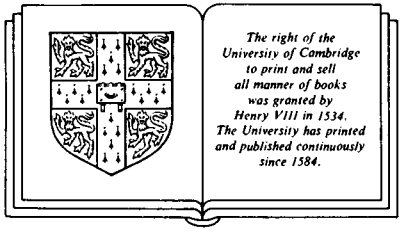

CAMBRIDGE UNIVERSITY PRESS
Cambridge
New York Port Chester Melbourne Sydney

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9780521106559

First published 1990
This digitally printed version 2009

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data
Brandwood, Leonard.
The chronology of Plato's dialogues / Leonard Brandwood.
p. cm.
Revision of thesis (doctoral – University of London, 1958)
originally presented under title: The dating of Plato's works by the
stylistic method.
Includes bibliographical references.
ISBN 0 521 39000 1
1. Plato. Dialogues. I. Title.
B395.B748 1990
184 – dc20 90-31039 CIP

ISBN 978-0-521-39000-2 hardback
ISBN 978-0-521-10655-9 paperback

DEDICATED

TO THE MEMORY OF

MY MOTHER

CONTENTS

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PREFACE

★

The present book originates from my Ph.D. thesis,[1] a critical survey of attempts to determine the order of composition of Plato's works by analysing their style, which has been brought up to date by the inclusion of two investigations carried out since that time.[2] On the other hand, several investigations in the thesis have now been omitted, as they seemed to be of only slight significance.[3] The idea of including an account of research on questions of authenticity was rejected as likely to lead to a volume of increased complexity and unmanageable proportions; although closely connected with the problem of chronology, that of authorship provides sufficient material to justify separate treatment.

In a work of this nature the accuracy of the statistics is of paramount importance, and the opportunity has been taken to check them, wherever feasible, with the Word Index which is now available.[4] It should be remembered, however, that this relates to Burnet's Oxford text, which did not exist when most of the research described was carried out, so that some statistical discrepancies may have arisen from different textual readings rather than from careless observation. Nevertheless, as anyone will know who has tried to record by hand the incidence of words or phrases in a text, complete accuracy is almost impossible to attain, and the fact that checks generally revealed only small errors is a tribute to the painstaking diligence and dedication of the scholars concerned.

Figures for Burnet's text different from those of an investigator are entered in the tables in parenthesis; where the Word Index could not

[1] *The Dating of Plato's Works by the Stylistic Method*, Univ. of London, 1958, referred to in the text simply as 'Thesis'.

[2] G. R. Ledger's book *Re-counting Plato*, Oxford 1989, appeared too late to be taken into account.

[3] I.e. those by Droste, Lina, Kallenberg, Fossum and all in the appendix.

[4] L. Brandwood, *A Word Index to Plato*, Compendia 8, Leeds 1976.

easily be used for verification, reference is usually made to the thesis, in which an investigator's accuracy was assessed by sample tests; where neither of these applies, and there is no indication to the contrary in a footnote to the table in question, it should be assumed that the figures are unchecked.

My indebtedness to others in connection with this book reaches back to the late Professor T. B. L. Webster, who in 1953 suggested its subject for a doctoral dissertation and was a magnanimous, scholarly mentor. In the same mould, but more recently, Professor M. F. Burnyeat first invited a revision of the thesis, then contended unstintingly for its publication; to him, as well as to Professors G. J. de Vries, P. Levi, H. Thesleff, and all who commented favourably on it in their works I should like to express my great gratitude. Likewise, to the Syndics of the Cambridge University Press for their willingness to undertake such a difficult production I acknowledge a deep obligation.

Regarding particular sections of the book my sincere thanks are due to Professor D. R. Cox for his guidance in the statistical procedure employed in chapter 18, to my colleague Mr G. C. Neal and to Mr F. J. W. Rendall of Leicester Polytechnic for their help with chapters 17 and 22 respectively, and to Messrs. Mouton de Gruyter for permission to reproduce the tables and figures referred to in the latter chapter.

On a personal plane I owe a debt impossible to repay to Mr P. L. Richardson of the Manchester Royal Infirmary, but for whose surgical skill in treating a cerebral haemorrhage the occasion for writing this book would not have arisen, and to my wife Gwen, whose constant care extended to typing, computing, proof-reading and counteracting a forgetfulness on the part of the author which threatened his manuscript with a fate similar to that of the Sibyl's leaves.

I

INTRODUCTION

★

For determining the order of Plato's works there is little help either from external sources or internally.[1] Regarding the former, the only information likely to be reliable is Aristotle's statement,[2] that the *Laws* was written after the *Republic*. This is repeated by Diogenes Laertius (3.37) and Olympiodorus (*Prol.* 6.24), who add that it was still on wax tablets when Plato died and was published posthumously by one of his students, Philip of Opus. As for internal evidence, cross-references in the *Sophist* and *Politicus*[3] indicate the prior composition of the former, while the *Timaeus* mentions the *Critias* as its sequel.[4] Rather less definite is the apparent reference in the *Timaeus* (17b–19b.) to the *Republic*, in the *Sophist* to the *Parmenides* and *Theaetetus*,[5] and in the *Theaetetus* to the *Parmenides* (183e). There is one other important piece of evidence: in the introduction to the *Theaetetus* (143c) Plato renounced his use of the reported dialogue form with a clear indication that the use of introductory formulae, such as καὶ ἐγὼ εἶπον, and of interlocutor's replies was becoming a nuisance. It seems unlikely, therefore, that any of his works written in this form are later than the *Theaetetus*.

In the eighteenth and the first half of the nineteenth century attempts to solve this problem of chronology were based on an interpretation of the dialogues' contents followed by the formulation of a line of development for Plato's thought. Unsurprisingly the subjective nature of this

[1] For a full discussion of the evidence see H. Thesleff, *Studies in Platonic Chronology*, Helsinki 1982, 7–66.

[2] *Pol.* II 6, 1264b24–7.

[3] E.g. *Soph.* 217a, *Pol.* 257a, 258b.

[4] 20b–c, 27a–b (cf. *Crit.* 107a–b).

[5] 217c (cf. *Parm.* 127b2, c4–5) and 216a.

approach led to a considerable discrepancy between the conclusions of the various scholars.[6] There was fairly general agreement that the *Laws* was the last work, preceded by the *Timaeus* and *Critias*, then the *Republic*; before them in reverse order of composition, according to the majority view, came the *Philebus*, *Phaedo*, *Symposium*, *Politicus*, *Sophist*, *Parmenides* and *Theaetetus*; about the remaining works there was little or no accord. The greater consensus which exists today about the chronological sequence, itself considerably different from that just mentioned, can rightly be claimed as the achievement of the stylistic method.

[6] See the tables in C. Ritter, *Platon*, München 1910, 230–1 and H. Thesleff, *op. cit.* 8ff.

2

L. CAMPBELL

★

Campbell approached the study of Plato's style with the purpose of determining the date of the two dialogues which he was editing.[1] He had reason to believe that they were later than was generally supposed and with this in mind made the following observations:

1. Socrates is no longer the chief speaker, and in this respect the *Soph.* and *Pol.* resemble the *Parm.*, *Tim.* and *Crit.*
2. The *Soph.* and *Pol.* form the middle portion of an unfinished tetralogy, in which they again resemble the *Tim.* and *Crit.*
3. There is a certain didactic tone common to *Soph.*, *Pol.*, *Phil.* and *Laws* which is absent from other works like the *Phdr.* and *Rep.*, where the movement is lighter and more spontaneous.
4. The natural order of the words is more frequently inverted in these works, the periods more elaborate.
5. There is a monotonous recurrence of a particular rhythmical cadence, which is also noticeable in certain parts of the *Phdr.*, *Rep.*, *Theaet.* and the myth of the *Prot.*
6. Finally, in the *Soph.* and *Pol.* there is a greater fondness for unusual words, poetical and technical, than in any other dialogues except the *Phdr.*, *Rep.*, *Tim.* and *Laws.*

It was on this last observation that Campbell based his investigation of the chronology of the dialogues. He had noticed the phenomenon of a technical terminology first of all in the *Theaet.*, then to a greater extent in the *Phil.*, *Soph.*, *Pol.* and *Laws.* 'No student', he says, 'can doubt that there was floating before him the conception of a scientific language based on dialectic, which should express more perfectly than they were known

[1] *The Sophistes and Politicus of Plato*, Oxford 1867.

Table 2.1

Pol.	$1\frac{3}{11}$	Ion	$\frac{3}{5}$	Gorg.	$\frac{1}{4}$
Phdr.	$1\frac{1}{6}$	Theaet.	$\frac{2}{5}$	Euthd.	$\frac{1}{5}$
Soph.	$1\frac{1}{53}$	Prot.	$\frac{1}{3}$	Cri.	$\frac{1}{6}$
Rep.	$\frac{5}{6}$	Lach.	$\frac{1}{3}$	Parm.	$\frac{1}{7}$
Menex.	$\frac{4}{5}$	Lys.	$\frac{1}{3}$	Hipp. Mi.	$\frac{1}{7}$
Phdo	$\frac{7}{10}$	Crat.	$\frac{1}{4}$	Meno	$\frac{2}{15}$
Symp.	$\frac{11}{17}$	Apol.	$\frac{1}{4}$	Alc. I	$\frac{1}{8}$
Phil.	$\frac{5}{8}$	Euph.	$\frac{1}{4}$	Charm.	$\frac{1}{12}$

to the first name-giver the true sections and combinations of things.' To prove his point Campbell made a collection from Ast's *Lexicon Platonicum* of all the unusual words which occur in the two dialogues, the majority of which are given in the lists on pages xxv–xxx of his introduction. Altogether there were 94 peculiar to the *Soph.* and 158 to the *Pol.*, proof enough of their wealth of new words. From here he extended his inquiry to the *Tim.*, *Crit.* and *Laws*, which together with the *Rep.* and *Phdr.* he had observed possessed a similarly rich vocabulary. He excluded the latter two, however, on the grounds that their abundance of words was due to exceptional circumstances, the highly poetical nature of the *Phdr.* and the 'overflowing richness and variety of the *Rep.*' The *Tim.* and *Crit.* yielded 427 words occurring nowhere else in Plato, the *Laws* 965 words. Coming now to the main point of his investigation Campbell counted the number of words which each of 24 dialogues, including the *Soph.* and *Pol.*, had in common exclusively with *Tim.*, *Crit.* and *Laws.* The figure for each dialogue was then divided by the number of pages which the dialogue occupied in Stephanus' edition and a table of affinity to *Tim.*, *Crit.* and *Laws*, generally accepted as Plato's last works, obtained (Table 2.1).

Campbell's merit lay in the fact that he did not blindly follow statistics in drawing his conclusions as some later scholars did. If he had, he would have deduced that the *Parm.* was one of the earliest works, that the *Theaet.* belonged to about the same time as the *Prot.*, and that the *Phdr.* was later than the *Phil.* Obviously a great deal depends, as he remarked, on the similarity of subject matter and opportunities for the use of the same words, while pure chance plays a part. A further argument against the use of the above figures for determining the exact position of each dialogue, though Campbell himself probably never suspected it, is the

incompleteness of Ast's *Lexicon*, on which they are based. It has been proved by many instances that for less rare words Ast not only did not give each single occurrence but also not always specimens from every work in which they are found. Natorp, who repeated and extended Campbell's linguistic investigations, endeavoured to counteract this objection and justify his own use of Ast's *Lexicon* by maintaining that with the rarer words Ast was at great pains to note, if not every occurrence, at least instances from every work in which they appear. Hence, he argued, the probable error can be confined within tolerable limits and – which is the important thing – is distributed fairly evenly over all the works, so that in the greater number of cases the result will remain approximately correct. To this it may be replied that 'rarer' and 'less rare' are only relative terms and no definite borderline can be laid down on one side of which Ast may be trusted, on the other not. Moreover, the omission of an instance for a small dialogue like the *Charm.* will be of greater consequence in proportional figures like the above than of one for a large work such as the *Theaet.* or *Gorg.* Since on all accounts these statistics taken by themselves afford a very insecure foundation for arranging the sequence of the dialogues, Campbell displayed a certain sobriety in limiting his conclusion from them to remarking that they supported his belief in the close temporal affinity of the *Soph.* and *Pol.* to the *Tim.* *Crit.* and *Laws.*

He followed this research into the vocabulary of the dialogues with several observations on the grammar of the *Soph.* and *Pol.*, noting that in this respect too they approach nearer to the *Phil.*, *Tim.*, *Crit.* and *Laws* than to any other dialogues. The observations themselves are too perfunctory to be of any statistical value, but serve to show that, unknown to them, Campbell had long before perceived several of the linguistic peculiarities on which German scholars later founded their arguments for the chronology of the dialogues. Among others he mentioned the participle used with an auxiliary verb in place of one of the tenses of some other mood, which was later investigated by Ritter and more fully by Tiemann (q.v.); also the Ionic dative plural, which, he said, occurred twice in the *Pol.* and several times in *Tim.* and *Laws*, but nowhere else in Plato. This turned out to be rather a rash statement, since Ritter afterwards pointed out that besides 85 instances in the *Laws*, 2 in *Tim.* and 4 in *Pol.* there are 6 in the *Rep.* and 3 in the *Phdr.*

Finally, he indicated that the sentences of the *Soph.* and *Pol.*, in common with the *Phil.*, *Tim.*, *Crit.*, *Laws* and parts of the *Phdr.* are more

elaborate and at the same time more irregular. 'They have less of the spontaneous movement of conversation, and in the *Politicus* especially are often more redundant and complicated. While the reader's ear is filled with a peculiar, stately rhythm, his attention is quickened by artificial or poetical collocations of words.' He then gives several sets of sentences as illustrations of this rhythm, and from these it can again be seen that Campbell had a flair for recognising important stylistic phenomena without drawing up anything like complete statistics for them. This particular one was thoroughly investigated later by W. Kaluscha (1904) and L. Billig (1920). The latter found that three types of clausula (i) ∪∪∪⏑̲ or its variants (∪∪∪ – followed by ⏑̲ or ∪⏑̲ or –⏑̲), (ii) – – ∪⏑̲, (iii) – – – ⏑̲ form 78% of all the sentence endings in the *Laws*, 78% also of those in the *Phil.*, 71% of those in the *Pol.* and 57% of those in the *Soph.* Billig called Campbell's remarks 'those of an observant empiricist groping in the dark', which was of course true. Certainly he did not give an exact definition of the form of this rhythm which he found characteristic of the later works, but he did at any rate superimpose a metrical notation over several of his illustrations, from which it can be seen that he was on the track of Billig's clausulae well enough. They were as follows:

Tim. 47b. τἆλλα δέ, ὅσα ἐλάττω, τί ἂν ὑμνοῖμεν; ὧν ὁ μὴ φιλόσοφος
∪ – ∪∪ ∪ – – – ∪ –
τυφλωθεὶς οδυρομενος αν θρηνοι ματην
which ends with both type (i) ∪∪∪ – and (ii) – – ∪ –.
– – – ∪ ∪

Soph. 218d. εἰ μὴ σύ ποθεν εὐπετεστέραν ἔχεις εἰπειν αλλην οδον
again ends with (ii), as do
∪ – – – ∪ ∪

Soph. 242a. ἢ τὸ παράπαν ἐατέον, εἰ τοῦτό τις ειργει δραν οκνος.
∪ – – ∪ –

Pol. 269d. τοῖς πάντων θειοτάτοις προσηκει μονοις.

The same ending is also found in the only two others marked,

Pol. 273d. κοσμεῖ τε καὶ ἐπανορθῶν ἀθάνατον αὐτὸν καὶ ἀγήρων
∪ – – ∪ –
απεργαζεται.

Phil. 66b. πρῶτον μὲν περὶ μετρον καὶ τὸ μετριον καὶ πάντα ὅποσα χρὴ
∪ – – – ∪ ∪
τοιαῦτα νομίζειν τὴν ἀϊδιον ηρησθαι φυσιν.

If further evidence be needed, an inspection of all the 48 examples which he gives shows that 34 of them close with one of these three types of ending.

Only in one or two other particulars did Campbell's intuition regarding stylistic affinity fail to hit upon the truth. In conclusion to the above illustrations he declared, 'In point of rhythm and collocation of words, these dialogues (i.e. the *Soph.* and *Pol.*) hold, with the *Philebus*, an intermediate place between the *Phaedrus* (to which may be added the *Theaetetus* and *Republic*) and the *Timaeus*, *Critias* and *Laws*.' However, this is incorrect, as Billig pointed out, since the *Tim.* exhibits a mere 46% of these three clausulae. In respect of rhythm, therefore, the *Soph.* and *Pol.* do occupy an intermediate place between the *Phdr.* and *Tim.*, *Crit.* and *Laws*, but the *Tim.* and *Crit.* are on the side of the *Phdr.* not the *Laws*, as Campbell supposed.

He also seems to have been mistaken in his belief that the myth in the *Prot.*, that of Er at the end of the *Rep.*, and *Theaet.* 172–7 have this same rhythm to a great extent, though he may have been referring to the rhythm within the body of the sentence and not just to the clausulae. An examination on Billig's principles of the passages quoted provided no evidence to support his remarks. Perhaps one might say that the *Protagoras*' myth has rather a larger proportion of the clausulae than usual, but its extent is so very small that this might well be accidental. In all, counting cola and periods, it yields only 40 clausulae. The percentages for the three types are respectively 22.5%, 15% and 20% = 57.5% together. The 42 clausulae immediately preceding the myth give the following percentages: (i) 26.2% (ii) 14.3% (iii) 7.1% = 47.6%, while the 46 immediately succeeding give (i) 26.1% (ii) 8.7% (iii) 15.2% = 50%. The first type remains fairly steady, but it is higher outside the myth than within, and the way in which the percentages of the other two vacillate should be sufficient to show that such passages are too short to permit any conclusive deductions to be made.

Similar results were obtained from the myth of Er in the *Rep.* and sections 172–7 of the *Theaet.* In the 73 clausulae reckoned from the latter the three types formed 52%, only slightly above average, distributed between them as follows: (i) 27.4% (ii) 15% (iii) 9.6%. The myth of Er (*Rep.* X 614b2–end) contained a hundred clausulae, 49% being composed of these three, respectively (i) 21% (ii) 16% (iii) 12%, hardly any different in their aggregate from the hundred immediately preceding (48%), though the distribution varied considerably, i.e. (i) 26% (ii) 11%

(iii) 11%. One thing then at least is certain; it was not in the clausulae that Campbell discerned the affinity of the rhythm in these passages to that of the latest works.

Apart from these errors of judgement Campbell's demonstration and the way in which he used it are beyond reproach. Certainly it can hardly be said that he overstepped the bounds of moderation in concluding that the *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws* form the last group of Plato's works, immediately preceded by one composed of *Rep.*, *Phdr.*, *Parm.* and *Theaet.*, especially as he did not pretend to give the order of the individual dialogues within these groups. Such a conclusion was the natural outcome of a collation of his various observations.

Revolutionary and enlightening as his method and results were, they remained unknown to the German scholars who continued his work until 1896, when Lutoslawski[2] revealed the fact that Campbell, not Dittenberger, was the originator of the stylistic method. Commenting on his work Lutoslawski said,

> Campbell was the first investigator to use Plato's language as a means of dating his works and the first to prove that the *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws* constitute the last group of dialogues. This result, achieved twenty-eight years ago, has been confirmed by all the linguistic research which began fourteen years later in Germany.

[2] *Archiv für Geschichte der Philosophie* 9, 1895, 67–114.

3

F. BLASS

★

Before the true genesis of the stylistic method in Germany at the hands of Dittenberger, an isolated but important observation was made which, like Campbell's, appears to have passed for the most part unnoticed. In his work on rhetoric[1] Blass remarked almost incidentally that in striking contrast to his earlier practice Plato eventually adopted Isocrates' principle of avoiding hiatus.

It is in the *Phdr.*, at least in the dialogue part, that this avoidance of hiatus first becomes noticeable, since scarcely half as many instances occur as, for example, in the *Symp.* and *Rep.* At the same time, Blass pointed out, there is no need to put the *Phdr.* among Plato's last works, since a certain leaning towards Isocrates, who is mentioned in the dialogue, was only to be expected.

In the *Laws*, however, hiatus is very definitely avoided, so that in book I for example there are only just over 100 instances on 34 pages (Teubner). Next comes the *Phil.* with hardly on average 2 instances per page. Finally, in *Tim.* (87 pages) there are about 50, in *Crit.* only 5, in *Soph.* (82 pages) 20, and in *Pol.* (83 pages) 11.

Blass inferred that *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Crit.* belong with the *Laws* to the last period of Plato's literary career. Both his statistics and his deductions were later confirmed in their broad lines by G. Janell (q.v.) who drew up exact figures of hiatus for the majority of the dialogues.

A comparison of Blass's results with Campbell's makes it immediately apparent that they provide mutual support. The two investigators employed entirely different methods, yet arrived at exactly the same conclu-

[1] *Die attische Beredsamkeit* vol. II, Leipzig 1874, 426.

sion. If only there had been closer contact at that time between Britain and Germany, and their works could have been focused together in the eye of the scholastic world, the stylistic method would have advanced more rapidly and with surer results. Instead, as was said, no unification took place in this respect until 1896, and what was worse, in Germany itself the scholars were in such ignorance of the work of their own countrymen, both past and contemporary, that the same ground was often covered several times by different investigators.

4

W. DITTENBERGER

★

The scholar universally regarded in Germany as the founder of the stylistic method until as late as 1896 was W. Dittenberger.[1] His first and most important criterion was the particle μήν. After excluding the three usages ἤ μήν, οὐδὲ μήν, and οὐ μήν on the ground that they occur too rarely to be of any value, he found that there remained five others which by their frequency in the various dialogues provided the possibility of discerning a diversity in Plato's manner of writing. These were καὶ μήν, ἀλλὰ μήν, τί μὴν;[2] γε μήν and ἀλλὰ ... μήν. Their occurrences are set out in Table 4.1 (p. 12), *Apol.*, *Tim.* and *Crit.* being omitted by him on account of their deficiency in dialogue form.

Dittenberger called attention to the striking difference in the use of the first two and last three particle combinations. The former occur in every dialogue except the very short *Crito*, while the latter are completely absent from the first eleven dialogues, appearing in all the rest including the *Symp.* and *Lys.* Particularly noteworthy is the fact that, apart from the fluctuation in these two works, the three particles are always either all present or all absent from a work. This effectively rules out any notion of chance being the cause. Obviously, Dittenberger said, the fact must be accepted that Plato's language altered at this point, and so we can at once divide the twenty-one dialogues into two chronological groups, the later being indicated by the presence in it of the *Laws*.

Several critical remarks were levelled at this part of his inquiry. F.

[1] 'Sprachliche Kriterien für die Chronologie der platonischen Dialoge,' *Hermes* 16 (1881) 321–45.

[2] I.e. as an affirmative reply; instances which are genuinely interrogative (e.g. *Ion* 531d, *Pol.* 258b) were not included.

Table 4.1

		καὶ μήν	ἀλλὰ μήν	τί μήν;	ἀλλὰ ... μήν	γε μήν	Total μήν	Hermann pp.	οὐ μήν	Solitary μήν
	Cri.							17		
	Euph.	1	1				2	23		
	Prot.	2	3				5	63		
	Charm.	2(3)	2(4)				7	29		
	Lach.	3(4)	2				7	32		
I	Hipp. Mi.	2	3				5	20		
	Euthd.	4	5				12	45		2
	Meno	5	5				10	46		
	Gorg.	9(10)	11(12)				24	116		3
	Crat.	9	9				18	79		
	Phdo.	7	10(11)				20	79		
	Symp.	9	2		2	1	15	62		
	Lys.	2	2	1	4		11	24	1	
IIa	Phdr.	3	4	11	1	1	24	68		3
	Rep.	44(45)	44	34(35)	11(10)	2(4)	158	318	4	14
	Theaet.	11	6	13	1(2)	1(2)	38	101	1	3
	Parm.	25	25	6	2(3)	5	81	50	1	2
	Phil.	20	7	26	2	7	78	87	3	12
IIb	Soph.	24	10	12	2(1)	5(6)	72	82	3	15
	Pol.	24	7	20	3	8	75	83	5	8
	Laws	36	8	48	2	24(25)	166	417	3	27
	Tim.	1				6	13		1	4
	Crit.					1	2			1

(a) All figures correspond to those for the O.C.T., except where indicated in parentheses. However, those for the total occurrence of μήν are unchecked.

(b) The extra instance of γε μήν in *Soph.* is δέ γε μήν at 219e4, which Dittenberger may have deliberately excluded.

Kugler[3] accused him of avoiding difficulties by omitting *Apol.*, *Tim.* and *Crit.* from his investigation on the ground that 'the dialogue in these works forms such a small part that μήν, which belongs entirely or particularly to the dialogue, of necessity appears so very rarely that no definite conclusion can be based on it'. This reason, he declared, is valid for τί μήν; but does not explain the almost complete absence of the rest. It is difficult to agree with Kugler. Dittenberger is surely correct in saying that μήν belongs entirely or in particular to dialogue. Since the majority of the instances of ἀλλὰ ... μήν in Plato are composed of ἀλλὰ τί μήν; which is clearly a phrase for dialogue only, there is nothing remarkable in its absence from *Apol.*, *Tim.* and *Crit.* The same applies to καὶ μήν and ἀλλὰ μήν, the only καὶ μήν in *Tim.* occurring in the brief opening dialogue portion. There is no difficulty about γε μήν, as it occurs 6 times not 4 as Kugler thought, and this compares favourably with the figures for the rest of the late works.

Ritter brought forward a more sensible objection concerning Dittenberger's method of measuring frequency by the pages of Hermann's edition. This, he said, may be enough for observations of connectives like γε μήν, but it hardly seems sufficient for reply formulae like τί μήν; which can find no place in a continuous dissertation sometimes extending over several pages. The best method is to find the total number of occurrences of formal replies in a work, then compare the frequency of each particular formula with this sum, which represents the number of opportunities for using it. Clearly there can be no doubt which way leads to the surer results. It was also pointed out by Ritter that Dittenberger ought to have noticed that οὐ μήν, which he had excluded from his statistics on account of its infrequent occurrence, is to be found only in works of the second period. The figures for this (excluding οὐ μὴν ἀλλά and οὐ μὴν οὐδέ) in the O.C.T., derived from the Word Index, are included in Table 4.1 together with those for solitary μήν, which seems to have a similar distribution.

As evidence of the general change in language which he had inferred Dittenberger produced comparative statistics of μήν (excluding the formula ἦ μήν) for other prose writers. In the earliest known Attic prose work, the *Old Oligarch*, μήν does not occur at all, and very rarely in the genuine speeches of Andocides. In Antiphon it is found 5 times,[4] in

[3] 'De particulae τοι eiusque compositorum apud Platonem usu', Diss. Basel 1886.

[4] F. L. van Cleef, *Index Antiphonteus*, New York 1895, lists 9 occurrences, including 4 in the tetralogies.

Thucydides 9,[5] but all these are without exception in combination with either καί or οὐ. Even in Aristophanes, where the use of the particle is more frequent and varied, there is an unmistakable affinity with the contemporary prose writers, since of all the connectives only καὶ μήν occurring 78 times could be called frequent. In contrast not only γε μήν (3 times), οὐδὲ μήν (5 times), and οὐ μήν (3 times), but also the very characteristic ἀλλὰ μήν (twice) occur extremely seldom (the portions of the *Acharnians* and *Lysistrata* which are in the Boeotian and Doric dialects being excluded from the reckoning). Evidently, concluded Dittenberger, in the earliest period of Attic prose μήν is confined within as narrow limits as in the earlier group of Plato's dialogues, in so far as no τί μήν; or ἀλλὰ ... μήν or γε μήν is known, and even narrower in that ἀλλὰ μήν is missing too. In the following generation, however, corresponding to Plato's time, there came with Lysias, Isocrates and Xenophon an extended use, and from then on ἀλλὰ μήν at least was very common in Attic prose. At the same time it is worth noting that the recognised earliest works of these authors adhere closely to the manner of the preceding period. For instance, the two longest and earliest speeches of Lysias (according to Dittenberger), 12 and 13, produce no instance of ἀλλὰ μήν, though the particle is by no means infrequent in the remainder of his writings. To complete his evidence, Dittenberger tried to show that the development of the particle, especially the form γε μήν, in Xenophon bears a close resemblance to that in Plato. Since, however, the chronological order of Xenophon's works is even today almost as disputed as Plato's, and since, as Frederking was quick to remark, Dittenberger's arrangement of them involved a *petitio principii* in respect of the very thing he was trying to prove, his argument is not as conclusive as he himself imagined. Even so, from a comparison of works generally accepted as early (e.g. *Hellenica* 1.1.1–2.3.10 and the Socratic writings) with others accepted as late (e.g. *Hellenica* 5.2–end, *Agesilaus*, *Περὶ πόρων*) it is possible to discern a rise in the use of γε μήν, which, as Dittenberger himself finally concluded, was sufficient for his purpose.

Returning to Plato he found that he could pin the division between the two groups down to a definite date. Since only the *Symp.* (for him the authenticity of the *Lysis* being suspect) out of the second group does not contain all the three latter particles together, it seems reasonable to

[5] M. H. N. von Essen in his *Index Thucydideus*, Berlin 1887, has 10 references. J. D. Denniston, *The Greek Particles*, Oxford 1954, apparently reproduces Dittenberger's figures for both Antiphon and Thucydides.

assume that it is, if not the earliest, at least one of the earliest works of this group. The date of the *Symposium*'s composition is fixed in or immediately after 385 B.C. by what, from the manner of its introduction, is clearly a topical allusion to the dispersal of Mantinea which took place in that year.[6] But then we notice in addition that the two groups are so sharply distinguished that any intermediate transition is practically non-existent. To surmount this difficulty, Dittenberger said, we must assume there was a considerable lapse of time during which his literary activity completely or very nearly ceased. There can be hardly any doubt that this was caused by his first journey into Sicily about 387 B.C. In support of this view he endeavoured to show that τί μήν; which is the most characteristic particle of Plato's later period, was a conversational idiom of the Sicilian Dorians picked up by Plato during his stay with them.

According to Dittenberger the only occurrences in Attic of τί μήν; as an affirmative reply are in the tragedians, and these are found only rarely:

Aeschylus: *Suppl.* 999, *Agam.* 672, *Eumen.* 203.
Sophocles: *Ajax* 668 (*El.* 1280 τί μὴν οὔ; in the same sense).
Euripides: *Rhes.* 705 (*Rhes.* 706 τί μὴν οὔ; in the same sense).

These would appear to be all; at least, modern concordances give no more. Moreover, several of these instances are doubtful readings, over which even recent commentators fail to agree. Fraenkel[7] says:

It is difficult, if not impossible, to decide between τί μή; and τί μήν; in the four passages from tragedy discussed by Dittenberger. On the whole I think there is more to be said for reading τί μήν; in all the passages (the equivalent of the Megarian σὰ μάν;). How easily τί μήν; could be corrupted to τί μή; in this phrase can be seen in Sophocles' *Electra* 1280, where nobody doubts that Seidler's correction τί μὴν (μὴ codd) οὔ; should be adopted.

On the other hand Kamerbeek[8] discussing the reading τί μή at *Ajax* 668 says:

Thus all the MSS and Stobaeus – elliptic for τί μὴ ὑπείκωμεν; Aesch. *Ag.* 672 also τί μή; (Wilamowitz and Groeneboom abide by the original reading). *Eum.* 203 τί μή; (thus F, adopted in the text by Wilamowitz, who at *Suppl.* 999 changes even τί μήν; into τί μή; The change into τί μήν; (τί μὴν οὔ; *El.* 1280 is necessary) gives good sense, but it is unnecessary.

[6] See K. J. Dover, 'The Date of Plato's Symposium', *Phronesis* 10 (1965) 2–20.
[7] *Aeschylus' Agamemnon*, Oxford 1950.
[8] *The Plays of Sophocles*, Leiden 1953.

The significant fact, Dittenberger remarked, is the complete absence of the expression from those writers in whom one would most have expected to find it, if it had belonged to colloquial Attic, namely the comic poets and the orators. In this light it is even more significant that, though τί μήν; does not occur in Aristophanes, there are two instances of the equivalent Doric expression σὰ μάν; at *Acharn.* 757, 784. But the main argument, as Dittenberger maintained, for the belief that Plato learnt the expression from the colloquial language of Sicilian Doric during his first visit to Sicily is its occurrence in the extant fragments of Epicharmus (fr. 100 Ahrens, 26 Lorenz) and Sophron (fr. 8). Though there is only one instance in each, the meagre amount of text remaining makes it 'not improbable that the expression occurred quite frequently in the complete works of both authors'.

The problem, if we accept Dittenberger's assumption, is how to explain the existence of the expression in Attic tragedy, unless we regard it as an archaic form which had finally disappeared by Plato's time. Correspondingly, if we do not accept its Sicilian origin, where did Plato get it from? It might be argued that he could easily have made its acquaintance in the works of the tragedians, but in this case one would have expected to see an expression so suited to lively dialogue used in his works from the start, not first when he was forty.

M. Schanz, however, had an objection. With Dittenberger's arrangement, he argued, we get two series of dialogues, in one of which certain particles occur, in the other not. But can we suppose that Plato fell from one manner of writing into another without any interim stage? Moreover, the *Symp.* and *Lys.*, where they do not yet appear together, suggest that the particles peculiar to the second group did not occur all of a sudden. Can we not believe that in this period some dialogues contained these usages while others did not?

Nevertheless, having distinguished two groups of dialogues and determined the date of their separation, Dittenberger proceeded to investigate the possibility of fixing the order within the groups more accurately. In the case of the first there is none, he declared, because though the relative frequency of the particles varies, and the order given in the table may be more or less correct, there is too much which may be purely accidental. It is not so hopeless with the dialogues of the second period. Here there is at least a noticeable difference in the frequency of γε μήν between the two largest works, the *Republic* with 2 instances and the *Laws* with 24. In this respect the *Symp.*, *Lys.*, *Phdr.* and *Theaet.* associate

themselves with the *Rep.*, whereas the *Parm.*, *Phil.*, *Soph.* and *Pol.* are with the *Laws*. As, on Aristotle's testimony, the *Laws* is later than the *Rep.*, it is hardly disputable that those dialogues marked 'a' in the table are earlier than those marked 'b', so that we now have a subdivision in the second group.

A. Frederking thought the whole procedure disputable.[9] He objected in particular to the use of γε μήν to distinguish the dialogues of the second group, on the grounds that it was not a valid criterion. As evidence he quoted its inconsistent distribution in the books of the *Laws*. In VI, VII and VIII up to 834c (= 100 pages Hermann) it is found 11 times, while in the immediately preceding 100 pages from the end of V back to II 666d it occurs only twice. He observed a similar inconsistency in τί μήν; which occurs 6 times in book I of the *Laws* (34 pages), 12 in III (36 pages), only 3 each in IV (26 pages) and X (33 pages); then again it does not occur in book I of the *Rep.*, only once in II and X, but 6 times in each of VI, VIII, IX. His arguments were taken up by F. Kugler, who with the same idea of discrediting Dittenberger's conclusions produced a table (4.2, p. 18) of the frequency of the five particles in the books of the *Rep.* The conclusions to be drawn from this table, Kugler said, are firstly that the manner of writing in book X differs considerably from the preceding books, and secondly that the first book – in which there is no τί μήν; – belongs to the same period as the *Lach.* and *Hipp. Mi.* What deduction we are to make from the different manner of writing in book X is not mentioned. In any case the low figures for this book probably result, as to a greater extent in the *Tim.*, *Crit.* and *Apol.*, from the large proportion of narrative to dialogue compared with the other books. As regards the second point Kugler may be suspected of trying to invalidate Dittenberger's conclusions based on γε μήν by removing book I (containing an instance of γε μήν) to the same period as the early Socratic dialogues. Whether book I should be separated from the rest of the *Rep.* chronologically is a question that is not yet finally settled, but in any event those scholars who advocate this (e.g. Lutoslawski, Ritter) place it in the same period as the *Phdo* and *Symp.*, not the *Lach.* and *Hipp. Mi.*, so that Dittenberger's conclusions are not affected.

To check the accuracy of his results, Dittenberger considered it advisable to compare them with statistics of other characteristic words. For full confirmation all works under 'a' should agree in their usage with the

[9] *Neue Jahrbücher für Philologie* 125 (1882) 534–41.

Table 4.2

Republic	ἀλλὰ μήν	καὶ μήν	τί μήν;	γε μήν	ἀλλὰ ... μήν	Total	Stephanus pp.	οὐ μήν	Solitary μήν
I	6	3		I	I	II	28	I	
II	7	4	I		I	I3	27	I	
III	8	5	4	(I)	I	I8(I9)	32		I
IV	I	II	6(5)	(I)	2(3)	20(2I)	26	I	I
V	4	3	2	I		I0	32		4
VI	5	4	6		I	I6	28		2
VII	3	3	4			I0	28	I	6
VIII	2	5	6		I	I4	27		
IX	6	5	5(6)		2	I8(I9)	22		
X	2	2	I			5	27		
Total	44	45	35	2(4)	9(I0)			4	I4

(a) The extra instances of γε μήν in the O.C.T. are at III 4I0b5 and IV 443a9.

Rep., all those under 'b' with the *Laws*. The criteria were three in number:

1. the interchangeable comparative particles ὥσπερ and καθάπερ;
2. the interchangeable temporal conjunctions ἕως(περ) and μέχριπερ;
3. the combination of τάχα and ἴσως.

In these calculations the *Apol.*, *Tim.* and *Crit.* were also included. Dittenberger's figures are reproduced in the form of a table (4.3 p. 20) for the sake of greater clarity.

All the dialogues of group IIb give ample proof of their affinity to the *Laws* with their preference for καθάπερ instead of ὥσπερ, for καθαπερεί instead of ὡσπερεί, and by the occurrence in them alone of μέχριπερ and τάχα + ἴσως. The only exception is the *Parm.*, and Dittenberger was so at a loss to explain the puzzling behaviour of this dialogue, that he was inclined to doubt its genuineness. As most of the criteria are relevant only to the group IIb, it would be a mistake to expect to find evidence here of a clear-cut distinction between the two main groups as in the first table for μήν. καθάπερ is found in both group I and group IIa, and with little difference in relative frequency, so that no conclusion can be drawn. Although Dittenberger himself did not perceive it, it is noticeable that the three most important dialogues of group IIa reveal a tendency towards a more sparing use of comparison; the *Phdr.*, *Rep.* and *Theaet.* have an average of 0.61 of these four comparative adverbs per page, the seven dialogues immediately succeeding have 0.40 and the seven immediately preceding 0.81. Clearly there can be no doubt of the direction of the trend. Not that this proves that these three dialogues occupy their correct positions in Dittenberger's table, but it is a supplement to the evidence of μήν.

Beyond the three broad divisions he had made Dittenberger refused to say anything definite about the chronological sequence. He counted the following discoveries as the most important:

1. The *Phdr.* belongs without any doubt to group IIa.
2. The *Theaet.* also falls in IIa very near the *Rep.*, though there is not sufficient evidence to decide whether before or after.
3. A whole group of dialogues coincides with the *Laws* in a series of linguistic peculiarities and so must have been the last to be written. This was not surprising as regards *Phil.*, *Tim.* and *Crit.*, because they were already generally accepted as late, but the proof of the lateness of *Soph.* and *Pol.* was extremely important.

Table 4.3

		ὥσπερ	καθάπερ	ὡσπερ(αν)εί	καθαπερεί	ἕως(περ)	μέχριπερ	τάχα + ἴσως	Hermann pp.
I	Apol.	31				3		(1)	33
	Cri.	8							17
	Euph.	7(8)							23
	Prot.	68		2		6			63
	Charm.	9				3			29
	Lach.	12(11)	1			2			32
	Hipp. Mi.	8							20
	Euthd.	30	1			2			45
	Meno	21(22)	1			4			46
	Gorg.	69	1	1		3			116
	Crat.	80(78)	2	3		8			79
	Phdo	80(81)		1		16(15)			79
IIa	Symp.	55	2			8(6)			62
	Lys.	17(15)		1		(2)			24
	Phdr.	27	4			5			68
	Rep.	212	5(6)			23			318
	Theaet.	47	2			10			101
IIb	Parm.	9				(5)			50
	Phil.	9(10)	27(24)		3	3	1	3	87
	Soph.	9	14			3	1	2	82
	Pol.	16(19)	34(32)		1	5	3	3	83
	Tim.	10	18(17)		1	3	4	1	87
	Crit.	2	5			1	1		19
	Laws	24	148(147)		1	16(15)	16(17)	11	417

(a) The ἕως(περ) figures for Groups I and IIa, apart from those in parentheses, were provided later by Ritter.
(b) ἴσως τάχ' ἄν at *Apol.* 31a3 was ignored by Dittenberger, though he included the similarly inverted form at *Tim.* 38e2.

How do Dittenberger's results compare with those of his two predecessors? Both Campbell and Blass had arrived at a final group consisting of *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws*, but without being able to indicate the order of the individual dialogues. In addition Campbell had strong grounds for believing that this group was preceded by another composed of *Phdr.*, *Rep.*, *Theaet.* and *Parm.*, again with no fixed sequence. Dittenberger, too, has divided all the dialogues into three groups, but their contents are slightly different. In the first place he has transferred the *Parm.* to the third or last group, so that this now contains seven instead of six dialogues. The change is of little importance, and not fully justified in any case by the statistics. It was made with γε μήν as criterion, but no support was lent by the others like καθάπερ, μέχριπερ and τάχα + ἴσως, with the result that Dittenberger suspected its authenticity, as mentioned above. The *Parm.* like the *Phdr.* has always proved to be a problem dialogue. All one can say at present is that the μήν statistics show its position to be somewhere about the border line between the second and third groups, though this is rather prejudiced by the absence of καθάπερ. However, as there are only 9 occurrences of ὥσπερ altogether in the *Parm.*, one might be justified in calling it accidental.

The second group, having lost the *Parm.*, is strengthened by the addition of the *Symp.* and *Lys.* which fall late in the first period according to Campbell's arrangement. Whether Dittenberger was correct or not in following his statistics implicitly is open to debate, but in any case the remedy has already been suggested by Schanz, should it be required. The final assessment, therefore, must be that although Dittenberger made no real advance over his predecessors, his more detailed investigation provided a firmer basis for the conclusions they had already reached. Though he himself placed the *Parm.* after *Theaet.* on the evidence of γε μήν, their respective figures for καὶ μήν and ἀλλὰ μήν contradict this. Examination of Table 4.1 shows that in the dialogues of the last group there is a strong preponderance of the former particle, whereas in the majority of the others they are fairly equal or ἀλλὰ μήν preponderates; the proportion in the *Parm.* is equal, while in the *Theaet.* there are almost twice as many καὶ μήν as ἀλλὰ μήν. It is in any case a mistake to base conclusions on solitary observations, unless the evidence is really substantial.

Lastly we might take a closer look at one or two of Dittenberger's statistics. It has already been mentioned that Plato preferred καὶ μήν to ἀλλὰ μήν in the last period, and if we calculate the proportion of καὶ μήν to each ἀλλὰ μήν in the individual dialogues, the following figures result:

Soph. 1.6 *Phil.* 2.9 *Pol.* 3.4 *Laws* 4.5

If we do the same for καθάπερ and ὥσπερ, there are the following numbers of καθάπερ to every ὥσπερ:

Soph. 1.6 *Tim.* 1.8 *Pol.* 1.9 *Phil.* 3.0 *Laws* 6.1

Thirdly, taking Ritter's advice and calculating what percentage of all the formal replies τί μήν; forms in a dialogue, the result is:

Group II: *Parm.* 1.2 *Rep.* 2.8 *Theaet.* 4.5 *Phdr.* 17.4
Group III: *Soph.* 3.8 *Pol.* 8.0 *Phil.* 8.3 *Laws* 8.5

One thing seems fairly certain: the *Soph.* is the first and the *Laws* the last dialogue of what we might call an abbreviated latest group, that is, *Soph.*, *Pol.*, *Phil.* and *Laws*. The relation of the *Pol.* and *Phil.*, on the other hand, cannot be expressed with anything like the same certainty. If, however, in addition to the above statistics we recall that the *Phil.* showed far greater affinity to the *Laws* in avoiding hiatus than did the *Pol.*, we are justified in saying that at present the balance of evidence comes down in favour of the later date of the *Phil.* The material so far collected is still not enough to indicate the probable positions of the *Tim.* and *Crit.* and the dialogues of the second group.

5

A. FREDERKING

★

Dittenberger's research, as novel in Germany as Campbell's in Britain, provoked an immediate and sarcastic retort from A. Frederking in an article bearing the same title.[1] In his view the stylistic method was a dangerous weapon requiring proper application, if it was to be of any service, and this was exactly what it had not received. It is by no means a foregone conclusion, he remarked, that an author's language has such a symmetrical development and is in every single work so perfectly in harmony with this development at its particular stage as Dittenberger was inclined to assume. It changes not only in accordance with the different period of the composition of individual works, but also within the same period according to the content and form of the work, the degree of logical and artistic perfection, and the character of the persons taking part in the dialogue, as well as for various other reasons which may conveniently be collected under the one name of 'chance'.

This applies especially to particles, he said; if a particle is not used in some work, above all a small one, nothing at all can be deduced from its absence; nor can anything be gathered about the frequency of a particle in general from its more or less frequent occurrence in a single work; the opportunity for using it could be either entirely lacking or seldom offered. Frederking proceeded to illustrate his argument from some of the observations made by his predecessor. These, concerning the inconsistent distribution of γε μήν in the *Laws*, and τί μήν; in the *Laws* and *Rep.*, have already been dealt with in the previous chapter. To these he added the example of δέ γε, which, he remarked, might have permitted quite a

[1] 'Sprachliche Kriterien für die Chronologie der platonischen Dialoge', *Neue Jahrbücher für Philologie* 125 (1882) 534–41.

probable chronological arrangement of the dialogues to be made according to its varying frequency, only its symmetry is somewhat disturbed in several places. In *Laws* II, for instance, it occurs twice as often as in I, and twice as often again in the first 30 pages of the *Soph.* as in the first 30 of the *Phil.*, though the two dialogues cannot be very widely separated chronologically. Finally, it is completely missing from the *Symp.*[2] and the part of the *Phdr.* containing the speeches, which is by no means to be accounted for entirely by the reduced dialogue form, since while δέ γε is most commonly used at the beginning of a remark, it is also employed within a period.[3] Besides this it was Frederking who first calculated the occurrence of τί μήν; in the books of the *Rep.*, and from its absence in I concluded that this book was written in the same period as *Cri.*, *Euph.*, *Charm.*, *Lach.* and *Hipp. Mi.* He was followed in this by Kugler, who, as mentioned above, completed the statistics for Dittenberger's four other combinations of μήν in the *Rep.*

To set the seal on his contention that different linguistic criteria produce different and contradictory results, Frederking published some observations of his own on several particles. The first, τε used without a corresponding καί, τε or οὔτε to join not only sentences and clauses but also single words was found to occur in the various dialogues as follows: *Tim.* (88 pages Hermann) over 200, *Crit.* (19 pages) 30, *Epin.* (24 pages) 25, *Laws* (417 pages) 170 (again with unequal distribution, i.e. 3 in book II, over 20 in VI, X, XII, and 12 on average in the rest), *Phdr.* (68 pages) 30, *Lys.* (24 pages) 4, *Pol.* (83 pages) 10, *Alc. I* (55 pages) 5, *Soph.* (82 pages) 6, *Theaet.* (101 pages) 7, *Rep.* (318 pages) over 20, *Phil.* (87 pages) 4. In the rest of the dialogues the solitary τε was either very rare, as in *Cri.* (52c), *Charm.* (153d), *Euthd.* (289e), *Gorg.* (524b), *Prot.* (326a, 358d), *Phdo.* (68a, 95e), *Symp.* (202e, 219e, 220a), *Parm.* (126b), or entirely absent as in *Euph.*, *Apol.*, *Lach.*, *Hipp. Mi.*, *Crat.* and *Meno.*

If now, Frederking continued, we wished to draw conclusions about the chronological order of the dialogues from these figures with the same finality as Dittenberger, we would be compelled to place the *Parm.* among the dialogues of the first main group and relegate the *Phdr.* on the other hand to the time of *Tim.*, *Crit.* and *Laws.* So the evidence of τε contradicts that of μήν, which should make us dubious of the correctness

[2] In the O.C.T. it occurs at 204c5.

[3] In fact it normally occurs at a change of speaker (23 of the 26 instances in the *Theaet.*, for example, are in this position), and thus its frequency is connected with the extent of dialogue in a work.

of basing chronological conclusions on the observation of a single linguistic usage.

It is noticeable, however, that the two dialogues which Frederking quotes as occupying obviously incorrect positions are just those for which Campbell, Blass and Dittenberger had independently made particular provision in their chronological arrangements on the ground of their unusual character. If together with these we except the *Alc. I*, which is generally considered spurious, and the short *Lysis*, which has 3 not 4 examples (all in the same sentence 210b2ff.), it is evident that the dialogues in which this use of τε is the most frequent are those of the two latest groups recognized by Frederking's predecessors. However, no evidence for the sequence of the individual works can be derived from these figures, not only because the extensive use of τε is confined to continuous narrative (hence its high frequency in *Tim.*, *Crit.*, *Epin.*, *Laws* and *Phdr.*), but also because in all probability most of them are inaccurate. Suspicions of this are increased by an examination of separate statistics for the same use of τε by H. Hoefer.[4] His figures are as follows, those in parentheses being Frederking's:

Tim. 196 (200+), *Crit.* 27 (30), *Epin.* 20 (25), *Laws* 154 (170), *Phdr.* 22 (30), *Lys.* 3 (4), *Pol.* 6 (10), *Alc. I* 5 (5), *Soph.* 3 (6), *Theaet.* 6 (7), *Rep.* 25 (20+), *Phil.* 1 (4), *Cri.* 1 (1), *Charm.* 2 (1), *Euthd.* 0 (1), *Gorg.* 1 (1), *Prot.* 1 (2), *Phdo* 1 (2), *Symp.* 1 (3), *Parm* 2 (1), *Apol.* 1 (0).

Whose are correct? Hoefer's, if we are to believe W. Lutoslawski,[5] who dismisses Frederking's as rough estimates, but speaks of the former's 'careful and complete enumerations'. However, a check of the incidence of solitary τε in several dialogues showed that sometimes Frederking, sometimes Kugler, and sometimes neither was correct (Thesis pp. 44–5). This whole investigation would have to be carried out again more accurately, if anything useful were to result.

The second particle which Frederking studied was μῶν. Its more frequent use, he declared, and in particular that of its combinations μῶν οὖν, μῶν οὖν οὐ, μῶν οὐ, μῶν μή, seems to be characteristic of the later dialogues. At any rate it is entirely absent from the *Euph.*, *Apol.*, *Cri.*, *Charm.*, *Lach.*, *Gorg.*, *Symp.*, *Hipp. Mi.*, *Crat.*, and is found only in the following dialogues: *Prot.* 2, *Euthd.* 3, *Lys.* 3, *Meno* 3, *Phdo* 1, *Rep.* 3 (4),

[4] 'De particulis platonicis capita selecta', Diss. Bonn 1882.

[5] *The Origin and Growth of Plato's Logic*, London 1897, 107.

Theaet. 3 (4), *Soph.* 10 (12), *Pol.* 7 (8), *Phil.* 10, *Laws* 29.[6] It is noteworthy that the pleonastic μῶν οὖν is found, apart from one instance in *Hipp. Ma.* and *Alc. I*, only in the works of Dittenberger's final group, i.e. *Soph.* 2, *Pol.* 2, *Phil.* 4, *Laws* 9.

Lastly Frederking investigated Plato's use of εἶπον. It appears, he said, that in the beginning this introduced directly quoted speech, but was never inserted parenthetically or placed at the end. This is the state of affairs in the *Prot.*, *Charm.* and *Phdo.*, while in the *Lys.* it is inserted once (205e), in the *Euthd.* twice (297b, d), and in the *Symp.* placed at the end once (εἶπον ἐγώ 205a). In the latter dialogue, however, the infinitive εἰπεῖν is inserted 13 times (189c ff.) and placed at the end twice, though φάναι is used in this way even more frequently.[7] Furthermore in the *Parm.* we find εἶπον (ἐγώ) 3 times on the first page alone (after which it could no longer be employed), εἰπεῖν inserted 10 times and placed at the end 3 times on some 12 pages (Hermann), from which point on every εἰπεῖν, φάναι etc. is omitted. In addition εἶπεν is inserted once (135b) and placed at the end once (131a) instead of εἰπεῖν, just as ἔφη instead of φάναι (129e, 132d, 135e). Finally in the *Rep.* this εἶπον is used fairly frequently, though not to an equal extent in each book; i.e. I 4, II 6, III 8, IV 15, V 15, VI 13, VII 19, VIII 16, IX 21, X 2. It is worth noting that in only one case (VIII 537c) is the third person εἶπεν inserted; this, said Frederking, clearly explains the total absence of the inserted form from the *Phaedo*, where nearly all the narrative reported is in the third person.

Frederking himself drew no conclusions from his figures on εἶπον; this was left to C. Ritter. The obvious one in the latter's opinion was that the *Rep.* is later than all the other works mentioned (excluding *Parm.* which Ritter considered of doubtful authenticity), i.e. *Prot.*, *Charm.*, *Phdo*, *Lys.*, *Euthd.* and *Symp.* Concerning the sequence of these, however, there cannot be the same certainty. In the first place the *Phdo* must be left out of the reckoning on account of its poverty in inserted instances, but for the rest there is at least a high degree of probability that the *Prot.* and *Charm.*, in which there is no example, are earlier than the *Euthd.* and *Symp.* Then the single εἶπον in the *Symp.* has a higher relative frequency than the two in the *Euthd.*, because the total of inserted instances of all verbs of saying in the former reaches only 29, in the latter 120. As Ritter points out, there is no possibility of comparing the use of εἰπεῖν and φάναι

[6] To these should be added *Ion* 1, *Hipp. Ma.* 2, *Epist. III* 1, *Theag.* 1, *Alc. I.* 3. The figures in parentheses are corrections relating to the O.C.T.

[7] It is used 55 times according to Ritter, *Untersuchungen über Plato*, Stuttgart 1888, 62.

in this way, since apart from the 55 φάναι in the *Symp.* (and excluding *Parm.* and *Alc. I* as suspected dialogues) it occurs only once in *Rep.* x. After the *Rep.* and *Parm.* the usage seems to have fallen out of favour with Plato; at any rate it is renounced explicitly in the *Theaet.* and implicitly in all later dialogues in favour of direct presentation.

Frederking's merit lies not so much in his contribution of linguistic observations as in his sober warning of the danger of making hasty deductions from insufficient material. The prospect of being the first to determine the correct chronological order of Plato's dialogues by the then new stylistic method must have been very enticing, as the numerous attempts during the decade following Dittenberger's article show; it was appropriate that someone should indicate the pitfalls in the path of the over-zealous devotee of this method.

6

F. KUGLER

★

The next contribution to the progress of the stylistic method was rather slight, the reason being that it came from the author of a dissertation,[1] whose interest, primarily philological, was only incidentally concerned with the chronology of Plato's dialogues. Kugler's criticism of Dittenberger has already been mentioned, but in addition to this he made use of the statistics of τοι which he had compiled to attempt his own solution of the problem. The chronological divisions marked in his tables (pp.29–30) are those of Dittenberger, the three dialogues omitted by the latter being added at the top. At the same time an advance is made over previous work in the separate treatment of individual books of the *Rep.* and *Laws*, though the way had already been pointed out by Frederking.

Kugler's figures have not all been verified, but a sample test (Thesis p. 53) showed them to be reasonably accurate. Referring to his tables he noted:

1. The ratio of μέντοι to τοίνυν varies considerably.
2. This reaches its extreme in *Rep.* VIII and *Laws* V, VIII, XI, where μέντοι is missing altogether.
3. In some dialogues there is a greater variety in the combinations of τοι than in others. In *Tim.* and *Crit.* there is only one type, in *Laws* books I, V, VI, XI, XII only two, in *Rep.* VIII and *Laws* VIII, IX three; in the *Gorg.* by contrast there are eight.
4. In some dialogues one or two occurrences of τοι are found to each page (Stephanus); in others (*Rep.* VIII, *Laws* I, II, III, VI, VIII, IX) hardly one to two pages. Its most seldom occurrence is in *Law* XII (5 : 29), XI (3 : 26), V (2 : 22), *Crit.* (1 : 16), *Tim.* (1 : 76).

[1] 'De particulae τοι eiusque compositorum apud Platonem usu', Diss. Basel 1886.

Table 6.1

	μέντοι	τοίνυν	καίτοι	ἦτοι	γάρτοι	οὔτοι	τοι	τοιγάρτοι	τοιγαροῦν	μῶν	Total	Stephanus pp.
Tim.							1				1	76
Crit.			1								1	16
Apol.	14	2	6	1	2						25	25
Cri.	2	5	1			1	1				10	12
Euph.	7	6	1		2	1	1				18	14
Prot.	19	9	3	4	4	1	3			2	43	53
Charm.	12	20	3				5				40	24
Lach.	12	10	7		1	1	3	1			35	23
Hipp. Mi.	5	2	2	1	2		2				14	14
Euthd.	22	10	4		5	1	3	1		3	46	38
Meno	6	13	4	2			1			3	26	30
Gorg.	23	15	9	8	9	1	6	2			73	81
Crat.	23	32	5	6		1	2				69	58
Phdo	36	20	8	4	2		3	1		1	74	61
Symp.	18	13	1		2		2	1			37	52
Lys.	7	5	3				2			3	17	20
Phdr.	16	17	5	1	2	2	4				47	53
Theaet.	40	39	3	4			7	1		4	94	69
Parm.	13	3	2	4							22	40
Phil.	8	52	3	2		1	2			10	68	57
Soph.	13	55	1				4		3	12	76	53
Pol.	7	46	2				1			8	56	55

(a) μῶν: for its occurrence in dialogues other than those considered by Kugler see p. 25.

Table 6.2

Republic	μέντοι	τοίνυν	καίτοι	ἦτοι	γάρτοι	οὔτοι	τοι	τοιγάρτοι	Total	Stephanus pp.
I	16	6	3	2	1	2	2		32	28
II	10	7	3				2		22	27
III	12	10	2			2	1	1	30	32
IV	15	19	2	2		2			40	26
V	8	15		2		1	2	1	28	32
VI	14	23		1			4		41	28
VII	8	20	2		1				31	28
VIII		11					3	1	15	27
IX	10	11	1		1				23	22
X	10	11	2		1		1		25	27
Laws	**μέντοι**	**τοίνυν**	**καίτοι**	**ἦτοι**	**γάρτοι**	**οὔτοι**	**τοι**	**τοιγαροῦν**	**Total**	**Stephanus pp.**
I	2	11							13	26
II	2	12	3			1			18	25
III	1	11	2					1	15	27
IV	2	10	5		1		1		19	20
V		1	1						2	22
VI	1	12							13	34
VII	4	25	4		1			1	35	36
VIII		8	1				2		11	23
IX	1	10					1		12	29
X	3	14		1			2		20	26
XI		2		1					3	26
XII	1	4							5	29

Without doubt, Kugler continued, the most striking phenomenon is the complete absence of both μέντοι and τοίνυν in *Tim.* and *Crit.* What reason is there for an author who is always using τοι in narration, description, summary and argument to ignore it all of a sudden in these two dialogues, while οὖν, which has the same meaning and application as τοίνυν, appears frequently? It can only be explained by assuming that the *Tim.* and *Crit.* were the last dialogues to be written, and that after an interval of time had elapsed sufficient to enable Plato's manner of expression to change.

Nearest to these, as far as mode of speech is concerned, are books V and XI of the *Laws*, which also differ from the majority of the dialogues in their very rare use of τοι in general and in their absolute deficiency of μέντοι. For these reasons and because μῶν does not occur in them they must be distinguished from the dialogues of Dittenberger's third group, which have μῶν fairly often. Occupying a position intermediate to *Laws* V and XI and these dialogues (*Parm.*, *Phil.*, *Soph.* and *Pol.*) are books XII, VI, I, II, III, IX, X of the *Laws*, in which μέντοι is found, but τοι occurs very rarely compared with elsewhere and in less variety. Preceding these are *Laws* VIII and *Rep.* VIII (i.e. between the two sets of *Laws* books already mentioned), since though they produce no example of μέντοι there is greater variety in their combinations of τοι. On the other hand *Laws* IV and VII show almost the same manner of speaking as *Pol.*, *Phil.* and *Soph.*, so that it is easy to see how the language of the latter dialogues changed through the different books of the *Laws* to that of *Tim.* and *Crit.*

Passing on to this third one of Dittenberger's groups Kugler remarked that the frequency of μῶν and the great preponderance of τοίνυν over μέντοι are its main characteristics. The only irregularity to be found is with the *Parm.* Its relation of μέντοι to τοίνυν (13 : 3) is surpassed only by the *Apol.* (14 : 2), so that if this standard is followed, it must be given a position among the very earliest dialogues. This, however, is contradicted by its lack of the plain τοι, which is found in all the dialogues of the first period except the *Apol.*, a much shorter work. Kugler accordingly followed the precedent of Frederking, who in turn had adopted Dittenberger's tentative suggestion that the *Parm.* should be rejected as unauthentic.

The order of dialogues which he considered the most probable, but by no means insisted on as final, was the following based on a comparison of the relative frequency of μέντοι and τοίνυν:[2]

[2] The two words are not synonyms, so that no purpose is served by comparing them.

Apol., *Rep.* I, *Hipp. Mi.*, *Euthd.*, *Prot.*, *Gorg.*, *Phdo.*, *Lys.*, *Symp.*, *Rep.* II and III, *Lach.*, *Euph.*, *Theaet.–Phdr.*, *Rep.* IV, IX and X, *Crat.*, *Charm.*, *Rep.* V, VI and VII, *Meno*, *Cri.–Soph.*, *Phil.*, *Pol.*, *Laws* IV and VII–*Laws* X, IX, I, II, III, VI and XII, *Rep.* VIII and *Laws* VIII–*Laws* V, XI, *Crit.*, *Tim.*

Looking at this sequence one is inclined to believe that Kugler's stylistic observations were intended as a Frederking-inspired joke at the expense of Dittenberger and all prospective 'stylometricians'. This seems quite possible, considering that he was an avowed disciple of Frederking and could not have been so forgetful of his warning as to produce the rather crazy sequence of dialogues above. On the other hand, he seems quite in earnest, judging from his closing paragraph:

> Altogether I believe that no one should draw such important conclusions as Dittenberger has done on the evidence of one or two particles. Certainly an investigation in this sphere of language, where the author writes unconsciously, so to speak, and changes his manner in the same way, is fully worthwhile; but something definite will be able to be deduced only when all the investigations have been collected and compared . . . Therefore, although I do not think this work can stand on its own, but only as a part of this greater work that I have mentioned, I do believe it has produced these results:
>
> 1. The various books of the *Rep.* and *Laws* were written at different times.
> 2. It may be doubted whether the *Parm.* is genuine.
> 3. A change in Plato's manner of expression can be traced from the *Soph.*, *Phil.* and *Pol.*, which closely resemble one another, through the books of the *Laws* to the *Tim.* and *Crit.*

So from F. Kugler comes a chronological order of the dialogues considerably different from that to which we have been accustomed by preceding theories. Examining the arguments on which it is founded, the basic hypothesis is that the *Tim.* and *Crit.* must have been the last to be written because their manner of expression, devoid as it is of both μέντοι and τοίνυν, differs completely from that of all other dialogues. Yet it is quite obvious that the reason for this is the scanty amount of dialogue and impersonal tone of the exposition in these two works. Little scope existed for either the affirmative or adversative use of μέντοι or for τοίνυν. Consider the two books of the *Laws* which Kugler placed next to the *Tim.* and *Crit.* on the same basis of a deficiency in these two words: neither has μέντοι, V has 1 τοίνυν, XI 2. But the fact which strikes us most is that they are the books containing the least dialogue. The easiest means of measuring this is by the average number of times there is a change of

speaker per page (Stephanus); it is as follows:

I	9.3	IV	8.0	VII	6.4	X	9.7
II	8.7	V	0.1	VIII	3.5	XI	0.9
III	10.6	VI	2.9	IX	3.2	XII	3.7

The absence of μῶν, which Kugler considered an independent criterion, has exactly the same cause. It does not occur in *Tim.* or *Crit.*, as follows in the books of *Laws*:

I	2	IV	I	VII	2	X	6
II	7	V	0	VIII	I	XI	0
III	6	VI	I	IX	I	XII	2

For further evidence one could take the case of book XII. Its first 10 pages are in the form of an almost continuous exposition (there is only one interjection, at 951c5) containing no μέντοι, τοίνυν or μῶν, while its last 9 pages are dialogue with 105 changes of speaker, and these produce 1 μέντοι, 4 τοίνυν and 2 μῶν. The first and third of Kugler's final conclusions are automatically invalidated, but that is hardly surprising when his whole procedure is thoroughly unsound. Though it is essential to examine the individual books of the *Rep.* and *Laws* separately, in order to trace the linguistic development through these lengthy works, it must be remembered that they are mainly traditional, not inherent divisions and therefore cannot be regarded as independent unities for the purpose of stylistic comparison and chronological arrangement, particularly when such minute figures as those above are involved.

7

M. SCHANZ

★

The subject of this inquiry[1] was several phrases used by Plato to express the contrast between 'being' and 'appearing', τῷ ὄντι and ὄντως on the one hand and ὡς ἀληθῶς, τῇ ἀληθείᾳ, ἀληθῶς, ἀληθείᾳ on the other. Schanz's reasons for choosing these expressions were their independence of the dialogue form, the frequent necessity for a philosophical writer of bringing out the above contrast, and the series of synonyms which they provided.

In the case of the first two synonyms, τῷ ὄντι and ὄντως, though the latter did not find a place in Plato's literary vocabulary for some years, once introduced its greater succinctness gradually won preference for it over τῷ ὄντι, until finally it replaced the earlier expression completely. Its superiority is most manifest in those instances where the participle τὸ ὄν is involved; in fact, when this is in the dative, τῷ ὄντι is out of the question, e.g. *Rep.* VI 490b5 τῷ ὄντι ὄντως, *Tim.* 52c5 τῷ δὲ ὄντως ὄντι. The increasing use which Plato made of ὄντως is illustrated in Table 7.1 (p. 35).

The instances in the *Euthd.* (305e) and *Crat.* (413e) are dubious, the former extremely so. Editions earlier than that of Hermann in the Teubner series read ὄντως in both cases.[2] Since Hermann (1879) opinion has varied. Whereas he and the Budé edition (1931) accept οὕτως the reading of the best manuscripts BTW for the *Euthd.* and ὄντως the reading of W for *Crat.*, Burnet prefers ὄντως in the *Euthd.* (though attested only by an inferior MS, Venetum 184) and the reading of BT, ὄντος, in the *Crat.*

An inspection of the table shows, Schanz said, that the dialogues fall

[1] 'Zur Entwicklung des platonischen Stils', *Hermes* 21 (1886) 439–59.

[2] E.g. Heindorf (1806), Baiter, Orelli, Winckelmann (1839), Stallbaum (1867).

Table 7.1

	τῷ ὄντι	ὄντως	ὡς ἀληθῶς	ἀληθῶς	τῇ ἀληθείᾳ	ἀληθείᾳ
Apol.	5		2(3)	1(0)	3	
Euph.	1		1	1(0)		
Gorg.	9		7		6	
Lach.	2		7			
Lys.	6		2			
Prot.	2		2	1	1	3(0)
Symp.	5		3			
Phdo	14(17)		11	2		
Phdr.	8	6	7	1	2	
Crat.	1	1(0)	3		4(5)	
Euthd.	4	1	2	1	2	
Theaet.	6	1	8	1	2	
Rep.	41	9	28(29)	8(7)	15	
Soph.	1	21(22)	3	6		
Phil.		15		7		1
Pol.		11		4	1	
Tim.		8		3	1	1
Laws		50(52)		6	3	3
Charm.			5			
Cri.			2		2	
Hipp. Ma.	5				3	
Menex.	6			1	1	
Meno				2		
Parm.			1	1	1	
Epin.	1	16				1

(a) The last seven works were not included in his table by Schanz, some because, like *Hipp. Mi.*, they contained examples neither of τῷ ὄντι nor of ὄντως, others because they were considered unauthentic. The figures for these come from the Word Index.

into three natural groups, which everyone will admit represent three consecutive periods of Plato's literary activity. Checking the results given by the table against known facts we find:

(1) recognised dialogues of the earliest period in the first section;
(2) the indubitably latest work, the *Laws*, in the last;
(3) the *Pol.*, which must be later than the *Theaet.* and *Soph.*, is so according to the table;
(4) likewise the *Tim.*, which presupposes the *Rep.*, follows it in the table.

For additional confirmation of the reliability of this arrangement Schanz produced statistics of a second series of synonyms. However, the instance of ἀληθῶς at *Euph.* 7a3 is not a genuine one, since the verb ἀπεκρίνω is implied from the preceding sentence. In addition the single example of ἀληθῶς in the *Apol.* (41a) is very dubious; only B reads it, while B_2T Stob. and Eus. have ὡς ἀληθῶς, which Burnet accepts. If the latter form is adopted, the number of instances of ὡς ἀληθῶς in the *Apol.* must accordingly be raised from 2 to 3.

Comparing the two pairs of words, the striking thing, Schanz said, is the absence of τῷ ὄντι in the first and of ὡς ἀληθῶς in the second from the same dialogues, *Phil.*, *Pol.*, *Tim.* and *Laws.* This is far from being accidental; ὄντως stands to τῷ ὄντι as ἀληθῶς to ὡς ἀληθῶς, so that we get two parallel lines of development, ὄντως supplanting τῷ ὄντι on the one side, ἀληθῶς ὡς ἀληθῶς on the other. The conclusion that *Phil.*, *Pol.* and *Tim.* are, together with the *Laws*, Plato's last dialogues is inescapable.

Proceeding to a comparison of his results with Dittenberger's Schanz noted the following:

1. The dialogues of Dittenberger's first group corresponded to those of his own first section with the exception of two, the *Euthd.* and *Crat.*
2. The dialogues of Dittenberger's second main group, excluding the *Symp.* and *Lys.*, were identical to those of his second and third sections.

On closer examination, he continued, the second difference is found to be more apparent than real, since though Dittenberger placed the *Symp.* and *Lys.* in the second group, he agreed that they were the earliest, coming before *Phdr.*, *Rep.*, *Theaet.* etc. As far as the other was concerned, Schanz had no doubt that the correct answer was that provided by his own table. The reasons, however, which he gave for transferring the *Euthd.* and *Crat.* from the first to the second group were not linguistic; how could they be when all the evidence at his disposal was a single ὄντως in each dialogue, that in the *Euthd.* a doubtful one into the bargain? His real arguments were drawn from the contents and so are of no concern here. A third difference of lesser importance, he mentioned, was the respective positions occupied by the *Soph.*, at the end of the second group in his table, at the beginning of the second in Dittenberger's. However, as Ritter later remarked: 'The fact that τῷ ὄντι, which is common in dialogues of the first two periods, still occurs once in *Soph.*, though entirely superseded by ὄντως in *Laws*, *Phil.*, *Pol.* and *Tim.*, is not very important considering that ὄντως is at the same time relatively more

Table 7.2

Republic	τῷ ὄντι	ὄντως	ὡς ἀληθῶς	ἀληθῶς
I	3		5 (6)	1 (0)
II	3		7	
III	3		3	1
IV	4		4	
V	2	1		
VI	8	2	5	3
VII	8	2	1	
VIII	1		2	
IX	6	2		3
X	3	2	1	

(a) *Rep.* I. 345e2 ὡς ἀληθῶς F Eus. (thus O.C.T.), ἀληθῶς ATDM.

frequent in the *Soph.* than any other work. It is clear from Schanz's own evidence that the *Soph.* is more closely related to the *Pol.* and other works of the last group than to any dialogue in the first or second group.'

Several facts established by the agreement of his own research and Dittenberger's, he said, concerned the three dialogues *Phdo*, *Theaet.* and *Phdr.*

1. The *Phdo* belonged to the first period of Plato's literary career; the stubbornly held view of its late date was at last definitely refuted.
2. Equally definitely dispatched was the view of the early date of composition of the *Theaet.* Both inquiries proved that it could not come earlier than 385 B.C. (*terminus post quem* of *Symp.*).[3]
3. The *Phdr.* did not come at the beginning of Plato's literary career but at its acme, a result of the greatest importance for the treatment of the Platonic question.

In addition one or two new facts had been brought to light by his investigations, the most important concerning the use of τῷ ὄντι, ὄντως and ὡς ἀληθῶς in the books of the *Rep.*; Table 7.2 gives their respective occurrences. The ten books separate themselves into two stylistic stages, the first four containing no instance of ὄντως, the later books employing it alongside τῷ ὄντι. We cannot deduce anything, Schanz pointed out, from the absence of ὄντως in book VIII, because it is well known that the division of the *Rep.* into the existing books did not originate with Plato. Books VIII and IX are closely connected, so that nothing can be said about

[3] See K. J. Dover, 'The Date of Plato's Symposium', *Phronesis* 10 (1965) 2–20.

VIII which does not take IX into account. However, the absence of ὄντως from the first four books can hardly be called accidental when τῷ ὄντι occurs 13 times and ὡς ἀληθῶς 19. There is only one explanation; when Plato wrote these four books he had not yet admitted ὄντως to his literary vocabulary. It seems evident, Schanz continued, that the *Rep.* was composed in such a way that a new part, or parts, was added to an already existing nucleus. The answer to the question of whether the first section was published separately is given by Aulus Gellius,[4] when he mentions that the *Rep.* was brought out in instalments. What size the first publication was is not stated clearly, since the '*duobus fere libris, qui primi in volgus exierant*' fixes it only approximately. Judging from his statistics, however, Schanz considered it highly probable that the initial publication comprised the first four books.

Another fact which, in his opinion, is consequent upon his statistics is the wide temporal separation of *Theaet.*, *Soph.* and *Pol.* from each other. Though the first two fall in the same period, there must be a long interval between them, because in the *Soph.* ὄντως with 21 occurrences has almost completely replaced τῷ ὄντι, occurring once, while in the *Theaet.* there is only a single ὄντως alongside 6 τῷ ὄντι. On the other side the *Pol.* cannot very well have been written immediately after the *Soph.*, as Dittenberger thought, since its language shows a considerable advance over that of the latter, containing as it does neither τῷ ὄντι nor ὡς ἀληθῶς.

It remains to examine the correctness of Schanz's conclusions. One may confidently accept his division between the two later groups of dialogues with the emendation made by Ritter, but what of that between the first and second? Here we might recall Schanz's own criticism of Dittenberger, when the latter drew a sharp chronological line of division between two groups of dialogues, one containing certain compounds of μήν, the other not; 'but can we believe', he said, 'that Plato fell from the one manner of speaking into the other without any interim stage? ... Can we not believe that in the period of fluctuation some dialogues contained the particle (τί μήν;), while some did not?' The same applies to ὄντως. In each of *Theaet.*, *Crat.*(?), *Euthd.*(?) there is only 1 instance of the word, and therefore on the basis of the statistics of τῷ ὄντι : ὄντως alone it would be quite possible for dialogues like *Lys.*, *Phdo* and *Symp.* to have been written alternately with or even after the former three. Such a view

[4] *Noct. Att.* 14.3.

receives support from the ὡς ἀληθῶς : ἀληθῶς figures,[5] where *Prot.*, *Phdo.*, *Euthd.* etc. approach the usage of the last group, while the *Crat.* is just as far away as the *Symp.* and *Lys.*

Secondly one may object to Schanz's statement that his statistics prove there was a wide interval between the composition of the *Soph.* and that of the *Pol.* A glance at the extent of occurrence of τῷ ὄντι and ὡς ἀληθῶς in the *Soph.* (1 and 3 instances respectively) is sufficient to show that no great length of time would have been required for the two dying expressions to vanish entirely in the following work. On the other hand one is inclined to agree with Schanz that quite a considerable interval must have elapsed between the *Theaet.* and *Soph.*; both his statistics and those of Dittenberger (ὥσπερ : καθάπερ) and Kugler (μέντοι : τοίνυν) prove it by their representation of the big swing from a preference for the former expression in each case in the *Theaet.* to a decided preference for the latter in the *Soph.* Whether any other work or works were written in this interval remains to be ascertained.

Thirdly there is the very interesting discovery about the distribution of ὄντως in the books of the *Rep.*, though it is difficult to determine its exact significance. It might mean that the instance in book v represents the first occasion on which Plato used the word; only the same may be said of that in the *Theaet.* or those in the *Crat.* and *Euthd.*, if they are the correct readings. As Schanz himself maintained, it seems unlikely that Plato used ὄντως in the *Euthd.* and *Crat.*, then dropped it completely for the space of 13 instances of τῷ ὄντι in *Rep.* I–IV (or 10 if book I is separated and placed earlier than the other three). On the contrary, once introduced, it appears to have occurred fairly regularly with gradually increasing frequency alongside the earlier expression. On this evidence, therefore, it would seem that *Theaet.*, *Crat.* and *Euthd.*, if the instances in the latter two are accepted, were written after the first four books of the *Rep.*; whether after the other six books also cannot be determined by the present statistics. The exact line of division between books IV and V would, of course, have to be fixed according to the contents.

Finally, regarding the problem of the sequence of dialogues within the last group, Schanz's criteria too fail to provide a solution, and indeed

[5] Those for τῇ ἀληθείᾳ : ἀληθείᾳ seemed to Schanz to be of little use owing to the 3 instances in *Prot.* (339d3, 340c1, 343d6). These, however, are not true instances, since all occur in re-quotations of part of Simonides' poem. Thus, meagre though the figures are, the adverbial use of ἀληθείᾳ is indeed characteristic only of works of the last period.

produce no evidence at all beyond the fact that the *Soph.* seems likely to have been the first, as indicated by previous investigations. Once again the lateness of the group as a whole is confirmed by the testimony of two independent sets of expressions.

8

E. WALBE

★

After a break in 1887 the following year produced three further works to sustain the growing interest in research into Plato's prose style. The subject of the first of these was πᾶς and its compounds;[1] the results are contained in Tables 8.1 and 8.2 (pp. 42, 43).[2] Walbe himself made no claim to have discovered the probable chronological sequence of the dialogues, but believed that his statistics were capable of throwing some light on the correct positions of certain works.

Directing his attention first to the use of σύμπας (including συνάπας), which he considered 'particularly noteworthy', he decided that the earliest group of works comprised those in which this word occurred only once or not at all, the middle one those in which it occurred between two and five times, while to the last period, where alone it could be called reasonably common, belonged *Tim.* 17, *Crit.* 5, *Laws* 85, *Phil.* 23, *Soph.* 23, *Pol.* 46. 'This', Walbe declared, 'agrees so well with the results of both Dittenberger and Schanz that it now seems almost criminal to doubt that *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws* are the latest dialogues.' This was confirmed by the fact that συνάπας occurs only in these six apart from two considered spurious, *Hipp. Ma.* and *Alc. I.*, the reason being presumably that the more σύμπας was used the more it appeared to lose its force, and so a new form was needed stronger and more important than all the rest.

Having found a continuous increase in the use of σύμπας Walbe turned to examine ἅπας. Here he failed to meet with a similar line of development

[1] 'Syntaxis Platonicae Specimen', Diss. Bonn 1888.

[2] In the second Walbe placed the dialogues haphazardly, but the more important ones have been rearranged in the chronological order generally accepted by stylistic investigators at that time.

Table 8.1

Republic	Hermann pp.	πᾶς	ἅπας	σύμπας	συνάπας
I	34	27	3		
II	31	40	8		
III	37	65	5	1	
IV	31	56	5	3	
V	36	71	7	2	
VI	32	56	4	1	
VII	31	64	6	1	
VIII	30	42	6	1	
IX	25	42	6	1	
X	31	65	11	2	
Laws					
I	34	78	17	7	
II	30	53	15	10	
III	36	69	7	5	
IV	27	52	7	8	1
V	26	96	11	7	
VI	43	139	16	3	
VII	48	145	23	11	
VIII	29	58	19	4	
IX	38	82	8	8	
X	36	115	22	7	
XI	32	51	6	7	
XII	36	97	16	7	

and certainly nothing to suggest that its usage became more frequent with time. Regarding the dialogues with the fewest examples as early, those with the most as late, he obtained the following sequence:[3]

Symp. 6 (22.2), *Soph.* 8 (18.7), *Crat.* 7 (18.4), *Charm.* 3 (14.3), *Euph.* 3 (11.3), *Lys.* 3 (10.3), *Theaet.* 17 (9.9), *Pol.* 18 (9.7), *Crit.* 6 (9.3), *Phil.* 19 (8.8), *Rep.* 61 (8.6), *Phdo* 15 (8.0), *Tim.* 45 (6.9), *Laws* 170 (6.1), *Meno* 7 (5.8), *Phdr.* 15 (5.5), *Euthd.* 16 (5.3), *Parm.* 16 (4.6), *Prot.* 21 (4.3), *Cri.* 4 (4.2), *Lach.* 7 (4.1), *Gorg.* 27 (3.2), *Apol.* 11 (2.5).

Walbe admitted that there was not the slightest probability of this being correct.

Subsequently the author left chronology and went on to discuss philo-

[3] The figures in parentheses indicate the number of πᾶς to each ἅπας in the dialogue concerned.

Table 8.2

	Hermann pp.	πᾶς	ἅπας	σύμπας	συνάπας
Euph.	23	34	3		
Apol.	33	27	11	1	
Cri.	17	17	4	3	
Charm.	29	43	3	2	
Lach.	32	29	7	3	
Hipp. Mi.	20	15	2	1	
Prot.	64	91	21	1	
Gorg.	116	86	27	1	
Meno	46	41	7	1	
Menex.	19	37	5	2	
Euthd.	46	85	16	1	
Crat.	79	129	7	1	
Lys.	24	31	3		
Symp.	62	133	6	3	
Phdo	79	120	15	2	
Theaet.	101	168	17	3	
Phdr.	68	83	15	2	
Rep.	318	528	61	12	
Parm.	50	74	16	1	
Soph.	82	150	8	20	3
Pol.	83	175	18	45	1
Phil.	87	167	19	21	2
Tim.	88	313	45	14	3
Crit.	19	56	6	5	
Laws	417	1,035	170	84	1
Alc. I	55	30	3	1	1
Alc. II	19	22	5	4	
Hipp. Ma.	36	60	4	1	1
Hipp.	11	16	3		
Amat.	9	9	3		
Theag.	15	10	2	3	
Ion	17	15	8	1	
Clit.	6	11	1	2	
Tim. Locr.	14	19	6	3	
Min.	14	7	3	1	
Epin.	23	92	25	24	
Epist.	68	149	15	6	
Dem.	8	5	1		
Sis.	8	3	6		
Halc.	4	8	4	1	
Eryx.	20	17	3		
Ax.	10	9	2		

(a) The figures seem reasonably accurate: comparison of those for πᾶς in the O.C.T. showed that most were identical. The largest discrepancies were *Theaet.* 160, *Laws* 1,043, *Tim.* 316 and *Apol.* 30. Apart from these the difference was never greater than 2. Those for ἅπας are unchecked; those for συνάπας are identical, as are those for σύμπας with the exception of *Tim.* 13, *Crit.* 6.

logical details. It could hardly be said that he applied himself energetically to making the most of his knowledge of πᾶς to clarify the order of the dialogues, and that really is what is needed for there to be any hope of explaining the fluctuations in Plato's choice of words. Many things can affect the choice between πᾶς and its compounds. Firstly there is the subject matter of the dialogue itself; if this is metaphysical in any way, allowance must be made for the greater scope for using τὸ πᾶν, τὰ πάντα etc. Secondly it is quite certain that at all times, and particularly in the last period, rhythm played a very great part in the selection of the word to be used. Closely connected with this is the limited application of ἅπας in the period when Plato endeavoured to avoid hiatus. In earlier times hiatus with ἅπας was apparently of no concern to him, since all 3 instances in the *Euph.* and 10 of the 16 in the *Euthd.* are guilty in this respect, and only 2 of these 13 are so-called 'permissible' hiatus.[4] By contrast there are only 7 instances of hiatus (5 permissible) in the 19 examples in the *Pol.* and 7 (6 permissible) in 20 examples taken from a section of the *Laws*. This may explain the scarcity of ἅπας in *Soph.* and *Pol.*, the two dialogues which enforce the hiatus rule most strictly, but it is rather called in question by the fact that *Tim.* and *Laws*, which also avoid hiatus, use the word frequently enough, the *Laws* more frequently indeed than the *Rep.* Besides these there are many little points which may prejudice or favour the use of πᾶς or one of its compounds. For example, ἅπας is not normally used after a preposition ending in -α, so that if a dialogue contains a large number of these prepositions, the scope for ἅπας is automatically reduced; and in this respect it might be worth remembering that κατά is the most common preposition in the last period after ἐν, which itself is generally followed by πᾶς not ἅπας. Lastly it should be remembered that σύμπας is not an exact synonym of πᾶς and ἅπας, but only in one sense, 'whole' or 'all', not 'every'. These few points are mentioned to show the impossibility of drawing anything but the broadest conclusions from an examination of the bare figures.

Nevertheless Lutoslawski managed to spot at least one distinctive feature, namely the more frequent use of πᾶς and especially of its compounds in the dialogues of the last period. To illustrate this, he calculated the number of instances of πᾶς and its compounds occurring on average per page of Didot's edition. If one does the same with Stephanus', the results are as given in column 1 of Table 8.3. The highest frequency is

[4] C.f. Janell (p. 153).

Table 8.3

	Stephanus pp.	πᾶς & compounds per page	πᾶς + ἅπας / σύμπας + συνάπας
Euph.	14	2.6	∞
Apol.	25	1.6	38.0
Cri.	12	2.0	7.0
Charm.	24	2.0	23.0
Lach.	23	1.7	12.0
Hipp. Mi.	13	1.4	17.0
Prot.	53	2.1	112.0
Gorg.	81	1.4	113.0
Meno	30	1.6	48.0
Menex.	15	2.9	21.0
Euthd.	36	2.8	101.0
Crat.	57	2.4	136.0
Lys.	20	1.7	∞
Symp.	51	2.8	46.3
Phdo.	60	2.3	67.5
Theaet.	69	2.7	61.6
Phdr.	52	1.9	49.0
Rep.	270	2.2	49.1
Parm.	40	2.3	90.0
Soph.	53	3.4	6.9
Pol.	55	4.3	4.2
Phil.	56	3.7	8.1
Tim.	75	5.0	21.1
Crit.	15	4.5	12.4
Laws	317	4.1	14.6

	Stephanus pp.	πᾶς & compounds per page	πᾶς + ἅπας / σύμπας + συνάπας
Rep. I	28	1.1	∞
II	27	1.8	∞
III	32	2.3	70.0
IV	26	2.5	20.0
V	32	2.2	39.0
VI	28	2.2	60.0
VII	28	2.3	70.0
VIII	27	1.8	48.0
IX	22	2.2	48.0
X	27	2.8	38.0
Laws I	26	4.0	13.6
II	25	3.1	6.8
III	27	3.0	15.2
IV	20	3.4	6.6
V	22	5.2	15.3
VI	34	4.6	51.6
VII	36	5.0	15.3
VIII	23	3.5	19.3
IX	29	3.4	11.3
X	26	5.5	19.6
XI	26	2.4	8.1
XII	29	4.0	16.1

in books X, V, VII of the *Laws* and in the *Tim.* The figures justify the conclusion that the last group is characterised by a greater preference for these words than earlier, but taking into account all the circumstances mentioned that could have affected them, one should not venture to use them to determine the sequence of the six dialogues within this group. Similarly in the dialogues of the first two groups no definite arrangement is possible. We may note that those works already placed rather later than the rest by previous investigations, *Euthd.*, *Crat.*, *Symp.*, *Phdo*, *Menex.* and the second group (though apart from the *Theaet.* the frequency is not as high as one might have expected), generally display the higher figures. The only exceptional points are the low frequency in the *Lys.* and the high one in the *Euph.* The incidence in the books of the *Rep.* is fairly uniform apart from the first and last book, that in the first being the lowest anywhere. This may be an argument for pushing book I back into group I. The existence of the same frequency (2.8) in the *Symp.* shows that book X need not have been written later than the rest of the *Rep.*

The only other feature likely to be of use is the frequency of σύμπας within the last group. The best available measurement of this seems to be by the number of πᾶς and ἅπας to each instance of σύμπας or συνάπας, though, as explained, this is not perfect, because σύμπας is not a synonym of πᾶς and ἅπας in all their senses; however, it is better than measuring by the pages of the text. The results are given in column 2 of Table 8.3. Some puzzlement is caused by the fact – it may be pure coincidence – that books V, VI, VII, X of the *Laws* and *Tim.* and *Crit.*, which contain the most examples of πᾶς and its compounds, also contain relatively the fewest of σύμπας. The answer lies no doubt in the word 'relatively'. Excluding VI the absolute occurrence of σύμπας in these books of the *Laws* is equal to that of the rest. Bearing in mind that σύμπας is after all an emphatic word and therefore unlikely to be used indiscriminately, this uniform distribution suggests that Plato consciously or subconsciously was in general sparing in its application, while placing no such restriction on the common form πᾶς, the instances of which could accordingly mount rapidly until completely out of proportion to those of σύμπας.

Finally the sequence of the dialogues in the third group: as regards the frequency of πᾶς and its compounds taken together, all six works (with the exception of *Tim.*, and a possible reason for this has been mentioned) show fairly equal figures. The same is not the case, however, with σύμπας and ἅπας considered by themselves. *Soph.*, *Pol.* and *Phil.* display the

close affinity we have come to expect of them; in particular they are the only three works (apart from books IV (8 : 7) and XI (7 : 6) of the *Laws*) in which the instances of σύμπας exceed those of ἅπας. In this respect and in the simple occurrence of σύμπας *Tim.* and *Crit.* seem to bear a closer resemblance to the earlier works, though *Crit.* is verging towards *Soph.*, *Pol.* and *Phil.* regarding the proportion of σύμπας to ἅπας (5 : 6). On the other hand one might observe that in the *Laws* Plato shows a slight reversion towards his practice before these three works, using a σύμπας or συνάπας once to every 14.6 πᾶς or ἅπας, and the usage in *Tim* and *Crit.* could be considered to approximate to this.

9

H. SIEBECK

★

By a strange coincidence the two other investigations published in 1888 both introduced the same new material independently, as it seems, of one another. The surprising thing is that it took the scholars of Germany seven years to hit upon this rich linguistic field of reply formulae, even though Dittenberger had previously touched its brink with his observations on τί μήν; The works were those of H. Siebeck and C. Ritter, the latter's being by far the larger and more accurate.

Siebeck's was not an independent article but an appendix (pp. 253ff.) to the second edition of his book.[1] Moreover its results were not intended to stand by themselves, merely to support where possible those obtained by the comparison of the dialogues' contents, which were presented earlier in the book in the chapter on Plato. Just as the value he placed on his language statistics was of a secondary nature, so too apparently was the care with which he produced them.

The rules which he laid down for the application of these statistics to the determination of the chronological order of the dialogues were practical and precise. The subject of his inquiry was twofold; (*a*) simple, direct questions, i.e. those that can be answered by 'yes' or 'no', (*b*) answers conveying assent. His method was to take the total number of instances of each particular expression in a dialogue, then calculate the percentage of its occurrence in relation to the aggregate of all the instances in that particular category, either (*a*) or (*b*). On the differences between these percentages in the various dialogues were based the conclusions regarding chronology. Moreover, he recognised, as most of his predecessors and many of his successors did not, that the frequent use of an expression

[1] *Untersuchungen zur Philosophie der Griechen*, Halle 1888.

may be connected solely with the particular character of the passage in question, that is, with the stylistic feeling of the author in accordance with the context. Although, therefore, several dialogues may show considerable differences in their preference for this or that form of expression, it must not be ascribed at once to a definite alteration in the author's language. At the same time it cannot be denied that, if a series of dialogues show an increasing preference, with inconsiderable deviations, for one of these forms of question or answer, and in addition the opposite extremes of the frequency figures concerned occur in the dialogues which previous research has placed at opposite ends of the chronological scale, we are justified in asking whether the variation of the percentages in question may not be applied to the chronological arrangement of the dialogues. Even this, however, was not strict enough for him; he concluded by declaring that significant evidence for the chronological position of a dialogue was attained only when the results of inquiries (*a*) and (*b*) practically coincided with each other.

Finally, with the same necessity for correctness of method in mind, he limited his investigation to dialogues capable of providing sufficient material: those in which the question-and-answer play of the participants was fairly extensive, lively and only rarely interrupted by sections of continuous narrative. His reason was that only where all the different question-and-answer formulae were used in rich and varied abundance could the preponderance of one or the inferiority of another be considered significant and not merely accidental. On this ground he excluded the *Apol.*, *Euph.*, *Cri.*, *Lach.*, *Menex.*, *Symp.*, *Tim.* and *Crit.*, leaving seventeen 'indubitably genuine works' to be examined.

Looking, therefore, at Siebeck's first investigation, that of simple direct questions, these, he observed, are sometimes posed without any opening particle, sometimes introduced by ἆρα, ἦ etc. What he hoped to show was that, as time passed, Plato became more and more inclined to concede a preference to ἆρα over the other forms of interrogation, and his measure for this was the total aggregate of simple direct questions (Table 9.1, p. 50), the instances of ἆρα then being calculated (column 2) and expressed as a percentage of this (column 3).[2]

Siebeck thought that these statistics, especially the high percentages

[2] As in the case of Walbe, the haphazard order of dialogues in Siebeck's tables has been rearranged into one more in accordance with the chronological groups established by previous research. His tables have also been reduced from five to two, in order to save space, though the only figures omitted are those for μῶν (see p. 25).

Table 9.1

	Total of simple, direct questions	Total of ἄρα questions	% of ἄρα questions	τί μήν;		ἔγωγε	
				Abs.	%	Abs.	%
Hipp. Ma.	67	5(4)	7(6.0)			3	4.0
Charm.	86	10(12)	12(14.0)			7	9.0
Prot.	140	27(26)	19(18.6)			3	3.0
Meno	188	20(21)	11(11.2)			25	12.0
Gorg.	367	48(48)	13(13.1)			38	12.0
Crat.	172	34(41)	19(23.8)			14	6.0
Euthd.	191	27(30)	14(15.7)			13	10.0
Phdo	161	31(36)	19(22.4)			9	5.0
Lys.	87	20(22)	23(25.3)	3	2.5	6	5.0
Phdr.	72	11(13)	15(18.1)	11	14.0	—	—
Rep. I	135	19(21)	14(15.6)	—	—	5	4.0
II–IV	253	58(60)	23(23.7)	10	3.0	11	3.0
V–IX	479	94(97)	20(20.3)	24	3.7	14	2.0
X	64	12(15)	19(23.4)	1	1.0	4	4.0
Theaet.	229	39(41)	17(17.9)	13	5.0	16	6.0
Parm.	207	50(60)	24(29.0)	6	2.0	5	2.0
Soph.	171	46(49)	27(28.7)	12	3.6	1	0.3
Pol.	106	31(38)	29(35.8)	20	7.0	3	1.0
Phil.	189	56(66)	29(34.9)	27	8.0	3	0.9
Laws	329	95(111)	28(33.7)	48	8.0	1	0.2

(a) A sample check of the figures for ἔγωγε showed them to be fairly accurate (Thesis p. 100).

(b) Siebeck's intention was to incorporate those instances of ἀλλὰ τί μήν; in the same sense as τί μήν; into his figures; he inadvertently missed *Rep.* IV 438b, VIII 559d, IX 574a.

for the acknowledged late works *Soph.*, *Pol.*, *Phil.* and *Laws*, amply proved his point about the increased preference for ἄρα, and contented himself with saying that the evidence also favoured a more or less early date for *Hipp. Mi.*, *Charm.*, *Meno*, *Gorg.*, *Euthd.* and *Rep.* I, a later one for the rest. He was prudent not to make fine distinctions, because, although he did not say which text he used, figures for the O.C.T. (in parentheses) show a divergence that seems too wide to be ascribed solely to the use of a different text. In view of this some suspicion must also attach to his totals for the number of simple, direct questions in each work, especially as not all such questions are appropriate to be introduced by ἄρα.

He also carried out what he evidently believed to be an original invest-

igation into questions introduced by μῶν, unaware that they had already been looked at by Frederking and Kugler. His statistics were less accurate than theirs (Thesis vol. II, p. 35), but adequate for him to conclude that, like ἆρα, they supported the view of *Soph.*, *Pol.*, *Phil.* and *Laws* as Plato's last works.

Siebeck's second investigation was into affirmative answers, which, he said, could be divided into three classes according to the greater or lesser degree of certainty with which the assent was given:

Class I. δοκεῖ(συνδοκεῖ), ἔοικεν(εἰκός), κινδυνεύει, οἶμαι, φαίνεται, ἴσως, σχεδόν, τάχα.

Class II. συγχωρῶ, σύμφημι, ὁμολογῶ, φημί, λέγεις καθάπερ ἔχει, ἀληθῆ, ἔγωγε(ἔμοιγε), ἔστι(ἔσται), ἔστω, καλῶς, κομιδῇ, ναί, ὀρθῶς, οὕτως, σαφῶς, and also the repetition of the verb or main word in the question itself.

Class III. ἀληθέστατα, ἀνάγκη(ἀναγκαῖον), ἄριστα, δῆλον, δίκαιον, δικαιότατα, κάλλιστα, μάλα, μάλιστα, ὀρθότατα, οὐκ ἔχω ἄλλως φάναι (οὐκ ἔστι τι ἀντειπεῖν), παντάπασι, παντελῶς, πάντως, πάνυ, πολύ, πῶς δ'οὔ; (πῶς γὰρ οὔ; πῶς γὰρ ἄλλως;), σαφέστατα, σφόδρα, τί δ'οὔ; τί γὰρ οὔ; τί γὰρ ἄλλο; (οὐδὲν ἄλλο), τί κωλύει; τί μήν; χρή, ὡς ὁ λόγος σήμαινει(ἔχει λόγον).

Adopting the traditional terminology he called the answers of Class I problematic, those of II and III affirmative and apodictic respectively. By a comparison of the numerical relation of the three to each other in the various dialogues he hoped to arrive at the chronological order. The results of his calculations are given in Table 9.2, the first column containing the total of affirmative answers without distinction of the classes, the following three the absolute figures for each class and the resulting percentages (in relation to the total given in column I).

A comparison of the chronological extremes in the dialogues, Siebeck declared, brings to light the fact that the use of problematic expression in Plato gradually decreased as time passed in favour of the apodictic. Compare, for instance, the percentage proportions in[3]

$$\left.\begin{array}{ll} \textit{Hipp. Mi.} & 24:12 = 2:1.0 \\ \textit{Charm.} & 21:29 = 1:1.4 \\ \textit{Rep.}\ 1 & 20:38 = 1:1.9 \end{array}\right\} \text{ with } \left\{\begin{array}{ll} \textit{Parm.} & 13:40 = 1:3.1 \\ \textit{Soph.} & 9:42 = 1:4.7 \\ \textit{Laws} & 12:54 = 1:4.5 \end{array}\right.$$

[3] The ratios for all the dialogues are given in Table 9.2, where they differ slightly from Siebeck's, who calculated them only roughly.

Table 9.2

	Total	Class I		Class II		Class III		Ratio of % Class I to III
		abs.	%	abs.	%	abs.	%	
Hipp. Mi.	71	17	24	46	65	8	12	2 : 1.0
Charm.	78	16	21	39	50	23	29	1 : 1.4
Prot.	97	20	21	62	64	15	15	2 : 1.5
Meno	202	45	22	103	51	54	27	1 : 1.2
Gorg.	321	32	10	184	57	105	33	1 : 3.3
Crat.	238	61	26	100	42	77	32	1 : 1.2
Euthd.	130	12	9	73	56	45	35	1 : 3.9
Phdo	168	20	12	65	39	83	49	1 : 4.1
Lys.	114	28	25	44	39	42	37	1 : 1.5
Phdr.	76	10	13	24	32	42	55	1 : 4.2
Rep. I	130	26	20	55	42	49	38	1 : 1.9
II–IV	381	51	13	156	41	174	46	1 : 3.5
V–IX	738	59	8	282	38	397	54	1 : 6.8
X	93	5	5	39	42	49	53	1 : 10.6
Theaet.	263	41	16	121	46	101	38	1 : 2.4
Parm.	394	52	13	183	46	159	40	1 : 3.1
Soph.	329	31	9	158	48	140	42	1 : 4.7
Pol.	268	35	13	103	38	130	49	1 : 3.8
Phil.	323	32	10	93	29	198	61	1 : 6.1
Laws	578	69	12	197	34	312	54	1 : 4.5

(a) The figures in Table 9.2 are unchecked.

With this broad distinction Siebeck was satisfied, since he appreciated the uncertainty involved. His own remarks are worth quoting:

Here also the possibility is not excluded that the preponderance of one or the other class depends in some dialogues on special causes. As regards the choice of assent much can depend on into whose mouth Plato is putting it and in particular how great is his own or the character in the dialogue's certainty about the statement to which assent is requested. Yet another thing must be considered; the more artistic care Plato bestowed on the form of a dialogue, the more variety and modulation of tone in the assents he must have introduced. It is in this light that we must look upon the fact that his later works, lacking the formal polish of the earlier, betray greater indolence as regards variation of assent. There is a further explanation in that in the later dialogues Plato no longer allows his Socrates to put forward or sustain views γυμναστικῶς and πειραστικῶς, but is intent solely upon presenting through his mouth exhaustive accounts of his own dogmatic doctrines. These may be produced, since both types exist, partly in continuous discourse (as in *Tim.*), partly in dialogue (as in *Soph.*). In the case of the latter, where Plato imparts his teaching in drops so to speak, allowing the reception of

each dose to be denoted by a πῶς γὰρ οὔ; etc., a mere problematic assent is bound to appear inadmissible. Only the strongest form, namely the apodictic, is suited to the solemn gravity which he usually adopts in these dialogues.

Though aware of the difficulties attendant upon the application of the results of his investigation, Siebeck was apparently not conscious of what seems a fault in the method itself; that is, the arbitrary division of assents into three types. Apart from the fact that some of them could qualify for either of two classes, depending on the tone in which they are uttered, an ambiguity which is not always resolved by the context, there is a certain subjectiveness in some of Siebeck's distinctions. For instance, it is not clear that ἀνάγκη, δῆλον, ἔχει λόγον are always more emphatic than ἀληθῆ λέγεις, ὀρθῶς/καλῶς λέγεις or ναὶ μὰ τὸν Δία, though he puts the former three in Class III, the latter in Class II.

With regard to individual expressions Siebeck remarked that apart from τί μήν; – which had already been adequately treated by Dittenberger – the only noteworthy variation in frequency he could perceive was in ἔγωγε (ἔμοιγε). This is illustrated by Table 9.1, in which the frequency of τί μήν; is also included, both absolutely and calculated as a percentage of the total affirmative answers in each work. The use of ἔγωγε, he noted, was remarkable not for a gradual decrease in its frequency, but by reason of its virtual disappearance in the last five works of the table. In the *Phdr.* in fact it has disappeared completely. This, said Siebeck, seems to result from a development in Plato's manner of exposition. An assent by ἔγωγε (ἔμοιγε) cannot, like ναί, πάνυ etc., follow on any form of a simple, direct question; it must be brought about explicitly through a particular form, e.g. οἴει; or συγχωρεῖς; or δοκεῖ σοι; Hence its cessation might be expected in a period when Plato tended to neglect artistic style in favour of a dogmatic presentation of facts.

Reviewing the results of his five criteria, ἆρα, μῶν, τί μήν; ἔγωγε and the ratio of problematic to apodictic reply formulae, Siebeck concluded that the balance of evidence favoured two chronological periods. In the earlier belonged *Charm.*, *Hipp. Mi.*, *Crat.*, *Gorg.*, *Prot.* and *Rep.* I, in the later *Lys.*, *Phdo*, *Euthd.*, *Rep.* II–X, *Phdr.*, *Theaet.*, *Parm.*, *Soph.*, *Pol.*, *Phil.*, *Laws*.

As regards the sequence in these divisions, Siebeck continued, nothing definite can be deduced from the results of the tables. Further progress is only possible if they are combined with results obtained by an investigation of the contents. He had already carried out such an investigation and published its results on page 149 of his work.

What has he told us about the order of the dialogues which we did not know before? Nothing remarkable, but further support is given to beliefs produced by earlier inquiries, whether these beliefs be rather convictions like that of the last group being formed of *Soph.*, *Pol.*, *Phil.* and *Laws*, or merely suspicions like that of the separation of book I from the rest of the *Rep.* The *Euthd.*, *Crat.*, *Lys.* and *Phdo* all show points of affinity with the later style, as they have done previously, suggesting that their position is around the borderline between the first and middle groups. The two troublesome dialogues, *Phdr.* and *Parm.*, produce their usual enigmatic behaviour; both are without μῶν which is admittedly not very serious, since several of the later books of the *Rep.* do not have it either; the *Phdr.* shows only 18% of ἄρα questions, having for its partner in this respect the *Theaet.* Then, falling over itself to make amends, it comes out with a style more markedly 'late' than that of the late dialogues: 14% τί μήν; against 0% ἔγωγε. Apart from μῶν, however, the *Parm.* presents a more uniform approximation in style to the last group than in most investigations so far.

10

C. RITTER (I)

★

Ritter was the first to write a book on the stylistic method and its use in determining the chronology of the dialogues.[1] All previous investigations were either articles in periodicals or parts of theses and other works on Plato of a general character. Not only was it the first book, but also the largest collection of linguistic data up till that time.

His main inquiry, as mentioned in the chapter on Siebeck, was into answer formulae, but in addition to this he investigated the use of well over a hundred expressions of different kinds, though many of these turned out to be of no value for chronological purposes, and he did not therefore trouble to publish the actual statistics. As the number of facts presented is so large, the best arrangement will be to reverse Ritter's procedure of discussing the individual items and finally reproducing them all in statistical tables; that is to say, to give these tables first (pp. 58–62) and leave the examination of their results till afterwards. The first table contains the reply formulae, the second other expressions which Ritter believed to be chronologically noteworthy. In the latter are also included the phrases and words which were investigated by Ritter's two most important predecessors, Dittenberger and Schanz.

The first question is whether the statistics are accurate or not. As in the case of Siebeck, answering it is rather difficult, only this time it is not so much the problem of classifying the reply formulae into three acceptable groups, but of deciding the exact constitution and limit of each formula to be counted. For instance, suppose we wish to calculate the occurrence of ἀληθῆ λέγεις in a dialogue; besides the simple form we may also meet with ἀληθῆ μέντοι λέγεις, τοῦτο μὲν ἀληθῆ λέγεις, πάνυ

[1] *Untersuchungen über Platon*, Stuttgart 1888.

μὲν οὖν ἀληθῆ λέγεις, ὑπερφυῶς ὡς ἀληθῆ λέγεις, καὶ τοῦτο δοκεῖς μοι ἀληθῆ λέγειν, καὶ μὴν κινδυνεύεις ἀληθῆ λέγειν, ἔμοιγε δοκεῖς ἀληθῆ εἰρηκέναι, to mention but a few. Did Ritter count each of these as an instance of ἀληθῆ λέγεις or only some of them, and if the latter, which ones? The answer would seem to be that he counted only those approximating most closely to the simple form, like ἀληθῆ μέντοι λέγεις, παντάπασιν ἀληθῆ λέγεις, but not always these, since, as a check shows, he failed to apply the same principles of selection and rejection uniformly throughout his investigation.[2] Realisation that the same variety exists in almost every reply formula will indicate how much more difficult it is in the case of Siebeck and Ritter than in that of previous inquirers to state categorically whether they have carried out their work accurately. Nevertheless, a sample check (Thesis pp. 106–16) allowed the following conclusions to be drawn:

1. Through inconsistent definition of the material under investigation Ritter sometimes made what could be called technical errors, but these were never serious enough to justify the rejection of his statistics together with the deductions drawn from them.
2. Mistakes in recording occurrences were relatively few; out of sixty-five totals checked in five dialogues only four were incorrect, each of them by one instance.

Since then is has been possible through the Word Index to examine the accuracy of some of Ritter's other figures. Differences between these and those for the O.C.T. are noted either in the text or the tables.

One feature of Ritter's method needs clarification, namely his means of calculating frequency of occurrence in Table 10.1. It has already been touched on briefly in the chapter on Dittenberger, with reference to whose calculation of τί μήν Ritter indicated that the number of pages which each dialogue occupied in Hermann's edition was not a sufficiently accurate standard of measure for things like reply formulae. He made this observation:

[2] In order to give some idea of the degree of variation, figures for his category ὀρθῶς, ὀρθότατα (λέγεις), ἀληθέστατα are given unconsolidated in Table 10.3. The reader may judge from this which forms were included by Ritter in his statistics. The advantage of retaining the separate identity of each formula is revealed by the observation from this table that (*a*) καὶ ὀρθῶς (γε) is restricted to *Rep.*, *Crat.*, *Phdo*, works which in earlier investigations appeared to be closely related chronologically; (*b*) πάνυ μὲν οὖν ὀρθῶς and ὀρθότατά γε seem to be very late versions of the formula.

The most correct procedure would be to add up all formulae of similar meaning, then compare the frequency of each particular formula with this total, which would represent the aggregate number of opportunities for the use of the expression concerned. This procedure, however, would be both laborious and difficult, because with so many formulae there would be bound to be disagreement whether they were equivalent in value and mutually interchangeable. Accordingly I have chosen an abridged method and considered only the reply formulae which are repeated with some frequency, together with a few which are sporadic but closely related to the former. All these, whether affirmative or negative, whether emphatic or unemphatic, are simply taken together.

The sum of these formulae in each dialogue is given at the head of Table 10.1. Only one thing is wrong; negative and affirmative replies should have been kept separate, since not by any stretch of the imagination can they be regarded as 'mutually interchangeable'. Fortunately the number of negative replies in a dialogue is usually very small in comparison with the affirmative, so that the totals are not greatly affected.

We come now to the use which Ritter made of these statistics. His explicit aim was to confirm by new evidence the conclusions of his predecessors Dittenberger and Schanz, which meant primarily of course the existence of a final chronological group consisting of *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws*. Almost every one of the expressions listed in Tables 10.1 and 10.2 supports the belief that these six dialogues constitute the last phase of Plato's literary career. To run through them briefly, beginning with the reply formulae:

1. ἔγωγε, ἔμοιγε (δοκεῖ), οἶμαι etc. are wanting in *Laws* and *Tim.*, rare in *Soph.*, *Pol.* and *Phil.* and also in *Phdr.*
2. ὀρθῶς, ὀρθότατα (λέγεις) and ἀληθέστατα are found only in *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws* and sporadically in *Theaet.* and *Phdr.*
3. ἀληθῆ λέγεις is rarer, ἀληθῆ more frequent in these works than in earlier dialogues. The exceptions are *Charm.* and *Phdr.* In *Charm.* ἀληθῆ preponderates (3 : 2) over ἀληθῆ λέγεις, a characteristic otherwise limited to *Theaet.*, *Rep.*, *Soph.* and *Pol.*, while the scarcity of ἀληθῆ λέγεις and ἀληθῆ in *Phdr.* effectively rules out any ratio calculation.
4. The replacement of λέγεις by εἶπες, εἴρηκας, ὑπέλαβες occurs only in *Theaet.*, *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws* and once in *Gorg.*[3]

[3] Instances in *Symp.* and *Phdr.* occur in phrases which are not, strictly speaking, reply formulae.

Table 10.1

	Lach.	Charm.	Prot.	Euthd.	Crat.	Apol.	Cri.	Euph.	Gorg.	Phdo	Meno	Symp.	Theaet.	Phdr.	Rep.	Soph.	Pol.	Phil.	Tim.	Laws	Ion	Hipp. Ma.	Hipp. Mi.	Menex.	Lys.	Parm.	Epin.
Total of reply formulae	77	110	50	107	203	10	22	64	336	176	182	36	285	69	1260	315	251	314	13	568	43	95	71	5	120	486	9
ἔγωγε, ἔμοιγε (δοκεῖ)	13	13	3	19	25	1	2	12	49	12	42	4	27	1	69	1	3	3				6	5		19	7	
Same as % of above total	17	13	6	17	12	10	10	19	15	7	23	11	10	2	5	1	1	1				6	7		16	1	
ὀρθῶς, ὀρθότατα (λέγεις), ἀληθέστατα													6	1	57	16	26	32		38						22	1
ἀληθῆ λέγεις	5	2	6	3	9		2	4	5	6	4	5	2	1	9	3	1	2		7	3	5	1		3	4	
ἀληθῆ	1	3	1							1			9		29	7	5	2		4		(1)			6	18	
εἶπες & εἴρηκας in formal replies									1			1?	1	1?	2	2	10	9		12							
ὑπέλαβες in a reply													1		2					5							
λέγεις placed first in formal replies													1			4	2			3							
ἀληθῆ (λέγεις), ὀρθῶς λέγεις	6	6	6	3	10		2	5	5	8	5	5	14	2	48	10	8	6		22	(3)	(5)	(1)		10	24	
ἀληθέστατα (λέγεις), ὀρθότατα λέγεις	1				1					4		1	8	3	40	8	15	22		36						7	
ναί	3	12	11	10	39		2	6	66	15	38	3	36	7	90	47	28	22	3	33	15	8	30		15	50	2
πάνυ γε	10	16	3	20	38	3		12	48	23	27	6	5	1	40	10	7	9		4	4	12	3	1	18	28	
πάνυ μὲν οὖν	5		3	3	13		1	3	7	17	5		16	2	64	14	18	21	2	49		6			1	15	
παντάπασι μὲν οὖν	1												9	3	38	10	4	4	1	13						7	
ἀναγκαῖον, ἀναγκαιότατα (λέγεις) etc.															3	1		7		4							
δῆλον													2	1	23		4	1		4						2	
εἰκὸς γοῦν etc.																4	7	5		16					(1)	1	
ἐμοὶ γοῦν δοκεῖ													1		4			2		1							
γοῦν in other formal replies	1		1		1									2	9	2	2	5		4					1		
Similar γάρ οὖν													1		3	6	5	1		1							

(a) The figures for most works in Table 10.1 are unchecked other than: ἀληθῆ (as Ritter), παντάπασι μὲν οὖν (as R. except *Soph.* 11, *Laws* 14), δῆλον (as R. except *Rep.* 28; but see Table 10.4 and footnote 5 p. 63), τί μήν; (as R. except *Phdr.* 11), πῇ; (as R. except *Soph.* 9, *Pol.* 5).

(b) Some of Ritter's figures for ἀληθέστατα (λέγεις), ὀρθότατα λέγεις are erroneous (see p. 63). The correct figures for the O.C.T. can be calculated from Table 10.3.

(c) For *Ion*, *Hipp. Ma.* etc. see p. 84.

Table 10.1 (*cont.*)

	Lach.	Charm.	Prot.	Euthd.	Crat.	Apol.	Cri.	Euph.	Gorg.	Phdo	Meno	Symp.	Theaet.	Phdr.	Rep.	Soph.	Pol.	Phil.	Tim.	Laws	Ion	Hipp. Ma.	Hipp. Mi.	Menex.	Lys.	Parm.
Total of reply formulae	77	110	50	107	203	10	22	64	336	176	182	36	285	69	1260	315	251	314	13	568	43	95	71	5	120	486
Answers by means of a repetition	8	22	5	22	15	3	2	5	28	30	16	5	28	6	220	34	16	35	2	34	(7)	27	10	1	9	105
+γὰρ οὖν		2						1	1	2			10	2	22	14	5	12		10			1		2	22
+γάρ	2	3		1	1			1	5	3	2	2	7	3	55	3	2			2		5	1	1	1	55
+δῆτα	1	7		5	4	1	1		8	5	7	2			11			1		1	4	4	4		3	3
καὶ μάλα				1				1		1			4	3	47	4	2	7		6					1	2
μάλιστα (γε)			1	1		1		1	4		2	1			1						1		(2)			
οὐκοῦν/ἀλλὰ χρή													1		4	2	4	3		1						1
καὶ πῶς;													2		6	6	1	6		11						1
καὶ πῶς ἄν;													2		2	1		1							1	1
τί μήν;													13	12	35	12	20	26		48					1	6
ἢ γάρ;	2	8	2	3	4			3	13	1	1		7	4	28	7	3	5		16		4 (5)	4		8	1
ἢ οὔ;		6	2	1	3		1	2	7	8	5	1	1		8						1	1 (3)			(3)	1
ἢ πῶς;															1	4	3	5		3						
... ἢ οὔ;		1	2	6	5	3	7		18	6		6	2		3										1	3
... ἢ πῶς;															1			5		6						1
πῶς;				1	1					1			4	2	32	20	17	18	1	14	1					10
πῇ;															4	7	6	3		3						3
(τό) ποῖον (δή); etc.	1				2					1			13	4	48	32	36	33		47						3

(a) πῇ;: Ritter did not include instances of πῇ δή; which occurs as follows: *Theaet.* 1, *Phdr.* 1, *Rep.* 4, *Soph.* 1, *Phil.* 1, *Laws* 1.
(b) For ποῖον; etc. see footnote 7 p. 64.
(c) γὰρ οὖν and γάρ: the figures for *Parm.* seem incorrect, perhaps as a result of confusion with those for *Rep.* In the O.C.T. they are 25 and 51 respectively.

Table 10.2

	Lach.	Charm.	Prot.	Euthd.	Crat.	Apol.	Cri.	Euph.	Gorg.	Phdo	Meno	Symp.	Theaet.	Phdr.	Rep.	Soph.	Pol.	Phil.	Tim.	Crit.	Laws	Ion	Hipp. Ma.	Hipp. Mi.	Menex.	Lys.	Parm.	Epin.
Pages (ed. Stephanus)	23	24	53	36	57	25	12	14	81	60	30	51	69	52	270	53	55	56	75	15	317	12	24	13	15	20	40	20
δῆλον ὅτι	7	2	15	11	17	7	3	5	15	6	12	6	1	8	47	10	10	8	1		16	5	7	3	1	5	(3)	1
δῆλον ὡς														3	2	8	2	5	4	1	14							
σχεδόν τι	7	3	3	2	2		2	1	2	6	1	3	1		12				1		2	2	5			1	1	
σχεδόν		1				2	1		3	2				4	7	26	13	14	9	4	122	1						20
χρεών (ἐστι etc.)																1	1		3	2	57							4
πρέπον ἂν εἴη																			2		16							
μακρῷ and μυρίῳ													1		2		1	3	2		6							
ὡς δυνατόν + superlative														(1)				1			4							
εἰς/κατὰ δύναμιν					1									1	6	3	11	4	10	1	63							3
Ionic dative form														3	6		4		2		85							2
τὸ/τὰ νῦν		1	1							1			1		1	5	5	9	7	3	79	1	(1)					
εἴρηται													1	1		1	2		3		11							
ἐρρήθη													1		1	1	6	1	1	2	8							
ἔλεγον etc.	2	7	4	7	17	3	3	1	19	13	5	2	8	1	43	1	4	4			6	2	8	3		3	3	1
εἶπον etc.	2				3			1	1	1		3	2	1	7	4	5	5	3	1	24	(1)	2 (3)		1	1	(1)	2
ὥσπερ	12	9	68	30	80	31	8	7	69	80	21	55	47	27	212	9	18	9	10	2	24	13	17	8	4	17	9	3
καθάπερ	1			1	2				1			2	2	4	6	14	34	27	18	5	148							2
ὡσπερ(αν)εί			2		3				1	1			3													1		
καθαπερεί																	1	3	1		1							

(a) The figures for the Ionic dative and the verb in relative clauses are unchecked. For ὥσπερ, καθάπερ etc. see Dittenberger (p. 20). The remainder correspond to the O.C.T. except: δῆλον ὅτι *Apol.* 8, *Cri.* 4, *Gorg.* 18, *Rep.* 46, *Laws* 15; σχεδόν τι *Pol.* 1 (288d1 Burnet, ἔτι BY om. TW) *Laws* 1; σχεδόν *Soph.* 27, *Pol.* 12, *Laws* 124; πρέπον ἂν εἴη *Laws* 17; εἰς/κατὰ δύναμιν *Phdr.* 2, *Laws* 65; τὸ/τὰ νῦν *Charm.* 2, *Soph.* 6 (217d8 τὸ νῦν TW τὸν νοῦν B), *Tim.* 5 (Ritter perhaps counted also 76a2, 90e1).

Table 10.2 (*cont.*)

	Lach.	Charm.	Prot.	Euthd.	Crat.	Apol.	Cri.	Euph.	Gorg.	Phdo	Meno	Symp.	Theaet.	Phdr.	Rep.	Soph.	Pol.	Phil.	Tim.	Crit.	Laws	Ion	Hipp. Ma.	Hipp. Mi.	Menex.	Lys.	Parm.	Epin.
ἕως(περ)	2	3	6	2	8	3			3	16	4	8	10	5	23	3	5	4	4	1	16	2				2	4	
μέχριπερ																1	3	1	4	1	16							1
γε μήν												1	1	1	2	6	8	7	7	1	25						5	(2)
τῷ ὄντι	2		2	4	1	5		1	9	17		5	6	8	41	1			8				5		6	6		1
ὄντως				1	1								1	6	9	21	11	15			50							16
ὡς ἀληθῶς	7	7	2	2	3	2	2	1	7	12		3	8	7	28	3										2	1	
ἀληθῶς			1	1		1		1		2	2		1	1	7	6	4	7	3		6				1		1	3
τῇ ἀληθείᾳ			1	2	4	3	2		6				2	2	15		1		1		3		3		1		(1)	
ἀληθείᾳ			3															1	1		3							1
πότερον before a vowel	1	6	18	13	15	3	3		13	6	4	3	17	1	27	11	10	21	3		36	(8)	7 (6)	(4)		(6)	4	(1)
πότερον before a consonant	1		8	15	13	3	7	1	16	6	8		6	3	17	5	1		3		4	(3)	2 (1)	(4)		(3)		
πότερα before a consonant	1			2		1			1			1	1	1	3	2	3	6			7	(1)	1				1	
πότερα before a vowel			1		1										1			1			1							
μῶν			2	3						1	3		4		3	12	8	10			29	1	2 (3)			3		
τάχα + ἴσως																2	3	3	1		11							
ἴσως	10	14	8	10	41	16	5	7	39	19	16	12	22	13	57	16	10	19			4	(2)	9	(1)	3	7	(4)	2 (3)
τάχα	1	3	2	2	3	4			1	2	1	2	4	5	5	7	5	7	1				1 (5)		1			1
ἕνεκα	8	6	14	5	9	5	2	4	31	13	2	16	12	9	69	6	22	19	13	2	111		4	(1)	1	25	(1)	3
χάριν			1		(1)				3			1	4	8	12	1	3	3	7	2	33				1			4

(b) Figures for the O.C.T. as Ritter's except: ἕως(περ): *Phdo.* 15, *Symp.* 6, *Theaet.* 9, *Phil.* 3, *Tim.* 3, *Laws* 15; μέχριπερ: *Laws* 17; πότερον + vowel: *Lach.* 2, *Gorg.* 15, *Phdr.* 2, *Rep.* 25, *Phil.* 20, *Laws* 35; πότερα + cons.: *Pol.* 4; πότερον + cons.: *Euthd.* 16, *Crat.* 12; πότερα + vowel: *Phdr.* 1, *Laws* 0; ἴσως: *Charm.* 15, *Apol.* 19, *Euph.* 9, *Meno* 18, *Symp.* 13, *Rep.* 56, *Pol.* 9, *Phil.* 22, *Laws* 50. However, one instance should be deducted from this last and the *Crat.* total for use in the sense 'equally'; τάχα: *Meno* 2, *Laws* 23; ἕνεκα: *Euthd.* 6, *Gorg.* 33, *Meno* 3, *Symp.* 16 (+1 ἕνεκεν), *Theaet.* 13, *Phdr.* 10, *Pol.* 22 (+1 ἕνεκεν), *Phil.* 20, *Laws* 117 (+5 εἵνεκα); χάριν: *Crat.* 1, *Rep.* 11 (+σὴν χάριν V. 472e.7), *Phdr.* 6 (+σὴν χ. 234e9), *Soph.* 1 (+σὴν χ. 242b1), *Laws* 36.

(c) For γε μήν and τάχα + ἴσως see Chap. 4, pp. 12 and 20; for τῷ ὄντι ... ἀληθείᾳ see Chap. 7, p. 35; for μῶν see Chap. 5, p. 25.

Table 10.3

	Crat.	Phdo	Rep. I	II	III	IV	V	VI	VII	VIII	IX	X	Parm.	Theaet.	Phdr.	Soph.	Pol.	Phil.	Laws
ὀρθῶς				2	2		8	5	3	1		2		1		10	14	6	15
ὀρθῶς γε/μὲν οὖν						1								1					1
καὶ ὀρθῶς (γε)	1	1			1	1	2	1		2	2								
ὀρθῶς + τοῦτο/ταῦτα							1									1	2		1
πάνυ μὲν οὖν ὀρθῶς														1			1	1	1
ὀρθότατα					1		5	1			1		1		1	3	8	5	2
ὀρθότατά γε															1	1	1	1	1
ὀρθότατα ταῦτά γε					1														
ὀρθότατα λέγεις				1												1		5	12
ὀρθότατα ... λέγεις												1		1					1
ὀρθότατα + verb														1	1	1		1	1
ἀληθέστατα					5		1	3	2	2	1	4	5	4		2	6	10	8
ἀληθέστατα +							1						1						
ἀληθέστατα λέγεις	1	4	1		1	2		1	2		1	1	1	4	2	4	2	6	17

(a) ὀρθῶς: also occurs as a rejoinder to a reply at *Phil.* 29d1, 53a9, 57a5, 63c5. Ritter seems to have included these in his total, Table 10.1.
(b) ὀρθότατα ... λέγεις: i.e. + αὖ, γε or ἀνθρώπων.
(c) ὀρθότατα + verb: denotes both verbs such as ὑπολαμβάνειν and tenses of λέγειν other than the present.
(d) ἀληθέστατα + : i.e. αὖ or μὲν οὖν. Also occurs at *Laws* VII 813a5 as a rejoinder to a reply.
(e) ἀληθέστατα λέγεις includes instances with μέντοι *Soph.* 245b7 and *Laws* II 665b7.

5. λέγεις placed first in replies is confined to *Theaet.*, *Soph.*, *Pol.* and *Laws*.
6. Some of the figures for ἀληθέστατα (λέγεις), ὀρθότατα λέγεις were corrected by Tiemann (see next chapter), who showed that Ritter must have included the instances of ὀρθότατα as well as of ὀρθότατα λέγεις in *Rep.* and *Laws* and counted those of ὀρθότατα instead of ὀρθότατα λέγεις in *Phdr.*, *Soph.* and *Pol.* His revised totals, with the originals in parenthesis, were: *Phdr.* 2(3), *Rep.* 29(40), *Soph.* 6(8), *Pol.* 7(15), *Laws* 33(36).

   Comparison of these superlatives with the positive forms (ἀληθῆ etc.) reveals that the former preponderate only in *Phil.* and *Laws*, then in order of approximation come *Phdr.*, *Pol.*, *Soph.*, *Theaet.* and, more distant, *Rep.*, *Phdo*, *Symp.*, *Lach.* and *Crat.*
7. πάνυ μὲν οὖν prevails over πάνυ γε only in *Theaet.*, *Rep.*, *Phdr.*, *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Laws*, excluding the single instance in *Cri.* as insufficient to allow of any conclusion.
8. Apart from one instance in *Lach.* and *Tim.* παντάπασι μὲν οὖν is found only in *Theaet.*, *Phdr.*, *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.[4]
9. ἀναγκαῖον, ἀναγκαιότατα (λέγεις) etc. occur only in *Rep.*, *Soph.*, *Phil.* and *Laws*.
10. δῆλον as a reply is met with only in *Theaet.*, *Phdr.*, *Rep.*, *Pol.*, *Phil.* and *Laws*.[5]
11. The addition of γοῦν to ἔοικε, εἰκός etc. is found only in *Soph.*, *Pol.*, *Phil.* and *Laws*, added to ἐμοὶ ... δοκεῖ only in *Theaet.*, *Rep.*, *Phil.* and *Laws*. γοῦν in reply formulae in general (other than the above) can be traced only in *Phdr.*, *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws*, apart from an isolated instance in each of *Lach.*, *Prot.* and *Crat.*
12. γὰρ οὖν used like γοῦν occurs only in *Theaet.*, *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.
13. As an emphatic particle with the question's key word repeated in the answer γὰρ οὖν preponderates over γάρ only in *Theaet.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.

[4] παντάπασι(γε) also is largely absent from early works, occurring in *Ion* 1, *Phdo* 4, *Rep.* 6, *Soph.* 4, *Pol.* 2, *Phil.* 2.

[5] Ritter appears to have included those instances where δῆλον is repeated from the question, in which case the total for *Rep.* (O.C.T.) is 28. There are other versions of this reply, i.e. δῆλον δή : *Gorg.* 3, *Hipp. Ma.* 1, *Phdo* 1 (repeated), *Parm.* 1, *Theaet.* 1, *Phdr.* 1, *Rep.* 5, *Laws* 1; δῆλον δὴ ὅτι : *Gorg.* 1; δῆλον ὅτι : *Ion* 1, *Gorg.* 1, *Hipp. Ma.* 1; δῆλον γάρ : *Rep.* II 1 (repeated). None of these seems to have been included by Ritter in his figures.

14. The scarcity of δῆτα used in the same way (2 instances only) in these same five dialogues is very noteworthy.
15. Apart from an isolated occurrence in each of *Euthd.*, *Euph.* and *Phdo*, καὶ μάλα may be observed only in *Theaet.*, *Phdr.*, *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.
16. μάλιστα (γε) is absent from *Rep.* II–X, *Theaet.*, *Phdr.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.
17. οὐκοῦν/ἀλλὰ χρή occurs only in *Theaet.*, *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.
18. καὶ πῶς; and καὶ πῶς ἄν; are confined to the same six dialogues.
19. τί μήν; is also confined to these six plus the *Phdr.*

Secondly there are the question formulae and answers in interrogative form asking for more explanation:

20. Of the synonyms of ἦ γάρ; (namely ἦ οὔ; and ἦ πῶς;), most dialogues have the former, but it is missing from *Soph.*, *Pol.*, *Phil.* and *Laws*, which have ἦ πῶς; instead. The only other dialogue in which this is found is the *Rep.*, and there only once.
21. Similarly in double questions ... ἦ οὔ; is absent from the same four dialogues, and in two of them, *Phil.* and *Laws*,... ἦ πῶς; is used instead. This occurs elsewhere only in the *Rep.*, again only once.
22. πῶς; as an interjection is found, apart from an isolated instance in each of *Euthd.*, *Crat.*, *Phdo* and *Tim.*, only in *Theaet.*, *Phdr.*, *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.
23. Likewise, interjected πῇ; is limited to *Rep.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.[6]
24. Interjections like ποῖον (δή); τῷ ποίῳ (δή); etc.[7] are common in *Soph.*, *Pol.*, *Phil.* and *Laws*, not uncommon in *Theaet.*, *Phdr.*, *Rep.*, rare elsewhere (*Lach.*, *Crat.*, *Phdo*).

Lastly there are the expressions of Table 10.2, including those investigated by Dittenberger and Schanz, which permit comparison of *Tim.*

[6] Ritter did not include instances of πῇ δή; which occurs as follows: *Theaet.* 1, *Phdr.* 1, *Rep.* 4, *Soph.* 1, *Phil.* 1, *Laws* 1.

[7] Ritter did not specify this category precisely, but examination of the occurrences of the word shows that he counted all three genders with and without the article; also instances with δή, but apparently not with other words (e.g. τις, οὗτος). He should, however, have included instances with λέγειν, φάναι etc., which appear to be a late feature, occurring—apart from once in each of *Rep.* II, VII, IX, *Theaet.* and *Phdr.*—only in *Pol.* 6, *Phil.* 9, *Laws* 13. His figures correspond with those for the O.C.T. apart from *Pol.* 35, where he may inconsistently have counted a ποῖόν τι; (297e14).

and *Crit.* with the other dialogues:

25. δῆλον ὡς as a variant of δῆλον ὅτι is to be found only in *Rep.*, *Phdr.*, *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws.*
26. The plain σχεδόν replaces σχεδόν τι in *Apol.*, *Phdr.*, *Soph.*, *Pol.*, *Phil.* and *Crit.*, exceeds it in *Gorg.*, *Tim.* and *Laws.*
27. χρεών (ἐστι) for χρή is confined to *Soph.*, *Pol.*, *Tim.*, *Crit.* and *Laws.*
28. μακρῷ and μυρίῳ to emphasise a comparison belong only to *Theaet.*, *Rep.*, *Pol.*, *Phil.*, *Tim.* and *Laws.*
29. The periphrasis πρέπον ἂν εἴη is found only in *Tim.* and *Laws*,
30. ὡς δυνατόν with the superlative only in *Phil.* and *Laws.*[8]
31. εἰς/κατὰ δύναμιν is fairly common in *Pol.*, *Tim.* and *Laws*, but occurs elsewhere only in *Crat.*, *Phdr.*, *Rep.*, *Soph.*, *Phil.* and *Crit.*
32. Ionic dative forms are frequent in the *Laws*, and are found in addition in *Phdr.*, *Rep.*, *Pol.* and *Tim.*
33. τὸ/τὰ νῦν instead of plain νῦν is also frequent in the *Laws*, not uncommon in *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.*, and isolated in *Theaet.*, *Rep.*, *Phdo*, *Prot.* and *Charm.*
34. In relative clauses referring to something said previously εἴρηται and ἐρρήθη are confined to *Theaet.*, *Phdr.*, *Rep.*, *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws.*
35. Similarly the aorist εἶπον prevails over the more usual imperfect ἔλεγον only in *Symp.*, *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws.*
36. καθάπερ preponderates over ὥσπερ only in *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws.*
37. μέχριπερ in place of ἕως (περ) is limited to the same six dialogues.
38. γε μήν is found in any frequency only in *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws*; apart from these sporadically in *Theaet.*, *Phdr.*, *Rep.* and *Symp.*
39. ὄντως surpasses τῷ ὄντι only in *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Laws*, occurs elsewhere only in *Theaet.*, *Phdr.*, *Rep.* (for *Euthd.* and *Crat.* see p. 34).
40. Similarly ἀληθῶς preponderates over ὡς ἀληθῶς only in *Meno*, *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Laws.*
41. ἀληθείᾳ for τῇ ἀληθείᾳ is common to only four works, *Prot.*, *Phil.*, *Tim.* and *Laws* (but for *Prot.* see footnote 5 p. 39).

[8] In the O.C.T. also *Phdr.* 253a7. Instances with εἶναι (*Rep.* VI 504b1, *Laws* IV 710b6) were not counted by Ritter.

42. Generally speaking, in his last period Plato took care to use πότερον before vowels and the plural πότερα before consonants in double questions, whereas earlier he used πότερον before vowels and consonants alike.
43. μῶν occurs in any frequency only in *Soph.*, *Pol.*, *Phil.* and *Laws*, and apart from these is restricted to *Theaet.*, *Rep.*, *Meno*, *Phdo*, *Euthd.* and *Prot.*
44. The combination τάχα ἴσως is to be found only in *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Laws*,[9] and τάχα in place of ἴσως becomes rather more common in the later dialogues as a whole.[10]
45. χάριν as a synonym of ἕνεκα is frequent only in the later works, but occurs in three other dialogues : *Gorg.*, *Prot.*, *Symp.*[11]

Excluding nos. 14 and 42 there are here 43 usages, the presence or absence of which characterises Plato's later style. This obtains, because 42 of them are to be found, or not to be found, as the case may be, in the *Laws*. By counting how many of them characterise the language of the other dialogues, one can ascertain which works bear the closest linguistic resemblance to the *Laws*. The number in each of the dialogues represented in the tables is as follows:

Laws 42, *Phil.* 37, *Pol.* 37, *Soph.* 35, *Rep.* 28, *Theaet.* 25, *Phdr.* 21, *Crat.* 8, *Phdo* 7, *Lach.* 5, *Euthd.* 4, *Prot.* 4, *Symp.* 3, *Charm.* 3, *Gorg.* 3, *Apol.* 2, *Meno* 2, *Cri.* 2, *Euph.* 1. (*Ion* 3, *Hipp. Ma.* 3, *Menex.* 4, *Lys.* 8, *Parm.* 17, *Epin.* 12).

Excluding those in parentheses, which were considered unauthentic by Ritter, the dialogues can be divided according to the evidence into three groups, the late one of *Soph.*, *Pol.*, *Phil.* and *Laws*, the middle one of *Phdr.*, *Theaet.* and *Rep.*, and the early one consisting of the rest of the dialogues, with *Phdo* and *Crat.* probably the latest of these. It is still necessary to find the position of *Tim.* and *Crit.* In their case it is possible to take only nos. 25–45, excluding no. 43 as well as no. 42 of these, because μῶν as an interrogative particle is confined to dialogue. The total

[9] Also in *Apol.* (see footnote (b) to Table 4.3, p. 20).
[10] The *Laws* figures for ἴσως and τάχα in Table 10.2 are clearly misprints, since elsewhere Ritter mentions that in this work the proportion of the two words is 2 : 1.
[11] In the O.C.T. also *Crat.* 398d5.

number of usages, therefore, is reduced to 19. The *Tim.* is characterised by 17 of these, *Crit.* by 11. The corresponding figures for the other dialogues (again excluding μῶν) are:

Theaet. 6, *Rep.* 9, *Phdr.* 8, *Soph.* 14, *Pol.* 16, *Phil.* 16, *Laws* 18.

There can be no doubt on comparing the figures to which group *Tim.* and *Crit.* belong.

Having succeeded in dividing the dialogues into three chronologically distinct groups Ritter's next problem was to see whether his linguistic criteria might also indicate a definite sequence within these groups. Before he could do this, however, a difficulty had to be disposed of, namely the question of the unity of the *Rep.* Previously he had regarded it as a single, uniform whole, but there did exist arguments[12] for dissecting it into anything from two to five separate sections, in the intervals between which other works might have been written. Ritter disagreed with these on the grounds that his own investigations showed a uniform, or at least only a fluctuating language usage throughout the books of the *Rep.* with the sole exception of book I. These statistics for the individual books are given in Tables 10.4 and 10.5.

Ritter's first concern was to refute Schanz's argument that the frequency of ὄντως indicates that books I–IV of the *Rep.* were written considerably earlier than V–X, and that consequently *Crat.* and *Euthd.* (if the reading ὄντως in them is accepted) were composed in the interval. To this end he quoted the fact that the two latter dialogues contain not one of the 43 expressions characteristic of the last chronological group which cannot also be found in *Rep.* I–IV. In addition they have only the early forms δῆλον ὅτι and σχεδόν τι, whereas in the first four books of the *Rep.* we find the later δῆλον ὡς and plain σχεδόν together with other 'late' expressions like τί μήν, the Ionic dative form, καὶ πῶς (ἄν) and ἄριστα εἴρηκας. To these he might have added the occurrence of παντάπασι μὲν οὖν, δῆλον, γὰρ οὖν with answers by means of a repetition, χάριν, τάχα, εἰς/κατὰ δύναμιν, the supremacy of ἀληθῆ over ἀληθῆ λέγεις and of πάνυ μὲν οὖν over πάνυ γε. According to Ritter's criteria, therefore, there is little doubt that *Crat.* and *Euthd.* come before *Rep.* I–IV in the chronological series, and that the dubious evidence of ὄντως to the contrary must be regarded as accidental.

[12] E.g. those of Schanz and Siebeck.

Table 10.4

	Republic										
	I	II	III	IV	V	VI	VII	VIII	IX	X	I–X
Reply formulae	140	99	142	132	173	110	105	129	130	100	1,260
ἔγωγε, ἔμοιγε etc.	10	9	8	11	8	5	2	4	4	8	69
As % of total	7	9	6	8	5	5	2	3	3	8	6
ὀρθῶς, ὀρθότατα (λέγεις), ἀληθέστατα		3	9	3	16	9	6	3	2	6	57
ἀληθῆ λέγεις	2	1			1	3		1		1	9
ἀληθῆ	5	2	5	4	3		5	2	1	2	29
εἶπες, εἴρηκας	1			1							2
ὑπέλαβες			2								2
ἀληθῆ (λέγεις), ὀρθῶς λέγεις	8	3	6	5	7	4	7	4	1	3	48
ἀληθέστατα (λέγεις), ὀρθότατα λέγεις	1	(1)	8	4	7	5	5	2	3	5	40(41)
ναί	13	8	9	13	11	2	4	9	7	14	90
πάνυ γε	16	4	3	2	6		1	2	3	3	40
πάνυ μὲν οὖν	5	8	5	7	7	5	5	11	4	7	64
παντάπασι μὲν οὖν	1	3	6	6	8	3	4	1	3	3	38
ἀναγκαῖον, ἀναγκαιότατα etc.							1		2		3
δῆλον			4	3(4)	2	1	1	9(11)	3(4)	1	24(28)
ἐμοὶ γοῦν δοκεῖ			1				1	1	1		4
γοῦν in other replies	1		1		2	1		2	1	1	9
γὰρ οὖν in replies			1		1					1	3

Table 10.4 (*cont.*)

Answers by repetition	23	20	25	21	28	18	24	20	28	13	220
+ γὰρ οὖν		3	5	1	2	1	5	2	1	2	22
+ γάρ	2	8	3	5	8	9	7	1	8	4	55
+ δῆτα	6	1	1	1	1			1			11
καὶ μάλα		1	4	3	9	8	5	8	6	3	47
μάλιστα (γε)	1										1
οὐκοῦν/ἀλλὰ χρή		1			1			1		1	4
καὶ πῶς;			2		1	3					6
καὶ πῶς ἄν;	1								1		2
τί μήν;		1	4	5	2	6	4	6	6	1	35
ἦ γάρ;	4	7	1	2	2	2	3	1	3	3	28
ἦ οὐ;	2		2		1			1	1	1	8
ἦ πῶς;			1								1
... ἢ οὔ;		1			2						3
... ἢ πῶς;									1		1
πῶς;			3	2	4	6	3	9	3	2	32
πῇ;				1	1	1				1	4
ποῖον (δή); etc.	(1)	3(2)		5	5	8	14	4	5	4	48

(a) Figures in Table 10.4 are unchecked except for ἀληθῆ, παντάπασι μὲν οὖν, δῆλον, τί μήν; πῇ; and ποῖον;
(b) ἀληθέστατα (λέγεις) and ὀρθότατα λέγεις: most figures are incorrect (see p. 63 and Table 10.3).
(c) δῆλον: Ritter failed to include some instances repeated from the question (see p. 63).
(d) πῇ: Ritter did not include πῇ δή; (II 1, III 2, VII 1) or πῇ μάλιστα; (VII 1).

Table 10.5

	Republic										
	I	II	III	IV	V	VI	VII	VIII	IX	X	I–X
Steph. pages	28	27	32	26	32	28	28	27	22	27	271
δῆλον ὅτι	7	4	3	7 (6)	3	1	4	12	4	2	47 (46)
δῆλον ὡς		2									2
σχεδόν τι	1	2	4	1		1		2		1	12
σχεδόν		1	1			1		2	1	1	7
Ionic dative	1		2					2		1	6
τὸ/τὰ νῦν						1					1
εἴρηται, ἐρρήθη					1						1
ἔλεγον etc.	11	3	7	5	5	2	4	3		3	43
εἶπον etc.			2				1	2	2		7
ὥσπερ	21	9	26	26	18 (16)	28 (29)	23 (24)	22 (23)	14	23 (24)	210 (212)
καθάπερ				1				1	2	2	6
γε μήν	1		(1)	(1)	1						2 (4)
τῷ ὄντι	3	3	3	4	2	8	8	1	6	3	41
ὄντως					1	2	2		2	2	9
ὡς ἀληθῶς	5 (6)	7	3	4		5	1	2		1	28 (29)
ἀληθῶς	1 (0)		(1)			3			3		7
τῇ ἀληθείᾳ			1	2		3		1	4	4	15

Table 10.5 (*cont.*)

πότερον + vowel	5 (4)	3	2	3	7	1	1	1 (0)	1	3	27 (25)
πότερον + conson.	5	2	2	3	2	1				2	17
πότερα + conson.	1				1					1	3
πότερα + vowel										1	1
ἕνεκα	8	13	11	1	7	6	9	4	7	3	69
χάριν		2	3		3	2	2				12
ἴσως	10	9 (8)	7	7	4	4 (3)	3	6	6 (7)	1	57 (56)
τάχα		2		1	2						5
μῶν	1				1 (2)	1					3 (4)
εἰς/κατὰ δύναμιν				2	1	1	1		1		6
μακρῷ, μυρίῳ									2		2

(a) The figures for the Ionic dative and referential relative clauses are unchecked; the rest correspond to those for the O.C.T. except where indicated.
(b) For γε μήν in III and IV see Table 4.2 footnote.
(c) (ὡς) ἀληθῶς *Rep.* I (see Table 7.2).
(d) τῷ ὄντι: although Ritter gives the total for the whole *Rep.* as 42 both here and in Table 10.2, this is a miscalculation, as the sum of the individual books shows.

Ritter himself gives no detailed argument for the unity of the *Rep.* (excluding book I). Apart from raising an admonitory finger to point out that the frequency of the various formulae fluctuates even between adjacent books[13] his attitude is 'Here are the facts [i.e. Tables 10.4 and 10.5]; judge for yourself.'

The easiest way to do this is to calculate how many of the 43 expressions listed above occur in each book. The result is:

I 9, II 13, III 19, IV 14, V 22, VI 20, VII 16, VIII 16, IX 22, X 18.

Although the opportunity for the occurrence of an expression does not vary in direct relation to the size of a work, as it does broadly speaking for the frequency, it is nevertheless evident that a larger work will provide a somewhat greater opportunity for the occurrence of a fixed number of expressions than will a smaller. This goes some way towards explaining the comparatively high figures in III and V, as these books contain more reply formulae and occupy more pages of text than their neighbours. For the same reason the low figure in I and the high one in IX are all the more noteworthy. On the whole, however, apart from I, the figures do not differ to any tremendous extent and give no occasion for believing that the *Rep.* is not a unity. By 'a unity' Ritter meant that, although the composition of such a large work must clearly have been spread over a number of years, it was all written within the same period. In short, the whole of the *Rep.* with the possible exception of book I belonged to the same linguistic and chronological group, and this unity was not affected by the fact that some interval of time might have elapsed between the composition of one part and the following part, or that other works of the same group might have been written contemporaneously with it. Such was the unity which Ritter believed his statistics proved.

With the individual books the material which provided the figures above was fairly small and therefore all the more prone to accidental irregularities. The larger the material compared, the less scope for chance entering into the results, the more opportunity for irregularities to cancel each other out and lose themselves in the mass of regularities. This 'larger' material can be obtained by combining the books in pairs and calculating how many of the 43 expressions each pair contains, thus:

[13] Cp. VIII and IX (which have practically equal totals of reply formulae) with regard to πῶς; and δῆλον, the proportion of ἀληθῆ, ἀληθῆ λέγεις and ὀρθῶς λέγεις to the corresponding superlatives, of γὰρ οὖν to γάρ in answers by means of a repetition and of σχεδόν τι to σχεδόν.

	I & II	II & III	III & IV	IV & V	V & VI	VI & VII	VII & VIII	VIII & IX	IX & X
Reply formulae	239	241	274	305	283	215	234	259	230
Pp. Stephanus	65	68	68	67	68	63	61	55	56
No. of expressions	20	23	24	24	26	23	20	24	26

Here the amount of variation is considerably reduced. If still larger groups are taken, it will be reduced again. Some scholars, Siebeck for instance, advocated the dissection of the *Rep.* into four parts (I, II–IV, V–IX, X) or five (I, II–IV, V–VII, VIII–IX, X). If we leave out I and add X to VIII and IX, we get three sections, each of three books, which have at various times been accepted as separate works written at different periods. A comparison of these (they are of nearly equal size) produces the following:

	II–IV	V–VII	VIII–X
Reply formulae	373	388	359
Pp. Stephanus	85	88	76
No. of expressions	26	28	26

The three figures, taking into account the slight variation in the totals of reply formulae and pages, are practically equal. Apparently we must concede Ritter his 'unity' of the *Rep.* in the sense indicated above.

The question of the first book, however, still remains. Although it contains 9 of the 43 expressions, which is more than the most shown by any work of Group I, there is the possibility that some of these stem from revision at a later date.[14] Further food for thought is supplied by the consideration that on the one hand several expressions which are found fairly frequently in the rest of the *Rep.* are missing from this book: (1) replies of the class ὀρθῶς, ὀρθότατα(λέγεις), ἀληθέστατα, (2) γὰρ οὖν in answers by means of a repetition, (3) καὶ μάλα, (4) τί μήν; and that on the other μάλιστα, which is characteristic of Plato's early style, is found in book I and nowhere else in the *Rep.*, δῆτα in replies by means of a repetition occurs 6 times, more than in the rest of the books put together, and πάνυ γε preponderates over πάνυ μὲν οὖν, whereas the reverse is the case in II–X. In fact there are 16 πάνυ γε in I alone, only 24 in II–X. These divergences of I away from the general linguistic character of the *Rep.*

[14] I.e. when the book was incorporated into the larger work.

towards that of the preceding dialogues justify, in Ritter's opinion, the assumption that this book was written some time before the rest. The only snag is that contradictory evidence exists in the form of an ἄριστα εἴρηκας, a καὶ πῶς ἄν; Ionic dative αὐτοῖσιν and γε μήν, all of which belong to a period later than that required by the preceding items.[15] Ritter tentatively suggested that they might have been first introduced with a revision of the book. This could be, especially as all are isolated instances. Nevertheless he was obviously uneasy about this explanation. At all events, Ritter further observed, the language of book I condemns any attempt to separate books II–X by assuming that the earlier books were later revised. Since the linguistic style of II–X is on the whole so uniform, the revision would have had to be extremely detailed and thorough. Moreover, it would have included the first book and affected it just as much as the second and succeeding books. In actual fact, however, we find in the first book fairly frequent and very clearly marked traces of an earlier period which are missing in II–IV, the part of the *Rep.* which together with book I is presumed to have been published first.

Having justified his intention to consider the *Rep.*, or at least books II–X, as a unity, Ritter could now return to the problem of the chronological order within the three groups. As regards the last of these, he declared, we can fix the sequence of dialogues positively. The dialogue which contained the fewest of the 43 expressions, it will be remembered, was the *Soph.* This, together with the fact that remnants of Plato's earlier style still linger in the dialogue before vanishing entirely, e.g. the τῷ ὄντι and ὡς ἀληθῶς which persuaded Schanz to place it in the second rather than the third group, suggests that the *Soph.* precedes *Pol.*, *Phil.* and *Laws*.

Likewise, Ritter continued, there can hardly be any doubt that the *Laws* occupies last place of all. For confirmation of this we have the total of 42 'late' expressions out of a possible 43, though its great length admittedly affords the richest opportunity for their occurrence. This is an important point, since quite a few of the 'late' expressions are missing in the individual books. Evidently Ritter saw no need to prove that the *Laws* too was a 'unity'. One would have felt more assured of its occupying last place *en bloc*, if he had.

Ritter's argument for the position of the *Phil.* seems to me, as it did to

[15] To these he might have added the occurrence of a παντάπασι μὲν οὖν and the preponderance of ἀληθῆ over ἀληθῆ λέγεις.

J. Tiemann,[16] extremely weak. It was this. In *Laws* I–IV πότερον is always used before a vowel; in the 6 instances where the interrogative particle precedes a consonant the plural form πότερα is substituted. Books V and VI contain neither form. In VII–XII, however, we again find πότερα (1 instance only) before a consonant, but also 4 instances of πότερον before a consonant.

	Phil.	*Laws* I–IV	*Laws* VII–XII
πότερον + vowel	21	21	15
πότερον + consonant	—	—	4
πότερα + consonant	6	6	1

The conclusion is that Plato's habit of substituting πότερα for πότερον before consonants, as exemplified in *Pol.*, *Phil.* and *Laws* I–IV, was changed in the second half of the *Laws*, where he reverted to his earlier practice of using πότερον indiscriminately before both vowels and consonants. Now in the *Phil.*, as the table above shows, the relation of πότερον to πότερα is exactly the same as in *Laws* I–IV: all 6 instances of πότερα stand before a consonant, all 21 of πότερον before a vowel. Therefore the *Phil.* is approximately contemporary with *Laws* I–IV. No comment is really needed. Tiemann condescended to remark that this result of Ritter's was contradicted by other evidence, such as the absence in *Phil.* of periphrastic expressions like χρεών, δέον ἂν εἴη, πρέπον ἂν εἴη, which are so characteristic of the *Laws* (including books I–IV). To these might be added the absence of the Ionic dative form and the scarcity of εἰς/κατὰ δύναμιν and τὸ/τὰ νῦν. The difference between the two parts of the *Laws* may after all result, as Tiemann suggested, from the lack of revision and stylistic polishing in the later books. At all events we cannot accept the position allotted to the *Phil.* by Ritter as proven.

In consequence one cannot accept that of the *Pol.* either, because it is directly dependent on the preceding argument. Linguistically, Ritter observed, the *Pol.* is more closely related to the *Phil.* than to any other dialogue. They have a roughly equal number of the 43 criteria, and in many respects there is a remarkable similarity between them in the frequency with which they use a particular expression. The question is whether the *Pol.* comes before the *Phil.* or vice versa, and the only way in which Ritter could settle this was to proceed from his 'proof' that the *Phil.* was written contemporaneously with *Laws* I–IV. The question had

[16] Cf. his review of Ritter's work in *Wochenschrift für klassische Philologie* (1889).

now resolved itself, therefore, into whether the *Pol.* too could have been written about the same time as the early or middle books of the *Laws*. This, however, Ritter said, seems impossible (his reasons were not stated); *ergo* the *Pol.* comes before the *Phil.*

There now remained the *Tim.* and *Crit.* In order to determine their position in the chronological sequence, Ritter considered three items. Firstly πρέπον ἂν εἴη, which as a periphrasis for πρέποι ἄν occurs only in *Tim.* and *Laws*, twice in the former, 16 times in the latter. Secondly χρεών, 'probably the most striking linguistic peculiarity of the *Laws*', is used with the same relative frequency only in *Tim.* and *Crit.* The occurrence of χρεών and the simple form χρή in the books of the *Laws* is as follows, (the figures for χρή 'are not precise', but provide, according to Ritter, a sufficient basis for comparison):[17]

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	I–XII
χρή	11	7	(3)	(8)	18	39	16	17	16	6	(19)	29	159(189)
χρεών	1	2	(2)	(1)	4	10	7	1	8	3	(8)	11	47(57)

The proportion of χρεών to χρή, therefore, is roughly 1 : 3. It is the same in *Tim.* and *Crit.* (3 χρεών to 9 χρή in *Tim.*, 2 χρεών to 1 χρή in *Crit.*), much lower in the other two dialogues where χρεών is found, *Soph.* and *Pol.* (1 : 14 and 1 : 17 respectively). Thirdly, πότερον occurs altogether 6 times in *Tim.*, thrice before a vowel and thrice before a consonant. This, Ritter pointed out, corresponds not only to Plato's early manner but also to his latest, that prevalent in the second half of the *Laws*. His conclusion from these criteria was that the *Tim.*, with its sequel the *Crit.*, was written at the same time as Plato was working on the second half of the *Laws*, and the reason he gave for the incomplete state of the *Crit.* was that Plato was called away to the ὑπερουράνιος τόπος. All very convenient, but the only proof given apart from the ambiguous evidence of πότερον is 5 instances of χρεών and a couple of πρέπον ἂν εἴη, which is hardly sufficient.

While admitting there was not the same certainty about these conclusions as about his group division, Ritter had a high enough assurance of their 'great probability' that he could come down a step and comment 'less confidently' on the sequence of the three works forming Group II,

[17] His 'imprecise' figures for χρή are in fact correct, except for VI 41, VII 17, XII 28. Those for books III, IV and XI, which he omitted, come from the Word Index.

Phdr., *Theaet.* and *Rep.* Nothing, he declared, can be deduced from the fact that out of the 43 expressions used as criteria of lateness the *Rep.* contains 30, the *Theaet.* 25 and the *Phdr.* 20. The difference in the size of the figures corresponds to that of the works. Nevertheless, a thorough comparison of the occurrence of several significant formulae and expressions in *Phdr.* and *Theaet.*, together with a careful consideration of their respective sizes, shows that the *Phdr.* was probably written after the *Theaet.* Once again Ritter omitted to enumerate the reasons in detail, simply referring the reader to the statistical tables, though at the same time indicating briefly which points deserved the most attention; i.e. (1) the frequency of the class ἔγωγε, ἔμοιγε (δοκεῖ) etc., (2) the proportion of the simple forms ἀληθῆ, ἀληθῆ λέγεις and ὀρθῶς λέγεις to the corresponding superlatives, (3) ποῖον (δή); etc., (4) δῆλον ὡς, (5) σχεδόν, (6) καθάπερ, (7) ὄντως favour the posterior position of *Phdr.*, while (1) the proportion of ἀληθῆ to ἀληθῆ λέγεις, (2) that of γάρ to γὰρ οὖν in answers by means of a repetition, (3) καὶ πῶς ἄν; (4) τὸ/τὰ νῦν favour that of *Theaet.*

Where exactly the *Rep.* stood in relation to the other two works Ritter could not say. On account of its great length and the time which it must have taken to write he was inclined to believe that the *Theaet.*, and perhaps even the *Phdr.* too, might have been written contemporaneously with it.

Similarly he refused to hazard any conjecture about the chronological relationship of the rest of the works, which he had taken together to form the first group. Their style, he said, was in general too uniform, the preponderance of one over the other in the 43 criteria so slight that it could be entirely accidental. Different criteria altogether would be necessary, before anything could be accomplished in this, the most difficult of the three groups.

Generally speaking, Ritter's figures are too small to be of any use by themselves in determining the chronological sequence within the groups. Disregarding the expressions of Dittenberger and Schanz, which have already been dealt with, there is little evidence to be found of even slight value. Let us take the last group first. In the case of the reply formulae we are concerned with four works, *Soph.*, *Pol.*, *Phil.* and *Laws*, of which it is already fairly certain that the *Soph.* is the earliest, the *Laws* the latest. The question is where the *Pol.* and *Phil.* stand in relation to one another. It is unfortunate that the method of attempting to settle this by measuring the degree of affinity of each dialogue to the *Laws* may not be entirely

sound. By this is meant that we are compelled to regard the *Laws* as the last work and as a unity, because Ritter did not quote the statistics for the individual books, though it may be that parts of it were written quite early in the period embraced by the last group. However, as there are no far-reaching conclusions to be drawn from the present evidence, the point is of little concern here. What is of concern is to realise that, if an expression is to be of any use for fixing the sequence, it must, as a general rule, show a reasonable decrease or increase in frequency from the *Rep.* (which can be taken as representative of the style of Plato's middle period) to the *Laws* and at the same time reach its extreme in the *Laws*; i.e. the highest or lowest frequency of the particular expression must fall in the *Laws* not another work of Group III. An example will make the reason for this clear: taking the frequency of the ὀρθῶς, ὀρθότατα (λέγεις), ἀληθέστατα class and expressing it as a percentage of the total of reply formulae, the result is:

Soph. 5.2% *Pol.* 11.2% *Phil.* 10.4% *Laws* 6.7%

The line representing this on a graph would be a parabola with the *Pol.* as its acme and *Soph.* and *Laws* as its two lowest points. Obviously the *Phil.* could be placed on either side of the acme, in the one case being regarded as ascending towards it, in the other as declining from it. It is impossible, however, to decide which is correct, so that for the most part one must rely on those expressions the extreme frequency of which is found in the *Laws*. In this respect Ritter's statistics for the last group do not appear to exhibit any definite trend which would allow the sequence of the works within the group to be determined.

Regarding the sequence within the middle chronological group, consisting of three works, *Rep.*, *Phdr.* and *Theaet.*, it has already been observed that the language of *Rep.* I differs in many respects from that of II–X, so that the conclusion that it was written some time before the rest at least seems reasonable. The question, however, is whether any other works were written in this interval, and if so, which works. A way to answer this would be to weigh two sets of linguistic evidence against one another: (a) 'late' expressions occurring with some frequency in a work of Group I which do not occur in *Rep.* I; (b) 'late' expressions occurring likewise in *Rep.* I which do not occur anywhere else in works of Group I. Unfortunately there is no satisfactory evidence of either type. The question whether *Rep.* I is separated from II–X by other works cannot be settled on the basis of Ritter's statistics.

Books II–X of the *Rep.*, it has been remarked, may be regarded as a unity. This, however, does not mean that the books were necessarily written in the order in which they now stand. To be sure, there is general agreement that II–IV were the first to be written, but that is all. Thereafter opinion varies about the order of composition, the main point at issue being whether the 'metaphysical interlude', books V–VII, occupies the correct chronological position in its present place, or whether in fact it was one of the last parts to be written.

If we accept these divisions, therefore, there are five works, not three, to arrange in chronological order, namely *Rep.* II–IV, *Rep.* V–VII, *Rep.* VIII–X, *Phdr.* and *Theaet.* To do this, it is necessary to compare again the frequency of the 'late' expressions in each work, and to make this simpler I have drawn up Table 10.6, which contains all the relevant expressions out of the list of 45 quoted earlier. Also, for the sake of easier comparison, many of the frequencies are expressed as percentages, even though these are apt to be somewhat misleading, where such small figures are concerned, unless an eye is kept all the time on the actual number of instances. In addition it should always be borne in mind that the size of the *Phdr.* is considerably less than that of the other four works. The respective measures are:

	Rep. II–IV.	V–VII	VIII–X	*Phdr.*	*Theaet.*
Reply formulae	373	388	359	69	285
Pp. Stephanus	85	88	76	52	69

The frequencies of the *Soph.* and *Pol.* are given as illustrations of Plato's late style, standards by which the frequencies in the middle group may be measured.

We will take it for granted that *Rep.* II–IV precedes both V–VII and VIII–X. There is ample linguistic evidence to prove this, but it would be merely labouring a point that is generally, probably universally conceded to catalogue it. As regards the relation between V–VII and VIII–X, an inspection of the table will show that there are arguments for the posterior position of either group; e.g. nos. 1, 2, 24, 44, 45 favour that of V–VII, nos. 6, 35, 36, 39, 40 that of VIII–X. Throughout the list the balance is fairly equal, with a slight edge, if anything, in favour of VIII–X being later than V–VII. Again the question must be left open.

The evidence provided by Ritter turns out to be not so good as it appears at first sight, but if it has proved impossible to solve the sequence of the parts of the *Rep.*, let us at least see if we can determine the

Table 10.6

		Rep. II–IV	V–VII	VIII–X	Theaet.	Phdr.	Parm.	Soph.	Pol.
1.	ἔγωγε, ἔμοιγε etc.	7.5%	3.5%	4.5%	10.0%	2.0%	1.4%	0.3%	1.0%
2.	ὀρθῶς, ὀρθότατα (λέγεις), ἀληθέστατα	3.5%	8.0%	3.1%	2.5%	1.4%	4.5%	5.1%	11.2%
3.	ἀληθῆ λέγεις : ἀληθῆ	92%	67%	71%	82%	0%	82%	70%	83%
4a.	εἶπες, εἴρηκας in reply formula	1			1	1		2	10
4b.	ὑπέλαβες in reply formula	2			1				
5.	inversion of λέγεις				1			4	2
6.	ἀληθῆ (λέγεις), ὀρθῶς λέγεις : superlatives	48%	49%	56%	36%	60%	23%	44%	65%
7.	πάνυ γε : πάνυ μὲν οὖν	69%	71%	73%	76%	67%	35%	58%	72%
8.	πάνυ μὲν οὖν : παντάπασι μὲν οὖν	43%	47%	24%	36%	60%	32%	42%	18%
9.	ἀναγκαῖον, ἀναγκαιότατα (λέγεις) etc.		1	2				1	
10.	δῆλον	7	4	13	2	1	2		3
11.	γοῦν in reply formula	2	4	6	1	2	1	2	2
12.	γὰρ οὖν in reply formula	1	1	1	1			6	5
13.	γὰρ : γὰρ οὖν (+answer by repetition)	36%	25%	28%	59%	40%	29%	82%	71%
14.	δῆτα (+answer by repetition)	3	1	1			3		
15.	καὶ μάλα	2.2%	5.7%	4.7%	1.4%	4.3%	0.4%	1.3%	0.8%
17.	οὐκοῦν/ἀλλὰ χρή	1	1	2	1		1	2	4
18.	καὶ πῶς (ἄν);	2	4		4		2	7	1
19.	τί μήν;	2.7%	3.1%	3.6%	4.6%	16.0%	1.2%	3.8%	8.0%
20./21.	ἢ πῶς; and ... ἢ πῶς;	1		1			1	4	3
22.	πῶς;	1.3%	3.1%	3.9%	1.4%	3.0%	2.1%	6.3%	6.8%
23.	πῇ;	1	2	1			3	7	6
24.	(τὸ) ποῖον (δή); etc.	2.1%	7.0%	3.6%	4.6%	6.0%	0.6%	10.2%	14.4%
25.	δῆλον ὅτι : δῆλον ὡς	13%	0%	0%	0%	27%	0%	44%	17%
26.	σχεδόν τι : σχεδόν	18%	50%	57%	0%	100%	0%	100%	92%
28.	μακρῷ, μυρίῳ			2	1				1
31.	εἰς/κατὰ δύναμιν	2	3	1		1		3	11
32.	Ionic dative	2		3		3			4
33.	τὸ/τὰ νῦν		1		1			6	5
34.	εἴρηται, ἐρρήθη in reference		1		2	1		2	8
35.	ἔλεγον : εἶπον in reference	12%	8%	40%	20%	50%	25%	80%	56%
36.	ὥσπερ : καθάπερ	2%	0%	8%	4%	13%	0%	61%	65%
38.	γε μήν		1		2	1	5	6	8
39.	τῷ ὄντι : ὄντως	0%	22%	29%	14%	43%	—	96%	100%
40.	ὡς ἀληθῶς : ἀληθῶς	7%	33%	50%	11%	13%	50%	67%	100%
43.	μῶν		2		4			12	8
44.	ἴσως : τάχα	12%	17%	0%	15%	28%	0%	30%	36%
45.	ἕνεκα : χάριν	17%	24%	0%	24%	41%	0%	25%	12%

(a) For single expressions the percentage figure is based on the total number of reply formulae (see Tables 10.1 and 10.4); where a pair is concerned, the figure expresses the percentage which the second expression forms of their combined occurrences.

(b) The numbers on the left refer to the position of each expression in the sequence of comments relating to Tables 10.1 and 10.2 (pp. 57–66).

relationship of the *Theaet.* and *Phdr.* to the *Rep.* and to each other. Here too things are made difficult by the lack of any continuous development in one direction. A careful search for such a thread connecting the fluctuating frequencies of the expressions in the table fails to reveal any. All that can be done is to point out the expressions that seem to be the most significant. In the *Theaet.* there are thirteen of these; three support the priority of *Theaet.* to *Rep.*, i.e nos. 1, 2 and 26 (though the latter should be discounted, because there is only 1 instance of σχεδόν τι against 0 of σχεδόν); two favour the contemporaneous composition of *Theaet.* with *Rep.* II–IV, i.e. nos. 22 and 40; three support its contemporaneousness with books V–VII, i.e. nos. 39, 44, 45; two support contemporaneousness with VIII–X, i.e. nos. 35, 36; three would place it after all the *Rep.*, i.e. nos. 7, 13 and 19. In addition there is expression no. 24, according to which the *Theaet.* could have been written any time after *Rep.* II–IV, but hardly before. The evidence of all the other expressions is ambiguous, apart from those where only isolated instances are involved, which were not reckoned in the previous calculation. Considering these now: expressions 5 and 14 are peculiar to *Theaet.*; 4 is common to *Rep.* II–IV and *Theaet*; 9 to *Rep.* V–VII and VIII–X; 18 to *Rep.* II–IV, V–VII, *Theaet.*; 20 and 32 to *Rep.* II–IV, VIII–X; 23 and 31 to *Rep.* II–IV, V–VII, VIII–X; 28 to *Rep.* VIII–X and *Theaet.*; 33, 34, 38, 43 to *Rep.* V–VII and *Theaet.* The total of these isolated instances of 'late' expressions in each work is *Rep.* II–IV 7, V–VII 8, VIII–X 6 and *Theaet.* 10; not that this slight preponderance of the figure in *Theaet.* is very significant, but coupled with the previous results it seems to present a moderate argument against the belief that *Theaet.* was written before all the *Rep.* Beyond that the evidence proves nothing; the *Theaet.* could have been written either after all the parts of the *Rep.* or about the same time as V–VII or VIII–X, and there is no way with the present material of deciding between these possibilities.

Going through a similar procedure with the *Phdr.* we find there are quite strong grounds for supposing that it was written after the *Rep.* Again there turn out to be thirteen expressions of some use, of which one (no. 2) supports the priority of the *Phdr.* to all the *Rep.*, three (nos. 22, 24, 40) would place it, if mechanically interpreted, about the time of *Rep.* V–VII, two (nos. 6 and 15) would place it about the time of or after *Rep.* VIII–X, seven (nos. 1, 19, 25, 26, 36, 39 and 44) definitely after all parts of the *Rep.* Not counted are nos. 3 and 35, the former of which speaks

for the priority, the latter the posteriority of *Phdr.* to *Rep.*, because the number of instances in each case is only 1.

The greater weight of evidence, if one should speak of weight where such meagre amounts are concerned, for the posteriority of *Phdr.* to *Rep.* as compared with that favouring the *Theaet.* should mean that the *Phdr.* is later than the *Theaet.*, and this receives support from a comparison of the frequencies of the 'late' expressions in the two dialogues. Against three features (nos. 2, 13, 15) which support the posteriority of *Theaet.*[18] there are eight (nos. 1, 19, 22, 24, 26, 36, 39 and 44) supporting the *Phdr.* One cannot, however, regard this as conclusive, any more than the preceding inferences drawn from Ritter's material; they are merely fumbles at the truth, but for all that not entirely valueless.

Finally, regarding the first group there is not the slightest hope of discovering any trace of a chronological sequence from the material here, since this represents primarily the style of Plato's last works, and the few instances that occur in the early dialogues are of little significance. Other criteria which represent a development of style in the first group, possibly towards that of the second, are required.

Though these were all the linguistic features examined by Ritter, the dialogues treated above were not the only ones for which he drew up statistics. He also applied himself to the other works in the Platonic corpus, and in so doing became the first to use the stylistic method to determine the authenticity or unauthenticity of suspected works. The method he proposed was as follows:

> We have established that there are three stages of development in Plato's style, which are noticeably different from one another. Should any suspected work exhibit a striking mixture of the expressions characteristic of the different periods, it can immediately be declared spurious. We shall equally definitely condemn a work which by its logical content and whole tenor must belong among Plato's early compositions, yet unmistakeably betrays peculiarities of his later style. Finally, we should recognise a strong reason for suspicion even in small deviations from the manner of expression of one of the three groups.

The last statement is not quite sound. In establishing the stages of development in Plato's style equal consideration was not given to all 42 works. If it had been, instead of half of them being omitted from the

[18] Perhaps nos. 18 and 43 might also be added, if their absence from the much smaller *Phdr.* is not regarded as accidental.

inquiry to start with as suspect, the resulting picture of certain expressions being characteristic of a certain period would have been somewhat altered. Consequently it is no more logical to regard 'small deviations' in suspected works as support for such a view than to condemn, say, the *Apol.*, because it has an instance of τάχα + ἴσως an expression otherwise confined to *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Laws*.

Ritter arranged the 21 suspected works in four groups according to the degree of suspicion he thought attached to each. The most certainly unauthentic group comprised the small works rejected even by the ancient critics, *Ax.*, *Halc.*, *Dem.*, *Sis.*, *Eryx.*, *Just.* and *Virt.*; the next contained works suspected by some of these critics, *Alc. I* and *Alc. II*, *Amat.*, *Hipparch.*, *Epin.*, while the third consisted of *Clit.*, *Theag.*, *Minos*, and the last – the least certainly unauthentic – of *Ion*, *Hipp. Ma.* and *Hipp. Mi.*, *Menex.*, *Lys.* and *Parm.* Next, taking each work in turn, he proceeded to indicate the features which seemed to speak for its unauthenticity. However, for reasons explained (p. ix) it is necessary to pass over Ritter's arguments in this respect, at least for the first three groups, the fourth being perforce considered, inasmuch as it comprises dialogues generally accepted as genuine.[19] For the rest let it suffice to say that in no instance is the evidence brought forward by Ritter for a work's unauthenticity conclusive.

From the aspect of style there was nothing in Ritter's material to show that *Ion*, *Hipp. Ma.* and *Hipp. Mi.*, *Menex.* and *Lys.* could not belong to Plato's first period. As for the *Parm.* consideration of the statistics showed that, if genuine, it was to be put somewhere in the middle period, though exactly where proved to be not easy to say. The evidence of the majority of the expressions merely equated it with the other works belonging to the middle group. Only in a handful did the frequency vary enough from the general level to provide possible chronological indications. Three features (nos. 1, 2, 38)[20] indicated a relationship with the later dialogues. In contrast there were five in respect of which the *Parm.* approximated more closely to the style of the earlier works:

no. 6, the high proportion of the positive forms ἀληθῆ (λέγεις), ὀρθῶς λέγεις to the corresponding superlatives;

[19] Ritter presented his statistics for the suspected works in two tables corresponding to those for the genuine works. For reasons of space these have been omitted, the fourth group alone being appended to Tables 10.1 and 10.2.

[20] The second is dubious, since the frequency in the *Parm.* is far below that of *Rep.* V–VII and not much higher than that of II–IV (see Table 10.6).

no. 7, the preponderance of πάνυ γε over πάνυ μὲν οὖν, a characteristic confined exclusively, apart from the *Parm.*, to works of the first group;

nos. 19, 24, the very low percentage of τί μήν; and of (τὸ) ποῖον(δή); etc.;

no. 36, the proportion (9 : 0) of ὥσπερ to καθάπερ. With such a small total, however, there might easily be an absence of καθάπερ even at a time when Plato was showing an increasing preference for the latter word. As evidence of this might be mentioned *Rep.* v–vii, where there is not a single καθάπερ compared with 69 occurrences of ὥσπερ, though it is found in the books on either side.

Obviously the balance of the evidence, therefore, was in favour of the *Parm.* heading the series of middle dialogues rather than closing it. For Ritter, however, the irreconcilability of the two sets of evidence merely served to strengthen his conviction that the dialogue was not genuine, a view which he supported with the following observations:

1. In the *Parm.* the distribution of words of saying used parenthetically to introduce direct speech is different from elsewhere. For the 3rd person there are 19 ἔφη, 2 εἶπε, 0 ἦ δ' ὅς; elsewhere there is only 1 instance of εἶπε (*Rep.* vii), while on average 1 ἦ δ' ὅς occurs to every 5 or 6 ἔφη.[21]

   For the 1st person there are 2 εἶπον ἐγώ, 1 εἶπον, 0 ἔφην(ἐγώ) and 0 ἦν δ' ἐγώ; yet elsewhere the last is by far the most frequently inserted verb of saying in the 1st person. The absence of both ἦ δ' ὅς and ἦν δ' ἐγώ inclined Ritter to believe that the author of the *Parm.* was unacquainted with these forms (as, it has been noted, was Xenophon).
2. In distinction from all 'indubitably genuine' works the *Parm.* uses only names for address (e.g. ὦ Σώκρατες, ὦ Παρμενίδη), never the formulae ὦ ἄριστε, ὦ φίλε etc. Ritter gave some figures for these formulae by way of illustration: *Theaet.* 50, *Meno* 49, *Phdr.* 37, *Crat.* 33; rarest in *Phil.*, 7.
3. Change of speaker is extraordinarily frequent, as can be seen from the large total of formal replies. They average 9 or 10 to a page in the *Parm.*, whereas the highest elsewhere is in the *Soph.* and *Rep.*, a meagre 4 per page by comparison.
4. Two answer formulae are used much more frequently in *Parm.* than

[21] He quoted as examples *Rep.* iii 104 ἔφη to 30 ἦ δ' ὅς and *Charm.* 82 ἔφη to 21 ἦ δ' ὅς, the most unfavourable proportion being 67 : 6 in *Rep.* x.

anywhere else; they are ἀδύνατον (γάρ) (usually preceded by an ἀδύνατον in the question) and ἀνάγκη. The latter occurs 45 times (23 after a preceding ἀνάγκη in the question) and in addition there is an ἀνάγκη γάρ (likewise after a preceding ἀνάγκη).

5. οὐδὲ μήν, as Dittenberger observed, occurs more times (15) in the *Parm.* than in all the 'indubitably genuine' works together (12, i.e. *Lach.* 1, *Charm.* 1, *Euthd.* 1, *Theaet.* 1, *Symp.* 1, *Laws* III 1, V 1, *Rep.* III 2, V 1, *Phdo* 2).
6. Finally πῶς δ' οὔ; preponderates over the more usual πῶς γὰρ οὔ; to a greater extent than in any other dialogue (i.e. 21 : 6); the nearest to this is the proportion in the *Pol.* (14 : 8). Others quoted by Ritter were: *Rep.* II 6 : 1, III 6 : 6, *Rep.* I–X 39 : 38, *Phil.* 8 : 14, *Laws* 12 : 49; sufficient to show that the fluctuations are very wide.

Although Ritter did not consider the *Parm.* genuine, many of his predecessors and contemporaries did. In this respect one thing should be noted: the character of the *Parm.*, as has already been observed from the results of other investigations, is so unusual and diverges in so many respects from that of the main body, the 'indubitably genuine' dialogues, that the admission of its authenticity would have detracted enormously from many of the arguments against the other suspected works, consisting as they did of pointing out unusual features and deviations from the 'normal' Platonic manner.

II

J. TIEMANN

★

Tiemann's articles[1] have already been referred to in the chapter on Ritter, with whose work they are closely connected, the third being a review of his book. The second, relating to certain reply formulae investigated by Ritter, was intended partly to clarify the statistics for individual formulae which Ritter had combined in groups, partly to correct his figures (Table 11.1 p. 88). For the reason mentioned previously (p. 56), it is difficult in the case of reply formulae to declare categorically that one investigator's data are correct, another's incorrect, but Tiemann appears to have been more consistent than Ritter in his specifications.[2]

There are, Tiemann said, three things worth noting in the statistics.

(a) Formulae with ὀρθῶς are very rare in the first period, only ὀρθῶς λέγεις being found, 5 times in all. The same formulae are more frequent in the second period, still more so in the third.

(b) Almost only the formulae with λέγεις are used in the first period. In the dialogues of the other two periods the percentage of formulae without λέγεις in relation to the total is as follows: *Theaet.* 58, *Phdr.* 20, *Rep.* 74, *Soph.* 76, *Pol.* 87, *Phil.* 65, *Laws* 41.

The small percentage in the *Phdr.*, Tiemann explained, is of no significance, since the total of 5 formulae hardly permits any comparison. On the other hand the considerable decrease in the *Laws* is very remarkable, and we should perhaps recognise it as a sign of increasing prolixity of expression.

(c) Superlative formulae are rare only in the first period. In the rest of the works they are always frequent, forming on average more than a

[1] I. 'Zum Sprachgebrauch Plato's', II. 'Einige formelhafte Wendungen bei Plato', III. 'Untersuchungen über Platon', *Wochenschrift für klassische Philologie* (1889).

[2] However, with his figures cf. Table 10.3.

Table 11.1

	Lach.	Charm.	Prot.	Euthd.	Crat.	Cri.	Euph.	Gorg.	Phdo	Meno	Symp.	Theaet.	Phdr.	Rep.	Soph.	Pol.	Phil.	Tim.	Crit.	Laws
ἀληθῆ λέγεις	5	2	6	3	9	2	4	5	6	4	5	3	1	10	3	1	2			7
ἀληθῆ	1	3	(1)						1			8		29	7	5	2			4
ὀρθῶς λέγεις		1			1		1		1	1		3	1	9		2	2			9
ὀρθῶς												2		26	10	15	11			15
ἀληθέστατα λέγεις	1				1				4		1	3	2	9	3	2	6			15
ἀληθέστατα												4		19	2	5	10			8
ὀρθότατα λέγεις												1		1	1		5			10
ὀρθότατα													1	9	3	8	5			2
Total	7	6	7	3	11	2	5	5	12	5	6	24	5	112	29	38	43			70
Formulae with ὀρθῶς		1			1		1		1	1		6	2	45	14	25	23			36
Formulae without λέγεις	1	3							1			14	1	83	22	33	28			29
Superlative formulae	1				1				4		1	8	3	38	9	15	26			35
Simple formulae	6	6	6	3	10	2	5	5	8	5	5	16	2	74	20	23	17			35
Superlative formulae without ὀρθότατα	1				1				4		1	8	2	29	6	7	21			33
Simple formulae without ὀρθῶς	6	6	6	3	10	2	5	5	8	5	5	14	2	48	10	8	6			20
Periphrases	1		1		3		1	3	2	3	2	3	4	14	7	12	8	12	4	25
% by pp. Stephanus	4		2		5		7	4	3	10	4	4	8	6	13	22	14	16	27	26

(a) The *Apol.* does not have any of the above formulae. The instance of ἀληθῆ at *Prot.* 360b2, missed by both Tiemann and Ritter, was noted by von Arnim.
(b) ὀρθῶς λέγεις : in the *Crat.* (O.C.T.) there is no such reply, though related forms are found at 416a7, 422b5. On the other hand, καὶ ὀρθῶς γε also occurs at *Crat.* 407a7, *Phdo* 109a8.

third of the total. In the *Laws* the superlatives equal the simple forms and in the *Phil.* even surpass them. If ὀρθῶς and ὀρθότατα are left out of the reckoning this predominance becomes even more marked.

Tiemann ended this article with an interesting observation, namely that in expressing 'reality', 'truth' etc. Plato inclined as time passed to prefer τῷ ὄντι and ὄντως more and more to (ὡς) ἀληθῶς and (τῇ) ἀληθείᾳ. The following figures, with the instances of τῷ ὄντι and ὄντως expressed as a percentage of all occurrences, will illustrate his point:

	Lach.	*Charm.*	*Prot.*	*Euthd.*	*Crat.*	*Apol.*	*Cri.*	*Euph.*	*Gorg.*	*Meno.*	*Phdo*
τῷ ὄντι and ὄντως	2	–	2	5	2	5	–	1	9	–	17
(ὡς) ἀληθῶς and (τῇ) ἀληθείᾳ	7	5	6	5	8	6	4	1	13	2	13
%	22	0	25	50	20	45	0	50	41	0	57

	Symp.	*Theaet.*	*Phdr.*	*Rep.*	*Soph.*	*Pol.*	*Phil.*	*Tim.*	*Crit.*	*Laws*
τῷ ὄντι and ὄντως	5	7	14	50	23	11	15	8	–	52
(ὡς) ἀληθῶς and (τῇ) ἀληθείᾳ	3	11	10	51	9	5	8	5	–	12
%	63	39	58	50	72	69	65	62	–	81

The figures fluctuate so much that beyond the broad distinction between Plato's early and late usage any conclusions drawn must be regarded as possibilities and nothing more. On this understanding one may perhaps count the figures as further slight evidence for placing *Phdo* and *Symp.* at the end of the first group, as Ritter believed, and for the early position of *Tim.* before *Soph.* as opposed to the traditional one immediately preceding the *Laws*, particularly as one expects a greater frequency than usual of τῷ ὄντι and ὄντως in a metaphysical work. If the small percentage in *Theaet.* is not regarded as accidental, it may be equated with the earlier portion of the *Rep.*, the figures for the individual books being:

	I	II	III	IV	V	VI	VII	VIII	IX	X
τῷ ὄντι and ὄντως	3	3	3	4	3	10	10	1	8	5
(ὡς) ἀληθῶς and (τῇ) ἀληθείᾳ	6	7	4	6	–	11	1	3	7	5
%	33	30	43	40	100	48	91	25	53	50

but these effectively demonstrate how much accidental fluctuation there is with this particular criterion.

Tiemann's first article was a completion of the instances given by Ritter of the periphrasis of simple finite verbs by means of participles and auxiliaries. At least it was almost a completion; Tiemann had time to treat only the first four books of the *Laws*, so that for the rest of the work he had to use the examples mentioned by Ritter. The same restriction of time allowed only a single perusal of Plato's text; hence, though he believed his inquiry to be 'sufficiently thorough', he would not guarantee the absolute completeness of the material.

He began by defining two classes of periphrasis which he did not regard as characteristic of Plato's later style; they were

(1) where the participle could not be conceived as a real predicative noun, but usually only as an attribute (e.g. *Soph.* 260c4),

(2) where the combination of εἶναι with the participle was demanded by the sense (e.g. *Prot.* 350b6).

Tiemann listed all the instances falling within these two classes for the benefit of anyone wishing to examine the validity of his method. Such a classification as this, however, must be to some extent subjective, since the boundaries between the different types can hardly be sharply defined, and instances will inevitably be encountered which allow of an ambiguous interpretation.

The type of periphrasis in which he was interested was periphrasis for its own sake: that which was chosen deliberately rather than written instinctively as the natural thing to write. There may have been other reasons why Plato used periphrasis more frequently in his last period, but probably the most important was the consideration of rhythm, in as much as a participle with the copula more often results in a sequence of short syllables than the simple verb. Such sequences appealed to Plato in his later years.[3]

Tiemann gave a list of individual references for this class too, and at the end a table.[4] The percentages are calculated on the number of pages in Stephanus' text instead of Hermann's, which Tiemann used, because the former provides a more uniform standard of measure. The two worst

[3] Cf. Chap. 18 and also Chap. 22.

[4] His figures, unchecked, have been included under Table 11.1. Tiemann reckoned only 1 of Ritter's 2 πρέπον ἂν εἴη for the *Tim.* in this class, on the grounds that πρέπον is an attribute of σχῆμα at 33b3. He gave 14 instances for *Rep.* in the table, but actually listed 15.

faults with the Hermann text are its exaggeration of the size of the *Theaet.* and its correspondingly great diminution of that of the *Tim.* It represents this work as equal in size to the *Phil.*, whereas in fact, as other texts show, it is considerably longer. The main feature, the increased use of periphrasis in Plato's final period, is well brought out by the figures, but their smallness would make any inference about the sequence within this period hazardous. In addition, with this particular investigation there is a suspicion, as already mentioned, that everything is not as solidly founded as one would wish. Perhaps it may be said that the evidence of periphrasis would place the *Pol.* nearer than the *Phil.* to the *Laws.* Tiemann's only conclusion was that this criterion too, like that of reply formulae, favoured a position for the *Crat.* near the end of the first group. This, however, is scarcely justified, when works such as the *Euph.* and *Meno* show higher percentages.

12

G. B. HUSSEY

★

The year 1889 saw the appearance of a second stylistic inquiry.[1] It is fairly slight, concerning the forms of verbs used to refer to something already said in the dialogue, and not all of these, but only certain past tenses of the passive. There are five types: (a) ἐρρήθη and ῥηθείς (Table 12.1 on p. 93, where these forms are also expressed as a percentage of the total number of references, (b) ἐλέχθη and λεχθείς, (c) προερρήθη and προείρηται together with their participles, (d) λεχθείς and λεχθεῖσα used as an adjective,[2] (e) the perfect passive of λέγω. In the case of the last two types, however, not just instances in references, but all occurrences are reckoned, including the imperative of the perfect passive of λέγω. A further point which should be made is that the reference totals are composed solely of references to the argument, and do not include any except such as go back to full, complete statements of the persons engaged in the discussion. Thus all words are omitted which refer to quotations of poetry, of tradition, or of any composition not original to the speakers of the dialogue. The only exception is the oration of Lysias in the *Phdr.* This is regarded as a component part of the dialogue, because it is read in full by Phaedrus and plays a prominent part in the succeeding discussion. In the whole argument Phaedrus himself acts as a passive listener and the opinions considered belong either to Socrates or Lysias.

The statistics can probably be accepted as accurate; at least a check of those for the five types in the *Phil.* showed them to be all correct. Before

[1] 'On the use of certain verbs of saying in Plato', *American Journal of Philology* 10 (1889) 437–44.

[2] Hussey's description of this category is: 'A peculiar and rather harsh construction of λεχθείς(α) as an adjective qualifying a noun of masculine or feminine gender (e.g. *Phil.* 52c ἡδονὰς ... λεχθείσας, *Soph.* 219c τέχνη ... κτητικὴ λεχθεῖσα).'

Table 12.1

	Total references	ἐρρήθη and ῥηθείς	% of ἐρρήθη and ῥηθείς	ἐλέχθη and λεχθείς	προερρήθη and προείρηται	λεχθείς(α) used as adj.	perf. passive of λέγω
Apol.	7						
Cri.	11						
Euph.	10						
Prot.	26						
Euthd.	29						
Lach.	17						
Charm.	18			1			
Meno	16			1			
Lys.	13			1			
Parm.	16			1			
Crat.	34			1	1		
Hipp. Mi.	13			2	2		
Rep. I–V	109	2	1.8	2	3		
Gorg.	76	2	2.6				
Phdo	40	2	5.0	1	4		
Symp.	29	2	6.9	1	1		
Phdr.	39	4	10.2	4			
Rep. VI–X	80	7	8.7	3	9		
Theaet.	47	5	10.6	1			
Soph.	65	6	9.2	7	1	1	
Phil.	93	10	10.7	9	4	2	
Tim.	39	8	20.4	6	1	1	2
Pol.	88	23	26.1	11	2	5	1
Laws	324	36	11.1	26	5	10	3

(a) 'Total references' includes active as well as passive forms.

considering them, however, one ought to quote Hussey's stylistic principle, because as Ritter said in his review (Bursian's *Jahresbericht über die Fortschritte der classischen Altertumswissenschaft* vol. 187, 1921), it seems quite sensible:

> The early stages of each usage are considered to be the most important, as it is then that the employment of the special word is most a matter of conscious effort. When any of the test words becomes so frequent as to be used, say, more than four or five times in a dialogue, it has evidently become well established in the author's vocabulary, and thereafter the number of times it is used will depend rather more upon the character of the dialogue and on various 'accidents'. Especially is it true that a conscious effort has to be made whenever a new synonym is introduced, and these citations are all more or less of synonymous meaning. A word used to convey a peculiar or novel sense might have long been in an author's mind before he would have occasion to use it, but a new synonym would seem to be introduced rather for variety or other artistic principle, applied as soon as its value was perceived.

It is hard to agree that when a word is used four or five times in a dialogue it is well established. It all depends on the size of the dialogue, or rather on the total of references, and four or five seems too low for any but the smallest. Consider for instance προερρήθη and προείρηται; according to Hussey they are well-established by the time of the *Phdo*, yet the *Symp.* and *Phdr.* have only 1 between them. But then they really are established in *Rep.* VI–X; or are they? In the subsequent dialogues they are no more frequent than when first introduced, perhaps owing to the 'character of the dialogues' and various 'accidents'. The root trouble is that already encountered with Dittenberger's τί μήν; – namely, how to tell which dialogue was the first to use it, and how to be sure that in the beginning its use was not spasmodic, occurring in some dialogues and not in others. It is impossible. So, knowing that we are in all probability wrong in any particular instance, we must assume that its use was continuous, that all dialogues with it are later than those without it. The correction comes with a comparison of several such linguistic developments, but they need to be far more extensive and definite than Hussey's.

He arrived at the chronological division in the table as follows. The first six works contain none of the five types; therefore they must be placed in the earliest group, their relation to one another in this being left undetermined. Then ἐλέχθη and λεχθείς come into use, characterising the second group, followed by ἐρρήθη and ῥηθείς, which distinguish the third. Finally there is a fourth group marked by the occurrence

of λεχθείς(α) as an adjective. προερρήθη and προείρηται, as Hussey noted, are of little use, since Plato's inclination for them appears not to have varied with time. The disadvantage with the material is that the τί μήν; objection applies not once but three times. How far out of true Hussey's sequence may be in consequence is easily realised.

Strictly speaking there is no sequence specified in the first two groups, since there is no criterion. In the second two the dialogues are arranged according to the frequency of ἐρρήθη and ῥηθείς. His argument for the displacement of the *Phdr.* is that there is an excess of ἐρρήθη in the work owing to a general preference for passive forms.[3] Hussey gives the reason for this preference:

> Most of these passives in the *Phaedrus* refer to the speeches of Lysias and Socrates. Now, Lysias is not present to explain objections to his proposition, and the words of Socrates are uttered under show of wild enthusiasm. In order, apparently, to avoid giving too much personal responsibility for the statements in these speeches, Plato refers to them by a verb in the passive, for by so doing he keeps the authors more out of sight ... In compensation for this tendency to use passives the dialogue has therefore been moved one place upward in the series given in the table.

Exactly the opposite is the case with the *Laws*. Here there are fewer instances of ἐρρήθη than one would expect. Once again Hussey supplies the explanation, namely that this work has proportionally seven times more instances of the form εἴρηται and its participle than any other dialogue (85 out of 324 references). The frequent occurrence of this word instead of ἐρρήθη stems from the imitation in the *Laws* of the phraseology of statutes and decrees.

It may be noted that Hussey's last group comprises those works established by earlier research as late, while the group preceding this includes the so-called middle dialogues, *Rep.*, *Phdr.* and *Theaet.*, together with two which have previously seemed likely to be among the latest of the early group, *Phdo* and *Symp.* The *Parm.* eluded his net, just as it had that of more painstaking investigators, and his attempt to go beyond chronological groups to the sequence of individual dialogues was not justified by the meagre nature of the figures.

[3] 20 passive forms out of 39 references; cf. *Symp.* 7 out of 29, *Rep.* VI-X 15 out of 80.

13

H. VON ARNIM (I)

★

In a series of lectures Arnim published the results of an inquiry into Plato's use of reply formulae.[1] He was apparently unaware of the existence of Ritter's work, but though much of the ground which he covered was the same, his material did differ to some extent from his predecessor's. His definition of his sphere of operation was as follows: 'Ad eas tantum formulas animum attendi quae sive separatim sive initio orationis positae nil nisi meram affirmationem continerent, eamque ipsis verbis expressam neque cohaerentem cum verbis antecedentibus interrogantis.' The method of presentation, too, differed greatly from Ritter's, and an attempt has been made to preserve its form while at the same time compressing it as much as possible by collecting the statistics into tables (pp. 110–14).

Regarding the accuracy of this investigation, the difficulty of checking statistics of reply formulae owing to the numerous variations has already been mentioned (p. 55). Arnim's classification was less strict than Ritter's, which means that his figures for the same formula are usually higher, and while for the most part they appear to be fairly accurate, there are some disturbing errors.[2]

Arnim began by dividing the reply formulae into five classes:

(1) those by means of an adverb with an emphatic force (e.g. πάνυ, μάλα, σφόδρα, παντάπασι), to which a particle is usually added (e.g. γε, μὲν οὖν, δή);

[1] *De Platonis Dialogis Quaestiones Chronologicae*, Vorlesungsverzeichnis der Universität Rostock für das W. – Semester 1896.

[2] E.g. ὀρθῶς: Arnim gave the occurrence for *Phil.* as 0, but there are at least 6 instances (v. Ritter Table 10.3); ποῖον; etc. for *Phdo* was given as 0, but instances occur at 81e4, 89c13; ναί, πάνυ γε and πάνυ μὲν οὖν were shown as occurring 14 times in *Rep.* II, whereas the total is really 21.

(2) those expressing agreement with what has been said and admitting its truth, obviousness etc. (e.g. δῆλον, ἀνάγκη, ἀληθῆ, ὀρθῶς λέγεις);
(3) those by means of an adverb and an ellipse of ἐστιν, ἔχει, λέγεις as the case may be (e.g. οὕτως, ὀρθῶς, καλῶς);
(4) those by means of the verbs δοκεῖν, φαίνεσθαι (e.g. δοκεῖ μοι, φαίνεται), οἴεσθαι (e.g. οἶμαι ἔγωγε), and ἔοικα (e.g. ἔοικεν, εἰκός) to which the adverbs ἴσως, τάχ' ἄν, σχεδόν may be added;
(5) those by means of a rhetorical question (e.g. πῶς δ' οὔ; τί μήν;).

CLASS I

1. Arnim distinguished four grades of frequency in the use of ναί, πάνυ γε and πάνυ μὲν οὖν. Of the total of affirmative replies they formed
(a) over $\frac{1}{2}$ in *Hipp. Mi.*, *Euthd.*, *Gorg.*, *Meno*, *Crat.*
(b) over $\frac{1}{3}$ in *Euph.*, *Prot.*, *Charm.*, *Lach.*, *Phdo*, *Symp.*, *Lys.*, *Rep.* I,
(c) over $\frac{1}{4}$ in *Rep.* X, *Rep.* II, *Theaet.*, *Parm.*, *Soph.*, *Pol.*, *Laws* I,
(d) less than $\frac{1}{4}$ in *Phdr.*, (*Rep.* II),[3] *Rep.* III-IX, *Phil.*, *Laws* II-XII.

The first thing one notices is that the greater part of both *Rep.* and *Laws* come in the bottom bracket, while works which are known to separate them have a higher frequency. The only assumption which satisfied this state of affairs was, according to Arnim, that the frequency of these formulae increased twice and decreased twice. Consequently (a) and (b) had to be combined, and (c) and (d), though the relation of the dialogues within these two main groups could not be determined. What seemed certain was that all dialogues in (a) + (b) were earlier than all those in (c) + (d), which was entirely in unison with the traditional arrangement.

2. A comparison of πάνυ γε and πάνυ μὲν οὖν showed that all the dialogues of the (a), (b) group preferred the former, all those of the (c), (d) group (except *Parm.*) the latter.

3. The use of παντάπασι, Arnim said, distinguished the same two periods, notwithstanding the occurrences in *Lach.* and *Phdo.*

4. The development of καὶ μάλα and its varieties corresponded in its broad lines to that of παντάπασι: spasmodic in the early period, fairly frequent and regular from the *Rep.* and *Phdr.* on, but dwindling again towards the end of his life.

[3] Rep. II occupied this position according to Arnim's calculations (see footnote 2).

5. The formulae reckoned here were: μάλιστα (γε) (δήπου), πολύ (γε) (μὲν οὖν) μάλιστα, ὡς οἷόν τε μάλιστα, πάντων (μὲν οὖν) μάλιστα, πάντων γε (που) μάλιστα and also παντός γε μᾶλλον. It has already been noted in the chapter on Ritter that μάλιστα (γε) is confined to dialogues of the first period. Now, if Arnim's figures can be trusted, it would appear that μάλιστα in replies vanished completely after *Rep.* VIII except for 1 instance (πάντων μὲν οὖν μάλιστα) in *Phil.* and 1 in *Phdr.* (πάντων γέ που μάλιστα), supposing this work to be in fact later than *Rep.* VIII. The place of μάλιστα was taken in part by the positive form καὶ μάλα.

With his class I, therefore, Arnim managed to divide Plato's works into an earlier and later group. In addition, the absence of μάλιστα in *Lach.* and *Lys.* suggested to him that these should be placed at the end of the first group.[4]

CLASS II

1. The formulae reckoned here were ἀνάγκη (γάρ) (μὲν οὖν), (πολλὴ) (πᾶσα) (μεγάλη) ἀνάγκη, καὶ γὰρ ἀνάγκη, τοῦτο μὲν ἀνάγκη, καὶ τοῦτο ἀνάγκη, ἀνάγκη καὶ τοῦτο/ταῦτα, πολλή γε (sc. ἀνάγκη), ἀνάγκη ὁμολογεῖν, ἀνάγκη ἐκ τῶν ὁμολογημένων.

Arnim remarked that Plato used these formulae at all periods, but less frequently than usual in *Hipp. Mi.*, *Euthd.*, *Meno*, *Crat.* and *Lach.* Like καὶ μάλα and παντάπασι they die out in the last dialogues. The acme, he observed, is reached in *Phdo*, *Lys.*, *Theaet.*, *Parm.* and *Rep.*, five dialogues which appear from previous investigations to be closely related to one another chronologically.

The instance of ἀνάγκη provides a convenient illustration of a fault common in Arnim's inquiry, namely his combining of formulae of similar form and even of dissimilar form but similar meaning (e.g. ναί, πάνυ γε and πάνυ μὲν οὖν). While providing larger frequency figures, it tends at times to obscure stylistic and chronological differences. Here, for instance, though ἀνάγκη is distributed throughout Plato's lifetime, its varieties are not; e.g. πᾶσα ἀνάγκη is confined to *Phdo* 1 and *Rep.* IV 2 (if one includes καὶ τοῦτο πᾶσα ἀνάγκη 441d7), while πολλὴ ἀνάγκη occurs as follows: *Charm.* 2, *Euph.* 1, *Gorg.* 2, *Phdo* 2, *Rep.* II 1, III 1, IV 1, V 1 (+ verb), VI 3, VII 2, VIII 2 (+ 1 with αὐτῷ), IX 1 (+ 1 with αὐτῷ

[4] The total of replies in *Crito* was too small to permit any inference from the absence of μάλιστα there too.

and I with inf. clause).[5] Not that the distinction would be of much use in this instance, but there could be others where it might.

2. δῆλον in general was rare at both the beginning and end of Plato's stylistic development, its acme, like that of several formulae mentioned above, being reached in the *Rep.* δῆλον by itself was confined to the second half of the dialogues.

3. The formulae composing the three groups were as follows:

(a) ἔστιν (γὰρ) (ταῦτα) οὕτω, οὕτω γάρ ἐστι, ταῦτα μέν ἐστιν οὕτω, ἔστιν ὡς λέγεις, ἔστω (τοῦτο) οὕτω, ἔστω ὡς λέγεις, ἔστω δὴ ταύτῃ.

(b) ἔστιν, ἔστι (καὶ) ταῦτα, ἔστι δὴ ταῦτα, ἔστι γὰρ οὖν καὶ τοῦτο, ἔστω γὰρ οὖν, ἔστω δὴ ταῦτα.

(c) ἔχει οὕτως, οὕτως ἔχει, ἔχει ταύτῃ, ἀλλ' οὕτως ἔχει, ἔχει γὰρ οὖν (δὴ) οὕτω, (καὶ μάλα) (πάνυ μὲν οὖν) (καὶ σφόδρα γε) (παντάπασιν) οὕτως ἔχει, παντελῶς μὲν οὖν ἔχει οὕτω, ναὶ οὕτως ἔχει ὡς σὺ λέγεις, πάνυ ἔχει οὕτως ὡς λέγεις, ἀλλ' εὖ ἴσθι τοῦτο οὕτως ἔχον, τάχα δ' ἂν οὕτως ἔχοι.

The (a) formulae were clearly characteristic of the middle period, being absent from all except three of the early dialogues and very infrequent in the latest. Their occurrence in *Gorg.*, *Crat.*, *Phdo* supported the evidence of δῆλον and pointed to the proximity of these works to the *Rep.* The (b) formulae extended over all periods, but were most common in the earlier. Those in (c) were few in number, but nearly all of them occurred in or before the *Rep.*

CLASS III

1. Obviously, Arnim said, the relative frequency of ἀληθῆ λέγεις and ἀληθῆ can be divided into three distinct phases. In the first (all early dialogues as far as *Symp.* inclusive in the table) ἀληθῆ λέγεις preponderated, in the second (*Lys.*, *Rep.*, *Theaet.*, *Parm.*, *Soph.* and *Pol.*) ἀληθῆ, and in the third (*Phil.* and *Laws*) ἀληθῆ λέγεις again.

2. Practically the same change took place in the relative popularity of the superlative forms ἀληθέστατα λέγεις and ἀληθέστατα, though the *Phil.* here agreed with *Soph.* and *Pol.* instead of the *Laws*.

[5] Outside reply formulae also the two phrases are distributed differently, the use of πᾶσα ἀνάγκη continuing into the later dialogues: *Hipp. Ma.* I, *Phdo* I, *Rep.* III I, VI I, *Theaet.* I, *Phdr.* 2, *Soph.* 2, *Phil.* I, *Tim.* 4, *Epin.* I. By contrast πολλὴ ἀνάγκη stops with the middle dialogues: *Apol.* I, *Gorg.* 2, *Phdo* 2, *Rep.* IV I, VI I, X I, *Parm.* 4.

3. Three periods were again distinguishable with the relative frequency of ὀρθῶς λέγεις and ὀρθῶς. Only the longer expression was found in the early period, where it was limited to *Euph.*, *Charm.* and *Lys.* In *Theaet.* and *Rep.* the frequency of both forms was fairly balanced, except for books V and VI of the *Rep.*, where the abbreviated ὀρθῶς showed a strong preponderance. In *Parm.*, *Soph.*, *Pol.*, *Phil.* and *Laws* the same preponderance continued, though declining somewhat in the last work.

4. καλῶς λέγεις by itself indicated nothing, being distributed sporadically over all periods. The abbreviated form, however, was not found in the early dialogues, occurring first in the *Rep.* (unless *Parm.* was earlier), then after rivalling the longer form in *Parm.* and *Soph.* finally prevailed over it in *Phil.*, *Pol.* and *Laws*.[6]

5. Arnim had nothing to say about the relative frequency of κάλλιστα λέγεις and κάλλιστα, but their comparison may have some use. The former occurs only in the *Rep.*, the latter only in *Theaet.*, *Phil.* and *Laws*.[7] Since, however, it is reasonable to suppose on the evidence of other formulae that Plato generally used the full before the abbreviated form (e.g. καλῶς λέγεις before καλῶς), one may with some confidence conclude that the *Theaet.* was written after the *Rep.*, in books II, V and VII of which only the longer form is found.

6. ὀρθότατα λέγεις first occurred in *Rep.* II, after which Plato made a quick change in favour of the abbreviation ὀρθότατα, so that the full form was not found again until *Phil.* and *Laws*.[8] In both of these, however, its sudden comparatively high frequency was surprising (*Phil.* 6 ὀρθότατα λέγεις to 6 ὀρθότατα, *Laws* 12 : 3), enough perhaps to constitute a respectable piece of evidence for the close proximity of the two works.

With this Arnim's comparison of full and abbreviated formulae was complete. He proceeded next to make a similar comparison of positive and superlative forms of the same formulae, to show that the latter did not find a place in Plato's style until some time after the former.

[6] The formulae counted with καλῶς λέγεις were: ἀλλὰ καλῶς λέγεις, καλῶς δὴ (or γὰρ) λέγεις, καλῶς τοῦτό (or ταῦτά) γε λέγεις, καὶ καλῶς γε λέγεις, πάνυ καλῶς λέγεις.

[7] According to Arnim, though πάντων κάλλιστα is found in *Soph.* (227C10) and there are 2 instances (25b4, 26a5) not 1 in *Phil.*

[8] However, λέγεις ὀρθότατα occurs *Soph.* 268b6, ὀρθότατα αὖ λέγεις *Rep* X 610a4 and ὀρθότατα ἀνθρώπων λ. *Theaet.* 195b1 (see also Table 10.3).

7. With the plain forms ἀληθῆ/ἀληθέστατα λέγεις were reckoned: σχεδὸν ἀληθῆ λέγεις, λέγεις ἀληθῆ, λέγεις ἀληθέστατα, τοῦτο μὲν ἀληθῆ λέγεις, ναὶ μὰ τὸν Δία καὶ μάλα ἀληθῆ λέγεις, ἀληθῆ/ἀληθέστατα μέντοι λέγεις, ἀληθῆ ταῦτα λέγεις.

Arnim noted that the superlatives were comparatively rare in the early dialogues down to *Rep.* II, about the same in frequency as the positive forms in the middle period (*Rep.* III–X, *Phdr.*, *Theaet.*, *Parm.* and *Soph.*), and more frequent in the last works (*Pol.*, *Phil.* and *Laws*).

8. With ὀρθῶς/ὀρθότατα λέγεις were reckoned: λέγεις ὀρθῶς/ὀρθότατα, νῦν ὀρθῶς λέγεις, ὀρθῶς μέντοι λέγεις, κομιδῇ ὀρθῶς λέγεις. The same could be said of this formula as ἀληθῆ λέγεις, only since it occurred less frequently its superlative was proportionately rarer and later in being introduced. It did not attain preponderance over the positive form until the very last work, the *Laws*.

9. Arnim remarked that other words of saying instead of λέγεις did not occur in the early dialogues (unless we count *Rep.* I as early), and were very rare in the middle period (2 in *Phdr.*, 3 in *Rep.*), but not uncommon in the latest works.

CLASS IV

1. (a) εἰκός included: εἰκός (γε) (γάρ) (γοῦν) (μέντοι) (γὰρ οὖν) (γέ τοι), εἰκὸς ἐξ ὧν λέγεις, τὸ γοῦν εἰκός (οὕτως), οὕτως εἰκός, καὶ τοῦτο εἰκός, εἰκός· πῶς γὰρ οὔ; πῶς δ' οὐκ εἰκός;
   (b) ἔοικεν included: ἔοικα(-μεν) etc., ἔοικε (γε) (γάρ) (γοῦν) (γὰρ οὖν), καὶ γὰρ ἔοικεν, ἔοικεν (γοῦν) οὕτως ἔχειν, πάνυ μὲν οὖν ἔοικεν, ἀληθῆ ἔοικας λέγειν.

Arnim perceived four stages of fluctuation in the use of the two synonyms. In the earliest dialogues ἔοικεν easily prevails; then comes a period when εἰκός increases in popularity and preponderates over ἔοικεν (i.e. *Crat.*, *Phdo*, *Rep.* III–VIII); the first state of affairs returns in the following works, *Rep.* IX, X, *Theaet.*, *Parm.* and *Soph.*, but begins so swing over in favour of εἰκός again (*Pol.*, *Phil.*), though it only reaches equilibrium by the time of the *Laws* and Plato's death (12 εἰκός to 11 ἔοικεν).

2. (a) With ἔμοιγε δοκεῖ (οὕτως) were counted: καὶ ἐμοὶ (οὕτω) δοκεῖ, καὶ αὐτῷ μοι δοκεῖ, ἐμοὶ μὲν δοκεῖ πάνυ σφόδρα, καὶ τοῦτό μοι δοκεῖ, οὐδ' ἐμοὶ ἄλλως δοκεῖ, οὕτως μοι δοκεῖ ὡς λέγεις.
   (b) With δοκεῖ μοι were reckoned: δοκεῖ γάρ μοι, δοκεῖ μοι οὕτως ἔχειν, δοκεῖ μοι ἔχειν ὡς λέγεις.

In all probability, Arnim declared, Plato used only type (a) (pronoun prior to verb) in his first dialogues, which may, therefore, be found among *Crit.*, *Prot.*, *Charm.*, *Hipp. Mi.*, *Euthd.*, *Gorg.* and *Parm.* Later on, but still in his early period, type (b) was introduced, so that *Meno*, *Crat.*, *Phdo*, *Symp.*, *Lys.*, and *Lach.* would come at the end. To use this argument in isolation, however, would be to fail to take account of the possibility of a transitional period in which the relative frequency of the two types vacillated. The substitution of ἐμοὶ γοῦν δοκεῖ for ἔμοιγε δοκεῖ in the later dialogues was also remarked upon, it will be remembered, by Ritter.

3. Under φαίνεται were reckoned: φαίνεται (γε) (οὕτως) (γοῦν) (γε δή) (οὕτω γε) (γὰρ οὖν οὕτως) (γοῦν ἐκ τῶν λεγομένων) (ὡς ἔοικεν οὕτως ὡς σὺ λέγεις), φαίνεταί μοι (ἔμοιγε), οὕτως φαίνεται, ἀλλὰ μὴν φαίνεταί γε, καὶ μάλα δὴ φαίνεται, καὶ μάλα οὕτω φαίνεται, παντάπασιν οὕτω φαίνεται.

Noteworthy are two periods of low frequency, first *Rep.* v–x and *Phdr.*, then later in *Soph.*, *Pol.*, *Phil.* and *Laws*, regarding which reference may be made to Owen's explanation,[9] doubtless correct, that these correspond to Plato's two periods of greatest confidence and apodicticism. Hence the low figures for all problematic formulae in the dialogues of these periods.

CLASS V

Arnim gave the number of replies in each dialogue made by means of a rhetorical question. If, he declared, we compare this number with the total of all replies, it will be seen that Plato's liking for this type of answer increased throughout his literary career. The comparison may be made in a fairly simple fashion by expressing the rhetorical question replies as a percentage of the total in each dialogue, though, as there has been occasion to remark in previous investigations, the small figures in some dialogues (notably most of those in the first period and the books of the *Laws*) tend to produce extravagant results one way or the other.

Early dialogues

Cri.	*Euph.*	*Prot.*	*Charm.*	*Lach.*	*Hipp. Mi.*	*Euthd.*
14.3	13.6	–	4.5	8.2	5.2	1.5

Meno	*Gorg.*	*Crat.*	*Phdo*	*Symp.*	*Lys.*
2.3	6.7	3.4	9.2	–	10.8

[9] *Classical Quarterly*, 1953, 79ff.

Middle dialogues

Theaet.	*Parm.*	*Phdr.*	*Rep.* I	II	III	IV
11.6	12.7	22.6	9.0	11.4	17.5	14.7
V	VI	VII	VIII	IX	X	
8.3	18.9	14.3	13.8	14.7	14.9	

Late dialogues

Soph.	*Pol.*	*Phil.*	*Laws* I	II	III	IV
20.4	21.9	23.0	26.8	24.5	29.4	25.8
VI	VII	VIII	IX	X	XII	
39.3	32.3	18.8	20.0	12.0	20.0	

There can be no argument about the distinctiveness of the three stages, despite the exaggerated fluctuations here and there. The high figure in *Cri.* is almost certainly due to its small aggregate, though not that in the *Phdr.*, which is on a par with that characteristic of the later dialogues. The lower frequency in *Laws* VIII–XII seems to arise not so much from small totals – it is too consistent – as from a genuine drop in esteem of the rhetorical reply.

1. The only comparison Arnim made of particular rhetorical replies was of the synonyms πῶς δ' οὔ; and πῶς γὰρ οὔ; He distinguished four periods. In the first (as far as *Phdr.* and *Rep.* I in the tables) πῶς γὰρ οὔ; preponderated (58 : 13). It would have been more correct to say that only in some of these does it preponderate, in *Lach.*, *Gorg.*, *Crat.*, *Phdo.*, *Lys.* and *Rep.* I, since in the rest the two expressions are either equal or nearly so. In the second period πῶς δ' οὔ; had the upper hand (60 : 23), that is, in *Rep.* II–VII, *Theaet.* and *Parm.* Thirdly there was a period of adjustment and fluctuation in *Rep.* VIII–X, *Soph.* and *Pol.*[10] and finally a gradual rise to supremacy once again of πῶς γὰρ οὔ; in *Phil.* and *Laws.*

2. Lastly in this section Arnim compared two classes of replies by means of a rhetorical question: those introduced by τί, e.g. τί δ' οὔ (μέλλει); τί γὰρ οὔ; τί γὰρ κωλύει; and those introduced by πῶς, e.g. πῶς δ' οὔ; πῶς γὰρ ἂν ἄλλως;

Apart from I in each of *Euph.* and *Hipp. Mi.* no τί rhetorical question occurred in the first period with the sole exception of the *Lysis.* Since,

[10] Arnim could have put the *Phdr.* here just as easily as in the first period.

therefore, no comparison was possible, he omitted the figures for the πῶς questions as well. When the figures which *are* given are compared, the conclusion reached is that the preference for one or the other fluctuates too much to be of any use chronologically. It is, of course, possible to say that whereas the *Lys.* and *Rep.* favour πῶς, the *Laws* has a slight preference for τί, but how things went between these two extremes is a matter of conjecture.

3. Arnim closed his material with statistics of (τὸ) ποῖον (δή); etc., (τὰ) ποῖα (δὴ) ταῦτα; etc., ποῖόν τι; etc., ποῖον λέγεις; etc., λέγε τὸ ποῖον etc. His combined figures for these are somewhat higher than Ritter's for the same, but more restricted, class of expressions. Evidently too Arnim intended us to measure their frequency by the number of pages in each dialogue rather than by the total of reply formulae as with Ritter, though the incorrectness of this method must surely have been obvious to him.

These expressions, as Arnim remarked, only came into consistent use from *Rep.* II on. Before this their occurrence was sporadic and slight, while by contrast their frequency in the last works was relatively high. The following figures expressing the frequency of ποῖον; etc. as a percentage of the total of replies will serve to bring out the different stages.

Early dialogues

Lach.	*Gorg.*	*Crat.*	*Phdo*
8.2	0.4	4.0	1.5

Middle dialogues

Phdr.	*Theaet.*	*Parm.*	*Rep.* II–IV	V–VII	VIII–X
9.7	7.6	1.0	5.2	11.1	6.1

Late dialogues

Soph.	*Pol.*	*Phil.*	*Laws* I–VI	VII–XII
15.4	19.5	16.7	12.7	19.1

Arnim's deductions from his material about the chronological order of the dialogues were as follows. Starting with what was most certain and proceeding thence to gradually less certain conclusions he believed that the general view that the *Phil.* was the work written immediately before the *Laws* was corroborated by his statistics. Putting it more precisely, he found the *Laws* and *Phil.* had these exclusive features in common:

1. ἀληθῆ λέγεις more frequent than ἀληθῆ after a long preponderance of the latter in preceding dialogues.
2. ὀρθῶς λέγεις, which disappears in *Soph.* and *Pol.* in favour of ὀρθῶς, reappears in *Phil.* and *Laws.*[11]
3. Apart from one instance in *Rep.* II ὀρθότατα λέγεις occurs only in *Phil.* and *Laws*, in the former equalling, in the latter surpassing ὀρθότατα in frequency.
4. In *Rep.* IX, X, *Theaet.*, *Parm.*, *Soph.* and *Pol.* ἔοικε is more frequent than εἰκός, while in *Phil.* and *Laws* the figures are nearly equal.
5. *Phil.* has the high frequency of *Laws* I-VI in the use of rhetorical questions for replies.[12]

He was next concerned with *Soph.* and *Pol.*, two dialogues clearly connected, though with the *Pol.* showing slightly the more affinity to *Phil.* and *Laws*. He noted the instance of ἀληθέστατα λέγεις : ἀληθῆ λέγεις, where the *Soph.* figure approximated to the usage in the preceding dialogues, *Rep.*, *Theaet.* and *Parm.*, the *Pol.* figure to that in *Phil.* and *Laws*. He might also have mentioned πάνυ γε : πάνυ μὲν οὖν, καλῶς λέγεις : καλῶς, ἔοικε : εἰκός among others. At the same time he does not seem to have considered the possibility that *Soph.* might resemble *Phil.* more than *Pol.* did in some respects, e.g. πῶς δ' οὔ; : πῶς γὰρ οὔ;

In conclusion Arnim enumerated some of the features which clearly pointed to *Soph.*, *Pol.*, *Phil.* and *Laws*, in that order, constituting the latest group of works:

1. The freqency with which they substitute other words of saying for λέγεις.
2. Replies by means of δοκεῖ etc. are practically non-existent.
3. ποῖος questions are reasonably frequent only in *Soph.*, *Pol.*, *Phil.* and *Laws*.

He came next to the middle dialogues, *Rep.*, *Phdr.*, *Parm.* and *Theaet.*, the arrangement of which was more difficult. His opinion, however, was that the last books of the *Rep.* were nearest to the final group in style, the evidence being as follows:

1. In the frequency of ναί, πάνυ γε and πάνυ μὲν οὖν *Rep.* X, *Theaet.* and *Parm.* coincide with *Soph.* and *Pol.*, *Rep.* II–IX with *Phil.* and *Laws*.

[11] This is not a good argument, as it would provide equally valid evidence for a position of *Phil.* before *Soph.* and *Pol.*

[12] In fact, as the figures on p. 111 show, the *Phil.* is not very different from *Soph.* and *Pol.*

2. καὶ μάλα, μάλα γε etc., which are common in *Phdr.* and *Rep.* II–IX, are much rarer in *Rep.* X, *Theaet.*, *Parm.*, *Soph.* and *Pol.*
3. The μάλιστα class, a characteristic of Plato's early style, is absent from *Rep.* VI, IX, X, *Theaet.*, *Parm.*, *Soph.* and *Pol.*
4. In *Rep.* III–VIII εἰκός preponderates over ἔοικεν, while the reverse is the case in *Rep.* IX, X, *Theaet.*, *Parm.*, *Soph.* and *Pol.*
5. φαίνεται is rare in the later books of the *Rep.*, as in *Soph.* and *Pol.*, but fairly common in *Theaet.* and *Parm.*[13]

While giving the evidence which favoured the later date of books IX and X of the *Rep.*, Arnim disregarded that supporting the claim of books V–VII, such as the higher frequency of ὀρθότατα (class III no. 6) and ὀρθῶς (class III no. 3) and the use of ποῖον (class V no. 3). This is of little importance, because Arnim finally decided that the evidence was not sufficient to determine the sequence of these four works.

Significantly enough as regards *Rep.* I Arnim came to the same conclusion as Ritter, namely that the work was written some considerable time before the other nine books. Like his predecessor he found that its style bore a greater resemblance to that of the early than that of the middle dialogues.

1. In *Rep.* I ναί, πάνυ γε and πάνυ μὲν οὖν form more than $\frac{1}{3}$ of all assents, in *Rep.* II–IX less than $\frac{1}{4}$ (class I no. 1).
2. It uses πάνυ γε more often than πάνυ μὲν οὖν, whereas the reverse is the case in II–X (class I no. 2).
3. It has no instance of a significant feature of the *Rep.*, the use of καὶ μάλα (class I no. 4). This may be accidental, but it ties in very well with the rest of the evidence.
4. The same may be said of the preponderance of ὀρθῶς λέγεις over ὀρθῶς. The latter form does not appear in *Rep.* I, but is not uncommon in the succeeding books, where it is preferred to the former (class III no. 3).
5. The 5 occurrences of ἔοικεν against 0 of εἰκός suggest an earlier date than for books III–VIII, where the latter prevails, even though ἔοικεν preponderates in book II also, since there only 1 instance is involved (class IV no. 1).
6. The high frequency of φαίνεται, 8 instances in *Rep.* I out of a total of 20 for the whole work, points in the same direction (class IV no. 3).
7. In *Rep.* I the relation of πῶς γὰρ οὔ; and πῶς δ' οὔ; is that of the early

[13] For an explanation other than chronological see the comment on class IV no. 3 (p. 102).

period (9 : 0), while in the following books (II–VII) the latter expression easily predominates (class V no. 1).

8. The ποῖον questions are reasonably frequent throughout the *Rep.* except for book I, where not one is found (class V no. 3).
9. Arnim also counted τί μήν; in the individual books of the *Rep.* and, like Ritter, observed that book I is the only one in which no instance occurs.

These features seem to demand a fairly large temporal gap in which to allow Plato's style to undergo a notable change. Arnim himself concluded that *Rep.* I belonged not to the middle but to the early period, and to the arrangement of the works in this period he next turned.

To one dialogue he could give a definite place, the *Lys.*, which belonged at the very end of the first group. This was 'proved' by the occurrence in it of τί μήν;[14] Further evidence was the preponderance of ἀληθῆ over ἀληθῆ λέγεις, a feature characteristic of the middle period, and the 4 instances of ἀλλὰ ... μήν mentioned by Dittenberger.

After consideration of the statistics he came to the conclusion that the works immediately preceding the *Lys.* were *Lach.*, *Rep.* I, *Phdo* and *Symp.*, the evidence being as follows:

1. παντάπασι occurs only in *Lach.*, *Phdo* and *Rep.* I (class I no. 3).
2. μάλιστα is absent from *Lach.* and *Lys.*, occurs only once in *Phdo*, *Symp.* and *Rep.* I (class I no. 5).
3. ἀληθέστατα λέγεις is found only in *Lach.*, *Phdo*, *Symp.*, *Rep.* I and *Crat.* (class III no. 2).
4. δοκεῖ μοι occurs only in *Lach.*, *Phdo*, *Symp.*, *Rep.* I, *Lys.*, *Crat.* and *Meno* (class IV no. 2b).
5. Excluding *Cri.* and *Euph.*, the former of which may be taken as an exception on account of the small figures involved, the dialogues in the first group with the highest percentages of replies by means of a rhetorical question are *Lach.*, *Phdo* and *Rep.* I (class V).

Before these works came, in Arnim's opinion, *Hipp. Mi.*, *Euthd.*, *Gorg.*, *Meno* and *Crat.*, the following characteristics linking them together:

1. In these alone ναί, πάνυ γε and πάνυ μὲν οὖν form over $\frac{1}{2}$ of all assents (class I no. 1).
2. Formulae with δοκεῖς λέγειν (e.g. ἀληθῆ μοι δοκεῖς λέγειν, ἔμοιγε δοκεῖς ὀρθῶς λέγειν) and δοκεῖς εἰρηκέναι (e.g. ὀρθότατά μοι δοκεῖς

[14] The fallacy of this sort of argument has already been remarked on (p. 16).

εἰρηκέναι) are limited in the first period, according to Arnim, to *Charm.* 1, *Euthd.* 1, *Meno* 3, *Crat.* 2, *Rep.* I 1, the middle three of which belong to this smaller group proposed by him. However, examples also occur in other dialogues (e.g. *Cri.* 48d6, *Charm.* 160d4), which extends the field too much for the assumption that they are characteristic of this smaller group.

3. φημὶ (γάρ) occurs in the first period only in *Prot.* 1, *Gorg.* 18, *Meno* 1, *Crat.* 2, *Rep.* I 2.
4. φαίνεται forms more than 6% of all affirmative replies only in *Hipp. Mi.*, *Gorg.*, *Meno*, *Crat.*, *Charm.*, *Rep.* I and *Parm.*

Of the above five works the *Crat.* was placed last on account of its ἀληθέστατα λέγεις, while *Meno* came after *Gorg.*, because this had only 1 ἔμοιγε δοκεῖ like *Hipp. Mi.* and *Euthd.*, whereas *Meno* and *Crat.* had δοκεῖ μοι as well. However, Arnim granted that 'this is very uncertain in the absence of other evidence'. By elimination, the first dialogues to be written were *Prot.*, *Euph.*, *Cri.*, *Apol.* and *Charm.*, though their exact order could not be determined.

Such was Arnim's arrangement of the dialogues of the first period. Is it correct? Perhaps by some fluke it might be, but the suspect method by which it was arrived at does not inspire confidence. Why, for instance, should the evidence of ἀληθέστατα λέγεις be accepted as proof that *Lach.*, *Phdo*, *Symp.*, *Rep.* I and *Crat.* form a closely related group rather than that of δῆλον δή as proof that *Cri.*, *Gorg.*, *Crat.* and *Phdo* belong together? In short, as regards the dialogues of the first period Arnim picks and chooses his evidence, which is permissible only if the choosing is carried out on a sound principle, which in this instance it is not. Not that Arnim's method of trying to discover linguistic subdivisions in the first group is incorrect; it may very well prove more profitable than the calculation of each dialogue's affinity to a later stylistic group, but it requires far wider application than that given it by Arnim before any conclusions can safely be drawn from it.

However insubstantial his argument for it, the fact that in Arnim's arrangement of the early dialogues *Crat.*, *Lach.*, *Phdo*, *Symp.* and *Rep.* I stand last is worth noting, in so far as these are exactly the works which Ritter, likewise without substantial evidence, placed at the end of his sequence. More important than this, however, is their complete agreement on the division of Plato's works into three chronological groups, and at exactly the same points, namely *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Laws* in the last, *Rep.* II–X, *Phdr.*, *Theaet.* and *Parm.* in the middle, and all the

rest in the first period. How did this come about? Their only connection was their common acquaintance with the works of Dittenberger and Schanz, and it was not from these that they derived their identical divisions. Dittenberger put *Symp.*, *Lys.*, *Rep.*, *Theaet.* and *Phdr.* in the second, *Parm.*, *Phil.*, *Soph.*, *Pol.* and *Laws* in the third; Schanz placed *Phdr.*, *Crat.*, *Euthd.*, *Theaet.*, *Parm.* and *Soph.* in the second, *Pol.*, *Phil.* and *Laws* in the third group. Then perhaps they both held the same preconceived ideas of what the order of Plato's dialogues ought to be? Possible, but hardly probable. Is it not much more likely that the group divisions existed objectively in Plato's style, from which – translated into linguistic statistics – they could be picked out by any impartial observer? The question is whether they were picked out correctly. Even two investigators working independently can make the same mistakes.

Table 13.1

	Apol.	Cri.	Euph.	Prot.	Charm.	Lach.	Hipp. Mi.	Euthd.	Meno	Gorg.	Crat.	Phdo	Symp.	Lys.	Phdr.	Theaet.	Parm.	Phil.	Soph.	Pol.	Tim.
Affirmative replies	5	14	44	40	67	49	58	68	130	239	176	131	27	93	62	198	298	257	240	210	9
Class I																					
1. ναί, πάνυ γε, πάνυ μὲν οὖν	3	3	21	16	27	19	32	35	71	121	91	57	11	33	11	58	97	52	71	54	5
2. πάνυ γε	3		13	3	16	10	3	21	27	46	38	23	7	18	1	5	28	9	10	7	
πάνυ μὲν οὖν			3	3		6		4	5	8	15	21	1	1	3	16	16	23	14	17	2
3. παντάπασι (γε) (μὲν οὖν)						1						4			4	9	8	8	13	7	1
4. καὶ μάλα (γε) (δή) etc.			1		1			3		1		2			5	4	2	11	9	2	
5. μάλιστα (γε) (δῆπου) etc.	1		1	2	2		4	2	3	4	2	1	1		1			1			
Class II																					
1. πολλή/πᾶσα ἀνάγκη etc.		1	2	3	4	1		1	4	11	2	9	1	7	1	12	26	6	3		
2. δῆλον δή/ὅτι etc.		2								5	2	1			1	1	2				
δῆλον															1	1	1	1		4	
3. (a) ἔστιν οὕτω etc.										1	2	2			1	2	1		1	1	
(b) ἔστι ταῦτα etc.		2	1	2	2	1	1	2	7	11	12	5		1		3		3	2	2	
(c) ἔχει οὕτω etc.				1	1		2	2				2					2				
Class III																					
1. ἀληθῆ λέγεις		1	4	4	2	6	1	3	5	4	9	8	6	3	1	2	2	3	2	1	
ἀληθῆ				1	3	1				1		1		6		9	18	2	7	5	
2. ἀληθέστατα λέγεις						1					1	4	1		2	4	1	6	2	2	
ἀληθέστατα																4	5	10	3	5	
3. ὀρθῶς λέγεις			1		1									1	1	3	2	2			
ὀρθῶς																2	16	(6+)	10	14	
4. καλῶς λέγεις					1		2						1				1		2		
καλῶς																	(1)	(2)	2	6	
Class III																					
5. κάλλιστα λέγεις																					
κάλλιστα																2		1 (2)			
6. ὀρθότατα λέγεις																		6			
ὀρθότατα															2		1	6	5	10	
7. ἀληθῆ λέγεις		1	4	4	2	7	1	4	4	5	9	8	6	3	1	3	3	3	3	1	
ἀληθέστατα λέγεις						1					1	4	1		2	4	1	6	3	5	
8. ὀρθῶς λέγεις			1		2									1	1	3	2	2		1	
ὀρθότατα λέγεις																		6			
9. λέγεις with replies		1	5	4	5	8	3	4	4	5	10	12	8	4	5	10	7	17	10	13	
λέγοις ἄν, εἶπες, εἴρηκας etc.															2			8	3	7	
Class IV																					
1. εἰκός etc.				1		1	1		1	1	3	5				3	2	3		5	
ἔοικε etc.			2	1	3	4	4		5	7	3	4		9		13	16	4	5	8	
2. ἔμοιγε δοκεῖ etc.		1		1	1	3	1	1	5	4	10	2		3		4	1				
δοκεῖ μοι etc.						1			3		7	1	1	2		1					
ἐμοὶ γοῦν δοκεῖ																1		2			
3. φαίνεται etc.				1	5	1	6	2	10	16	15	6		4	1	10	24	3	2	7	
Class V																					
Replies by rhetorical question		2	6		3	4	3	1	3	16	6	12		10	14	23	38	59	49	46	
1. πῶς δ' οὔ;		1	2		2				1		1	3		2	1	5	23	8	12	14	
πῶς γὰρ οὔ;		1	3		1	4	1	1	2	16	4	9		6	1	3	6	17	22	10	
2. Rhetorical questions with τί			1				1							3	12	15	9	34	15	22	
Rhetorical questions with πῶς														8	2	8	29	25	34	24	
Pages (Stephanus)	25	12	14	53	24	23	13	36	30	81	57	60	51	20	52	69	40	56	53	55	75
3. (τὸ) ποῖον (δή); etc.						4				1	7	(2)			6	15	3	43	37	41	

(a) For ὀρθῶς in *Phil.* see footnote 2 (p. 96).

Table 13.2

	Republic										Laws										
Affirmative replies	I 100	II 70	III 103	IV 95	V 121	VI 74	VII 84	VIII 109	IX 95	X 74	I 56	II 53	III 68	IV 31	VI 28	VII 62	VIII 16	IX 25	X 50	XI 2	XII 20
Class I																					
1. ναί, πάνυ γε, πάνυ μὲν οὖν	36	14	16	22	25	7	10	20	14	24	16	9	12	6	4	13	1	1	11		3
2. πάνυ γε	17	4	3	2	6		1	1	3	2	2	1				1					
πάνυ μὲν οὖν	6	9	5	8	7	5	5	10	4	8	5	3	12	5	4	9	1	1	4		2
3. παντάπασι (γε) (μὲν οὖν)	1	4	6	7	8	3	4	2	4	5		1	1	2		1		3	4		2
4. καὶ μάλα (γε) (δή) etc.		1	4	3	8	9	6	10	7	2		1	4					1			
5. μάλιστα (γε) (δήπου) etc.	1	1	1	1	4		2	2													
Class II																					
1. πολλὴ/πᾶσα ἀνάγκη etc.	5	3	6	7	3	5	4	6	8	2		1				1			3		
2. δῆλον δή/ὅτι etc.			4	2	1				2	1											
δῆλον			1		2	1	1	5	3	1			3								
3. (a) ἔστιν οὕτω etc.				2	1		1	4		1	1	1				1					
(b) ἔστι ταῦτα etc.	1	3	2	3	1	3	2	1		1	2	2							1		
(c) ἔχει οὕτω etc.	1	1	2		1		1		1	1			1		1						

Table 13.2 (*cont.*)

Class III																				
1. ἀληθῆ λέγεις	2	2			2	3		1		1			1	1		2	1				2
ἀληθῆ	5	2	5	5	3		5	2	1	2			1		1	1		1			
2. ἀληθέστατα λέγεις	1		1	2		1	2		1	1	1	2	4	2		3			3		1
ἀληθέστατα			5		2	3	2	2	1	4	1	4		1		1		1			
3. ὀρθῶς λέγεις	1		1	1	2	1	2	1			3		1		1	2		1	1		
ὀρθῶς		2	2		8	5	3	1		2	2	2				3	4	1	2		2
4. καλῶς λέγεις			1	2				1	1	1						1					2
καλῶς	1			(1)	(1)								2		1		1	2			
5. κάλλιστα λέγεις		1			2		1														
κάλλιστα											1										
6. ὀρθότατα λέγεις		1									2	1	1	1	2	1	2		2		
ὀρθότατα			2		5	1	1		1			1	2								
7. ἀληθῆ λέγεις	2	2			2	3		1		1			1	1		2	1				2
ἀληθέστατα λέγεις	1		1	2		1	2		1	1	1	2	4	2		3			3		1
8. ὀρθῶς λέγεις	1		1	2	2	1	2		1	1	3		1		1	2		2	1		
ὀρθότατα λέγεις		1									3	1	1	1	2	1	2		2		
9. λέγεις with replies	5	3	3	6	4	5	4	2	3	4	7	3	10	5	4	9	4	4	7		5
λέγοις ἄν, εἶπες, εἴρηκας etc.	1			1						1	1	1	2	1	2	2	1	1	5	1	

Table 13.2 (*cont.*)

	Republic										Laws										
Affirmative replies	I 100	II 70	III 103	IV 95	V 121	VI 74	VII 84	VIII 109	IX 95	X 74	I 56	II 53	III 68	IV 31	VI 28	VII 62	VIII 16	IX 25	X 50	XI 2	XII 20
Class iv																					
1. εἰκός etc.			2	1	3	2	5	7			1	1	3	1	2	1	1	1	1		
ἔοικε etc.	5	1		1	2	1	1		2	2	1	2	2	1	1	1			1		2
ἔμοιγε δοκεῖ etc.	2		3																		
2. δοκεῖ μοι etc.	1	3	3	3		3		1													
ἐμοὶ γοῦν δοκεῖ							1	1	1							1					
3. φαίνεται etc.	8	2	1	4	1		1	1	1	1	1	1	1		1			1			
Class v																					
Replies by rhetorical question	9	8	18	14	10	14	12	15	14	11	15	13	20	8	11	20	3	5	6		4
1. πῶς δ' οὔ;		6	6	5	4	6	5	1	4	4	3	1	3			4		1			
πῶς γὰρ οὔ;	9	1	6	2	2	1	3	5	5	3	5	4	5	5	6	8	2	2	3		2
2. Rhetorical questions with τί		1	6	7	4	7	4	10	7	3	7	8	12	5	6	8	6	1	3		2
Rhetorical questions with πῶς	9	7	12	7	6	7	8	6	10	8	8	5	8	5	6	12	2	4	3		2
Pages (Stephanus)	28	27	32	26	32	28	28	27	22	27	26	25	27	20	34	36	23	29	26	26	29
3. (τὸ) ποῖον (δή); etc.		4	2	8	7	8	16	4	8	5	1	5	12	8	4	10	4	6	11		2

(a) There are 3 καλῶς in *Rep.* v if rejoinders to replies are included, but in general Arnim seems not to have counted these.

14

C. BARON

★

In an article which was the first contribution to the stylistic method from France and the last example of unwitting repetition of work already done[1] Baron expressed surprise that no one had thought of investigating Plato's use of the anastrophe πέρι. Ironically enough, the book[2] which would have informed him of Lina's earlier research on this subject[3] was actually in the process of being published.

Whereas Lina drew no chronological conclusions from his material, Baron intended to do so by measuring the total number of πέρι in each dialogue against that of περί on the basis that each occurrence of περί represented an opportunity for the use of anastrophe. Obviously, however, if the ratios thus obtained were to be truly accurate, any instances of περί which did not afford an opportunity for the substitution of πέρι would first have to be deducted from the total. Such instances, according to Baron, were as follows:

1. The expression περὶ πολλοῦ, πλείονος, πλείστου ποιεῖσθαι etc., for which not a single instance of anastrophe can be quoted.
2. The use of περί in a phrase qualifying either a substantive (e.g. ὁ περὶ τῆς ψυχῆς λόγος) or a substantival article (e.g. τὰ περὶ τῆς ψυχῆς). Instances of anastrophe in these cases do occur, but only rarely and mostly in works of the last period. There are certainly none at all in dialogues of the first period, the earliest example perhaps being *Rep.* III 392c6, τὰ μὲν δὴ λόγων πέρι.

[1] 'Contributions à la chronologie des dialogues de Platon', *Revue des études grecques* 10 (1897) 264–78.

[2] By W. Lutoslawski; see next chapter.

[3] T. Lina, 'De praepositionum usu Platonico', Diss. Marburg 1889.

Finally Baron also declared his intention of discounting all instances of περί occurring in myths on the grounds that the anastrophe is 'never once found in a myth'. Examine, he said, in this respect those of the *Prot.*, *Phdo*, *Gorg.* and *Symp.*, and what is more convincing, of the *Rep.*, *Phdr.* and *Pol.* That at *Rep.* 615c2 is an apparent exception, but it can be seen that here the author 'made a personal intervention to cut short the story of his Armenian'. His view is mistaken. First of all, as he himself realised, anastrophe is so rare in the earlier dialogues that its absence from the myths of *Prot.*, *Phdo*, *Gorg.* and *Symp.* could easily be accidental. However, this cannot be said of those of the *Rep.*, *Phdr.* and *Pol.*, a fact which needs to be accounted for. Apart from the single πέρι at 615c2 there is no instance of the preposition in the *Rep.* myth, so there is no occasion for further anastrophe. In the *Phdr.* myth there are only four occurrences of περί, one with πλείονος ποιεῖσθαι and therefore not to be reckoned. Since then there are only three possible occasions for the use of anastrophe, its absence here too could easily be accidental. Lastly there is the *Pol.* myth, in which there are seven instances of περί (three to be deducted according to Baron) and one πέρι (271e5) overlooked by him. Even though this latter too can be put down to the 'personal intervention of the author', the number of occurrences of περί is still too small to justify the assumption that Plato would never have used anastrophe in a myth. Consequently Baron's intention to discount all instances of περί occurring in myths was wrong, and strangely enough in his calculations he did fail to deduct them. The only instances, therefore, which he excluded from his reckoning were those belonging to the two types mentioned above, and a comparison of his figures with the text suggests that instances of the second type were excluded only spasmodically.

In Table 14.1 the figures of both Baron and Lina are shown together with those for the O.C.T. While large discrepancies point to some carelessness in counting, small ones may have resulted from differences in either textual reading or accentuation. There is some disagreement regarding the latter, when the preposition occurs between the noun and its attribute,[4] and even inconsistency within editions.[5] Calculating the number of περί to each anastrophe for every dialogue (col. 4) Baron established that Plato used πέρι more frequently as time passed, and on the

[4] See R. Kühner, *Ausführliche Grammatik der griechischen Sprache: Teil 2, Satzlehre*, revised by B. Gerth, Hanover and Leipzig, 1898–1904, vol. 1 section 86, 3; see also the Word Index (footnotes p. 736).

[5] For example, cf. *Laws* 682a8 τῆς ἡμετέρας περὶ βουλήσεως with 932e2 τῶν δ' ἄλλων πέρι βλάψεων (O.C.T.).

basis of this change divided the dialogues into chronological groups (col. 5). It will be noted that several works have been placed in a group to which they do not belong on a mechanical interpretation of their frequency figures; for the displacement of each he gave a reason:

1. The *Apol.* had a high enough proportion of anastrophe (1 : 9) to be put in a later group, but both instances of πέρι were with pronouns, which he interpreted as an early feature. He also had reasons other than those of style, taking as the crucial factor whether the dialogue was to be interpreted as a protest against the condemnation of Socrates or as a reply to the attacks of the sophist Polycrates.
2. With a proportion of 1 : 7 the *Lach.* rightly belonged to Group II, but bowing to the general opinion of its early date Baron placed it in Ic and attempted to justify this on the grounds that 6 out of the 10 πέρι were with pronouns.[6]
3. The *Theaet.* together with the *Parm.*, of which he remarked that it was of a dryness and monotony resembling a mathematical treatise, he transferred to Group III despite their paucity of anastrophe in deference to the authority of Dittenberger, Schanz and Ritter.
4. Similarly the *Tim.* and *Crit.*, though having a relatively low ratio of πέρι, were put in the last group. He argued that anastrophe presupposed a desire to draw attention to certain words; hence it was appropriate for arguments and dialogues. By contrast, in a narrative like that of the *Tim.*, which affected a solemnity almost hieratic, the opportunities for its use were less frequent. Reference, however, to the occurrence of πέρι in *Laws* V, a book totally devoid of dialogue and argument, is sufficient to refute this view.

Baron's opinion that the purpose of anastrophe is to emphasise the substantive governed by the preposition is contradicted by Lina, who gains support from its use with the unemphatic form of pronouns (e.g. αὐτοῦ *Soph.* 249d10). It cannot, of course, be denied that emphasis does sometimes result, but not always, and other purposes may be surmised. At *Lach.* 186c1, for example, it was perhaps merely a desire for variety which caused Plato to write τούτου πέρι shortly after περὶ ἐμαυτοῦ in the same sentence.[7] The opposite is true of 189e3ff. After an initial ὁτουοῦν πέρι, where anastrophe emphasises the pronoun, it is found again at e. 6 οὗ πέρι σύμβουλοι ἂν γενοίμεθα and 190a4 ἧς πέρι σύμβουλοι ἂν γενοί-

[6] For one possible reason see below.

[7] The same combination occurs at *Parm.* 148d5-6.

Table 14.1

	1 περί + gen.			2 πέρι + gen.			3	4	5
	Baron	Lina	O.C.T.	Baron	Lina	O.C.T.	Deduct (Baron)	No. of περί to each πέρι	Baron's chronological groups
Charm.	28	28	28	—	—	—	—	—	Ia absence of anastrophe
Hipp. Ma.	26		24	—		—	2	—	
Cri.	(7)	13	13	—	—	—	1	—	
Prot.	79	82	82	2	2	2	1	39	Ib πέρι only with pronouns
Alc. I	64		65	2		2	2	30	
Apol.	(19)	22	22	2	2	2		9	
Ion	76		78	2		2	1	38	Ic πέρι still rare
Crat.	60	61	62	2	2	2	1	30	
Lys.	25	25	25	1	1	1		25	
Hipp. Mi.	24	25	23	1	1	1		24	
Phdo	71	74	75	3	3	3	5	22	
Euph.	(35)	34	34	3	3	3		12	
Lach.	67	68	66	10	10	10	1	7	
Symp.	34	36	36	4	3	3	1	8	II περί : πέρι = 8 : 1 to 6 : 1
Gorg.	76	81	85	9	9	9	—	8	
Meno	45	45	45	5	5	5	3	8	
Euthd.	16	21	20	2	1	2	—	8	
	1 περί + gen.			2 πέρι + gen.			3	4	5
	Baron	Lina	O.C.T.	Baron	Lina	O.C.T.	Deduct (Baron)	No. of περί to each πέρι	Baron's chronological groups
Parm.	27	28	28	2	2	2		13	III περί : πέρι = 5 : 1 to 3 : 1
Theaet.	109	109	107	14	14	14	7	7	
Rep.	(191)	214	214	60	60	60		3	
Phdr.	68	68	68	19	18	19		4	
Tim.		75	74	12	13	14		5	IV περί : πέρι = 3 : 1 to 2 : 1
Crit.	19	19	19		2	2		9	
Soph.	50	55	56	15	16	16	—	3	
Pol.	37	42	40	10	11	14	7	3	
Phil.	45	45	42	21	21	22	1	2	
Laws	291	333	327	142	139	148	20	2	

(a) Figures in parentheses are those given by Baron after making the necessary deductions (see p. 115).
(b) Baron did not supply a figure for περί in *Tim.* or πέρι in *Crit.*
(c) πέρι is absent from *Alc. II*, *Amat.*, *Hipp.*, *Min.* and *Theag.*, all of which Baron classed as spurious.
(d) For some works Baron did not indicate the number of deductions to be made (col. 3).

μεθα. The structure of the sentences throughout this paragraph is notably repetitive, so it is not surprising that the original anastrophe becomes inflated to three. Again, in *Rep.* x there are altogether 8 instances of anastrophe, but the question arises why 6 of them occur in one short section (599b–600a); the answer must surely be that here Plato was discussing tragedy as a mimicry of the truth and could not resist the temptation to indulge in some mimicry himself.

Lina appears to have been correct in concluding that no single purpose lay behind Plato's use of anastrophe. On the other hand he goes too far in denying altogether its use for avoiding hiatus, on the grounds that out of 44 instances in the *Laws* where the preposition governs a word beginning with a vowel, anastrophe avoids hiatus in 40 without causing another, but in the same work there are 128 occurrences of περί causing hiatus. The high incidence of the latter shows that Plato was not always concerned to avoid hiatus with this preposition, but the fact that 40 out of 44 instances of anastrophe do avoid it suggests that, where he *was* concerned, he used the device for precisely this purpose. Corroborating this is the evidence of the *Rep.*, a work in which Plato did not consciously avoid hiatus:[8] out of 13 occurrences of anastrophe where the preposition governs a word beginning with a vowel 9 avoid hiatus, 4 avoid one but create another; in addition there are 13 instances which actually create a hiatus where there is none to be avoided.

Lastly it seems likely that in the later works one of the main purposes of anastrophe was to help in producing those prose rhythms which Plato favoured during this period.[9] This might explain the lower frequency of anastrophe in *Tim.* and *Crit.* compared with other works of the final group, since Plato appears to have paid little, if any, more attention to clausula rhythm in these than in earlier dialogues.[10]

Table 14.2 repeats the O.C.T. figures for περί and πέρι from Table 14.1, but also provides those for the individual books of the *Rep.* and *Laws*, likewise from the Word Index. Since prepositional phrases functioning as adjectives (p. 115) are sometimes subject to anastrophe, these have not been included in the deductions (col. 3), which here consist solely of the phrase περὶ πολλοῦ (παντός, σμικροῦ etc.) ποιεῖσθαι (εἶναι, ἡγεῖσθαι etc.). After these deductions have been made, the proportion

[8] See the chapter on Janell.

[9] E.g. the clausula based on the fourth paeon, which was identified by Billig (Chapter 18); cf. *Phil.* 22c8, 35e1, 37a2, 65b8.

[10] See the chapter on Kaluscha.

Table 14.2

	1 περί	2 πέρι	3 Deduct	4 πέρι as % of all occurrences.		1 περί	2 πέρι	3 Deduct	4 πέρι as % of all occurrences.
Charm.	28	—		0.0	Rep.				
Cri.	13	—	6	0.0	I	16	2	1	11.8
Prot.	82	2	1	2.4	II	21	3	2	13.6
Ion	78	2		2.5	III	21	6	2	24.0
Alc. I	65	2		3.0	IV	16	5		23.8
Crat.	62	2	1	3.2	V	25	17		40.5
Phdo	75	3		3.8	VI	22	9		29.0
Hipp. Ma.	23	1		4.2	VII	29	7	1	20.0
Lys.	25	1	10	6.3	VIII	8	3	1	30.0
Parm.	28	2		6.7	IX	11	—		0.0
Symp.	36	3	1	7.9	X	45	8	1	15.4
Euph.	34	3	1	8.3					
Crit.	19	2		9.5	I–X	214	60	8	22.6
Gorg.	85	9		9.6	Laws				
Euthd.	20	2	2	10.0	I	34	12		26.1
Meno	45	5		10.0	II	12	9		42.9
Apol.	22	2	5	10.5	III	19	4		17.4
Theaet.	107	14	1	11.7	IV	19	12		38.7
Lach.	66	10		13.2	V	11	5		31.3
Tim.	74	14		15.9	VI	32	17	2	36.2
Epin.	13	3		18.8	VII	37	24		39.3
Menex.	4	1		20.0	VIII	28	9		24.3
Soph.	56	16		22.2	IX	37	17		31.5
Rep.	214	60	8	22.6	X	26	13		33.3
Phdr.	68	19	5	23.2	XI	35	10		22.2
Pol.	40	14		25.9	XII	37	16	1	30.8
Laws	327	148	3	31.4					
Phil.	42	22		34.4	I–XII	327	148	3	31.4

which πέρι forms of the total occurrence of the preposition with the genitive is shown as a percentage (col. 4), and the dialogues are arranged in ascending order of frequency. Leaving aside the *Menex.*, where the low frequency renders the percentage calculation meaningless, and taking account of earlier possible explanations of the high figure for *Lach.* and the low one for *Parm.*, one observes that the works which exhibit the highest incidence of anastrophe are precisely those placed by earlier investigators in the middle and late chronological groups.

15

W. LUTOSLAWSKI

★

Following closely on Baron's article came an account of stylistic research carried out by the Polish scholar W. Lutoslawski in conjunction with his study of Plato's logic. Starting in 1891 he revealed from time to time details of his work, originally in Polish, but afterwards in periodicals of other countries.[1] Later the fruits of his various labours were collected and published in one book.[2] The greater part of it deals with the subject of the title; of concern here is only chapter 3 (pp. 64–193), entitled 'The style of Plato', which contains his investigation into the chronological order of the dialogues.

Lutoslawski's interest being primarily in Plato's logic and only incidentally in his style, he excluded from his inquiry not only suspected works,[3] but also those 'of no logical importance'.[4] There remained twenty-two dialogues, the same as those accepted by Ritter as authentic together with the *Parm.*, to be arranged in their order of composition. In contrast to earlier investigators he was acquainted with the achievements of all his predecessors, his own work being in fact a compendium of their inquiries. Knowing, therefore, that Campbell, Dittenberger, Schanz, Ritter and Arnim generally agreed on this, he regarded it as proven that *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws* constituted the last chronological group. His procedure was based on that of Ritter, the calculation of the number of 'late' linguistic characteristics in each dialogue, but whereas the latter used a mere 40 criteria, Lutoslawski aimed to amass 500. His

[1] E.g. *Bulletin de l'Académie des sciences de Cracovie* (1895), *Archiv für Geschichte der Philosophie* (1895), *Classical Review* (1897).

[2] *The Origin and Growth of Plato's Logic*, London, 1897.

[3] *Amat.*, *Clit.*, *Min.*, *Hipp.*, *Theag.*, *Epin.*, *Hipp. Ma.*, *Alc. I* and *II*.

[4] *Hipp. Mi.*, *Ion*, *Menex.* and *Lys.*

scope was correspondingly enlarged by the fact that for him a characteristic of Plato's later style did not necessarily mean an expression occurring in the *Laws*, as it did for Ritter still endeavouring to prove the lateness of *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Crit.*, but one occurring in any of these six dialogues. He compiled the required number by selecting what he considered the most important of the statistics published by earlier investigators of Plato's style, both chronologists and philologists, in the case of the latter himself assessing the items of chronological value. The 500 criteria were enumerated on pp. 76–139 of his work, so that others might examine their validity.

By counting how many of the characteristics of later style occurred in each of the other dialogues Lutoslawski thought he could determine their degree of stylistic affinity to the last group and so arrive at a chronological sequence. Obviously, however, in this purely mathematical computation the various characteristics could not all be considered of equal value, and to surmount the difficulty he distinguished four classes into which all the criteria should be divided:

(A) (value 1 unit) words, expressions etc. occurring only once in a dialogue.

(B) (value 2 units) those occurring as follows: twice in a small dialogue (*Euph.*, *Apol.*, *Cri.*, *Charm.*, *Lach.* and *Crit.*), twice or thrice in an ordinary dialogue (*Prot.*, *Meno*, *Euthd.*, *Crat.*, *Symp.*, *Phdo*, *Phdr.*, *Parm.*, *Soph.*, *Pol.* and *Phil.*), two to four times in a large dialogue (*Gorg.*, *Theaet.* and *Tim.*), twice or more, but less than once per twelve pages (ed. Didot) in *Rep.* and *Laws*.

(C) (value 3 units) those occurring thus: more than twice in a small dialogue, more than thrice in an ordinary dialogue, more than four times in a large dialogue, once per twelve pages or still more frequently in *Rep.* and *Laws*.

(D) (value 4 units) those occurring more than once every two pages.

Lutoslawski was now ready to proceed with his calculations, but first it was necessary to enunciate the magic formula or, as he called it, the Law of Stylistic Affinity, which was this:

> Of two works of the same author and of the same size, that is nearer in time to a third which shares with it the greater number of stylistic peculiarities, provided that their different importance is taken into account, and that the number of observed peculiarities is sufficient to determine the stylistic character of all the three works.

To this he should have added 'and providing also that the affinity in stylistic peculiarities cannot be explained by affinity in subject matter or any other accidental cause'. Lutoslawski then explained some of the terms used in this 'law'.

1. 'Nearer in time' implies nothing as to priority, unless independent evidence is forthcoming that some one work of the author is the latest. In Plato's case the *Laws* are generally admitted to be such a work ... The *Laws* are our standard of comparison for the next latest five dialogues, and for earlier works the group of the six latest dialogues, *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws*.
2. 'A greater number' of peculiarities does not mean any greater number, because if the difference is insignificant, no valid inference is allowed. We accept provisionally as a minimum of difference between two works justifying chronological inferences a difference of one-tenth of the observed peculiarities, and in some special cases we shall even require a greater difference.
3. 'A sufficient number to determine the stylistic character' must be a greater number than has been used generally heretofore, except by Campbell. But this depends upon the importance of each peculiarity. In the present case we shall assume that the occurrence of fifty out of five hundred peculiarities allows a probable inference, but that this probability approaches certainty only when a hundred and fifty peculiarities of later style are found in an ordinary dialogue.

Lutoslawski counted how many of the 500 characteristics of Plato's late style occurred in each dialogue, and evaluated them according to their frequency in terms of units of affinity. Every dialogue, therefore, now has its total of characteristics expressed as units of stylistic affinity to the last group, and these figures are comparable under the conditions of the 'Law of Stylistic Affinity'. This comparison is made easier if we take the total of the *Laws* (i.e. 718) as unity and express the totals of all the other dialogues as fractions of this; e.g. *Theaet.* has a total of 233 units of stylistic affinity, so that its affinity quotient is $\frac{233}{718} = 0.32$. The resulting figures are given in Tables 15.1 and 15.2 (pp. 126–7), which are a summary of those on pp. 162–82 of Lutoslawski's work.

Leaving aside for the time being the question of the chronological order of the dialogues, Lutoslawski considered that his tables provided a very good illustration of the danger of comparing dialogues of unequal size. This is quite clearly true of an artificial equation and mechanical

Table 15.1

	Pages (Didot)	Characteristics of late style				Total units of affinity	Affinity quotient
		A Accidental	B Repeated	C Important	D Very important		
Apol.	19.7	9	2	1	—	16	0.02
Euph.	11.7	11	2	1	—	18	0.03
Cri.	9.5	13	—	5	—	28	0.04
Charm.	18.1	13	5	6	—	41	0.06
Lach.	17.8	19	4	8	—	51	0.07
Prot.	39.5	21	9	4	—	51	0.07
Meno	23.3	20	16	3	—	61	0.08
Euthd.	27.9	22	5	7	—	53	0.07
Gorg.	61.6	31	20	6	—	89	0.12
Crat.	42.3	33	16	15	1	114	0.16
Symp.	39.3	42	16	8	—	98	0.14
Phdo	49.2	43	26	17	2	154	0.21
Rep. I	20.5	28	6	3	—	49	0.07
Rep. II–IV	60.0	47	37	32	2	225	0.31
Rep. V–VII	60.4	56	29	40	7	262	0.36
Rep. VIII–IX	33.7	47	22	27	3	184	0.26
Rep. X	19.3	35	14	15	6	132	0.18
Rep. I–X	194.0	81	110	30	4	407	0.57
Phdr.	39.0	54	36	22	7	220	0.31
Theaet.	53.0	58	41	31	—	233	0.32
Parm.	31.2	56	42	21	10	243	0.34
Soph.	39.6	139	36	59	20	468	0.65
Pol.	43.2	163	43	56	19	493	0.69
Phil.	43.2	100	38	55	16	405	0.56
Tim.	53.3	123	58	44	14	427	0.60
Crit.	11.2	51	8	18	12	169	0.24
Laws	236.4	175	176	37	20	718	1.00

Table 15.2

	Pages (Didot)	Characteristics of late style				Total units of affinity	Affinity quotient
		A Accidental	B Repeated	C Important	D Very important		
Soph.	39.6	100	34	55	20	413	0.58
Pol.	43.2	127	39	55	19	446	0.62
Phil.	43.2	79	35	54	16	375	0.52
Tim.	53.3	77	49	41	14	354	0.49
Crit.	11.2	41	8	18	12	159	0.22

(a) In Table 15.1 affinity is measured in relation to the last group as a whole and is based on the *Laws* as unity (see p. 125); in Table 15.2 it is measured in relation to the *Laws* alone.

interpretation of the evidence like his; since the number of characteristics occurring in a dialogue is not directly proportional to its volume, no mathematical account can be taken of it. To illustrate this, supposing we have a collection of 100 linguistic characteristics and a work 40 pages in length, most of the characteristics out of the 100 which occur in this work will occur in the first ten pages, a few in the second ten pages, fewer in the third, and still fewer in the fourth. In other words, the characteristics occurring in the first ten pages will also occur in the second, third and fourth, but few *new* ones will appear, and the farther we progress into a long work, provided that its stylistic usage is uniform throughout, the fewer new characteristics we shall meet. Lutoslawski seems to be justified in his assumption that, when a work has attained a certain size, it has already had sufficient opportunity to exhibit all that it is likely to exhibit out of a given number of characteristics, so that any further increase in size will not increase the number to any appreciable degree. At what point this size is attained is, of course, completely uncertain, depending partly on how large a number of characteristics is taken into consideration. Hence Lutoslawski's contention that only equal amounts of text must be compared. That, as has been said, is true of his type of computation, but not necessarily of what he would doubtless have called the more primitive methods of his predecessors, which did not undertake any compilation of heterogeneous sets of evidence. One must accordingly modify his solemn declaration that 'future inquirers should base their calculations on an amount of text equal for each dialogue' by the proviso 'if they intend to make calculations like those of Lutoslawski'.

Lastly, regarding the order of the dialogues, he claimed to have proved the following:

1. The latest works of Plato are *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws*, this group being distinguished from all others by a relative affinity of over 0.5 in samples of text exceeding 40 pages (ed. Didot). The sequence within the group itself could not be determined (see below).
2. The latest group is preceded by a middle group consisting of *Rep.* II–X, *Phdr.*, *Theaet.* and *Parm.* In these the relative affinity is under 0.5 and even under 0.4 for samples of text of 30–60 pages. The mean affinity of dialogues belonging to this group is only 0.3, half as much as the affinity of works of similar length in the last group. The middle group is distinguished from all earlier dialogues by a great number of important and very important peculiarities appearing here for the first

time, as may be seen from Table 15.1. No order is possible within the group except that *Parm.* must be later than *Theaet.* and *Phdr.*

3. The middle group is preceded by a first Platonic group consisting of three dialogues, *Crat.*, *Symp.* and *Phdo*, which are characterised by a relative affinity inferior to that of equal samples of text in the middle group, i.e. about 0.2 and not exceeding 0.21 for samples of text of 40–50 pages. The first Platonic group is distinguished from all Socratic dialogues by the appearance here for the first time of several special peculiarities. As with the preceding group no sequence is possible beyond the fact that *Phdo* is later than *Symp.* and *Crat.*
4. Among the Socratic dialogues, which show an apparent relative affinity of 0.1 or even less, the *Gorg.* is probably the latest, but here again nothing definite can be said about the order of the works.

Lutoslawski pointed out that the sequence of dialogues within the latest group could not be determined on the basis of the 500 characteristics, because these had been chosen from the six works in question, and in the selection the *Soph.* and *Pol.* had been especially privileged on account of Campbell's research into their style. It was only to be expected, therefore, that these two works should show a higher affinity quotient than *Phil.*, *Tim.* and *Crit.* This prejudice, Lutoslawski said, could be eliminated to some extent by excluding from the reckoning 130 characteristics (nos. 12, 13, 54–181), which were mostly words quoted by Campbell as peculiar to *Soph.* or *Pol.* with *Tim.* and *Crit.* and/or *Laws*. This reduced the total from 500 to 370, the individual dialogues losing the following number of units of affinity: *Soph.* 69, *Pol.* 86, *Phil.* 0, *Tim.* 53, (*Crit.* figure not given), *Laws* 102. The relative affinity calculated on these reduced figures came out as:

Soph. 0.65 *Pol.* 0.66 *Phil.* 0.66 *Tim.* 0.61

One thing which comes to light from this is that calculations like Lutoslawski's can be exceedingly misleading by reason of the fact that the affinity quotient of a particular dialogue or dialogues may be exaggerated, purposely or unwittingly, by a prejudiced selection of characteristics. Not only must excessive importance not be laid on certain dialogues, as by Lutoslawski, but if genuine affinity quotients are desired, the guiding principle must be to select only characteristics which could occur, given the occasion, in every one of the dialogues under consideration. If this is not done, then the affinity quotients of some dialogues will

be unfairly biased. Lutoslawski's inquiry is guilty of this fault in countless respects; to mention but one, the number of characteristics capable of occurring in *Apol.*, *Cri.*, *Tim.* and *Crit.* is much less than that for the rest of the dialogues, in so far as there is little or no scope in them for reply formulae. With factors like this in operation accurate affinity quotients are impossible.

Lutoslawski himself, however, had no qualms about the decisiveness of his proof, as his concluding remarks show:

> The future science of stylometry [a word apparently coined by him] may improve our methods beyond the limits of imagination, but our chief conclusions can only be confirmed, never contradicted by further research . . . and now that the method of stylistic calculation has been shown on a small example of five hundred peculiarities, it will be very easy to apply it on a much larger scale, and to settle all the minor difficulties left to future inquirers.

One imagines that it was this superciliousness about his own achievements and the belittlement of the problem remaining to 'future inquirers' which roused these same inquirers, both protagonists and antagonists of the stylistic method, to denigrate both Lutoslawski and his work. Unfortunately no distinction was made by the antagonists between the stylistic method as a whole and this particular version of it, doubtless because to the greater part of the scholastic world Lutoslawski represented its first acquaintance with the method. This does not seem so surprising when one remembers that even in Germany, where almost all the stylistic research was carried out, the investigators were often in ignorance of each other's existence. Now that Lutoslawski had centralised and publicised stylistic research on Plato, it was natural that his own method should be interpreted by many as representative of that employed by stylistic inquirers in general. As a result, when Lutoslawski fell into disrepute, the stylistic method fell with him. It would hardly be too much to say that it has not yet fully recovered even today from the suspicion which its identification with his 'stylometry' incurred.

The main fault with his work was its arbitrariness. It was, of course, desirable that the various characteristics should be distinguished in proportion to their greater or lesser importance, but the distinction between the four classes decided upon by Lutoslawski lacked a convincing basis. Why, for example, choose as a borderline to separate classes D and C a frequency of occurrence greater or lower than once every two pages? Again, supposing a characteristic occurs once in the *Gorg.*, it counts as 1

unit. If it occurs again, it counts as 2 units. However, in order to count as 3 units, it must occur not three nor four, but five times. How often then must it occur to become a very important characteristic counting as 4 units? No less than once every two pages, i.e. more than 30 times! In other words, it makes no difference whether a characteristic in the *Gorg.* occurs 5 or 30 times; it still counts as only 3 units.

Similarly the division of the dialogues into three classes according to size is arbitrary and misleading. Why, for instance, should the *Meno*, which is only three pages longer than the *Apol.*, a 'short' dialogue, be reckoned as an 'ordinary' dialogue along with *Soph.*, *Pol.* and *Phil.*, which are nearly twice its length? The trouble, in short, is that whereas on the one side there is a scale of values with a uniform rise (i.e. 1, 2, 3, 4 units), on the other there is a scale of qualifications for these values, both by frequency of occurrence and by the size of dialogue, which is neither uniform nor reasonable.

Closely connected with these classification errors is yet another. Besides single words or expressions, which made up most of the 500 characteristics, there were also a few which could not be introduced into the classification system as they stood, e.g. the relation of πάνυ γε to πάνυ μὲν οὖν, the frequency of ναί, πάνυ γε, πάνυ μὲν οὖν as a class, the avoidance of hiatus. The difficulty was soon overcome; Lutoslawski simply allotted them as he thought they merited to class B, C or D (pp. 148–50). So, for instance, when πάνυ μὲν οὖν is more than half as frequent as πάνυ γε, but does not prevail over it, that is a class B characteristic; when πάνυ μὲν οὖν prevails over πάνυ γε, it is a class C characteristic. Again, if replies by means of a rhetorical question form between 5% and 10% of all affirmations, that is class B; if between 10% and 20%, class C; and if more than 20%, class D. How did Lutoslawski decide on these figures? Presumably by glancing at their chronological implications in von Arnim's work.[5]

These are just two examples out of many exhibiting the same arbitrariness of classification. Worse, however, is to come. All the characteristics so far have been linguistic, that is, specific peculiarities of language, but Lutoslawski tried to combine with these about a dozen others either very generally or not at all linguistic. They were mainly Campbell's broad observations, such as the withdrawal of Socrates from the later dialogues, the greater irregularity in the construction of periods, the adjustment of

[5] See p. 102.

long and short syllables or words to achieve harmony and symmetry. However irreconcilable these might seem with previous characteristics, Lutoslawski did not think so, as the following examples show. The partial predominance of other teachers over Socrates (e.g. in *Symp.* and *Parm.*), inversion of the natural order of words and being the first member of a projected tetralogy (e.g. *Rep.* and *Theaet.*) are all class C characteristics. Likewise the substitution of other teachers for Socrates, being the second or third member of a projected tetralogy and a didactic tenor in a work are class D characteristics. It is clearly unsound to attempt to place such observations on the same basis of comparison as linguistic features, to declare in effect that being the second or third member of a projected tetralogy is equivalent in 'lateness value' to the 26 τί μήν; which occur in *Phil.* and worth more than the 20 which are found in *Pol.*

There are other faults with Lutoslawski's investigation, which remained unnoticed by the majority of his critics. The latter were concerned with the stylometric method, and these faults lay not in the method, but in the material. One or two indicated their existence,[6] but no one apparently troubled to find out the extent to which they affected his inquiry.

To be more precise, there are two faults. First, Lutoslawski's criterion in selecting the 500 characteristics was to accept only 'those stylistic marks which may be regarded as characteristic of later style, being either limited in their occurrence to the latest dialogues, or at least increasing in their frequency. To exclude characteristics occurring occasionally in earlier dialogues would deprive us of a useful measure of affinity between each of them and the latest group'. This is clearly common sense. There is no objection to a feature of Plato's later style occurring in several or even all of the early dialogues, provided that it occurs sufficiently more frequently in the last period to denote it as a 'late' characteristic. If Lutoslawski had followed this principle consistently, all would have been well, but he did not. Most of the characteristics which he took over 'ready-made', so to speak, from previous chronological investigators are sound enough; it is those he obtained for himself from the works of philologists which on inspection prove in many cases to be unsatisfactory, in that their frequency shows no change with change of period; e.g.

[6] E.g. Ritter, Bursian's Jahresbericht (1921) 129.

no. 279 μέντοι used to oppose to each other two parts of the same phrase: *Prot.* 4, *Meno* 1, *Euthd.* 1, *Gorg.* 2, *Symp.* 1, *Phdo* 2, *Rep.* 4, *Phdr.* 2, *Theaet.* 1, *Parm.* 1, *Pol.* 1, *Phil.* 1.[7]

Such examples are unsuitable criteria for measuring stylistic affinity to the last chronological group. Yet the fact that no. 279 occurs 4 times in *Prot.* gives it 3 units of affinity in contrast with the 1 for *Meno* and *Euthd.*, although it is not a 'late' characteristic at all.

Besides these 'late characteristics' which are characteristic of all periods there are others which, whilst not occurring in the earlier dialogues, are found in the middle just as often as in the late period, and in some cases are even at their acme there, e.g.

no. 254 newly coined adjectives in -ειδής: *Gorg.* 1, *Crat.* 2, *Symp.* 2, *Phdo* 21, *Rep.* 24, *Theaet.* 1, *Pol.* 1, *Phil.* 1, *Tim.* 8, *Laws* 1.[8]

These are of no more use than the former kind for measuring affinity to the last group. The fact that no. 254 is found 21 times in *Phdo* does not put it closer than *Tim.* (only 8 occurrences) to the *Laws*, where it occurs least frequently, but closer than *Tim.* to the *Rep.*, where it occurs most frequently. In short, when a characteristic's highest frequency falls in the middle group, it is a characteristic of that group, not of the last, and the only affinity that can be measured by it is to the middle group.

The question arises: how many of the 500 characteristics fall into these two spurious categories? The answer is at least 117 (i.e. nos. 1–5, 7–11, 191–5, 197, 198, 207, 211, 212, 215, 217, 218, 220–2, 234, 239, 242–9, 254–85, 288–90, 292–4, 296–302, 305, 327, 343, 352, 361, 373, 374, 385, 392–4, 396–8, 400–4, 406, 407, 410, 411, 413, 419–21, 423, 424, 440–43, 445, 456, 457). This is being generous and counting only those which are quite definitely not primarily characteristic of Plato's last stylistic period. Many of those passed over, therefore, are borderline cases or instances where, though it must be admitted that superficially the characteristic is late, the figures are so minute that they could easily be accidental and in any case make poor evidence.[9]

[7] Similarly nos. 4, 198, 217, 221.

[8] Similarly nos. 343, 352, 373.

[9] E.g. no. 183 δυοῖν with the plural of a substantive: *Prot.* 1, *Rep.* 1, *Soph.* 1, *Pol.* 1, *Phil.* 1, *Laws* 2; no. 208 ἐντεῦθεν ἤδη: *Theaet.* 1, *Pol.* 1, *Tim.* 1, *Laws* 1; no. 363 τὸ σύμπαν: *Phdr.* 1, *Soph.* 1, *Pol.* 1; no. 430 κατὰ καιρόν: *Pol.* 1, *Laws* 2.

As regards subject matter, characteristics nos. 236–49, which were taken by Lutoslawski from Peiper's *Ontologia Platonica* (1883), must all be discounted except for 240 and 241, since they concern metaphysical usages of ὄν and οὐσία, and these, being dependent on the particular subject, are quite clearly limited to certain dialogues to the disadvantage of the rest. However, most of these characteristics have already been accounted for in the previous spurious categories, so that only a further 5 need to be deducted from the total of 500.

Next we must consider Campbell's vocabulary investigations. From these come characteristics nos. 24–181 and 458–500. What use are they for this investigation? Nos. 24–181 are words which are exclusive to *Soph.* or *Pol.* on the one side and *Tim.*, *Crit.* and *Laws* on the other. Campbell collected them from Ast's *Lexicon* to demonstrate the late date of *Soph.* and *Pol.* After taking this late date for granted, however, it is meaningless to include in one's own inquiry all the investigations which have produced the conviction that *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws* form the last chronological group and then declare that one has supported this conviction by the results of this selfsame inquiry. Moreover, apart from the fact that characteristics nos. 24–181 are irrelevant to the true aim of the inquiry, which is to fix the sequence of the rest of the dialogues by measuring their stylistic affinity to the last group, their inclusion automatically removes any hope of determining the order within the last group itself by affinity to the *Laws* on account of the special emphasis laid on *Soph.* and *Pol.* The same applies to nos. 458–500, which are words collected by Campbell to demonstrate the affinity of the *Parm.* to the *Laws*. In an assessment of the relative chronological order of Plato's works preference cannot be given to particular dialogues when selecting the criteria or the result will be prejudiced. Characteristics nos. 24–181 and 458–500, that is 201 in all, should therefore be deducted from the 500.

The second fault with Lutoslawski's material is that occasionally the same dish is served up in different sauce, to use Ritter's phrase, meaning that the same characteristic is sometimes repeated in a different guise. For example, one of the characteristics, no. 342, from Ritter is this: ἀληθέστατα, ὀρθῶς, ὀρθότατα (λέγεις) occur in *Rep.* 57, *Phdr.* 1, etc. Later, taken from Tiemann, almost the same thing appears piecemeal:

no. 386 ὀρθῶς, ὀρθῶς λέγεις occur: *Euph.* 1, *Charm.* 1 etc.; no. 387 ἀληθέστατα (λέγεις) occur: *Lach.* 1, *Crat.* 1 etc.; no. 388 ὀρθότατα (λέγεις) occur: *Rep.* 10, *Phdr.* 1 etc.

Finally, among the contributions from von Arnim we find

no. 455 καλῶς, κάλλιστα, ἄριστα, ὀρθῶς, ὀρθότατα, σαφέστατα, ἀληθέστατα, ἀναγκαιότατα occur in *Rep.* 59, *Phdr.* 2 etc.

Such instances of repetition, on a conservative estimate, account for the equivalent of 7 characteristics.[10] These, combined with the observations by Campbell of a non-linguistic nature (nos. 12–20), which are not easily comparable with statistics of linguistic features, require a deduction of 16 items.

With this the list of deductions needed is complete; the sum of 339 characteristics, when subtracted from the original total of 500 leaves 161. Even in many of these the figures are too small to be significant or the change in usage barely perceptible, and it would not be going too far to say that the reliable criteria in Lutoslawski's material number less than a hundred. Both method and material, then, are faulty. The claim to have established incontrovertibly a framework of Platonic chronology on the basis of no less than 500 characteristics of style today appears brash. Yet Lutoslawski was historically important, since it was his work which brought about a general awareness of the existence and achievements of an alternative method for determining Platonic chronology. The inventory which it contains of earlier research from the time of Campbell to the year of publication is still useful.

[10] Thesis p. 245.

16

P. NATORP

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The next contribution to the stylistic method came from a scholar who had little sympathy with it, but whose view of Plato's philosophical development was threatened by its findings, which he sought to counteract in a series of articles.[1] The first of these comprised three separate inquiries: an investigation to show that Plato's style did not develop uniformly (Ia); an examination of the author's vocabulary to determine the chronological order of his works, especially the position of the *Phdr.* and *Theaet.* (Ib); a similar investigation, but with a number of Lutoslawski's criteria for material (Ic). The second was a criticism of Lutoslawski's conclusions and so, indirectly, of most earlier research. The third, which appeared a year after the first two, was intended as an improved interpretation of the material which he had presented in the first article (Ib). In view of this no purpose would be served by reproducing his original interpretation, and in the following account it is replaced by the version he himself preferred.

For his first investigation (Ia) Natorp chose Plato's vocabulary; using Ast's *Lexicon* he compiled statistics of

(1) words peculiar to each dialogue (Table 16.1, series 1).[2] His figures were generally higher than Campbell's, because he took into account, as Campbell probably did not, words which apart from one of the genuine dialogues occurred only in dubious or unauthentic works. Which these were he did not say, but they almost certainly included works now regarded as genuine, such as *Lys.*, *Menex.*, *Hipp. Mi.*, *Ion*;

[1] 'Untersuchungen über Plato's Phaedrus und Theaetet', *Archiv für Geschichte der Philosophie* 12 (1899) 1–49, 159–86 and 13 (1900) 1–22.

[2] P. 138.

(2) words confined to groups B and C (see table), but not peculiar to individual dialogues. The total of such words was 1949, and it was on these that series 2–9 were based;
(3) words occurring only in *Apol.*, *Prot.* and *Gorg.* from Group A and certain works of Group C (series 2, 3, 5).

Before giving his interpretation of the statistics in Table 16.1, it is necessary to indicate the rules which he proposed for comparing proportional figures (in reply to Lutoslawski, who regarded proportional comparisons as odious). Two cases had to be distinguished: that where unrestricted affinity (series 7 and 8), and that where exclusive affinity (series 2–6) or occurrence (series 1) was concerned. In the former, he remarked, the larger works were generally at a disadvantage in a proportional comparison with the smaller, and certainly never at an advantage. In the latter the larger work usually had a slight advantage over the smaller and never a disadvantage. For example, the *Tim.* had 404, the *Crit.* 86 words which occurred in no other work of Plato. Considering *Tim.* and *Crit.* as one work and counting the words which occurred in them, but nowhere else in Plato, there turned out to be 12 extra, by which the total was raised from 490 to 502, or from 7.55 to 7.73 per page as against 7.41 for *Tim.* and 7.57 for *Crit.* by themselves.[3]

These rules, though corrective, obviously did not permit precise results, since they could not indicate exactly the extent to which a work was prejudiced in each instance. With their help, however, Natorp considered it possible to draw conclusions from proportional comparisons without making any great mistakes. His main observations on the numbered (1–9) series in Table 16.1 were as follows.

Series 1. The basic statistical tendency fully confirmed the view, first held by Campbell, that Plato showed an increasing inclination for rare words. There were, however, abnormalities: *Parm.* and *Phil.*, which

[3] This illustration does not seem valid. The situation here is no different from the preceding; the larger works are again at a disadvantage, because the longer they get, the more disproportionate is the increase in length to the rise in the number of peculiar words likely to become; that is, assuming their subject matter to be fairly homogeneous. If there is a change of subject within a work, there will be an influx of new words, and the greater the change, the more numerous these words will be. The different subject of the *Crit.* enabled the proportion of peculiar words to be maintained at 7+ per page, when it was combined with the *Tim.*, and the 12 extra words resulting from the combination induced Natorp to formulate the rule that the larger work has an advantage over the smaller. Exactly the same applies to exclusive affinity as to exclusive occurrence.

Table 16.1

	A							B							C						
No. of pp. Didot	Apol. 19.7	Cri. 9.5	Prot. 39.5	Lach. 17.8	Charm. 18.1	Meno 23.3	Gorg. 61.6	Phdr. 39.0	Theaet. 53.0	Euthd. 27.9	Crat. 42.3	Phdo 49.2	Symp. 39.3	Rep. 194	Parm. 31.2	Soph. 39.6	Pol. 43.2	Phil. 43.2	Tim. 53.3	Crit. 11.6	Laws 236.4
(1) Words peculiar to	Parm.	Cri.	Meno	Phil.	Charm.	Apol.	Lach.	Gorg.	Prot.	Phdo	Theaet.	Soph.	Euthd.	Symp.	Crat.	Rep.	Pol.	Laws	Phdr.	Crit.	Tim.
Absolute	18	11	33	65	30	33	30	110	86	137	164	128	91	135	170	788	204	1123	226	86	404
Per page	0.57	1.15	1.41	1.50	1.65	1.67	1.68	1.78	2.17	2.78	3.09	3.23	3.26	3.43	4.01	4.06	4.72	4.75	5.79	7.41	7.57
(2) Common only with Tim. Crit. Laws	Parm.	Gorg.	Apol.	Prot.	Euthd.	Crat.	Theaet.	Phil.	Phdo	Symp.	Soph.	Rep.	Pol.	Phdr.							
Natorp Absolute	7	19	11	24	18	30	38	33	42	36	45	314	70	71							
Per page	0.22	0.30	0.55	0.60	0.64	0.70	0.71	0.76	0.85	0.91	1.13	1.61	1.62	1.82							
Campbell Absolute	6	20	6	18	7	14	27	35	42	33	54	246	70	61							
Per page	0.18	0.32	0.30	0.45	0.25	0.33	0.51	0.81	0.85	0.84	1.36	1.26	1.62	1.56							
(3) Common only with Group C	Parm.	Gorg.	Apol.	Prot.	Euthd.	Theaet.	Phdo	Phil.	Crat.	Symp.	Soph.	Pol.	Rep.	Phdr.							
Absolute	11	23	13	35	28	61	60	55	57	60	79	98	453	96							
Per page	0.35	0.37	0.66	0.88	1.00	1.15	1.21	1.27	1.34	1.52	2.00	2.27	2.33	2.46							
(4) Common only with Group C + Rep.					Euthd.	Crat.	Theaet.	Symp.	Phdo					Phdr.							
Absolute					45	84	108	89	120					165							
Per page					0.60	1.98	2.03	2.26	2.43					4.23							
(5) Common only with Laws	Parm.	Gorg.	Prot.	Crat.	Phdo	Phil.	Apol.	Theaet.	Euthd.	Soph.	Symp.	Pol.	Rep.	Phdr.	Tim.	Crit.					
Absolute	3	14	14	15	21	19	9	27	15	23	30	44	204	43	66	21					
Per page	0.09	0.22	0.35	0.35	0.42	0.44	0.45	0.50	0.53	0.58	0.78	1.01	1.05	1.10	1.23	1.81					
(6) Common only with Rep.	Parm.	Phil.	Crat.	Soph.	Symp.	Euthd.	Phdo	Pol.	Theaet.	Phdr.	Laws	Crit.	Tim.								
Absolute	1	7	12	18	19	14	26	25	38	32	204	12	56								
Per page	0.03	0.16	0.28	0.45	0.48	0.50	0.52	0.57	0.71	0.82	0.86	1.03	1.05								
(7) Common (not exclusively) with Rep.	Parm.	Euthd.	(Laws)	Crat.	Soph.	Phil.	Symp.	Theaet.	Phdo	Pol.	Phdr.	Tim.	Crit.								
Absolute	52	62	646	116	135	148	139	196	204	180	235	332	105								
Per page	1.66	2.22	2.73	2.74	3.40	3.42	3.53	3.69	4.14	4.16	6.02	6.22	9.37								
(8) Share in the vocabulary peculiar to groups B + C	Parm.	Euthd.	(Laws)	Crat.	(Rep.)	Phil.	Theaet.	Symp.	Phdo	Soph.	Pol.	Phdr.	Tim.	Crit.							
Absolute	106	119	1263	232	1102	272	356	269	345	284	378	408	681	204							
Per page	3.39	4.26	5.34	5.48	5.68	6.29	6.71	6.84	7.01	7.17	8.75	10.46	12.77	18.21							
(9) Rare words in general (Series 1 + 8)	Parm.	Euthd.	Phil.	Crat.	(Rep.)	Phdo	Theaet.	(Laws)	Symp.	Soph.	Pol.	Phdr.	Tim.	Crit.							
Absolute	124	210	337	402	1890	482	520	2386	404	412	582	634	1085	290							
Per page	3.97	7.52	7.80	9.51	9.74	9.79	9.81	10.09	10.28	10.40	13.47	14.67	20.35	25.89							

rightly belonged to Group C, appeared in Group A, *Phdr.* in Group C instead of B, and *Soph.* in B instead of C.

Series 2. He carried out again Campbell's investigation for calculating the affinity of each dialogue to the last three, *Tim.*, *Crit.* and *Laws*, by counting the number of words which it had in common exclusively with them, the validity of this procedure standing or falling with their acceptance as the last works to be written. In this and the following series he found the figures produced by the small Socratic dialogues so minute as to be meaningless. Hence only the two large works, *Gorg.* and *Prot.*, and 'for the sake of illustration' the *Apol.* were retained.

Here the *Soph.* was in its correct group, and the position of *Phil.* had improved from Group A to Group B, but *Parm.* and *Phdr.* were still hopelessly errant in lowest and highest place respectively. He gave no explanation for the high rank of *Rep.* in this series, but the reason is obvious and was pointed out by Ritter,[4] namely the identity of the subject matter in the *Rep.* and *Laws.*

Series 3–7. These are similar calculations of lexical affinity, which need not be discussed separately. It will be sufficient to note what Natorp wished to be noted, namely that

(a) the *Parm.* occupies the lowest position in each series;
(b) the *Phdr.* is always the highest, except when *Tim.* and *Crit.* are included, apart from series 6, where it is surpassed as one would expect by the *Laws*;
(c) the *Phil.* never attains its true position in Group C, standing usually around the middle of each series.
(d) the *Theaet.* occupies various positions in Group B, once the highest (series 6), but never crosses into C.

Series 8. The reason for this series was given by Natorp as follows:

> Since all the comparisons of affinity in vocabulary between the works of Groups B and C seem to produce series of a similar nature, the idea must occur to us that the reason for this may lie in the different size of each work's share in the 1,949 words peculiar to Groups B and C; to decide this I have counted how many of the 1,949 occur in each work, no matter whether exclusively or in common with others.

The distribution of the works corresponds in the main to that of the

[4] Bursian's Jahresbericht (1921) 183ff.

preceding series. One thing should be noted: here, as in series 7, the fact that it is no longer exclusive affinity that is being reckoned greatly prejudices the two large works, *Rep.* and *Laws*, in the proportional comparison; hence his parentheses.

Series 9.[5] Natorp drew no specific conclusions, but was 'satisfied with the almost purely negative result' – unsurprisingly, since he could now say that his linguistic investigations had shown that certain works stood outside Plato's normal stylistic development, and one of these, the *Phdr.*, could be placed on content grounds, as he wished, among the 'middle' dialogues, *Crat.*, *Symp.*, *Phdo* etc. However, he met with an 'entirely unexpected objection' from Lutoslawski, who declared, 'The reckoning of exclusive affinity between works is generally of slight conclusive force, since the occurrence or non-occurrence of a word depends on too many contingencies; only an investigation of characteristics which are not limited to a few works can be relied upon.' He had thus been induced, rather reluctantly, to make a new investigation (1b) in the hope of confirming the results of the preceding one.

For this he calculated the common share of each pair of works in the 1,949 words which made up the vocabulary peculiar to Groups B and C (Table 16.2). Of them he remarked:

> In not one series, taken by itself, can the greater chronological affinity of this or that pair of works be immediately recognised. The first obvious conclusion, which comes from a comparison of the fourteen series with each other and Table 1 [16.1], is that the measure of affinity between any two works depends in the first instance not on the degree of their proximity to one another, be it chronological or merely in respect of content, but on the size of the share of each, taken individually, in the total vocabulary ... By this the way of further investigation is pointed out. It must be based on the sequence of the works according to series 8 (Table 1) as the standard, the deviations from this standard sequence in the various series being established and compared.

Table 16.2 originally, therefore, also had proportional figures for each work based on its size, and from the sequences which they produced in comparison with the standard one of series 8 he drew his conclusions. As already mentioned, however, he later felt dissatisfied with his interpretation of this material and proposed an improved version. Introducing it he said:

[5] Ritter (*Jahresbericht*) could see no point in this combination of two quite different ways of expressing lexical wealth; rightly.

Table 16.2

Works according to size		I 27–32 pp.		II *c.* 39 pp.			III 42–3 pp.			IV 49–53 pp.			V Very short/long		
No. of pp. (Didot)		Euthd. 27.9	Parm. 31.2	Phdr. 39.0	Symp. 39.3	Soph. 39.6	Crat. 42.3	Phil. 43.2	Pol. 43.2	Phdo 49.2	Theaet. 53.0	Tim. 53.3	Crit. 11.6	Rep. 193.9	Laws 236.4
B	1. Phdr.	22	20		71	60	57	62	71	91	80	152	46	236	236
	2. Theaet.	17	29	80	66	54	56	46	73	68		126	35	202	189
	3. Euthd.		4	22	19	12	12	16	18	24	17	21	10	62	59
	4. Crat.	12	15	57	22	47		41	52	57	56	105	20	120	130
	5. Phdo	24	24	91	60	53	57	67	59		68	139	49	205	195
	6. Symp.	19	8	71		27	22	38	45	60	66	80	36	139	161
	7. Rep.	62	52	236	139	136	120	148	186	205	202	332	105		646
C	8. Parm.	4		20	8	14	15	17	14	24	29	32	14	52	48
	9. Soph.	12	14	60	27		47	64	87	53	54	121	30	136	178
	10. Pol.	18	14	71	45	87	52	64		59	73	130	45	186	243
	11. Phil.	16	17	62	38	64	41		64	67	46	110	26	148	178
	12. Tim.	21	32	152	80	121	105	110	130	139	126		99	332	387
	13. Crit.	10	14	46	36	30	20	26	45	49	35	99		105	132
	14. Laws	59	48	236	161	178	130	178	243	195	189	387	132	646	

The proportional calculation of the common characteristics by the size of the works under comparison, despite all the caution taken, still affords occasion for suspicion. Nevertheless it is easy to see that this objection can be removed completely, since in place of the proportion according to the size of the works we can adopt that according to the total share of the works in the class of particulars concerned . . . We begin with the various series of Table II [16.2], dividing the absolute figures of the *Euthd.* series by 119 (the total share of the *Euthd.* as given in Table I series 8), then those of the *Parm.* by 106, and so on. In this way two different expressions are obtained for the affinity of two works A and B, since the affinity between A and B is compared firstly with that between A and C, D, E . . . etc., secondly with that between B and C, D, E . . . etc.

This confined comparisons within individual series, which did not satisfy his requirements. He continued:

It is possible, however, to reduce the affinity of A and B to a single expression, which makes it directly comparable with that of another pair of works, for instance C and D. All that is required is to divide the affinity figure by *both* the total shares of the two works being compared. The idea of this double division can be made easily understandable in the following way. I say that a work has the same or n times greater affinity with a second than with a third, if it has the same or n times as many particulars out of a given sum in common with it, that is not taken absolutely, but the same or n times as many out of an equal number, for example a hundred particulars. This definition applies not only to individual series, but also to the comparison of any pair, since one reckons how many out of a hundred of the particulars in which the one work shares, counted on a hundred of those in which the other shares, are common to both. For example, *Theaet.* and *Parm.* have in a total share of

Theaet. 356 : *Parm.* 106 words 29 in common

which produces for

$$\textit{Theaet.}\ 356 : \textit{Parm.}\ 100\ \text{words} \quad 29 \times \frac{100}{106}\ \text{in common,}$$

and conversely for

$$\textit{Theaet}\ 100 : \textit{Parm.}\ 106\ \text{words} \quad 29 \times \frac{100}{356}\ \text{in common,}$$

but for

$$\textit{Theaet}\ 100 : \textit{Parm.}\ 100\ \text{words} \quad 29 \times \frac{100}{106} \times \frac{100}{356} = 7.68\ \text{in common.}$$

This figure states how many out of a hundred of the *Theaet.*'s share in a given number of words (i.e. the total 1,949), based on a hundred of the *Parm.*'s share in the same number, are common to both works. The advantage of this method is that every one of the resulting 91 proportional affinities[6] belongs to the same series, in which instead of absolute affinity, which does not permit a direct comparison, the degree of affinity of every pair of works is uniformly expressed, so that it can be stated quite definitely that this or that pair shows the highest degree of affinity, second highest, lowest, second lowest, and so on.

The results of these calculations appear in Table 16.3. In each series is found to the right of the dialogue's name its degree of affinity figure, to the left a figure denoting its position in the sequence of 91 figures (91 expressing the highest, 1 the lowest degree of affinity).

Natorp was disappointed with the immediate results. The high degree of affinity between works supposed to be close together, such as *Soph.*, *Pol.* and *Phil.*, then *Theaet.* and *Parm.*, and thirdly *Tim.* and *Crit.* was gratifying, but not so the equally high affinity between other pairs of works thought to be chronologically distant from one another, such as *Phdo* and *Phil.* and *Crat.* and *Soph.* 'So,' he concluded,

> whoever attempts to construct a chronological series of the fourteen works in this way, on degrees of affinity, will soon find himself involved in the most annoying inconsistencies. It is especially puzzling that the relative positions of two works in their respective series often does not even approach agreement. Thus *Phil.* in the *Laws* series, *Phdo* in the *Rep.* series stand high up, but *Laws* in the *Phil.* and *Rep.* in the *Phdo* series fairly low.

In fact there is nothing puzzling about it. It is noticeable that the highest proportional figures for the *Rep.* and *Laws* series are lower than those of the others, so that the *Phdo* and *Phil.* figures, which are only mediocre in their own series, here prove to be the best. To the question why the proportional figures for the *Rep.* and *Laws* series are so much lower, the answer is that they have too big a share in the vocabulary peculiar to Groups B + C (see Table 16.1 series 8), which in proportional calculations is actually to their disadvantage. This becomes obvious from a calculation of the highest possible affinity which each dialogue can produce, arrived at by dividing 10,000 by the work's share in the vocabulary of Groups B + C. One may take as an example the affinity between *Theaet.* and *Parm.*, used by Natorp to demonstrate his method of calcula-

[6] I.e. each of the fourteen works compared with the other thirteen (thus 182, but halved, since each pair occurs twice).

Table 16.3

Euthd.			Symp.			Rep.			Phdo			Phdr.			Theaet.			Parm.		
68	Symp.	5.94	83	Theaet.	6.89	55	Phdo	5.39	88	Phil.	7.14	76	Symp.	6.47	89	Parm.	7.68	89	Theaet.	7.68
64	Phdo	5.85	79	Crit.	6.56	53	Phdr.	5.25	85	Crat.	7.12	74	Phdo	6.46	83	Symp.	6.89	80	Phdo	6.56
42	Phil.	4.94	76	Phdr.	6.47	47	Theaet.	5.15	84	Crit.	6.96	70	Crat.	6.02	82	Crat.	6.78	77	Crit.	6.47
37	Rep.	4.73	75	Phdo	6.47	41	Phil.	4.94	80	Parm.	6.56	62	Phil.	5.59	61	Phdo	5.54	71	Crat.	6.10
27	Phdr.	4.53	68	Euthd.	5.94	37	Euthd.	4.73	75	Symp.	6.47	60	Crit.	5.53	59	Phdr.	5.51	65	Phil.	5.90
16	Crat.	4.35	51	Phil.	5.19	36	Crat.	4.69	74	Phdr.	6.46	59	Theaet.	5.51	57	Pol.	5.42	32	Soph.	4.65
12	Crit.	4.12	38	Laws	4.74	35	Symp.	4.69	66	Tim.	5.92	58	Tim.	5.47	54	Soph.	5.34	30	Phdr.	4.62
11	Theaet.	4.01	35	Rep.	4.69	33	Crit.	4.67	64	Euthd.	5.85	53	Rep.	5.25	52	Tim.	5.20	22	Rep.	4.45
10	Pol.	4.00	19	Pol.	4.43	31	Laws	4.64	61	Theaet.	5.54	48	Soph.	5.18	47	Rep.	5.15	20	Tim.	4.43
9	Laws	3.93	17	Tim.	4.37	23	Pol.	4.47	56	Soph.	5.41	30	Parm.	4.62	40	Crit.	4.82	8	Laws	3.59
7	Soph.	3.55	6	Soph.	3.53	22	Parm.	4.45	55	Rep.	5.39	29	Pol.	4.60	39	Phil.	4.75	4	Pol.	3.49
3	Parm.	3.17	5	Crat.	3.53	18	Tim.	4.42	26	Pol.	4.52	28	Laws	4.58	13	Laws	4.20	3	Euthd.	3.17
1	Tim.	2.59	2	Parm.	2.81	15	Soph.	4.35	24	Laws	4.48	27	Euthd.	4.53	11	Euthd.	4.01	2	Symp.	2.81
Crat.			Soph.			Pol.			Tim.			Laws			Phil.			Crit.		
87	Soph.	7.13	91	Phil.	8.29	90	Soph.	8.10	86	Crit.	7.13	50	Phil.	5.18	91	Soph.	8.29	86	Tim.	7.13
85	Phdo	7.12	90	Pol.	8.10	72	Phil.	6.22	81	Crat.	6.65	46	Crit.	5.12	88	Phdo	7.14	84	Phdo	6.96
82	Theaet.	6.78	87	Crat.	7.13	67	Crat.	5.93	73	Soph.	6.26	45	Pol.	5.09	78	Crat.	6.50	79	Symp.	6.56
81	Tim.	6.65	73	Tim.	6.26	63	Crit.	5.84	69	Phil.	5.94	43	Soph.	4.96	72	Pol.	6.22	77	Parm.	6.47
78	Phil.	6.50	56	Phdo	5.41	57	Theaet.	5.42	66	Phdo	5.92	38	Symp.	4.74	69	Tim.	5.94	63	Pol.	5.84
71	Parm.	6.10	54	Theaet.	5.34	45	Laws	5.09	58	Phdr.	5.47	31	Rep.	4.64	65	Parm.	5.90	60	Phdr.	5.53
70	Phdr.	6.02	48	Crit.	5.18	44	Tim.	5.05	52	Theaet.	5.20	28	Phdr.	4.58	62	Phdr.	5.59	48	Soph.	5.18
67	Pol.	5.93	48	Phdr.	5.18	29	Phdr.	4.60	44	Pol.	5.05	25	Tim.	4.50	51	Symp.	5.19	46	Laws	5.12
36	Rep.	4.69	43	Laws	4.96	26	Phdo	4.52	25	Laws	4.50	24	Phdo	4.48	50	Laws	5.18	40	Theaet.	4.82
21	Laws	4.44	32	Parm.	4.65	23	Rep.	4.47	20	Parm.	4.43	21	Crat.	4.44	42	Euthd.	4.94	34	Phil.	4.69
16	Euthd.	4.35	15	Rep.	4.35	19	Symp.	4.43	18	Rep.	4.42	13	Theaet.	4.20	41	Rep.	4.94	33	Rep.	4.67
14	Crit.	4.23	7	Euthd.	3.55	10	Euthd.	4.00	17	Symp.	4.37	9	Euthd.	3.93	39	Theaet.	4.75	14	Crat.	4.23
5	Symp.	3.53	6	Symp.	3.53	4	Parm.	3.49	1	Euthd.	2.59	8	Parm.	3.59	34	Crit.	4.69	12	Euthd.	4.12

tion, where for *Theaet.* 100 : *Parm.* 100 words there results from a common share of 29 words a figure of

$$29 \times \frac{100}{356} \times \frac{100}{106} = 7.68.$$

Obviously the highest degree of affinity will occur with 106 words in common (i.e. the total of *Parm.*, the work with the smaller share), which produces

$$106 \times \frac{100}{356} \times \frac{100}{106} = 28.1$$

but the smaller total always cancels itself, so that in each case the highest degree of affinity is merely 10,000 divided by the total of the larger work. Thus the larger the work the smaller its highest possible degree of affinity will be, and that for the *Laws* is in fact 7.9, making it difficult or impossible for it to attain top position in the various series. That for the *Rep.* is almost as low (9.08). Its highest degree of affinity (with *Phdo*) is 5.39, representing 205 words in common out of the possible 345. To approach the top position in all the series, to reach therefore say a figure of 8.0, the two works would have needed 304 out of the possible 345 in common. By contrast *Soph.* and *Phil.* attain the highest degree of affinity figure (8.29) with only 64 in common out of a possible 272, which demonstrates the unfair bias against the larger works in this calculation.

Despite the confused picture presented by the statistics Natorp was not discouraged from his firm resolve to achieve some definite result. 'It could be', he declared,

> that while the direct comparison of two particular works produces a useful result only in the rarest cases, the comparison of whole groups of works might give us what we want. Supposing it happened that the works of a definite group A B C D regularly stood above those of another group M N O P in the series referring to them (B C D in the A series, A C D in the B series, etc.), but regularly below them in the series referring to the latter; it would be proved that the former works stand closer to one another and the latter works closer to one another than the works of the one to those of the other group.

His method of identifying these groups was as follows. Reference to Table 16.3 shows that the dialogue with the slightest affinity to the rest of the works is *Euthd.* Accepting this as one extreme, therefore, he drew up a table (16.4) showing which of the others was nearest to the *Euthd.* From the more frequent promotion of the *Euthd.* above other works in

Table 16.4

Euthd. in	Symp.	Rep.	Phdo	Phdr.	Theaet.	Parm.	Crat.	Soph.	Pol.	Tim.	Laws	Phil.	Crit.
above Symp.		–	o	o	o	–	–	–	o	o	o	o	o
Rep.	–		–	o	o	o	o	o	o	o	o	=	o
Phdo	o	o		o	o	o	o	o	o	o	o	o	o
Phdr.	o	o	o		o	o	o	o	o	o	o	o	o
Theaet.	o	o	–	o		o	o	o	o	o	o	–	o
Parm.	–	–	o	o	o		o	o	–	o	–	o	o
Crat.	–	–	o	o	o	o		o	o	o	o	o	o
Soph.	–	–	–	o	o	o	o		o	o	o	o	o
Pol.	–	–	–	o	o	o	o	o		o	o	o	o
Tim.	–	–	o	o	o	o	o	o	o		o	o	o
Laws	–	–	–	o	o	o	o	o	o	o		o	o
Phil.	–	o	o	o	o	o	o	o	o	o	o		o
Crit.	o	–	o	o	o	o	–	o	o	o	o	–	

Symp., *Rep.* and *Phdo* (as indicated by the dashes) he concluded that these three works were more closely connected with it than the rest, and drew up a similar table for each of them (e.g. Tables 16.5 and 16.6). According to the perpendicular series in Table 16.5 there were two groups showing affinity to the *Symp.*

(a) *Euthd.*, *Rep.*, *Phdo*, *Phdr.*, *Theaet.*, which was not surprising,

(b) *Laws*, *Phil.*, *Crit.*, which was surprising,

both contrasted with a group showing hardly any affinity at all – *Parm.*, *Crat.*, *Soph.*, *Pol.* and *Tim.*

Since the perpendicular series presented an obscure picture, Natorp preferred to look at the horizontal series for *Soph.*, *Pol.*, *Tim.* and *Laws*, which produced all dashes in the left sector, all noughts in the centre. The only other horizontal series exhibiting the same characteristics was the *Rep.*, but this was not reckoned with the preceding four, because on being compared with the *Laws* in the vertical series, it was found that in the *Rep.* the *Symp.* was surpassed by the works of the first group (*Euthd.*, *Phdo*, *Phdr.*, *Theaet.*) and only by one of the others (*Phil.*), but in the *Laws* only by four of the last group (*Soph.*, *Pol.*, *Phil.* and *Crit.*). 'On the grounds of this discovery', he declared, 'the *Phdr.* and *Theaet.* must be considered as next to the group consisting of *Euthd. Symp. Rep. Phdo.*, while *Soph. Pol. Tim. Laws*, of which *Soph. Pol. Laws* were noted for the same reason in the *Euthd.* table, are definitely contrasted with these six.'

Of table 16.6 he remarked,

> The distribution of rises might at first sight seem irregular, but an examination of the square of the last works reveals only 2 dashes against 28 noughts; the horizontal series *Soph. Pol. Laws*, *Phil.* show rises only to the left of this square, and correspondingly the vertical series *Soph. Pol. Tim. Crit.* only above the square, in both cases as far as *Crat.* In general there is good agreement between the vertical and horizontal series. Here, therefore, *Soph. Pol. Tim. Laws*, *Phil. Crit.* are distinguished from all other works. Henceforth *Phil.* and *Crit.* must be joined unhesitatingly with the last group.

The square that he drew is purely arbitrary. One may draw a similar square (broken lines) which by this method of argument would prove that *Phdo*, *Phdr.*, *Theaet.*, *Parm.*, *Crat.* and *Soph.* are distinguished from all other works and form an exclusive group.

Natorp went on to draw up a separate table, which it would be otiose to reproduce, for each of the fourteen dialogues, and after collation of his results expressed the chronological sequence thus:

Table 16.5

Symp. in	Euthd.	Rep.	Phdo	Phdr.	Theaet.	Parm.	Crat.	Soph.	Pol.	Tim.	Laws	Phil.	Crit.
above Euthd.		o	–	–	–	o	o	o	–	–	–	–	–
Rep.	–		–	–	–	o	o	o	o	o	–	–	–
Phdo	–	o		–	–	o	o	o	o	o	–	o	o
Phdr.	–	o	–		–	o	o	o	o	o	–	o	–
Theaet.	–	o	–	–		o	o	o	o	o	–	–	–
Parm.	–	–	o	–	o		o	o	–	o	–	o	–
Crat.	–	=	o	–	–	o		o	o	o	–	o	–
Soph.	–	–	–	–	–	o	o		o	o	o	o	–
Pol.	–	–	–	–	–	o	o	o		o	o	o	–
Tim.	–	–	–	–	–	o	o	o	o		–	o	o
Laws	–	–	–	–	–	o	o	o	o	o		–	–
Phil.	–	o	o	–	–	o	o	o	o	o	o		–
Crit.	–	–	o	–	–	o	o	o	o	o	o	–	

Table 16.6

Rep. in	Euthd.	Symp.	Phdo	Phdr.	Theaet.	Parm.	Crat.	Soph.	Pol.	Tim.	Laws	Phil.	Crit.
above Euthd.		o	o	–	–	–	–	–	–	–	–	=	–
Symp.	o		o	o	o	–	–	–	–	–	o	o	o
Phdo	o	o		o	o	o	o	o	o	o	–	o	o
Phdr.	–	o	o		o	o	o	o	o	o	–	o	o
Theaet.	–	o	o	o		o	o	o	o	o	–	–	o
Parm.	–	–	o	–	o		o	o	–	o	–	o	o
Crat.	–	–	o	o	o	o		o	o	o	–	o	–
Soph.	–	–	o	–	o	o	o		o	o	o	o	o
Pol.	–	–	–	–	o	–	o	o		o	o	o	o
Tim.	–	–	o	o	o	–	o	o	o		–	o	o
Laws	–	o	–	–	–	–	–	o	o	o		o	o
Phil.	o	o	o	o	–	o	o	o	o	o	o		o
Crit.	–	o	o	o	–	o	–	o	o	o	o	–	

– denotes Yes, o denotes No, = denotes Same figures.

A	A_1	*B*	*C*	C_1
Euthd.	*Phdr.*	*Parm.*	*Soph.*	*Phil.*
Symp.	*Theaet.*	*Crat.*	*Pol.*	*Crit.*
Rep.			*Tim.*	
Phdo			*Laws*	

meaning that Group A was most sharply characterised lexically by *Euthd.*, *Symp.*, *Rep.* and *Phdo*, and with decreasing sharpness from top to bottom and from left to right, least sharply by *Phdr.* and *Theaet.* Similarly Group C was characterised by *Soph.*, *Pol.*, *Tim.* and *Laws* with decreasing sharpness, and *Phil. Crit.* were more loosely attached in the same way as *Phdr.* and *Theaet.* to Group A. *Parm.* stood between the two groups with slight connections with the more strongly characterised works of both groups; *Crat.* likewise, with stronger connections with the most sharply characterised works of Group C, but also with several of Group A.

If the investigation which led to this result had been a sound one, the chronological sequence produced would have been worth consideration, but it was not. Apart from serious doubts about the method of reckoning and interpretation, it was compromised from the start by the source of its material. Natorp himself was aware of the danger. Of his compilation of 1,949 words from Ast's *Lexicon* he remarked:

> One could immediately declare this whole foundation insecure. For, unfortunately, it is not merely a suspicion but a fact that can be proved by instances enough, that Ast not only did not give each single occurrence, but with less rare words not always illustrations from every work in which they occur. But at least with the rarer words (and it is a question only of 'rare' in a different degree) he was at great pains to note, if not every occurrence, at least illustrations from every work in which they appear. The probable error, therefore, can be confined within tolerable limits, and moreover – which is the important thing – it is fairly evenly distributed over all the works, so that in the majority of cases the result will remain approximately correct. Certainly a more exact foundation is emphatically to be desired, but I believe that we shall not be led into any considerable error on account of the inadequacy of the material. In any case that must become evident from the results themselves.

An objection to Natorp's rather complacent attitude is that it was impossible for him to know either that Ast noted illustrations of rarer words from every work in which they appeared or that errors were evenly distributed throughout the dialogues. The latter is merely convenient

supposition, the former demonstrably untrue.[7] Even if Ast's *Lexicon* had been perfectly complete, the investigation would still not have been unexceptionable; lexical affinity is too often dependent on similarity of content to be a sound guide to chronological order, except for broad divisions of the kind made by Campbell. Natorp himself became aware of this too, as he revealed in places: e.g. (p. 31)

> It is very noteworthy that the *Crat.* has fourteen words in common with *Tim.*, two less with *Rep.*, and only one more with *Laws*. It has not yet been sufficiently recognised how much 'natural philosophy' is contained in the etymologies of the *Crat.*; most of the exclusive affinity with *Tim.* belongs to this sphere.

As Ritter said, it would have been a great help if Natorp had published his list of 1,949 words on which he based his investigation. He even wrote asking for them, but received the reply that they had been lost, from which he concluded, perhaps with some justification, that their author no longer valued them very highly.

Natorp's third investigation was similar to the second in its earlier form, but with 181 of Lutoslawski's criteria substituted for the 1,949 words. It does not merit discussion, however, on account of its tendentious nature, both choice and interpretation of the criteria[8] being made to serve the same end, a relatively early date for the *Phdr.* and *Theaet.* It was not inappropriate that he should be accused by Ritter in his review of following a *gebundene Marschroute* throughout his inquiries.

[7] See, for example, Ritter's review.

[8] So, for example, the occurrence of χάριν in *Phdr.* (8 against 9 ἕνεκα) and *Theaet.* (4 against 12 ἕνεκα) was regarded as relatively insignificant in view of the 3 instances in *Gorg.* He omitted to mention that ἕνεκα in the same work occurs more than 30 times (see Ritter Table 10.2).

17

G. JANELL

★

Just after the turn of the century G. Janell published the results of research which he had carried out into Plato's treatment of hiatus.[1] Using Schanz's text for all dialogues except *Pol.* and *Rep.* (Campbell), *Tim.*, *Crit.*, *Phil.* and *Laws* VII–XII (Bekker), his method was as follows.

First he divided all instances of hiatus into two types, objectionable and permissible. Among the latter he included those caused by elidable vowels, i.e. short α, ε, ο and sometimes ι,[2] as well as, rather oddly, αι in the infinitive ending -θαι and οι in compounds of τοι, such as ἤτοι, καίτοι, μέντοι. Also permissible were those which could have been avoided by prodelision (e.g. ἐθέλειν, ἐκεῖνος) or crasis (e.g. ἐγὼ οἶμαι), or by substituting an alternative form (e.g. Σωκράτη(ν), μείζονα for μείζω), and those arising from the use of demonstrative adjectives (e.g. αὕτη ἡ), 'the separation of which would be somewhat harsh'. That all these kinds of hiatus were permissible, Janell considered self-evident. However, there were no doubt others regarded by Plato as unobjectionable which could only be discovered empirically, and to identify these he carried out a preliminary investigation of those works which according to Blass contained the fewest instances of hiatus: *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws*. If, he argued, certain types of hiatus here appeared considerably more often than the rest, it might be inferred that these were permissible.

The figures he obtained are reproduced in the form of a table (Table 17.1). When a comparison of the numbers of hiatus in class I with those in classes II and III revealed a significant preponderance of the former

[1] *Jahrbücher für classische Philologie*, Suppl. 26 (1901) 263–336.

[2] E.g. in ἀνάγνωθι and ἐστί. He did not say how he regarded adverbs with this ending, such as ποτέρωθι.

Table 17.1

Class		Soph.	Pol.	Tim.	Crit.	Phil.	Laws	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
I	*Hiatus with*																		
	καί	130	222	317	36	305	1,799	155	152	160	98	157	172	215	140	172	128	112	138
	article	113	42	69	26	185	569	49	40	49	32	48	65	49	33	53	46	50	55
	περί	22	23	16	13	21	124	11	6	7	8	3	14	20	20	5	9	8	13
	μή	70	6	4		17	164	5	8	1	4	13	23	13	12	19	8	32	26
	δή		2	5		7	27	6	3	4	3		2	4	2		1		2
	ἤ	2	5	3		6	101	4	5	6	4	3	6	5	9	23	8	18	10
	τί & τι	7	6	1		16	47	2	10	4	2	1	4	7	3	4	4	2	4
	ἄν	1	1	3		1	17	1			2				1	4		7	2
	εἰ	1				1	10	1	2	2	1				1	1	2		
	ὦ	1				2	17	3	2	2	2			1			6	1	
	πρό					1	2					1							1
	εὖ		1				1												1
	Total of I	347	308	418	75	562	2,878	237	228	235	156	226	286	314	221	281	212	230	252
II	Hiatus within phrase	16	12	38	6	97	817	67	55	72	46	71	60	44	65	108	62	86	81
IIIa	Hiatus at pause (comma or stop): same speaker	6	6	24	3	33	542	25	28	42	30	55	32	24	28	80	43	86	69
IIIb	Hiatus at pause: change of speaker	2	1			30	30	3	6	7	1		3	3	1	1	3		2
	Total of II and III	24	19	62	9	160	1,389	95	89	121	77	126	95	71	94	189	108	172	152

(a) With the article, ἤ, εἰ and ὦ the hiatus in question is that with the following word (excluding proper nouns in the case of ὦ).
(b) For ἄν only instances with the relative are concerned, though Janell generally includes ὅτι ἄν with τι.
(c) With εὖ the reference is to its use in combination with a verb as a virtual compound.
(d) The figure of 185 for the article in *Phil.* seems too high (cp. Table 17.8). Those for the books of the *Laws* also look suspicious.

in all six works, it was clear to him Plato avoided hiatus of classes II and III, but not of class I, since 'it was hardly possible with such common words'. The distinction between objectionable and permissible hiatus thus drawn, he next compiled statistics of the former for the rest of the dialogues (Table 17.2).[3]

The conclusion which Janell drew from these figures was that Plato's treatment of hiatus differed considerably in two separate periods. In the first, comprising all the works down to the *Phdr.*, Plato was not troubled by hiatus of any kind, but in the second carefully avoided those types of hiatus identified as objectionable. He made no attempt to deduce anything about chronology from the figures for the dialogues of the first period, and clearly there would be little point in it, since, if Plato's avoidance of hiatus was an abrupt, not a gradual development in his style, as the statistics would seem to indicate, then any variation in its frequency here would probably be accidental. With the last group of dialogues, however, one might well expect to find some development, either an increasing or a decreasing avoidance, or a third possibility, an avoidance which increased up to a certain point, then decreased. Janell himself, however, was not greatly concerned with chronology, his sole contribution in respect of the order of the last group of works being that 'obviously Plato was prevented by death from applying the last touches to the *Phil.* and *Laws*. This seems to be the explanation of the difference in frequency of hiatus between these two and *Soph.*, *Pol.*, *Tim.*, *Crit.*'

Lastly he remarked on the frequency of hiatus in the *Phdr.* being somewhat lower than in the rest of the earlier dialogues. To explain this he accepted Blass's view, that Plato later revised it, and in support of this thesis cited several passages where hiatus appeared to be avoided more carefully than usual, such as (1) 250c ταῦτα μὲν οὖν – 251a τοῖς παιδικοῖς, (2) 259b οὐ μὲν δὴ – 259e μέλλῃ, (3) 265a ᾤμην σε – 265d ἄχαρι, (4) 265e τὸ πάλιν – 267d τίθενται ὄνομα, with 2, 2, 1 and 10 instances of objectionable hiatus respectively.[4] It could be argued that similar passages may occur in other dialogues outside the last group. Without examining the whole Platonic corpus in detail it is impossible to refute this hypothesis

[3] It appeared that Plato made little or no attempt to avoid hiatus in the legal formulae of the *Laws*. Since this seemed prejudicial to those books in which such formulae were most frequent (notably VIII, IX, XI, XII), Janell withdrew them from the investigation. The figures before deduction of 42.2 pages of text occupied by these formulae together with their 474 instances of hiatus are shown in parentheses.

[4] Janell, as mentioned previously, used Schanz's text. In Burnet's there are even fewer instances: only one in the second passage, none in the third.

Table 17.2

	Instances of hiatus	Pages (Didot)	Average per page		Instances of hiatus	Pages (Didot)	Average per page
Lys.	685	14.9	46.0	Rep. II	607	18.8	32.3
Euthd.	1,258	27.9	45.1	Rep. III	706	22.0	32.1
Parm.	1,376	31.2	44.1	Rep. V	695	22.2	31.3
Charm.	797	18.1	44.0	Crat.	1,319	42.3	31.2
Rep. I	901	20.5	44.0	Menex.	327	11.6	28.2
Hipp. Ma.	779	19.0	41.0	Phdr.	932	39.0	23.9
Phdo	2,017	49.2	41.0	Laws V	126	15.9	6.7 (7.9)
Prot.	1,591	39.5	40.3	Laws III	121	19.4	6.2
Rep. IX	601	15.1	39.8	Laws XII	152	21.1	5.7 (7.2)
Rep. IV	757	19.1	39.6	Laws X	108	19.5	5.6
Apol.	764	19.7	38.8	Laws II	89	16.3	5.5
Meno	892	23.3	38.3	Laws XI	172	19.4	5.4 (8.9)
Hipp. Mi.	378	10.1	37.4	Laws I	95	18.6	5.1
Cri.	342	9.5	36.0	Laws IX	189	22.2	5.1 (8.5)
Symp.	1,414	39.3	36.0	Laws IV	77	14.7	4.8 (5.2)
Gorg.	2,182	61.6	35.4	Laws I–XII	1,389	236.8	4.7 (5.9)
Euph.	413	11.7	35.3	Phil.	160	43.2	3.7
Rep. I–X	6,833	193.7	35.3	Laws VIII	94	16.9	3.7 (5.6)
Rep. VII	661	18.8	35.2	Epin.	40	14.1	2.8
Rep. X	664	19.3	34.4	Laws VII	71	27.6	2.5
Ion	312	9.1	34.3	Laws VI	95	25.2	2.4 (3.8)
Lach.	598	17.8	33.6	Tim.	62	53.0	1.2
Rep. VIII	615	18.6	33.1	Crit.	9	11.2	0.8
Theaet.	1,733	53.0	32.7	Soph.	24	39.6	0.6
Rep. VI	626	19.3	32.4	Pol.	19	43.2	0.4

(a) For the figures in parentheses see note 3, p. 155.
(b) The figures for *Hipp. Ma.*, *Ion* and *Epin.*, which Janell omitted from his investigation, are the author's.

absolutely, but one may at least cast some doubt on it. On the basis of the figures in Table 17.2 *Menex.* and *Crat.* are the works in which there would be an expectation of finding passages with a scarcity of hiatus similar to that in the *Phdr.*; yet in reading them one is not consciously aware, as with the *Phdr.*, that some parts of the text contain fewer instances of hiatus than the rest.

This subjective impression can be given a numerical expression; if, for instance, with the first passage above one counts the number of words between the hiatus immediately preceding ταῦτα μὲν οὖν and that immediately succeeding τοῖς παιδικοῖς, the result is 210 (O.C.T.). For purposes of comparison, therefore, it may be described as 2 instances of hiatus in 210 words. Similarly the second passage will be 2 in 211 words, the third 1 in 196 words and the fourth 10 in 600 words. By contrast, in the *Crat.* (a work of roughly equal length) there are only two passages of note: 400c7–401b7 with 5 in 217 words and 404e7–405c5 with 3 in 183 words. In the *Menex.* there are three passages: 234c6–235b8 with 2 in 124 words, 242d8–243b4 with 3 in 151 words and 240e3–242a7 with 10 in 285 words. Neither can be said to match the *Phdr.*

There is, therefore, some evidence to support Janell's view of an apparent tendency on Plato's part to avoid hiatus more carefully in some parts of the *Phdr.* than in others. He himself believed that these were parts which were revised at a later date. Assuming this to be so, the revision would have had to take place in a period when Plato was concerned about avoiding hiatus, namely that in which the final group of dialogues was composed. By anticipating the research of W. Kaluscha (see Chapter 18) it is possible to be a little more precise, because he revealed that *Soph.*, *Pol.*, *Phil.* and *Laws* are closely related to each other by certain pecularities of prose rhythm, while *Tim.* and *Crit.* are closer to the remainder of the dialogues in this respect. Had Plato revised the *Phdr.* during the time in which he wrote *Soph.*, *Pol.*, *Phil.* and *Laws*, the passages concerned would be likely to show traces of these late rhythms, but they do not. Consequently, if the *Phdr.* underwent revision, it probably did so during the period when the *Tim.* and *Crit.* were produced.

Revision, however, is not the only possible explanation for the comparatively low frequency of hiatus in the *Phdr.*; it may alternatively be ascribed to the rhetorical-poetical tenor of its composition. This was the view, for example, of A. W. De Groot, who wrote:[5] 'We may say that

[5] *Handbook of Antique Prose Rhythm*, Groningen 1919, 74.

Table 17.3

	Phaedrus chap. 26				
	1st 1,000 syllables	2nd 1,000 syllables	Average	Republic	Laws
–∪–	174	167	170.5	146.2	112.8
–∪∪–	85	74	79.5	64.0	47.5
–∪∪∪–	12	21	16.5	30.7	40.3
–4 short–	3	8	5.5	9.0	13.8
–5 short–		2	1.0	2.7	5.3
–6 short–				1.2	2.8
–7 short–				0.0	0.5
–8 short–				0.2	0.0
–9 short–					0.3

(a) References for the samples from the *Rep.* and *Laws* were omitted by De Groot.

there are three criteria which distinguish the *Phaedrus* from all the other dialogues, viz.: poetical choice of words, poetical metre, avoidance of hiatus.' For evidence of the last of these he referred to Janell, the first he took to be common knowledge, the second he 'proved' by statistics of the number of short syllables occurring between two long ones (Table 17.3). 'It is easily seen', De Groot observed, 'that the *Phaedrus* shows an abundance of dactylic and trochaic metra.' In fact one sees only that the first 2,000 syllables of chapter 26 (which begins at 246d6 and is part of Socrates' second speech) show this characteristic; before reaching any conclusion about the prose rhythm of the *Phdr.* it would be necessary to analyse the whole of it, not one short section. Even a small investigation, however, reveals the arbitrary nature of De Groot's observation. The first 1,000 syllables of the work and a further 2,000 starting at 257b7 may be taken as samples of the dialogue form and contrasted with the first 3,000 syllables of Socrates' second speech (Table 17.4). A comparison of the average distribution for each type with De Groot's figures (Table 17.3) indicates that, if the latter are representative of anything, it is of the rhythm in one of the speeches, not of that in the dialogue, and certainly not of the work as a whole.[6]

[6] The method itself was flawed; because it required each 'foot' to end with a long syllable, it failed to distinguish between a series of trochees and one of cretics, in the former effectively counting each long syllable apart from the first twice over. It would have been better to allow a 'foot' to end with either a long or a short syllable. An analysis of 3,000

Table 17.4

	Phaedrus (O.C.T.)						Average	
	Dialogue			Socrates' second speech				
	1st 1,000 syllables	2nd 1,000 syllables	3rd 1,000 syllables	1st 1,000 syllables	2nd 1,000 syllables	3rd 1,000 syllables	Dialogue	Speech
–∪–	156	174	158	162	163	186	162.7	170.3
–∪∪–	78	55	67	76	84	71	66.7	77.0
–∪∪∪–	26	27	27	19	19	27	26.7	21.7
–4 short–	13	7	5	7	7	7	8.3	7.0
–5 short–	4	6	3	5	1	2	4.3	2.7
–6 short–	1	3	1	1			1.7	0.3
–7 short–		1					0.3	
–8 short–				1				0.3

There was in fact no need for De Groot to demonstrate the poetical quality of Socrates' second speech, because it is explicitly mentioned,[7] as is that of the first.[8] If the attribution of the low frequency of hiatus in the *Phdr.* to its rhetorical-poetical tenor were correct, one would expect the incidence of hiatus in Socrates' two speeches to be somewhat lower than in the dialogue section, since they are by definition rhetorical as well as being specified by Plato himself as poetical. Yet most of the passages noted above in which hiatus appears to be avoided more carefully than usual occur in the dialogue section, and hiatus in general, however calculated, can hardly be said to be significantly lower in the two speeches (Table 17.5).

The 'poetical' character of the *Phdr.*, then, does not seem an adequate reason for the comparatively low frequency of hiatus. The revision theory is also somewhat suspect, considering that in the passages where hiatus is less common there appears to be little attempt to avoid it with the words of Janell's class 1, which is a feature of those works written when Plato was treating the matter seriously.[9] The answer may be that, in a dialogue where Isocrates is frequently alluded to[10] and finally mentioned by name (278e10), Plato was beginning to experiment with one of the characteristic features of his rival's prose style.

Returning to the main part of Janell's inquiry, while it would seem that his statistics are for the most part reliable,[11] there is a methodological

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syllables in each of the two speeches and in the dialogue section using this latter method showed little difference between them except for a significant increase in the frequency of the dactyl in both speeches and a lesser one in that of the trochee in the second speech and of the choriamb in the first (Thesis 277–9).

[7] At 257a4 it is referred to as παλινῳδία τά τε ἄλλα καὶ τοῖς ὀνόμασιν ἠναγκασμένη ποιητικοῖς τισιν διὰ Φαῖδρον εἰρῆσθαι.

[8] 241e1 οὐκ ἤσθου . . . ὅτι ἤδη ἔπη φθέγγομαι ἀλλ' οὐκέτι διθυράμβους; (cf. 238d2).

[9] Note, for example, δὴ οὖν 259d7, 265c7. Altogether it occurs eleven times in the *Phdr.*, but of the later works only once in *Tim.* (v.l. οὖν δή) and four times in the *Laws*.

[10] See G. J. De Vries, *A Commentary on the Phaedrus of Plato*, Amsterdam 1969, 15–18.

[11] Thesis 28off. A check, for example, of objectionable hiatus in the *Phdr.* produced the same total, while in the *Phil.* Janell missed only 3 out of its 163 instances, as is clear from the catalogue which he provided for works of the last chronological group. Use of a different edition does not appear to affect the results unduly, at least as far as objectionable hiatus is concerned; this may be seen from a comparison of Tables 17.1 and 17.8, the latter containing figures for Burnet's O.C.T., which were derived from computer-generated lists of hiatus supplied by G. C. Neal. Differences of reading between texts do produce different cases of hiatus, but these are relatively few. The largest variance (in proportion to the total occurrence) probably occurs in the *Pol.*, where Campbell's text, used by Janell, and Burnet's each have three instances of hiatus not shared by the other, but these cancel one another out leaving the total the same.

Table 17.5

Phaedrus (O.C.T.)	Pages (Didot)	Objectionable hiatus A		Objectionable hiatus B		Objectionable hiatus C		Permissible hiatus D		Elision E		D + E	
		Total	Per page	Total	Per page	Total	Per page	Total	Per page	Total	Per page	Total	Per page
Dialogue section	23.0	549	23.9	584	25.3	769	33.4	520	22.6	244	10.6	764	33.2
Lysias' speech	2.6	42	16.2	60	23.8	83	31.9	38	14.6	24	9.2	62	23.8
Socrates' 1st speech	3.2	84	26.3	90	28.1	114	35.6	82	25.6	32	10.0	114	35.6
Socrates' 2nd speech	10.0	267	26.7	285	28.5	323	32.3	216	21.6	88	8.8	304	30.4

(a) Column A shows the number of hiatuses calculated according to Janell's principles; B the same with the addition of those caused by verbs ending in -θαι (a significant rise in the total for Lysias' speech may be noted). The figures in column C result from the further inclusion of hiatus of class 1, as listed in Table 17.7, with the exception of that with καί, the article, περί and πρό (see p. 162).

(b) In number the pages do not total 39.0, because 0.2 of a page is occupied by the repetition of part of Lysias' speech (262e1ff. and 263e6ff).

error.[12] From the fact that in works of the last chronological group hiatuses of class I were always much more frequent than those of II and III combined (Table 17.1), he concluded that Plato regarded them as 'permissible'. The correct procedure, however, would have been to compare those instances of the words in class I causing hiatus with those not causing it. When this is done for two works of roughly the same length, *Crat.* and *Pol.*, the result is quite striking (Table 17.7); in the *Pol.* it is evident that with every single word except perhaps πρό and, to a lesser extent, καί and περί Plato attempted to avoid or restrict the occurrence of hiatus. However, that this error of method is unlikely to have affected the validity of Janell's results, may be seen from the sample of works in Table 17.6, where the figures for hiatus with words of class I (cf. Table 17.7) have been included with those for classes II and III. Also shown is the incidence both of permissible hiatus and, since elisions may have originated in transmission rather than going back to Plato himself, of these too. Strictly speaking, instances of prodelision and crasis should likewise have been included, but since they are relatively few, their omission will not have affected the statistics unduly. The text used was Burnet's. It is apparent that, even with the combined figures (Table 17.6, col. A), the relative order of the dialogues remains essentially the same (cf. Table 17.2), and the difference between the works of Plato's last period and the other four is still significantly large. Also noteworthy is the fairly uniform occurrence of permissible hiatus, justifying Janell's decision to leave this out of account.[13]

Lastly, as an appendix to his main investigation, Janell provided a catalogue of all the instances of ὥσπερ and καθάπερ in *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws*, showing that where the former was used only permissible hiatus occurred (total 22). If, however, καθάπερ were replaced everywhere by ὥσπερ, then many more cases of hiatus would ensue (95 permissible, 75 objectionable), suggesting a connection be-

[12] In addition Janell sometimes proceeded contrary to his own principles, as in counting as 'objectionable' hiatus after οὐχί (e.g. *Phil.* 36b4), before the oblique forms of ἐγώ (e.g. *Phil.* 16c6, 42e4) and before ἅπας (e.g. *Tim.* 78c1). The number of such instances, however, is too low to alter his statistics significantly, the highest occurrence (in *Laws* v and x) being only three.

[13] There is, however, what would appear to be a temporary rise in *Tim.* and *Crit.*, when their figures are compared with those for other works.

Table 17.6

	Pages (Didot)	A Objectionable hiatus + class I		B Permissible hiatus		C Elision		B + C	
		Total	Per page	Total	Per page	Total	Per page	Total	Per page
Hipp. Ma.	19.0	1,412	74.3	481	25.3	225	11.8	706	37.2
Ion	9.1	585	64.3	203	22.3	60	6.6	263	28.9
Menex.	11.6	604	52.1	212	18.3	107	9.2	319	27.5
Phdr.	39.0	1,950	50.0	856	21.9	388	9.9	1,244	31.9
Laws	236.8	4,130	17.4	5,309	22.4	2,509	10.6	7,818	33.0
Phil.	43.2	661	15.3	826	19.1	626	14.5	1,452	33.6
Epin.	14.1	188	13.3	286	20.3	111	7.9	397	28.2
Tim.	53.0	547	10.3	1,483	28.0	612	11.5	2,095	39.5
Soph.	39.6	387	9.8	735	18.6	458	11.6	1,193	30.1
Crit.	11.2	108	9.6	378	33.8	108	9.6	486	43.4
Pol.	43.2	330	7.6	694	16.1	458	10.6	1,152	26.7

(a) The figure for the *Soph.* under A is slightly exaggerated by the unavoidable occurrence in this work of (τὸ) μὴ ὄν, which accounts for 60 of the 72 instances. If these are deducted, the average per page becomes 8.3.

Table 17.7

Burnet's text	CRAT.		POL.	
	Hiatus	No hiatus	Hiatus	No hiatus
καί	373	543	222	708
article	541	864	41	784
περί	37	53	26	108
πέρι	1	1	—	14
μή	42	45	5	73
δή	60	54	2	178
νυνδή	13	3	—	10
ἤ	88	75	6	100
τί	32	45	5	66
τι	52	54	1	45
ὅτι (pron.)	8	16	1	10
ὅτι (conj.)	51	71	—	47
ἄν + rel.	18	2	—	3
εἰ	23	98	—	48
ὦ	10	19	—	11
πρό	2	34	3	34
εὖ (+verb)	5	8	1	5
καίτοι	10	16	—	22
μέντοι	11	11	3	36
ἤτοι	1	5	—	4
οὗτοι οἱ etc.	8	—	1	8
Verb ending -θαι.	108	95	1	140

(a) For some words the incidence in *Crat.* or *Pol.* alone was too low to be significant, so that it was necessary to count that in other works, i.e. πρό *Phdo*, *Symp.*, *Rep.*, *Parm.* and *Theaet.* compared with *Tim.*, *Crit.*, *Soph.*, *Pol.*, *Phil.* and *Laws*; καίτοι *Rep.*, *Parm.*, *Theaet.* and *Phdr.* compared with *Crit.*, *Soph.*, *Pol.*, *Phil.* and *Laws*. For μέντοι *Crat.* was compared with *Soph.*, *Pol.*, *Phil.* and *Laws*, for ἤτοι with *Phil.* and *Laws*, and for οὗτοι οἱ etc. with *Tim.*, *Crit.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.

(b) Instances of the definite article not causing hiatus: only those forms were counted which would have produced hiatus, if they had been followed by a word beginning with a vowel.

(c) Hiatus after ὦ: instances with names were excluded.

Table 17.8

Class		Soph.	Pol.	Tim.	Crit.	Phil.	Laws	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	Pages (Didot)	39.6	43.2	53.0	11.2	43.2	236.8	18.6	16.3	19.4	14.7	15.9	25.2	27.6	16.9	22.2	19.5	19.4	21.1
Ia	Hiatus with																		
	καί	133	222	353	71	303	1,798	151	155	161	100	150	174	219	141	167	128	114	138
	article	113	41	84	16	97	351	21	22	35	17	34	43	25	23	44	21	39	27
	περί	23	26	22	13	24	130	12	6	9	8	3	15	21	20	5	9	9	13
	μή	72	5	4		16	170	5	8	2	4	14	24	14	14	20	8	33	24
	δή	2	2	6		7	21	4	3	4	2		2	1	2		1		2
	ἤ	4	6	3		8	103	4	5	6	5	3	7	5	9	22	10	18	9
	τί & τι	8	7	3		16	48	2	9	4	2	1	5	7	3	4	4	2	5
	ἄν	1		2		1	16	1			2				1	4		6	2
	εἰ					1	11	1	2	2	1			1	1	1	2		
	ὡ					6	17	4	3	2	1			4			3		
	πρό					1	2					1							1
	εὖ		1				1												1
Ib	μέχρι					1	7		2		1		1			2		1	
	μέντοι					2	1	1											
	τοι						1										1		
	πέρι	1					3	1					2						
	infinitive -θαι		1	3		12	67	7	7	3	5	7	6	1	7	8	2	9	5
	Total of class I	357	311	480	100	495	2,747	214	222	228	148	213	279	298	221	277	189	231	227
II & III	Objectionable hiatus	30	19	67	8	166	1,384	95	94	119	78	124	95	72	93	190	103	171	150
	Average per page (Didot)	0.8	0.4	1.3	0.7	3.8	5.8	5.1	5.8	6.1	5.3	7.8	3.8	2.6	5.5	8.6	5.3	8.8	7.1

(a) Hiatus in quotations was not counted, and words in square brackets were ignored.
(b) Janell's tripartite division of objectionable hiatus according to punctuation was not followed, because differences between editions in this respect make comparison futile.
(c) νυνδή was classed under δή, ὅτι (both conjunction and pronoun) under τι.
(d) Hiatus before ἅπας was not regarded as objectionable.

tween hiatus avoidance and the increased use of καθάπερ in the later works.[14]

Janell's inquiry confirmed the unity of the final chronological group established by earlier research. Regarding a possible development of hiatus avoidance within this group, if one assumes that it was not haphazard and that the *Laws*, at least in part, was probably the last to be written, it would appear that towards the end of his life Plato was less strict in his approach. This would be psychologically plausible in that, having demonstrated his ability to match Isocrates in this aspect of prose style, he could afford to adopt a more relaxed attitude. As the incidence of hiatus in the *Phil.* is similar to that in the *Laws*, one might argue either that it is the closest to it of the other five or that it represents the first serious attempt to put Isocrates' principles into practice before achieving greater success in *Tim.*, *Crit.*, *Soph.* and *Pol.*

[14] The same connection may be surmised with regard to some other features of 'late' style identified by earlier investigators: e.g. the more frequent occurrence of σχεδόν and ὄντως in place of σχεδόν τι and τῷ ὄντι, the use of μέχριπερ restricted to works of the last group.

18

W. KALUSCHA AND L. BILLIG

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It will be convenient at this point to depart from the chronological order of research, in order to treat together two investigators both of whom examined the rhythm of Plato's prose and arrived at similar conclusions.[1] A separate account of each can then be followed by a common appreciation of their results.

The aim of Kaluscha's investigation was to ascertain which dialogues exhibited a clear prose rhythm or rhythms, then to deduce from a comparison of these their temporal relation to one another. For this purpose his concept of rhythm was a purely practical one; he confined himself to investigating the part of the sentence considered in antiquity to be the most important rhythmically, namely the clausula, which he interpreted as the end of a period or colon. Furthermore this was regarded as consisting of five syllables only, thus producing thirty-two different types, into which all the sentence endings were to be classified. Lastly, in order to make his data as unobjectionable as possible, he observed the following principles.

1. Clausulae containing a word ending in a long vowel before a word beginning with a vowel were omitted.
2. Similarly those in which a short vowel was followed by a combination of mute and liquid consonants.
3. The last syllable of the clausula was not regarded as *anceps*.
4. Two short syllables together were not reckoned as the equivalent of a long one.

[1] W. Kaluscha, 'Zur Chronologie der platonischen Dialoge', *Wiener Studien* 26 (1904) 190–204; L. Billig, 'Clausulae and Platonic Chronology', *Journal of Philology* 35 (1920) 225–56.

The investigation fell into two parts. The first examined the clausulae of the *Laws* to establish the truth or otherwise of Blass's belief that under Isocrates' influence Plato began to prefer certain rhythms to others. It then compared with them the clausulae of *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Crit.*, supposedly late works on the one hand, and those of *Prot.*, *Cri.* and *Apol.*, supposedly early works on the other, to see which showed the greater similarity. From the statistics obtained (Table 18.1 p. 169),[2] Kaluscha deduced the following about clausula rhythm in the *Laws*:

(a) long syllables are preferred to short in the final position;

(b) there is a marked preference for five clausulae, namely II.4 $-\cup\cup\cup-$, III.9 $\cup--\cup-$, IV.4 $---\cup-$, each of which represents one of the five highest figures in all twelve books; II.10 $\cup\cup\cup--$ -- likewise, with the exception of book III and VIII; V $-----$, which is one of the five highest figures in half the books.

On the basis of observation (a) Kaluscha decided it was permissible to regard the *anceps* quantity of the final syllable as long in every case and revised his statistics accordingly (Table 18.2). The five clausulae indicated under (b) now formed the following percentage of the total number of clausulae in each book:[3]

I	46.9	IV	54.4	VII	54.4	X	60.1
II	55.3	V	53.1	VIII	51.2	XI	52.4
III	51.7	VI	55.9	IX	56.8	XII	54.6

that is to say, in all books except I the frequency of these five clausulae exceeded that of the remaining eleven taken together.

Kaluscha also noted that Plato carefully avoided certain endings: II.3 $-\cup\cup-\cup$ (22 times in the *Laws*), III.6 $-\cup\cup--$ (23), II.6 $\cup-\cup-\cup$ (36), III.3 $--\cup\cup-$ (38), II.7 $\cup-\cup\cup-$ (41), III.8 $\cup-\cup--$ (44). The avoidance of the hexameter ending (II.3 and III.6) was to be ascribed according to Kaluscha to a conscious attention to the precepts of the Isocratean school, while of the others he remarked: 'With regard to their low frequency it is significant that clausulae III.3 and II.7 on the one hand and II.6 and III.8 on the other are almost identical.' Now the latter pair are identical, if the last syllable is regarded as *anceps*, but with the former it is the first syllable which differs. Is it possible, then, that in some

[2] Table 18.1a represents Table 18.1, but with Kaluscha's absolute figures converted to percentages for easier comparison; the same applies to subsequent 'a' tables.

[3] Some of these figures do not correspond with those in Kaluscha's article, for the reason given in note (b) to Table 18.2.

Table 18.1

			Prot.	Cri.	Apol.	Laws												Phil.	Pol.	Soph.	Crit.	Tim.
						I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII					
I		∪∪∪∪∪	9	2	2	6	6	8	7	8	9	13	4	10	4	8	7	24	13	26	5	18
	1	−∪∪∪∪	11	0	3	5	7	**16**	13	11	**22**	13	8	**17**	13	7	**12**	27	19	33	3	**30**
	2	∪−∪∪∪	12	1	8	11	4	6	4	6	4	9	3	4	8	4	8	20	24	31	3	**46**
	3	∪∪−∪∪	10	1	2	5	7	8	10	11	6	10	8	7	14	6	8	25	20	24	2	14
	4	∪∪∪−∪	14	4	11	13	10	10	12	9	12	13	10	6	9	3	8	38	25	22	**10**	26
	5	∪∪∪∪−	13	2	10	13	11	**19**	11	**14**	20	17	10	7	9	6	8	46	22	23	6	27
II	1	−−∪∪∪	8	2	6	**16**	5	6	9	9	11	11	3	7	8	9	8	41	25	30	5	26
	2	−∪−∪∪	11	3	5	5	6	4	9	5	4	12	5	7	4	2	4	14	18	37	3	26
	3	−∪∪−∪	21	5	14	3	0	2	3	1	1	3	1	3	2	1	2	7	3	19	2	13
	4	−∪∪∪−	9	3	10	**25**	**17**	**37**	**20**	**19**	**30**	**43**	**23**	**31**	**40**	**20**	**28**	**62**	31	21	**9**	25
	5	∪−−∪∪	20	5	7	14	10	13	7	5	15	12	3	15	11	**13**	**12**	**64**	**41**	30	4	26
	6	∪−∪−∪	14	6	11	4	3	3	3	2	1	7	2	3	3	1	4	6	7	15	4	17
	7	∪−∪∪−	15	4	14	3	4	7	2	3	1	1	1	5	6	3	5	7	8	28	3	20
	8	∪∪−−∪	15	4	11	6	3	7	5	1	9	7	3	3	4	5	5	30	24	28	4	23
	9	∪∪−∪−	11	5	13	10	3	11	9	8	13	11	8	11	9	8	**12**	18	23	28	5	17
	10	∪∪∪−−	8	6	13	**21**	**20**	11	**17**	**15**	**32**	**24**	10	**19**	**21**	**13**	**12**	**52**	33	**47**	**10**	**30**
III	1	−−−∪∪	12	3	6	13	11	15	15	13	12	21	11	8	19	7	**12**	**53**	**53**	**48**	4	23
	2	−−∪−∪	18	3	**16**	8	6	5	5	3	3	5	6	2	8	2	0	7	21	24	3	25
	3	−−∪∪−	**25**	6	**16**	3	2	1	4	1	8	1	3	2	3	7	3	4	5	21	1	25
	4	−∪−−∪	17	6	**16**	13	8	14	1	3	7	6	3	4	9	9	9	11	26	34	3	25
	5	−∪−∪−	**31**	**9**	**22**	8	6	5	6	9	5	13	4	9	11	7	7	27	14	19	2	23
	6	−∪∪−−	17	6	**17**	3	3	3	2	1	2	3	1	1	3	0	1	7	6	28	7	21
	7	∪∪−−−	21	6	12	15	5	8	3	5	14	20	11	7	8	5	9	25	35	31	2	23
	8	∪−∪−−	19	**9**	13	4	1	3	5	0	3	6	3	6	2	5	6	12	8	12	4	25
	9	∪−−∪−	16	**10**	13	**24**	**17**	**22**	**22**	**18**	**29**	**46**	**21**	**36**	**28**	**17**	**29**	51	34	**42**	**8**	23
	10	∪−−−∪	13	3	**17**	5	1	7	5	5	5	9	6	9	3	**13**	5	32	19	23	5	17
IV	1	∪−−−−	**24**	8	11	15	**19**	14	8	3	15	17	**17**	15	9	**13**	11	32	29	27	3	18
	2	−∪−−−	**25**	5	15	13	6	8	15	10	16	13	**14**	14	9	9	**12**	32	**38**	32	7	23
	3	−−∪−−	22	7	11	12	10	5	2	6	5	11	6	8	7	4	4	23	16	**38**	**9**	**49**
	4	−−−∪−	**28**	**13**	14	**27**	**26**	**22**	**17**	**15**	**22**	**32**	**28**	**28**	**46**	**40**	**29**	**86**	**52**	**43**	3	**29**
	5	−−−−∪	13	1	9	8	8	7	**17**	13	9	12	4	16	8	5	7	28	22	24	5	17
V		−−−−−	20	**10**	15	10	**21**	12	13	11	**22**	**29**	12	13	**20**	**15**	**17**	47	**56**	31	6	14

(a) In each work the figures for the clausulae with the five highest frequencies are in bold type.

Table 18.1a

			Prot.	Cri.	Apol.	Laws I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Phil.	Pol.	Soph.	Crit.	Tim.
		Total clausulae	522	158	363	341	266	319	281	243	367	450	252	333	358	267	304	958	770	919	150	764
I		∪∪∪∪∪	1.7	1.3	0.6	1.8	2.3	2.5	2.5	3.3	2.5	2.9	1.6	3.0	1.1	3.0	2.3	2.5	1.7	2.8	3.3	2.4
	1	–∪∪∪∪	2.1	–	0.8	1.5	2.6	**5.0**	4.6	4.5	**6.0**	2.9	3.2	**5.1**	3.6	2.6	**3.9**	2.8	2.5	3.6	2.0	**3.9**
	2	∪–∪∪∪	2.3	0.6	2.2	3.2	1.5	1.9	1.4	2.5	1.1	2.0	1.2	1.2	2.2	1.5	2.6	2.1	3.1	3.4	2.0	**6.0**
	3	∪∪–∪∪	1.9	0.6	0.6	1.5	2.6	2.5	3.6	4.5	1.6	2.2	3.2	2.1	3.9	2.2	2.6	2.6	2.6	2.6	1.3	1.8
	4	∪∪∪–∪	2.7	2.5	3.0	3.8	3.8	3.1	4.3	3.7	3.3	2.9	4.0	1.8	2.5	1.1	2.6	4.0	3.2	2.4	**6.7**	3.4
	5	∪∪∪∪–	2.5	1.3	2.8	3.8	4.1	**6.0**	3.9	**5.8**	5.4	3.8	4.0	2.1	2.5	2.2	2.6	4.8	2.9	2.5	4.0	3.5
II	1	––∪∪∪	1.5	1.3	1.7	**4.7**	1.9	1.9	3.2	3.7	3.0	2.4	1.2	2.1	2.2	3.4	2.6	4.3	3.2	3.3	3.3	3.4
	2	–∪–∪∪	2.1	1.9	1.4	1.5	2.3	1.3	3.2	2.1	1.1	2.7	2.0	2.1	1.1	0.7	1.3	1.5	2.3	4.0	2.0	3.4
	3	–∪∪–∪	4.0	3.2	3.9	0.9	–	0.6	1.1	0.4	0.3	0.7	0.4	0.9	0.6	0.4	0.7	0.7	0.4	2.1	1.3	1.7
	4	–∪∪∪–	1.7	1.9	2.8	**7.3**	**6.4**	**11.6**	**7.1**	**7.8**	**8.2**	**9.6**	**9.1**	**9.3**	**11.2**	**7.5**	**9.2**	**6.5**	4.0	2.3	**6.0**	3.3
	5	∪––∪∪	3.8	3.2	1.9	4.1	3.8	4.1	2.5	2.1	4.1	2.7	1.2	4.5	3.1	**4.9**	**3.9**	**6.7**	**5.3**	3.3	2.7	3.4
	6	∪–∪–∪	2.7	3.8	3.0	1.2	1.1	0.9	1.1	0.8	0.3	1.6	0.8	0.9	0.8	0.4	1.3	0.6	0.9	1.6	2.7	2.2
	7	∪–∪∪–	2.9	2.5	3.9	0.9	1.5	2.2	0.7	1.2	0.3	0.2	0.4	1.5	1.7	1.1	1.6	0.7	1.0	3.0	2.0	2.6
	8	∪∪––∪	2.9	2.5	3.0	1.8	1.1	2.2	1.8	0.4	2.5	1.6	1.2	0.9	1.1	1.9	1.6	3.1	3.1	3.0	2.7	3.0
	9	∪∪–∪–	2.1	3.2	3.6	2.9	1.1	3.4	3.2	3.3	3.5	2.4	3.2	3.3	2.5	3.0	**3.9**	1.9	3.0	3.0	3.3	2.2
	10	∪∪∪––	1.5	3.8	3.6	**6.2**	**7.5**	3.4	**6.0**	**6.2**	**8.7**	**5.3**	4.0	**5.7**	**5.9**	**4.9**	**3.9**	**5.4**	4.3	**5.1**	**6.7**	**3.9**
III	1	–––∪∪	2.3	1.9	1.7	3.8	4.1	4.7	5.3	5.3	3.3	4.7	4.4	2.4	5.3	2.6	**3.9**	**5.5**	**6.9**	**5.2**	2.7	3.0
	2	––∪–∪	3.4	1.9	**4.4**	2.3	2.3	1.6	1.8	1.2	0.8	1.1	2.4	0.6	2.2	0.7	–	0.7	2.7	2.6	2.0	3.3
	3	––∪∪–	**4.8**	3.8	**4.4**	0.9	0.8	0.3	1.4	0.4	2.2	0.2	1.2	0.6	0.8	2.6	1.0	0.4	0.6	2.3	0.7	3.3
	4	–∪––∪	3.3	3.8	**4.4**	3.8	3.0	4.4	0.4	1.2	1.9	1.3	1.2	1.2	2.5	3.4	3.0	1.1	3.4	3.7	2.0	3.3
	5	–∪–∪–	**5.9**	**5.7**	**6.1**	2.3	2.3	1.6	2.1	3.7	1.4	2.9	1.6	2.7	3.1	2.6	2.3	2.8	1.8	2.1	1.3	3.0
	6	–∪∪––	3.3	3.8	**4.7**	0.9	1.1	0.9	0.7	0.4	0.5	0.7	0.4	0.3	0.8	–	0.3	0.7	0.8	3.0	4.7	2.7
	7	∪∪–––	4.0	3.8	3.3	4.4	1.9	2.5	1.1	2.1	3.8	4.4	4.4	2.1	2.2	1.9	3.0	2.6	4.5	3.4	1.3	3.0
	8	∪–∪–––	3.6	**5.7**	3.6	1.2	0.4	0.9	1.8	–	0.8	1.3	1.2	1.8	0.6	1.9	2.0	1.3	1.0	1.3	2.7	3.3
	9	∪––∪–	3.1	**6.3**	3.6	**7.0**	**6.4**	**6.9**	**7.8**	**7.4**	**7.9**	**10.2**	**8.3**	**10.8**	**7.8**	**6.4**	**9.5**	5.3	4.4	**4.6**	**5.3**	3.0
	10	∪–––∪	2.5	1.9	**4.7**	1.5	0.4	2.2	1.8	2.1	1.4	2.0	2.4	2.7	0.8	**4.9**	1.6	3.3	2.5	2.5	3.3	2.2
IV	1	∪––––	**4.6**	5.1	3.0	4.4	**7.1**	4.4	2.8	1.2	4.1	3.8	**6.7**	4.5	2.5	**4.9**	3.6	3.3	3.8	2.9	2.0	2.4
	2	–∪–––	**4.8**	3.2	4.1	3.8	2.3	2.5	5.3	4.1	4.4	2.9	**5.6**	4.2	2.5	3.4	**3.9**	3.3	**4.9**	3.5	4.7	3.0
	3	––∪–––	4.2	4.4	3.0	3.5	3.8	1.6	0.7	2.5	1.4	2.4	2.4	2.4	2.0	1.5	1.3	2.4	2.1	**4.1**	**6.0**	**6.4**
	4	–––∪–	**5.4**	**8.2**	3.9	**7.9**	**9.8**	**6.9**	**6.0**	**6.2**	**6.0**	**7.1**	**11.1**	**8.4**	**12.8**	**15.0**	**9.5**	**9.0**	**6.8**	**4.7**	2.0	**3.8**
	5	––––∪	2.5	0.6	2.5	2.3	3.0	2.2	**6.0**	5.3	2.5	2.7	1.6	4.8	2.2	1.9	2.3	2.9	2.9	2.6	3.3	2.2
V		–––––	3.8	**6.3**	4.1	2.9	**7.9**	3.8	4.6	4.5	**6.0**	**6.4**	4.8	3.9	**5.6**	**5.6**	**5.6**	4.9	**7.3**	3.4	4.0	1.8

(a) In each work the figures for the clausulae with the five highest frequencies are in bold type.

Table 18.2

			Laws												Phil.	Pol.	Soph.	Crit.	Tim.
			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII					
I	5	∪∪∪∪–	19	17	**27**	18	22	29	30	14	17	13	14	15	70	35	49	**11**	45
II	4	–∪∪∪–	**30**	**24**	**53**	**33**	**30**	**52**	**56**	**31**	**48**	**53**	**27**	**40**	**89**	50	54	**12**	**55**
	7	∪–∪∪–	14	8	13	6	9	5	10	4	9	14	7	13	27	32	59	6	**66**
	9	∪∪–∪–	15	10	19	19	19	19	21	16	18	23	14	20	43	43	52	7	31
	10	∪∪∪– –	**34**	**30**	21	**29**	**24**	**44**	**37**	**20**	**25**	**30**	16	20	**90**	58	**69**	**20**	**56**
III	3	– –∪∪–	19	7	7	13	10	19	12	6	9	11	16	11	45	30	51	9	51
	5	–∪–∪–	13	12	9	15	14	9	25	9	16	15	9	11	41	32	56	5	49
	6	–∪∪– –	6	3	5	5	2	3	6	2	4	5	1	3	14	9	47	9	34
	7	∪∪– – –	21	8	15	8	6	23	27	14	10	12	10	14	55	**59**	59	6	46
	8	∪–∪– –	8	4	6	8	2	4	13	5	9	5	6	10	18	15	27	8	42
	9	∪– –∪–	**38**	**27**	**35**	**29**	**23**	**44**	**58**	**24**	**51**	**39**	**30**	**41**	**115**	**75**	**72**	**12**	49
IV	1	∪– – – –	20	20	21	13	8	20	26	**23**	24	12	**26**	16	64	48	50	8	35
	2	–∪– – –	**26**	14	**22**	16	13	23	19	17	18	18	18	**21**	43	**64**	**66**	7	48
	3	– –∪– –	20	16	10	7	9	8	16	12	10	15	6	4	30	37	**62**	**12**	**74**
	4	– – –∪–	**40**	**37**	**37**	**32**	**28**	**34**	**53**	**39**	**36**	**65**	**47**	**41**	**139**	**105**	**91**	7	**52**
V		– – – – –	18	**29**	19	**30**	**24**	**31**	**41**	16	**29**	**28**	**20**	**24**	**75**	**78**	55	**11**	31

(a) In each work the figures for the clausulae with the five highest frequencies are in bold type.

(b) Some figures do not correspond to those of Kaluscha (*Wiener Studien* 26 (1904) 195), who appears to have made arithmetical errors in calculating the totals of pairs of clausulae from Table 18.1; e.g. for II.4 –∪∪∪– he has *Laws* II 21, IV 23 and *Pol.* 60.

instances the clausula consists of less than five syllables? An affirmative answer to this question formed the basis of the later investigation by Billig.

Turning to the other dialogues included in Table 18.1 Kaluscha observed that the *Prot.*, *Apol.* and *Cri.* differed from the *Laws* in the following respects:

1. Only two of the favourite clausulae in the *Laws*, the similar III.9 and IV.4, occur frequently in these works, but this slight coincidence is rendered unimportant by the fact that they are common in every period of Plato's literary career (Table 18.3).
2. The clausulae avoided in the *Laws* are not avoided at all; on the contrary, they are either common or very common, thus lending support to the assumption that they were deliberately avoided later.
3. The three dialogues have only one clausula in common (III.5), a relationship hardly approaching that which exists between the books of the *Laws*. Moreover, Kaluscha remarked, the rhythm of this clausula was the one most similar to that of ordinary speech, so that its frequent occurrence was to be expected.

From the absence of any apparent principle of rhythm he concluded that *Prot.*, *Apol.* and *Cri.* belonged to a period when Plato was still unaffected by the precepts of Isocrates in this respect.

Of the dialogues in Table 18.1 *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Crit.* still remained to be considered. Judging from the results of earlier investigations the rhythm of their prose should approximate closely to that of the *Laws*, and this for the most part was what Kaluscha found. His observations on each were as follows.

Phil.

1. The five most frequent clausulae are precisely the same as in the *Laws*.
2. The clausulae avoided there are avoided even more carefully here.[4]

He reached the conclusion, therefore, that the *Phil.* and *Laws* stood very close to one another chronologically.

Pol.

1. Four of the most common clausulae of the *Laws* likewise show the highest frequencies here,[5] while the fifth (II.10) is not far behind.

[4] This is true if all six forms are considered together, but to put it more exactly, though III.3 – – ∪∪ – and II.7 ∪ – ∪∪ – are more frequent in the *Laws* than *Phil.* (average percentage 1.0 : 0.4 and 1.1 : 0.7 respectively), II.6 ∪ – ∪ – ∪ and III.8 ∪ – ∪ – – are divided (average 0.9 : 0.6 and 1.2 : 1.3 respectively), and the hexameter endings (II.3 and III.6) are less frequent in the *Laws* (average 0.6 : 0.7).

[5] In fact only three; the figure for the fourth (II.4) was calculated incorrectly by Kaluscha (see Table 18.2 with note).

2. Again the clausulae avoided in the *Laws* are avoided still more carefully (in reality only the pair II.7 and III.3).

The *Pol.*, he decided, stood near the *Laws* and particularly near to the *Phil.*

Soph.

1. Of the five highest frequencies in the *Soph.* three belong to the favourite *Laws* clausulae.
2. The clausulae avoided in the *Laws* show low frequencies here too. According to Kaluscha the difference was not important, but it seems sufficient to indicate that Plato's avoidance of them increased in the time between the composition of the *Soph.* and the *Laws*. The average percentages for the three pairs in the two works are II.3 and III.6 (− ∪ ∪ − ⏑) 5.1 : 1.2; II.6 and III.8 (∪ − ∪ − ⏑) 2.9 : 2.1; and III.3 and II.7 (⏑ − ∪ ∪ −) 5.3 : 2.1.

The *Soph.* too was placed by Kaluscha in the same period as the *Laws*, but not as near to it as *Phil.* and *Pol.*

Tim.

1. As in the *Soph.* three of the five highest frequencies coincide with those of the *Laws*. There is a difference, however; for whereas in *Soph.*, *Pol.* and *Phil.* the three highest frequency positions are claimed by members of this favoured group of clausulae (Table 18.2a), in *Tim.* the two highest positions are occupied by other clausulae and only third, fourth and fifth positions are left for the *Laws* forms.
2. No avoidance of any particular clausula can be observed.[6]

Bearing in mind the slightness of the variation in frequency of the various clausulae he concluded that Plato was less interested in clausula rhythm when he wrote *Tim.* Consequently, though connected with the *Laws*, it was to be separated from it by a considerable interval.

Crit.

1. Four of the five highest frequency positions are occupied by the clausulae favoured in the *Laws*.
2. No noteworthy avoidance can be observed, simply by reason of the small numbers involved.

Kaluscha preferred to draw no conclusions from this short and incomplete work, but placed it nevertheless nearer than *Tim.* to the *Laws*.

[6] This is not entirely true. Although the frequency of the six clausulae avoided in the *Laws* is not much lower in *Tim.* than in many of the earlier dialogues, the hexameter endings at least are slightly less common than in *Soph.* (4.5 : 5.1%).

The final result of the first part of Kaluscha's investigation, therefore, was that *Soph.*, *Pol.*, *Phil.*, *Tim.* and *Crit.* belonged with the *Laws*, but *Prot.*, *Apol.* and *Cri.* with the other dialogues still to be considered. Accepting the tradition that the *Laws* was written in Plato's last years and assuming that Plato's attention to rhythm gradually increased, he decided that the chronological order of the other five late works could be determined by the degree of similarity to the *Laws* rhythm shown by each. The resulting series was *Tim.*, *Crit.*, *Soph.*, *Pol.*, *Phil.* and *Laws*.

In support of this sequence he pointed out the following additional pieces of evidence:

Pol. and *Phil.* are closely connected by

(1) high frequency of the clausulae II.5 (∪ – – ∪∪) and III.1 (– – – ∪∪), the latter in common with *Soph.* (Table 18.1);[7]

(2) avoidance of the clausulae II.3, II.6, II.7, III.3, III.6 and III.8, the same as are avoided in the *Laws*.

This is true, these particular forms according to Kaluscha's figures being avoided with greater strictness in *Laws*, *Phil.* and *Pol.* than in the other three dialogues, as the tabular calculation derived from Table 18.2a shows. *Soph.*, *Tim.* and *Crit.*, on the other hand, are connected by the small variation in the frequencies of their various formulae, 'since neither a preference for nor a prejudice against particular clausulae is distinctly marked in them'. This again is true, if Kaluscha's statistics can be trusted,

	Laws							
	Highest %	Lowest %	Average %	Phil.	Pol.	Soph.	Crit.	Tim.
II.3 & III.6 –∪∪–∪̲	1.8	0.4	1.2	1.5	1.2	5.1	6.0	4.5
II.6 & III.8 ∪–∪–∪̲	3.3	0.8	2.1	1.9	1.9	2.9	5.3	5.5
II.7 ∪–∪∪–	4.3	1.4	3.0	2.8	4.2	6.4	4.0	8.6
III.3 ––∪∪–	6.0	2.2	3.7	4.7	3.9	5.5	6.0	6.7
Total %	15.4	4.8	10.0	10.9	11.2	19.9	21.3	25.3

[7] This is no longer true if the last syllable is regarded as *anceps*, so that they become combined with III.9 and IV.4 respectively (Table 18.2).

Table 18.2a

			Laws																
			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Phil.	Pol.	Soph.	Crit.	Tim.
I	5	∪∪∪∪–	5.6	6.4	**8.5**	6.4	9.1	7.9	6.7	5.6	5.1	3.6	5.2	4.9	7.3	4.5	5.3	**7.3**	5.9
II	4	–∪∪∪–	**8.8**	**9.0**	**16.6**	**11.7**	**12.3**	**14.2**	**12.4**	**12.3**	**14.4**	**14.8**	**10.1**	**13.2**	**9.3**	6.5	5.9	**8.0**	**7.2**
	7	∪–∪∪–	4.1	3.0	4.1	2.1	3.7	1.4	2.2	1.6	2.7	3.9	2.6	4.3	2.8	4.2	6.4	4.0	**8.6**
	9	∪∪–∪–	4.4	3.8	6.0	6.8	7.8	5.2	4.7	6.3	5.4	6.4	5.2	6.6	4.5	5.6	5.7	4.7	4.1
	10	∪∪∪––	**10.0**	**11.3**	6.6	**10.3**	**9.9**	**12.0**	**8.2**	**7.9**	**7.5**	**8.4**	6.0	6.6	**9.4**	7.5	**7.5**	**13.3**	**7.3**
III	3	–––∪∪–	5.6	2.6	2.2	4.6	4.1	5.2	2.7	2.4	2.7	3.1	6.0	3.6	4.7	3.9	5.5	6.0	6.7
	5	–∪–∪–	3.8	4.5	2.8	5.3	5.8	2.5	5.6	3.6	4.8	4.2	3.4	3.6	4.3	4.2	6.1	3.3	6.4
	6	–∪∪–––	1.8	1.1	1.6	1.8	0.8	0.8	1.3	0.8	1.2	1.4	0.4	1.0	1.5	1.2	5.1	6.0	4.5
	7	∪∪–––	6.2	3.0	4.7	2.8	2.5	6.3	6.0	5.6	3.0	3.4	3.7	4.6	5.7	7.7	6.4	4.0	6.0
	8	∪–∪–––	2.3	1.5	1.9	2.8	0.8	1.1	2.9	2.0	2.7	1.4	2.2	3.3	1.9	1.9	2.9	5.3	5.5
	9	∪––∪–	**11.1**	**10.2**	**11.0**	**10.3**	**9.5**	**12.0**	**12.9**	**9.5**	**15.3**	**10.9**	**11.2**	**13.5**	**12.0**	**9.7**	**7.8**	**8.0**	6.4
IV	1	∪–––––	5.9	7.5	6.6	4.6	3.3	5.4	5.8	**9.1**	7.2	3.4	**9.7**	5.3	6.7	6.2	5.4	5.3	4.6
	2	–∪–––	**7.6**	5.3	**6.9**	5.7	5.3	6.3	4.2	6.7	5.4	5.0	6.7	**6.9**	4.5	**8.3**	**7.2**	4.7	6.3
	3	––∪–––	5.9	6.0	3.1	2.5	3.7	2.2	3.6	4.8	3.0	4.2	2.2	1.3	3.1	4.8	**6.7**	**8.0**	**9.7**
	4	–––∪–	**11.7**	**13.9**	**11.6**	**11.4**	**11.5**	**9.3**	**11.8**	**15.5**	**10.8**	**18.2**	**17.6**	**13.5**	**14.5**	**13.6**	**9.9**	4.7	**6.8**
V		–––––	5.3	**10.9**	6.0	**10.7**	**9.9**	**8.4**	**9.1**	6.3	**8.7**	7.8	**7.5**	**7.9**	**7.8**	**10.1**	6.0	**7.3**	4.0

(a) In each work the figures for the clausulae with the five highest frequencies are in bold type.

as may be seen from a calculation based on Table 18.2a. Taking 6.3 as the mean frequency percentage for the sixteen clausulae and observing the difference from this of the actual percentage of each, the average deviation is:

Tim.	*Crit.*	*Soph.*	*Pol.*	*Phil.*	*Laws*
1.3	1.8	1.0	2.5	2.9	3.1

Laws I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
2.3	3.2	3.0	3.0	3.3	3.3	3.0	3.0	3.3	3.6	3.2	3.1

Soph., *Tim.* and *Crit.* are also connected by their common use of the clausula IV.3 (– – ∪ – –), which is not one of frequent occurrence in *Pol.*, *Phil.* and *Laws* (Table 18.2a).

Coming to the second part of his investigation, the statistics of which are given in Table 18.3, Kaluscha again began by considering a dialogue containing, so to speak, several smaller dialogues, the *Rep.*, and decided that as regards rhythm it resembled the *Prot.*, *Apol.* and *Cri.* rather than the *Laws*. The criteria which led him to this decision were as follows:

1. The high incidence in all ten books of the clausula III.5, which does not occur often in any of the six late works, but occupies the highest frequency positions in *Prot.*, *Cri.* and *Apol.* The common occurrence of this particular clausula was ascribed by Kaluscha to the fact that its metre was the one coinciding most closely with that of everyday speech.
2. Of the five favourite *Laws* clausulae only one, II.4 (– ∪∪∪ –), is used with consistent frequency, i.e. in books V–X.[8] Another, II.10 (∪∪∪ – –), shows a low frequency throughout, but the rest come to the fore spasmodically in different books.
3. The clausulae avoided in the *Laws* are not avoided in the *Rep.*

The *Rep.* belonged, then, with the *Prot.*, *Cri.* and *Apol.*, so that there were two chronological groups, an earlier consisting of *Prot.*, *Cri.*, *Apol.* and *Rep.* and a later consisting of *Tim.*, *Crit.*, *Soph.*, *Pol.*, *Phil.* and *Laws*. It only remained to allot the rest of the dialogues to the one or the other. Kaluscha achieved this by considering the clausula III.5 (– ∪ – ∪ –), which is frequent only in the earlier group, being avoided in the later. Of the dialogues not yet accounted for, *Charm.*, *Lys.*, *Lach.*,

[8] This is somewhat misleading, since if the last syllable of this clausula is regarded as *anceps* and I.1 is combined with it, the resulting frequency is high enough to get into the top five positions in only one of the ten books (Table 18.4).

Table 18.3

			Charm.	Lach.	Lys.	Euph.	Gorg.	Hipp. Mi.	Euthd.	Crat.	Meno	Menex.	Phdr.	Symp.	Phdo	Theaet.	Parm.	Republic									
																		I	II	III	IV	V	VI	VII	VIII	IX	X
I		∪∪∪∪∪	5	4	3	10	16	2	8	29	5	1	9	10	17	19	22	12	3	2	3	5	5	3	2	1	5
	1	–∪∪∪∪	4	7	7	7	18	5	11	27	4	1	13	11	16	23	18	15	9	2	3	10	7	3	1	5	5
	2	∪–∪∪∪	6	4	10	3	24	2	10	17	8	6	17	11	15	18	17	10	8	6	4	13	5	6	5	2	6
	3	∪∪–∪∪	8	1	11	5	19	8	11	17	9	1	18	16	10	20	9	10	7	6	4	13	10	6	5	1	10
	4	∪∪∪–∪	11	8	**17**	**14**	22	4	13	23	11	3	10	27	21	21	19	10	9	4	9	9	9	6	9	6	8
	5	∪∪∪∪–	6	5	14	3	27	6	9	26	5	3	9	11	15	20	15	11	6	2	13	13	8	8	5	4	4
II	1	––∪∪∪	4	8	11	2	22	1	9	25	5	3	14	12	16	16	14	11	**16**	7	10	9	4	9	3	3	7
	2	–∪–∪∪	9	8	13	8	21	3	17	21	6	6	29	10	19	23	13	7	7	9	8	9	10	10	6	8	7
	3	–∪∪–∪	10	12	5	5	30	4	20	18	13	4	25	25	10	38	25	13	6	9	10	17	13	5	12	12	8
	4	–∪∪∪–	10	16	6	10	42	5	12	22	**25**	6	22	20	**41**	28	12	17	12	13	17	**19**	**19**	**24**	**17**	**17**	**19**
	5	∪––∪∪	14	14	15	7	36	7	12	**38**	21	5	18	19	15	39	15	**28**	12	15	10	**19**	7	8	5	13	9
	6	∪–∪–∪	17	6	**17**	6	29	**10**	**35**	28	18	5	23	16	21	32	21	15	9	7	7	9	12	12	9	6	12
	7	∪–∪∪–	17	16	15	10	38	6	21	29	23	**17**	33	28	**38**	25	**26**	**27**	**23**	10	**24**	**22**	16	15	11	**16**	9
	8	∪∪––∪	8	6	4	4	27	1	21	13	8	6	10	13	23	29	7	13	11	14	7	10	**19**	3	5	7	11
	9	∪∪–∪–	**20**	8	15	10	39	9	**37**	25	14	**9**	28	**33**	32	39	23	15	13	**19**	16	**19**	13	**16**	**23**	**19**	14
	10	∪∪∪––	11	11	**17**	9	**44**	**15**	**24**	**42**	11	–	23	26	30	35	**31**	9	11	12	10	14	11	8	9	3	6
III	1	–––∪∪	9	10	13	5	39	2	16	27	14	6	20	18	26	**42**	13	11	15	**21**	14	14	8	6	8	6	6
	2	––∪–∪	8	**22**	16	5	32	8	20	**52**	13	4	17	26	28	34	19	11	13	10	6	15	13	6	11	**16**	13
	3	––∪∪–	17	9	11	9	**59**	2	**32**	22	19	8	**39**	23	28	39	24	11	12	11	11	**19**	16	**18**	7	11	11
	4	–∪––∪	16	7	9	5	34	5	12	17	16	4	18	26	18	37	13	7	5	**19**	8	7	6	7	5	5	8
	5	–∪–∪–	**31**	**22**	**19**	9	**61**	**11**	**51**	35	**26**	4	29	**48**	**44**	36	24	**30**	**20**	**25**	**22**	**27**	**22**	**29**	**21**	**21**	**23**
	6	–∪∪––	14	13	16	**12**	**52**	**11**	20	36	**24**	6	**42**	29	**43**	**43**	**28**	**26**	10	12	**18**	**23**	16	14	15	**16**	9
	7	∪∪–––	15	13	6	**11**	45	6	27	32	**27**	6	21	22	30	40	15	22	12	13	11	15	7	8	6	8	5
	8	∪–∪––	9	9	10	10	40	7	25	34	23	6	**40**	**39**	34	35	**30**	20	**18**	13	12	18	17	15	**18**	13	15
	9	∪––∪–	19	19	**19**	9	**73**	8	26	**47**	22	8	26	**35**	32	37	16	23	13	**19**	**18**	18	**21**	15	15	15	**23**
	10	∪–––∪	6	6	3	3	24	3	18	9	12	3	9	22	15	17	9	10	5	**19**	11	10	5	3	7	11	8
IV	1	∪––––	**20**	**24**	10	9	42	**11**	28	**39**	**24**	**11**	26	27	30	37	**26**	25	**19**	15	11	15	6	5	8	12	15
	2	–∪–––	**20**	18	5	**12**	**58**	7	21	25	17	6	19	24	34	**45**	18	14	12	13	11	16	**18**	**16**	**25**	8	**19**
	3	––∪––	**21**	12	8	10	43	5	26	31	15	6	**37**	25	33	37	**26**	18	15	18	**18**	18	17	12	12	9	**19**
	4	–––∪–	**23**	**30**	14	**11**	46	9	**36**	34	18	**14**	**39**	**45**	**47**	**55**	21	18	13	**22**	6	**22**	10	**21**	9	**20**	15
	5	–––––	8	8	4	3	37	6	16	21	11	**9**	11	13	11	18	7	13	10	4	6	11	6	11	7	4	5
V			19	**20**	4	9	46	9	28	**38**	20	7	19	32	32	**49**	25	**29**	15	**22**	17	18	17	6	10	9	15

(a) In each work the figures for the clausulae with the five highest frequencies are in bold type.

Table 18.3a

		Charm.	Lach.	Lys.	Euph.	Gorg.	Hipp. Mi.	Euthd.	Crat.	Meno	Menex.	Phdr.	Symp.	Phdo	Theaet.	Parm.	Republic								
																	I	II	III	IV	V	VI	VII	VIII	IX	X
		415	376	347	245	1,185	198	672	899	487	184	713	742	824	1,026	601	511	369	393	355	476	373	334	311	307	349
I		1.2	1.1	0.9	4.1	1.4	1.0	1.2	3.2	1.0	0.5	1.3	1.3	2.1	1.9	3.7	2.3	0.8	0.5	0.8	1.1	1.3	0.9	0.6	0.3	1.4
	1	1.0	1.9	2.0	2.9	1.5	2.5	1.6	3.0	0.8	0.5	1.8	1.5	1.9	2.2	3.0	2.9	2.4	0.5	0.8	2.1	1.9	0.9	0.3	1.6	1.4
	2	1.4	1.1	2.9	1.2	2.0	1.0	1.5	1.9	1.6	3.3	2.4	1.5	1.8	1.8	2.8	2.0	2.2	1.5	1.1	2.7	1.3	1.8	1.6	0.7	1.7
	3	1.9	0.3	3.2	2.0	1.6	4.0	1.6	1.9	1.8	0.5	2.5	2.2	1.2	1.9	1.5	2.0	1.9	1.5	1.1	2.7	2.7	1.8	1.6	0.3	2.9
	4	2.7	2.1	**4.9**	**5.7**	1.9	2.0	1.9	2.6	2.3	1.6	1.4	3.6	2.5	2.0	3.2	2.0	2.4	1.0	2.5	1.9	2.4	1.8	2.9	2.0	2.3
	5	1.4	1.3	4.0	1.2	2.3	3.0	1.3	2.9	1.0	1.6	1.3	1.5	1.8	1.9	2.5	2.2	1.6	0.5	3.7	2.7	2.1	2.4	1.6	1.3	1.1
II	1	1.0	2.1	3.2	0.8	1.9	0.5	1.3	2.8	1.0	1.6	2.0	1.6	1.9	1.6	2.3	2.2	**4.3**	1.8	2.8	1.9	1.1	2.7	1.0	1.0	2.0
	2	2.2	2.1	3.7	3.3	1.8	1.5	2.5	2.3	1.2	3.3	4.1	1.3	2.3	2.2	2.2	1.4	1.9	2.3	2.3	1.9	2.7	2.9	1.9	2.6	2.0
	3	2.4	3.2	1.4	2.0	2.5	2.0	3.0	2.0	2.7	2.2	3.5	3.4	1.2	3.7	4.2	2.5	1.6	2.3	2.8	3.6	3.5	1.5	3.9	3.9	2.3
	4	2.4	4.3	1.7	4.1	3.5	2.5	1.8	2.4	**5.1**	3.3	3.1	2.7	**5.0**	2.7	2.0	3.3	3.3	3.3	4.8	**4.0**	**5.1**	**7.2**	**5.5**	**5.5**	**5.4**
	5	3.4	3.7	4.3	2.9	3.0	3.5	1.8	**4.2**	4.3	2.7	2.5	2.6	1.8	3.8	2.5	**5.5**	3.3	3.8	2.8	**4.0**	1.9	2.4	1.6	4.2	2.6
	6	4.1	1.6	**4.9**	2.4	2.4	**5.1**	**5.2**	3.1	3.7	2.7	3.2	2.2	2.5	3.1	3.5	2.9	2.4	1.8	2.0	1.9	3.2	3.6	2.9	2.0	3.4
	7	4.1	4.3	4.3	4.1	3.2	3.0	3.1	3.2	4.7	**9.2**	4.6	3.8	**4.6**	2.4	**4.3**	**5.3**	**6.2**	2.5	**6.8**	**4.6**	4.3	4.5	3.5	**5.2**	2.6
	8	1.9	1.6	1.2	1.6	2.2	0.5	3.1	1.4	1.6	3.3	1.4	1.8	2.8	2.8	1.2	2.5	3.0	3.6	2.0	2.1	**5.1**	0.9	1.6	2.3	3.2
	9	**4.8**	2.1	4.3	4.1	3.3	4.5	**5.5**	2.8	2.9	**4.9**	3.9	**4.4**	3.9	3.8	3.8	2.9	3.5	**4.8**	4.5	**4.0**	3.5	**4.8**	**7.4**	**6.2**	4.0
	10	2.7	2.9	**4.9**	3.7	3.7	**7.6**	3.6	**4.7**	2.3	–	3.2	3.5	3.6	3.4	**5.2**	1.8	3.0	3.1	2.8	2.9	2.9	2.4	2.9	1.0	1.7
III	1	2.2	2.7	3.7	2.0	3.3	1.0	2.4	3.0	2.9	3.3	2.8	2.4	3.2	**4.1**	2.2	2.2	4.1	**5.3**	3.9	2.9	2.1	1.8	2.6	2.0	1.7
	2	1.9	**5.9**	4.6	2.0	2.7	4.0	3.0	**5.8**	2.7	2.2	2.4	3.5	3.4	3.3	3.2	2.2	3.5	2.5	1.7	3.2	3.5	1.8	3.5	**5.2**	3.7
	3	4.1	2.4	3.2	3.7	**5.0**	1.0	**4.8**	2.4	3.9	4.3	**5.5**	3.1	3.4	3.8	4.0	2.2	3.3	2.8	3.1	**4.0**	4.3	**5.4**	2.3	3.6	3.2
	4	3.9	1.9	2.6	2.0	2.9	2.5	1.8	1.9	3.3	2.2	2.5	3.5	2.2	3.6	2.2	1.4	1.4	**4.8**	2.3	1.5	1.6	2.1	1.6	1.6	2.3
	5	**7.5**	**5.9**	**5.5**	3.7	**5.1**	**5.6**	**7.6**	3.9	**5.3**	2.2	4.1	**6.5**	**5.3**	3.5	4.0	**5.9**	**5.4**	**6.4**	**6.2**	**5.7**	**5.9**	**8.7**	**6.8**	**6.8**	**6.6**
	6	3.4	3.5	4.6	**4.9**	**4.4**	**5.6**	3.0	4.0	**4.9**	3.3	**5.9**	3.9	**5.2**	**4.2**	**4.7**	**5.1**	2.7	3.1	**5.1**	**4.8**	4.3	4.2	4.8	**5.2**	2.6
	7	3.6	3.5	1.7	**4.5**	3.8	3.0	4.0	3.6	**5.5**	3.3	2.9	3.0	3.6	3.9	2.5	4.3	3.3	3.3	3.1	3.2	1.9	2.4	1.9	2.6	1.4
	8	2.2	2.4	2.9	4.1	3.4	3.5	3.7	3.8	4.7	3.3	**5.6**	**5.3**	4.1	3.4	**5.0**	3.9	**4.9**	3.3	3.4	3.8	4.6	4.5	**5.8**	4.2	4.3
	9	4.6	5.1	**5.5**	3.7	**6.2**	4.0	3.9	**5.2**	4.5	4.3	3.6	**4.7**	3.9	3.6	2.7	4.5	3.5	**4.8**	**5.1**	3.8	**5.6**	4.5	4.8	4.9	**6.6**
	10	1.4	1.6	0.9	1.2	2.0	1.5	2.7	1.0	2.5	1.6	1.3	3.0	1.8	1.7	1.5	2.0	1.4	**4.8**	3.1	2.1	1.3	0.9	2.3	3.6	2.3
IV	1	**4.8**	**6.4**	2.9	3.7	3.5	**5.6**	4.2	**4.3**	**4.9**	**6.0**	3.6	3.6	3.6	3.6	**4.3**	4.9	**5.1**	3.8	3.1	3.2	1.6	1.5	2.6	3.9	4.3
	2	**4.8**	4.8	1.6	**4.9**	**4.9**	3.5	3.1	2.8	3.5	3.3	2.7	3.2	4.1	**4.4**	3.0	2.7	3.3	3.3	3.1	3.4	**4.8**	**4.8**	**8.0**	2.6	**5.4**
	3	**5.1**	3.2	2.3	4.1	3.6	2.5	3.9	3.4	3.1	3.3	**5.2**	3.4	4.0	3.6	**4.3**	3.5	4.1	4.6	**5.1**	3.8	4.6	3.6	3.9	2.9	**5.4**
	4	**5.5**	**8.0**	4.0	**4.5**	3.9	4.5	**5.4**	3.8	3.7	**7.6**	**5.5**	**6.1**	**5.7**	**5.4**	3.5	3.5	3.5	**5.6**	1.7	**4.6**	2.7	**6.3**	2.9	**6.5**	4.3
	5	1.9	2.1	1.2	1.2	3.1	3.0	2.4	2.3	2.3	**4.9**	1.5	1.8	1.3	1.8	1.2	2.5	2.7	1.0	1.7	2.3	1.6	3.3	2.3	1.3	1.4
V		4.6	**5.3**	1.2	3.7	3.9	4.5	4.2	**4.2**	4.1	3.8	2.7	4.3	3.9	**4.8**	4.2	**5.7**	4.1	**5.6**	4.8	3.8	4.6	1.8	3.2	2.9	4.3

(a) In each work the figures for the clausulae with the five highest frequencies are in bold type.

Table 18.4

			Charm.	Lach.	Lys.	Euph.	Gorg.	Hipp. Mi.	Euthd.	Crat.	Meno	Menex.	Phdr.	Symp.	Phdo	Theaet.	Parm.	Republic										Prot.	Cri.	Apol.
																		I	II	III	IV	V	VI	VII	VIII	IX	X			
I	5	∪∪∪∪–	2.6	2.4	4.9	5.3	3.6	4.0	2.5	6.1	2.0	2.1	2.6	2.8	3.9	3.9	6.2	4.6	2.4	1.0	4.5	3.8	3.4	3.3	2.2	1.6	2.5	4.2	2.6	3.4
II	4	–∪∪∪–	3.4	6.2	3.7	**7.0**	5.0	5.0	3.4	5.4	5.9	3.8	4.9	4.2	**6.9**	4.9	5.0	6.2	5.7	3.8	5.6	6.1	7.0	**8.1**	5.8	7.1	6.8	3.8	1.9	3.6
	7	∪–∪∪–	5.5	5.4	7.2	5.3	5.2	4.0	4.6	5.1	6.3	**12.5**	7.0	5.3	6.4	4.2	**7.2**	**7.3**	**8.4**	4.0	**7.9**	**7.3**	5.6	6.3	5.1	5.9	4.3	5.2	3.1	6.1
	9	∪∪–∪–	6.7	2.4	7.5	6.1	5.0	**8.5**	**7.1**	4.7	4.7	5.4	6.4	6.6	5.1	5.8	5.3	4.9	5.4	6.3	5.6	6.7	6.2	6.6	**9.0**	6.5	6.9	4.0	3.8	4.2
	10	∪∪∪–––	5.4	5.0	**9.8**	**9.4**	5.6	**9.6**	5.5	**7.2**	4.6	1.6	4.6	7.1	6.2	5.5	**8.4**	3.7	5.4	4.1	5.3	4.8	5.4	4.2	5.8	2.9	4.0	4.2	6.3	6.6
III	3	––∪∪–	5.1	4.5	6.4	4.5	6.9	1.5	6.1	5.2	4.9	5.9	7.5	4.7	5.3	5.4	6.3	4.4	**7.6**	4.6	5.9	5.9	5.4	**8.1**	3.3	4.6	5.1	6.3	5.1	6.1
	5	–∪–∪–	**9.7**	**8.0**	**9.2**	**7.0**	**7.0**	7.1	**10.1**	6.2	6.5	5.5	**8.2**	**7.8**	**7.6**	5.7	6.2	**7.3**	**7.3**	**8.7**	**8.5**	**7.6**	**8.6**	**11.7**	**8.7**	**9.4**	**8.6**	**8.0**	**7.6**	**7.5**
	6	–∪∪–––	5.8	6.7	6.2	**6.9**	6.9	**7.6**	6.0	6.0	**7.6**	5.5	**9.4**	**7.3**	6.4	**7.9**	**8.9**	**7.6**	4.3	5.4	**7.9**	**8.4**	**7.8**	5.7	**8.7**	**9.1**	4.9	**7.3**	**7.0**	**8.6**
	7	∪∪–––	5.5	5.1	2.9	6.1	6.0	3.5	**7.1**	5.0	**7.1**	6.6	4.4	4.7	6.4	6.7	3.7	6.8	6.3	6.9	5.1	5.3	7.0	3.3	3.5	4.9	4.5	6.9	6.3	6.4
	8	∪–∪–––	6.3	4.0	**7.8**	6.6	5.8	**8.5**	**8.9**	**6.9**	**8.4**	6.0	**8.8**	**7.4**	**6.7**	6.5	**8.5**	6.8	**7.3**	5.1	5.4	5.7	**7.8**	**8.1**	**8.7**	6.1	**7.7**	6.3	**9.5**	6.6
	9	∪–––∪–	**8.0**	**8.8**	**9.8**	6.6	**8.8**	**7.5**	5.7	**9.4**	**8.8**	**7.0**	6.2	**7.3**	5.7	**7.4**	5.2	**10.0**	6.8	**8.6**	**7.9**	**7.8**	**7.5**	6.9	6.4	**9.1**	**9.2**	6.9	**9.5**	5.5
IV	1	∪––––––	6.2	**8.0**	3.8	4.9	5.5	7.1	6.9	5.3	**7.4**	**7.6**	5.0	6.6	5.4	5.3	5.9	6.9	6.5	**8.6**	6.2	5.3	2.9	2.4	4.9	7.5	6.6	7.1	**7.0**	**7.7**
	2	–∪–––––	**8.7**	6.7	4.2	**6.9**	**7.8**	6.0	4.9	4.7	6.8	5.5	5.2	6.7	6.3	**8.0**	5.2	4.1	4.7	**8.1**	5.4	4.9	6.4	6.9	**9.6**	4.2	**7.7**	**8.1**	**7.0**	**8.5**
	3	––∪–––	**7.0**	**9.1**	6.9	6.1	6.3	6.5	6.9	**9.3**	5.8	5.5	**7.6**	6.9	**7.4**	**6.9**	**7.6**	5.7	**7.6**	7.1	**6.8**	7.0	**8.1**	5.4	7.4	**8.1**	**9.1**	**7.6**	6.3	**7.4**
	4	–––∪–∪–	**7.7**	**10.7**	**7.7**	6.5	**7.2**	5.5	**7.8**	**6.8**	6.6	**10.9**	**8.3**	**8.5**	**8.9**	**9.5**	5.7	5.7	**7.6**	**10.9**	5.6	**7.5**	4.8	**8.1**	5.5	**8.4**	6.0	**7.7**	**10.1**	5.6
V		–––––––	6.5	7.4	2.4	4.9	**7.0**	**7.5**	6.6	6.5	6.4	**8.7**	4.2	6.0	5.2	6.6	5.4	**8.2**	6.8	6.6	6.5	6.1	6.2	5.1	5.5	4.2	5.7	6.3	6.9	6.6

(a) In each work the figures for the clausulae with the five highest frequencies are in bold type.

Gorg., *Hipp. Mi.*, *Euthd.*, *Meno*, *Phdo* and *Symp.* had this clausula among their five most frequent forms (Table 18.3). These, therefore, belonged in the earlier group with the *Rep.* Remaining were *Euph.*, *Crat.*, *Menex.*, *Phdr.*, *Theaet.* and *Parm.* Were they to be put in the later group? 'No,' he declared, 'since they have absolutely nothing in common with it; they belong to the earlier period, when Plato had little concern for the rhythmical clausula.' Kaluscha ended with a few tentative observations on the possible sequence of the dialogues in this group, but these are not worth mentioning. His final conclusion was that 'nothing certain can be said about the chronology of the earlier works.'

If his investigation has any value, then it lies in the information it has to offer on the sequence of the last six dialogues. Supposing Kaluscha's statistics can be trusted, it would seem that at least one new piece of evidence has come to light, namely that *Tim.* and *Crit.* were written before *Soph.*, *Pol.*, *Phil.*, not after them, as was then and perhaps still is generally thought. Can they be trusted? The answer of course is to be obtained by checking them, but this is made unfeasible by a number of factors. The most important of these is his omission to say which edition of Plato's text he used, since the various editions produce different statistics by reason of their different punctuation or textual readings. If this had been the only defect, the problem could have been solved by checking the statistics for certain dialogues in all the editions available to Kaluscha, but in addition the principles according to which the investigation was carried out are insufficiently explained. There is no mention of how long a sentence had to be before it was considered to have a clausula; whether, for example, it was counted even if having only five syllables and so consisting of nothing but clausula. Clarification is also lacking on a number of smaller points, e.g.

1. Whether interrogatives like ἦ οὐ; or ἦ πῶς; subjoined to sentences are to be regarded as part of the clausula. The lack of uniformity in the punctuation adopted by editors perhaps indicates their indifference rather than indecision in this respect (e.g. in the O.C.T. cf. *Soph.* 240d, 244c with 266b).
2. Whether alternative scansions attested by Attic poetry, such as short οι in words like ποιεῖν, τοιοῦτος, long α in ἀεί, syncopation of -εως and -εων are employed or not.

The existence of such variable factors renders futile any hope of establishing the exact degree of accuracy of his statistics. For even if, after an examination of all the texts together with a permutation of all the vari-

ables, one set of statistics was found to be nearer than the rest to Kaluscha's, it would not necessarily follow that the particular text and principles of investigation which produced these statistics were the ones used by him, because this begs the question by putting the number of actual errors made at the minimum possible.

However, in order to obtain some idea both of the approximate degree of accuracy of the statistics and of the amount of variation caused by different editions, a check was made of *Laws* v (Burnet and Schanz editions) and *Tim.* (Burnet and Hermann), these works being chosen for their lack of dialogue, thus reducing the problem of how long a sentence should be, before it can be regarded as having a clausula. In *Laws* v the few reply formulae were not counted, but in *Tim.* all sentences of five or more syllables were included in the calculations. The principles mentioned by Kaluscha were followed throughout; for the rest, alternative scansions were not admitted, and the editor's punctuation, whether consistent or not, was always adhered to. The statistics are given in Table 18.5.[9] By means of these a comparison can be made of the discrepancy between Kaluscha's figures and those of the check on the one hand and any discrepancy produced by the use of different editions on the other. The results are summarised in the table. Except with Schanz's edition the difference in units between the check statistics and those of Kaluscha (A) is approximately double that between statistics obtained by using different editions (B). Moreover, in B, though differences of 1 or 2 are

A		*Laws* v		*Tim.*		B		Schanz	Hermann
		Schanz	Burnet	Hermann	Burnet			Burnet	Burnet
Difference	1	9	15	8	6	Difference	1	18	14
(between	2	6	6	7	6	(between	2	3	6
check and	3	1	3	3	5	editions) of:	3		1
Kaluscha's	4		1	7	5		4		1
figure for	5	1	1	1	2		5		1
each type of	6			2	3				
clausula) of:	7			1	2				
Total difference in units		29	45	83	95			24	38

[9] The figures under Burnet A and Hermann A result when the clausulae of all sentences of fewer than fifteen syllables are omitted from the reckoning. The purpose of this is to reduce the totals to a size more comparable with that arrived at by Kaluscha.

Table 18.5

			Laws V			Timaeus				
			Kaluscha	Schanz	Burnet	Kaluscha	Hermann	Burnet	Hermann A	Burnet A
I		⏑⏑⏑⏑⏑	8	8	7	18	15	14	14	13
	1	–⏑⏑⏑⏑	11	11	10	30	30	28	28	26
	2	⏑–⏑⏑⏑	6	5	5	46	46	46	43	43
	3	⏑⏑–⏑⏑	11	10	9	14	20	21	20	21
	4	⏑⏑⏑–⏑	9	11	12	26	29	27	27	25
	5	⏑⏑⏑⏑–	14	14	13	27	24	26	23	25
II	1	––⏑⏑⏑	9	9	10	26	29	33	29	32
	2	–⏑–⏑⏑	5	5	6	26	29	31	27	29
	3	–⏑⏑–⏑	1	1	0	13	17	19	17	19
	4	–⏑⏑⏑–	19	18	18	25	27	28	26	26
	5	⏑––⏑⏑	5	7	8	26	29	29	28	28
	6	⏑–⏑–⏑	2	4	3	17	19	19	19	19
	7	⏑–⏑⏑–	3	2	1	20	20	20	19	19
	8	⏑⏑––⏑	1	1	1	23	23	24	19	20
	9	⏑⏑–⏑–	8	6	7	17	24	25	23	24
	10	⏑⏑⏑––	15	10	10	30	34	33	34	33
III	1	––––⏑⏑	13	13	13	23	23	24	22	23
	2	––⏑–⏑	3	3	4	25	29	28	28	27
	3	––⏑⏑–	1	0	0	25	27	28	27	28
	4	–⏑––⏑	3	6	7	25	29	29	29	29
	5	–⏑–⏑–	9	8	7	23	23	23	21	21
	6	–⏑⏑––	1	3	4	21	18	18	16	16
	7	⏑⏑–––	5	5	5	23	18	19	16	17
	8	⏑–⏑––	0	0	0	25	25	25	25	25
	9	⏑––⏑–	18	19	20	23	22	23	21	22
	10	⏑–––⏑	5	5	5	17	21	24	18	21
IV	1	⏑––––	3	3	1	18	20	22	18	20
	2	–⏑–––	10	9	9	23	26	25	24	23
	3	––⏑–––	6	5	5	49	51	46	50	45
	4	–––⏑–	15	15	13	29	32	31	31	30
	5	––––⏑	13	13	12	17	21	22	17	18
V		–––––	11	13	11	14	11	11	10	10
		Total	243	242	236	762	811	821	769	777

common, differences of over 2 are not so, while in A quite a different state of affairs exists. This, while not proving that Kaluscha's statistics are unreliable, does suggest that they may not be completely accurate, so that the conclusion which he drew from them about the chronological sequence of the last six works should not be regarded as beyond all doubt.

Billig was acquainted with Kaluscha's investigation, which he condemned as 'unsatisfactory in many ways'. What these ways were he failed to say, quoting by way of illustration only the fact that Kaluscha had treated the *Sophist* as a rhythmically homogeneous work, which in his opinion it was not. He himself had been led to re-investigate the subject through observing in the *Laws* the frequency as a clausula of the fourth paeon, the rhythm recommended by Aristotle (*Rhet.* III. 8) for this position.

Using Burnet's edition and following his punctuation and readings throughout Billig compiled statistics of clausulae before a full stop only (not before a colon too, as did Kaluscha). All sentences were counted, apart from the formal questions and answers which take up half a line or less. As for doubtful quantities his only a priori assumption was that the final syllable of the clausula was always *anceps*. Initially he omitted clausulae containing either a short vowel before a combination of mute and liquid or a long vowel before a word beginning with a vowel, but from observations made in the course of the investigation deduced the quantity of syllables in such instances, then added the statistics for the relevant clausulae to the rest. In the *Laws* it turned out that for every case in which the lengthening of a syllable before mute and liquid would produce an ending belonging to the second or third favourite rhythm of Plato,[10] there were at least three cases in which it would change the favourite rhythm into avoided rhythms. From this he concluded that in Plato's prose rhythm a vowel short by nature remained short before mute and liquid. Though the only exception to this which he mentioned was βλ,[11] it may be assumed that for Billig γμ, γν, δμ, δν also created a long syllable, as generally in Attic verse. Of γλ there was presumably no occurrence, but had there been, it would no doubt have been interpreted in the same way as βλ.

Similarly, regarding the long vowel before a word beginning with a vowel, the evidence of the *Laws* showed that for every instance where

[10] Obviously it cannot produce one belonging to the first (⏑⏑⏑⏓).

[11] On the basis of the two instances to be found in the *Laws* (715d, 932d), both of which form the second favourite form only if the syllable is scanned as long.

scanning it long produced one of the three favourite types of rhythm, there were four where scanning it short, as in Homer, resulted in the most favoured type. The figures for each type of rhythm, expressed as percentages of the total number of clausulae counted, are given in Table 18.6 (p. 185).

From these statistics Billig drew the following conclusions about each work:

Laws The rhythms show it to be a homogeneous whole, its books written probably in the order in which they stand.

Pol. and *Phil.* It would have been better to connect these in the table with the early and middle books respectively of the *Laws*.[12]

Soph. Unlike the *Laws* it is not homogeneous; the digression, which is concerned with the existence of Not-Being, was written much later than the main body of the work, where the subject is the definition of the sophist by the method of dichotomy. This much is clear from the rhythms, which themselves serve to fix the boundaries of the inserted portion at 236c and 260a. The rhythms of this digression are in fact the same as in the *Pol.*, although not quite so pronounced owing to a slightly earlier date of composition. By contrast, those of the rest of the work resemble the rhythms of the *Tim.*

Tim. The three chief rhythms characteristic of Plato's last phase constitute 45.6% of the total, whereas in the *Soph.* digression they form 65.8%, in the *Pol.* 70.7%, and in the *Laws* up to 80% and beyond. In comparison with these 45.6% is a paltry figure, 'indicative only of the equability of rhythm which the *Tim.* has in common with the *Rep.* and with all the other dialogues of the earlier periods'. Assuming an even distribution of the different rhythms, the three main types with their variations would make up 40% (six out of fifteen). A total of 45.6% indicates, therefore, that their occurrence is only slightly higher than average. On the other hand rhythms which are very infrequent in the *Laws*, namely $- - \cup - \underline{\cup}$ (2.8%) and $\cup - \cup\cup \underline{\cup}$ (2.2%), show a frequency considerably above average in *Tim.* (10.1% and 16.1% respectively).

Since he mentioned which edition he used, it would have been easy to check Billig's statistics, if only he had indicated more precisely the

[12] Whether Billig meant to imply by this that they were written not before, but contemporaneously with the *Laws* is not clear.

Table 18.6

						Laws											Laws v		Tim.	
	Soph. A	Soph. B	Tim.	Pol.	Phil.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Billig	Check	Billig	Check
(i) ⏑⏑⏑⏒	9.0	15.1	12.0	14.2	17.1	16.2	14.0	22.8	18.8	23.5	21.8	19.7	17.4	22.4	17.5	15.5	18.6	23.5	24.4	12.0	12.3
⏑⏑⏑–|⏒	6.0	9.9	6.4	8.7	11.0	9.3	11.5	8.8	9.1	10.8	12.4	8.4	10.7	9.6	10.4	6.3	7.7	10.8	10.6	6.4	6.7
⏑⏑⏑–|⏑⏒	1.6	2.0	2.9	3.7	4.4	3.8	2.0	8.0	6.6	8.3	4.9	5.5	6.2	6.9	6.3	6.3	7.7	8.3	8.1	2.9	2.5
⏑⏑⏑–|–⏒	3.8	6.4	3.1	6.6	6.2	4.1	3.0	4.4	4.6	0.6	5.3	5.5	5.0	4.1	4.9	1.2	5.0	0.6	1.3	3.1	3.4
Total of (i)	20.4	33.4	24.4	33.2	38.7	33.4	30.5	44.0	39.1	43.2	44.4	39.1	39.3	43.0	39.1	29.3	39.0	43.2	44.4	24.4	24.9
(ii) – –⏑⏒	17.6	18.9	12.6	21.2	23.5	21.3	20.1	21.7	27.4	22.3	22.3	23.4	23.6	25.0	30.5	37.4	24.9	22.3	23.1	12.6	13.0
(iii) – – –⏒	10.8	13.5	8.6	16.3	16.0	14.2	23.2	11.6	12.2	10.8	13.6	13.9	18.6	16.8	11.1	11.5	13.6	10.8	11.3	8.6	7.9
Total of (i) + (ii) + (iii)	48.8	65.8	45.6	70.7	78.2	68.9	73.8	77.3	78.7	76.3	80.3	76.4	81.5	84.8	80.7	78.2	77.5	76.3	78.8	45.6	45.8
–⏑– –⏒	6.8	5.8	5.5	8.1	4.4	7.9	8.5	5.2	5.6	5.1	5.3	6.5	5.6	5.0	3.7	7.5	6.8	5.1	3.8	5.5	5.4
– –⏑–⏒	8.3	5.8	10.1	4.1	2.9	5.2	4.5	2.8	2.0	0.6	1.5	2.5	4.5	2.7	3.0	2.9	2.7	0.6	1.9	10.1	10.5
– –⏑⏑⏒				3.5	3.8	4.9	2.5	1.6	5.1	3.8	3.4	2.2	3.4	0.9	1.9	3.5	2.7	3.8	3.8		
	14.1	8.1	16.1																	16.1	16.4
⏑–⏑⏑⏒				3.3	2.1	3.0	4.0	4.8	0.5	1.3	1.1	2.2	–	1.4	3.0	1.7	3.2	1.3	1.3		
–⏑⏑–⏑⏒	3.0	1.3	3.1	2.4	1.0	1.1	2.0	2.0	2.0	0.6	1.5	1.9	–	0.9	0.8	1.7	1.4	0.6	0.6	3.1	3.4
–⏑⏑– –⏒	3.3	2.6	1.8	1.3	1.4	1.9	1.0	1.6	–	1.3	1.5	1.5	1.1	0.5	0.8	1.2	0.9	1.3	1.3	1.8	2.0
⏑–⏑–⏒ }																					
–⏑–⏑⏒ }	9.8	7.7	12.4	5.8	5.3	6.0	2.0	3.2	5.6	8.3	4.1	6.1	2.8	3.2	4.2	3.5	5.0	8.3	6.3	12.4	11.2
–⏑⏑–⏒	5.8	3.2	5.2	1.1	0.8	1.1	1.5	1.2	0.5	2.6	1.1	0.9	1.1	0.9	2.2	–	–	2.6	2.5	5.2	5.4
Total of remainder	51.1	34.5	54.2	29.6	21.7	31.1	26.0	22.4	21.3	23.6	19.5	23.8	18.5	15.5	19.6	22.0	22.7	23.6	21.5	54.2	54.3

(a)*Soph.* B is the metaphysical digression 236c–260a. *Soph.* A is the rest of the work (see p. 184).

nature of the sentences left out of his calculations. The statement, 'the only sentences that I have omitted are the formal questions and answers that take up half a line at most', is ambiguous in so far as not all formal questions and answers are restricted to half a line, and imprecise in that interpretations of what constitutes a formal question or answer are certain to vary, perhaps considerably. In making a check, therefore, recourse was had to the same expedient as with Kaluscha, the choice of works with a minimum of dialogue, *Tim.* and *Laws* v. The results are given in the check section of Table 18.6.

Although Billig published no figures of the absolute number of occurrences of each rhythm, it is possible to show that he must have missed some. The check percentage calculations are based on totals of 160 and 555 for *Laws* v and *Tim.* respectively, and that Billig's were the same or very nearly so is shown by the appearance in three places in the *Laws* column of the figure 0.6%, which on such a basis represents a single occurrence of the rhythm concerned. However, in two of these places the figure ought not to have been 0.6, since the occurrence is greater than one, i.e.

$\cup\cup\cup - | - \underline{\cup}$ is found at 735c διακαθαίρηται and 744d νομοθέτην φράζειν,

$- - \cup - \underline{\cup}$ at 726a πάντ' ἐστὶ πᾶσιν, 733e ἀκόλαστον νοσώδη and 746a πόλιν καὶ πολίτας.

Nevertheless, the figures compare so well with each other, not only as regards the totals of favoured and non-favoured clausulae, but also individually, that it seems reasonable to accept Billig's statistics in general as a trustworthy foundation on which to base conclusions about the chronological sequence of the works involved.

The account of the two investigations completed, it will now be possible to discuss the evaluation of them made by G. E. L. Owen[13] and H. F. Cherniss.[14] Because his interpretation of Plato's philosophy required a considerably earlier position for the *Tim.* than that traditionally allotted to it, Owen accepted the results of Kaluscha's and Billig's investigations. Because his did not require any such alteration in the traditional order, Cherniss saw no reason why it should be altered and accordingly attempted to discredit both investigations on methodological grounds.

[13] 'The place of the *Timaeus* in Plato's dialogues', *Classical Quarterly* 3, (1953) 79–95.

[14] 'The relation of the *Timaeus* to Plato's later dialogues', *American Journal of Philology* 78 (1957) 225–66.

For Kaluscha what he considered to be adequate criticism had already been put forward by A. W. De Groot,[15] and he contented himself with referring to this. The essence of De Groot's complaint is contained in two passages (pp. 68 and 123):

> It [Kaluscha's work] contains valuable material for the clausula, a material which is intentionally only partly used, and so far as it is, used in a rather curious way. No comparison whatever with sentence-metre is made. The notion 'percentage' seems, as I said before, to be unknown to him.

> Kaluscha is quite wrong in saying that Plato generally prefers a long final syllable to a short one.

How much of this criticism is valid? Taking the points in the order in which they are made: for the purpose for which Kaluscha investigated the rhythm of Plato's prose it was unnecessary to compare the metre of the clausula with that of the body of the sentence. It becomes necessary only when it is required to establish whether there is a distinct clausula rhythm in contrast to that of the rest of the sentence,[16] but it cannot be said that this is essential to Kaluscha's investigation, aimed as it is at finding a distinction in the frequency of the same clausula metres at different periods.

Secondly, the fact that Kaluscha did not express his figures as percentages of the total number of clausulae is not important, since his conclusions about the chronological order are based simply on the extent to which each work resembles the *Laws* with respect to the latter's five most and six least frequent clausula types, and this can be seen without the figures being in percentage form. It should be admitted that the procedure is not as precise as one would wish, but this can be remedied (see pp. 198–203).

The declaration that Kaluscha was wrong in saying that Plato generally prefers a long final syllable to a short one is presumably a condemnation of Kaluscha's method of combining rhythms which are identical apart from the last syllable. To answer the problem in such a categorical way, however, would require a great amount of work; it cannot be done merely by examining Kaluscha's statistics, as De Groot imagined. The latter himself had previously (p. 63) remarked:

> Statistics show that in the *Laws* a metrical form with a long final syllable is always more frequent than the same form with a short final syllable in the sentence as

[15] *A Handbook of Antique Prose-Rhythm*, Groningen 1919.
[16] Cf. De Groot, *ibid.* 33.

well as in the clausula. In connection with the greater frequency of long syllables in general we could not have expected otherwise. Only one form deviates from this rule, i.e. – ∪∪∪, which occurs more frequently than – ∪∪ –.

De Groot had calculated the proportion of long syllables to short in Thucydides and Plato, the result in both being about 577 : 423 (p. 22), that is to say a 36% preponderance of long over short. If this figure be correct, it may be assumed that where the clausulae with a long final syllable exhibit a preponderance greater than 36%, a preference for them is shown by the author, and that where they do not preponderate or where the preponderance is less than 36%, they are avoided from preference for those with a short final syllable. An examination of the first thousand syllables[17] in each of *Soph.*, *Tim.* and *Laws*, however, produced the following relation of long syllables to short:

Soph. 497 : 528, *Tim.* 524 : 506, *Laws* 513 : 508

that is an average of 511 : 514. Judging from this admittedly small sample the proportion of long to short syllables is about equal in Plato's later works, so that if the preponderance of 36% applies to anything, it is likely to be to the early or middle works.[18]

The proportion of long to short syllables in the final position of the clausula is given for each work of the middle and late groups in Table 18.7, the figures being derived from those of Kaluscha. Those at the foot of the page, however, were obtained by a fresh investigation, using the same rules as in the check of Kaluscha's statistics described above (p. 181), but counting only the clausulae of sentences of fifteen syllables or more. Hence the lower number of instances generally, although those in the *Rep.* and *Laws* in particular result from the fact that only the last three books of the former and the first three of the latter were examined.

The figures indicate that in the works of the middle period Plato showed a distinct preference for a long syllable in the final position of the clausula.[19] In the *Tim.* and *Soph.*, the totals of the *Crit.* being too small

[17] Syllables containing a short vowel followed by mute and liquid in the same word were omitted.

[18] However, see note 19.

[19] A test similar to that carried out for the last group shows that the proportion of long to short syllables in the first thousand of *Theaet.*, *Parm.* and *Phdr.* is: *Theaet.* 512 : 503; *Parm.* 485 : 540; *Phdr.* 496 : 525. This sample suggests that there is little difference between the two groups. There is, therefore, no need in comparing the figures to make an allowance in the middle group either for the 36% preponderance of the long syllable mentioned by De Groot.

Table 18.7

	Final syllable of clausula		Excess of long as %
	short	long	
Rep.	1,372	2,406	75
Phdr.	261	452	73
Parm.	241	360	49
Theaet.	428	598	40
Tim.	472	494	5
Crit.	65	85	31
Soph.	458	471	3
Pol.	360	410	14
Phil.	427	531	24
Laws	1,438	2,365	64
Rep. I	196	315	61
II	145	224	55
III	154	239	55
IV	120	235	96
V	180	296	65
VI	139	234	68
VII	104	230	121
VIII	100	211	111
IX	106	201	90
X	128	221	73
Laws I	135	206	53
II	95	171	80
III	131	188	44
IV	125	156	24
V	105	138	31
VI	130	237	82
VII	163	287	76
VIII	80	174	118
IX	121	212	75
X	127	231	82
XI	95	172	62
XII	111	193	74
Check statistics			
Rep. VIII–X	251	478	90
Tim.	392	383	−2
Crit.	71	85	20
Soph.	327	350	7
Pol.	286	342	20
Phil.	315	421	34
Laws I–III	304	504	66

to allow any reliable deduction to be made, this preference suddenly disappears, only to reappear and grow gradually stronger in *Pol.*, *Phil.* and *Laws*. These aggregate figures, however, do not indicate whether the equilibrium in the *Tim.* and *Soph.* arises from an indifference about the length of the last syllable or from a preference for a short syllable in one rhythm counterbalancing that for a long in another. This becomes clear from Table 18.8, which is based on the check statistics and indicates the preponderance (as a percentage again) of long or short over the other, that of short being marked as negative. It will be seen that, apart from two pairs of rhythms (I.2, II.7 and II.1, III.3), where a final short syllable is preferred throughout the last group (with the exception of the *Crit.*), and two where a long is similarly preferred (I.4, II.10 and III.2, IV.3), the equilibrium noted in *Tim.* and *Soph.* springs apparently from indifference regarding the length of the last syllable rather than a preference for short in one instance and long in another.[20] It is significant that the only lapse in the preponderance of the long syllable at the end of the clausula should occur in the works shown by Kaluscha and Billig to stand at the point where Plato was abandoning his earlier prose rhythm and fashioning a new one. This, as their statistics show, did not spring perfect from his head, but developed through succeeding works. Perhaps to begin with he was content to obtain the desired rhythms without, as well as with, the long final syllable, and only with the improvement of his technique was he able to achieve both together.

Coming next to Cherniss's criticism of Billig, his first objection was that the latter had regarded the final syllable of the clausula as *anceps*, although this was contrary to Aristotle's statement on the subject[21] and to the evidence of Plato's own practice. 'This', he remarked,[22] 'justifies the scepticism concerning Billig's statistics and his inference from them.' While Plato's practice, in the middle and last groups at least, certainly shows that he did not invariably regard the length of the final syllable as irrelevant, it does not follow automatically that Billig's statistics and conclusions are invalidated. On the contrary, reflection about the way in which he used the statistics will show that his conclusions are

[20] Cf. the lack of consistency between *Tim.*, *Crit.* and *Soph.* as compared with *Pol.*, *Phil.* and *Laws*, the low number of positive figures in each (about half of the total), and the small average deviation indicative of the general absence of a strong preference in either direction.

[21] *Rhet.* 1409a9–21.

[22] *American Journal of Philology* 78 (1957) 227.

Table 18.8

		Rep.	Tim.	Crit.	Soph.	Pol.	Phil.	Laws
I, I.5	∪∪∪∪⏑	−14	88	0	−16	131	42	105
I.1, II.4	−∪∪∪⏑	94	0	392	−12	−9	106	159
I.2, II.7	∪−∪∪⏑	227	−144	−100	−81	−700	−733	−86
I.3, II.9	∪∪−∪⏑	187	15	100	0	19	17	8
I.4, II.10	∪∪∪−⏑	19	34	0	136	40	79	66
II.1, III.3	−−∪∪⏑	164	−17	100	−22	−383	−520	−243
II.2, III.5	−∪−∪⏑	146	−37	−68	−64	5	72	25
II.3, III.6	−∪∪−⏑	22	−5	192	50	167	−200	400
II.5, III.9	∪−−∪⏑	247	−29	0	13	0	10	116
II.6, III.8	∪−∪−⏑	170	28	23	−47	67	71	83
II.8, III.7	∪∪−−⏑	14	−23	−100	29	63	−26	75
III.1, IV.4	−−−∪⏑	88	33	−37	−15	−19	41	72
III.2, IV.3	−−∪−⏑	16	69	123	68	29	146	65
III.4, IV.2	−∪−−⏑	186	−23	68	3	75	18	−14
III.10, IV.1	∪−−−⏑	3	−8	−192	20	44	7	225
IV.5, V	−−−−⏑	159	−77	19	90	300	97	171
No. of positive figures		15	6	8	8	11	12	13
Average deviation from 0		110	39	95	42	128	137	120

unaffected by this factor. The method, it will be remembered, was to compare in each work the total occurrences of three particular types of rhythm (actually six distinct rhythms) with the total occurrences of the remaining nine, and these totals would not be altered by doubling the number of constituent rhythms through not regarding the final syllable of each as *anceps*.

Cherniss's second objection concerned the dissection of the *Soph.*:[23]

Billig's statistics in themselves prove that his method is not a safe guide to the relative chronology of the writings. They profess that the clausulae of *Soph.* 236c–260a are approximately those of the *Pol.*, while the clausulae of the parts of the *Soph.* that precede and follow this section are akin to those of the *Tim.* From this Billig inferred that *Soph.* 236c–260a was written much later than the rest of the dialogue and was then inserted into that earlier work. But, in the first place, Plato himself clearly indicates that this so-called 'digression' ends not at 260a, as Billig's statistics require it to do, but four Stephanus pages later at 264b, and the references in the *Pol.* to this same 'digression' (284b–c, 286b–c) prove that it was from the first an integral part of the *Soph.* In the end place, by Billig's criterion we could as easily prove that the myth of the *Pol.* must have been composed much earlier than the rest of that work, for the incidence of the supposedly late clausulae in this myth is exceeded by their incidence in the rest of this dialogue by a larger proportion than that which is taken to prove the bulk of the *Soph.* to be earlier than its 'digression', and scarcely exceeds their incidence in this so-called 'early' bulk of the *Soph.* itself.

In short, Billig's statistics refute themselves because:

(1) they lead to boundaries for the digression which are inconsistent with the subject matter;
(2) they separate the *Soph.* into two chronologically distinct parts, which is disproved by the reference in the *Pol.*;
(3) they might as easily be employed to separate the *Pol.* myth from the rest of the work in the same way.

Let us consider each of these points in turn, starting with the last, which Cherniss amplified as follows:[24]

According to Billig the clausulae supposedly favoured in the late style constitute 48.8% in the rest of the *Soph.* as against 65.8% in the digression, a difference of 17%. In the *Pol.* as a whole he calculates them at 70.7%, but in the myth [268d8–274e4] I find that they constitute scarcely 52%, more than 18% below

[23] *Ibid.* 228.
[24] Note to p. 228.

his average for the whole dialogue, 13.8% below his figure for the digression of the *Soph.*, and only 3.2% above that for the bulk of the *Soph.* excluding the digression.

The objection to this 'proof' of the earlier composition of the *Pol.* myth is that the material afforded by the myth is too small to allow conclusions to be made from it. The number of clausulae before a period which it contains is only 60,[25] whereas the smaller of the two halves of the *Soph.* has 350. Furthermore, by considering instead of clausulae before a period those before a colon it is possible to obtain a figure for the myth of 79% (Table 18.9), which would no doubt indicate that it was written somewhat later than the main portion, say about the time of the *Laws*. Combining both sets of clausulae (Table 18.9) serves to increase the material of the myth, which though still too small to make it a reliable basis for comparison, nevertheless produces a total for the favoured clausulae more in harmony with that of the work as a whole (Table 18.6).

The second point, that the references in the *Pol.* to the *Soph.* digression prove that it was from the first an integral part of the work, has no basis, since according to Billig's statistics the digression would already have been written and incorporated in the earlier version before composition of the *Pol.*

Thirdly, regarding the boundaries of the digression, Cherniss apparently believed that they were determined by Billig's statistics. These, however, do not 'require' the digression to end at 260a. On the contrary, it can be seen from Table 18.9 that the disputed section (260a–264b) may be included either in the main body of the work or in the digression without causing any appreciable alteration in the total percentage of the favoured clausulae.[26] In fact, according to the statement in his article (p. 242) Billig determined the boundaries of the digression by reference to the main rhythm (∪∪∪∪̲) and its variants: 'At 260a the main rhythms that mark the preceding pages break off and till the end of the dialogue the rhythm is precisely the same as that of the pages before the digression, the beginning of which I have placed at about 236c.' Examination of these

[25] That is, reckoning only the clausulae of sentences comprising more than ten syllables. In order to produce figures comparable with his, this rule was adopted here and in all other checks made according to Billig's principles, as an approximation to his exclusion of 'formal questions and answers that take up half a line at most' without its inherent vagueness.

[26] The point at which Billig fixed the beginning of the digression (236c) also differs from that generally accepted (236d5), but this is a matter of only four clausulae.

Table 18.9

	Politicus myth						Critias		Sophist							
	After full stop		After colon		After colon & full stop				Absolute figures			Percentages				
	abs.	%	abs.	%	abs.	%	abs.	%	Main body	Digression	260a to 264b	Main body	Main body + 260a to 264b	Digression	Digression + 260a to 264b	Whole work
(i) ∪∪∪⏑	4	6.7	6	20.7	10	11.2	18	16.2	40	38	12	10.9	12.0	11.0	12.0	11.5
∪∪∪–⏑	1	1.7	4	13.8	5	5.6	16	14.4	24	31	2	6.6	6.0	9.0	8.0	7.3
∪∪∪–∪⏑	2	3.3	1	3.4	3	3.4	2	1.8	17	11	2	4.6	4.4	3.2	3.1	3.9
∪∪∪––⏑	4	6.7	2	6.9	6	6.7	–	–	15	20	2	4.1	4.0	5.8	5.3	4.8
(ii) ––∪⏑	14	23.3	6	20.7	20	22.5	15	13.5	66	61	12	18.0	18.0	17.6	17.6	17.8
(iii) –––⏑	7	11.7	4	13.8	11	12.4	7	6.3	35	41	6	9.6	9.4	11.8	11.3	10.5
Total	32	53.3	23	79.3	55	61.8	58	52.3	197	202	36	53.8	53.7	58.2	57.3	55.7
–∪––⏑	10	16.7	3	10.3	13	14.6	6	5.4	25	24	5	6.8	7.0	6.9	7.0	7.0
––∪–⏑	5	8.3	–	–	5	5.6	11	9.9	32	24	1	8.7	7.6	6.9	6.0	7.3
––∪∪⏑	2	3.3	–	–	2	2.2	7	6.3	20	16	7	5.5	6.2	4.6	5.5	5.5
∪–∪∪⏑	3	5.0	1	3.4	4	4.5	4	3.6	22	18	7	6.0	6.7	5.2	6.0	6.0
–∪∪–∪⏑	–	–	–	–	–	–	3	2.7	9	7	2	2.5	2.5	2.0	2.2	2.3
–∪∪––⏑	3	5.0	1	3.4	4	4.5	3	2.7	8	12	5	2.2	3.0	3.5	4.1	3.2
∪–∪–⏑	–	–	–	–	–	–	7	6.3	9	18	–	2.5	2.1	5.2	4.3	3.5
–∪–∪⏑	4	6.7	–	–	4	4.5	6	5.4	24	12	2	6.6	6.0	3.5	3.4	4.9
–∪∪–⏑	1	1.7	1	3.4	2	2.2	6	5.4	20	14	3	5.5	5.3	4.0	4.1	4.7
Total	28	46.7	6	20.7	34	38.2	53	47.7	169	145	32	46.2	46.3	41.8	42.7	44.3

two passages shows that in the former there is a temporary spate of main rhythms; of the 50 clausulae (of sentences with more than ten syllables) occurring between 236c1 and 239d5 no less than 28 (56%) show the main rhythm or its variants, and with the two other favoured rhythms included the total rises to 40. It was probably this high frequency coinciding with the beginning of the digression which first suggested to Billig the possibility of a chronological distinction between the two parts. In the latter passage, however, the only support for the statement about the main rhythms breaking off comes from the fact that immediately before 260a there is a sequence of three clausulae with these rhythms. There is no evidence that they are more frequent in the pages immediately preceding than in those immediately succeeding 260a. If the dividing line is drawn after the last of the three clausulae mentioned (259e γέγονεν ἡμῖν), then the preceding 50 clausulae contain 12 instances of the main rhythms, the following 50 contain 13 instances. There is little difference, but having put forward the hypothesis of a later insertion on the basis of an observed jump in the frequency of the main rhythms after 236c, Billig perhaps felt obliged to find a similar break to mark the end of the inserted part.

This, it seems, was not the only thing that he may have imagined. For although Cherniss's criticism of the division of the *Soph.* is unfounded, one must have reservations about the correctness of the statistics themselves. For the favoured rhythms Billig quotes totals of 48.8% and 65.8% in the main part and digression respectively, a difference of 17%, but, as may be seen from Table 18.9, the results of the check investigation reveal a difference of only 5%. It is difficult to imagine how he arrived at such discrepant figures, unless perhaps it involved the clausulae of sentences with ten syllables or less, which were omitted from the fresh investigation. That it was not the result of carelessness may be argued from the fact that the check of his statistics for *Tim.* and *Laws* v showed them to have a high degree of accuracy.

Regarding the *Soph.* as homogeneous, then, and including the *Crit.*, the figures for which were established in accordance with Billig's rules (Table 18.9), the sequence of the last six works in order of rising totals of the three favoured clausula rhythms is:

Tim.	*Crit.*	*Soph.*	*Pol.*	*Phil.*	*Laws*
45.6%	52.2%	55.1%	70.7%	78.2%	77.9%

To complete his case against Billig, Cherniss referred to results obtained by A. W. De Groot, to whom he had already had recourse in

arguing against Kaluscha. 'Billig', he said,[27]

> is not the only scholar who has attempted to determine the relative chronology of Plato's works by means of a statistical study of prose rhythm. Besides Kaluscha there are the elaborate studies of A. W. De Groot, whose work is not mentioned by Owen. His analysis and his statistics differ from those of Billig in several significant ways; and, if his percentages of the clausulae favoured and avoided are accepted as a chronological criterion, the *Tim.* is definitely later than the *Parm.*, almost as certainly later than the *Soph.* and possibly later than the *Pol.* According to this criterion, moreover, the *Crit.*, of which Billig takes no account and for which De Groot gives separate percentages, would be the last of all Plato's compositions excepting just possibly books III, V and VI of the *Laws*. If the *Crit.* was written immediately after the *Tim.*, however, as Owen assumes it was, it should for the purpose of such calculations be treated along with the *Tim.* as a single statistical unit, and this unit, *Tim.* and *Crit.*, would according to De Groot's statistics be still more certainly later than the *Soph.* and the *Pol.*, not to mention the *Parm.*, although earlier than the *Phil.* and the *Laws*. If, then, the stylometric methods that Owen rejects have failed to prove positively that the *Tim.* is later than the *Soph.* and *Pol.*, the statistical analysis of prose rhythm to which he appeals has so far provided no cogent reason for believing that the *Tim.* antedates these dialogues, and has not even suggested that it was composed before the *Parm.*

In this passage there are several points which have little or no factual basis. The context leads one to assume that 'the elaborate studies of A. W. De Groot' refer to Plato. They do not. The elaborate studies which are original to De Groot concern other authors, those referring to Plato being neither elaborate nor original.[28] However, having set up De Groot as an independent investigator Cherniss proceeded to make use of his statistics, revealing the *Tim.* as later than *Parm.*, *Soph.* and probably *Pol.* too, 'if his percentages of the clausulae favoured and avoided are accepted as a chronological criterion'. These clausulae were not identified by Cherniss, which was hardly surprising, since De Groot mentioned the frequency of only one in connection with the works concerned. This was the double trochee ($- \cup - \underline{\cup}$), and the percentages of it, as given by De Groot (p. 60), were as follows:

[27] *American Journal of Philology* 78 (1957) 229.

[28] E.g. *A Handbook of Antique Prose-Rhythm*, Groningen 1919, 63: 'And it is quite interesting to observe that all our figures bearing on Plato are derived from a paper of Kaluscha, who made a rather curious use of his statistics: the idea, the notion of percentage seems to be unknown to him.'

Apol.	14.1	*Phdr.*	16.4	*Soph.*	9.7
Cri.	15.8	*Theaet.*	13.5	*Pol.*	7.1
Prot.	14.0	*Parm.*	16.0	*Phil.*	5.0
Charm.	13.3	*Rep.* I	12.5	*Laws* I	8.2
Lach.	13.0	II	14.9	II	7.5
Lys.	14.7	III	12.2	III	5.0
Euph.	12.7	IV	12.1	IV	5.3
Gorg.	12.2	V	12.6	V	4.5
Hipp. Mi.	15.2	VI	15.8	VI	3.3
Euthd.	15.8	VII	13.5	VII	6.4
Crat.	16.1	VIII	16.1	VIII	6.7
Meno	14.2	IX	14.3	IX	5.7
Menex.	11.4	X	16.9	X	5.6
Symp.	14.3	*Tim.*	15.2	XI	4.5
Phdo	14.1	*Crit.*	*1.3*	XII	4.6

Regarding this clausula De Groot himself said (p. 64): 'Now, only a few forms are avoided by Plato to such a degree as the double trochee. On the whole we can say that the later a work has been composed, the lower the percentage.' How Cherniss could argue from these figures that the *Tim.* was 'definitely later than *Parm.*, almost as certainly later than the *Soph.*, and possibly later than the *Pol.*' is incomprehensible. That it was on these figures that he based his argument is clear not only from what was just mentioned, namely that they are the only ones given by De Groot for the dialogues concerned, but also from Cherniss's subsequent remark that 'according to this criterion the *Crit.* would be the last of all Plato's compositions excepting just possibly books III, V and VI of the *Laws*'. This arises without doubt from the very low percentage quoted for the *Crit.*, though why books III, V and VI in particular should be selected as the only ones possibly later than *Crit.* is not clear. Unfortunately the figure 1.3% for *Crit.* is a misprint and should read 13.3%, as reference to Kaluscha's statistics shows. On this evidence, therefore, the *Tim.* and *Crit.* cannot be regarded as later than the *Soph.* or *Pol.*, since both conform with the majority of the dialogues as regards the frequency of this clausula. It is in the *Soph.* that a certain avoidance of the double trochee first becomes noticeable, subsequently to increase in the *Pol.*, *Phil.* and *Laws.* In short, if like Cherniss we accept this criterion, we obtain the same chronological order for the last six works as from Kaluscha's investigation, of which it in fact formed a part.

Although the investigations of Plato's prose rhythm by Kaluscha and

Billig both produced the same chronological sequence for the last group of works, *Tim.*, *Crit.*, *Soph.*, *Pol.*, *Phil.* and *Laws*, the result was not generally accepted, presumably because little was known of the investigations until attention was focused on them through the articles of Owen and Cherniss. Possibly a further impediment to its acceptance was the absence of any technical use of the data, to establish the basis for a numerical assessment of the validity of the results. It was to remedy this that it was decided to apply statistical techniques to Kaluscha's data, as contained in Tables 18.1 and 18.3, Kaluscha's having an advantage over Billig's in that they included the *Rep.*, which was essential for the purpose, and omitted clausulae containing either a short vowel before a combination of mute and liquid consonants or a long vowel before a vowel at the beginning of the next word. Over the quantities of these there might conceivably have been some dispute despite Billig's findings.

The procedure was as follows.[29] The first step was the calculation of the percentage frequency of each type of clausula in the two largest works, the *Rep.* (total 3,778 clausulae) and the *Laws* (total 3,781).[30] Then the figure for the *Laws* was divided by that for the *Rep.* (col. 2) and the natural logarithms of these ratios calculated (col. 3). A positive value resulted, whenever the percentage frequency for the *Laws* exceeded that for the *Rep.*, and a negative value otherwise. These logarithmic ratios can be shown to be appropriate measures of the change between the *Rep.* and *Laws*, and may be called change factors. They formed the basis for the rest of the calculations. The first stage was completed by multiplying each of these logarithms by the corresponding percentage frequency in the two works (col. 4). Since the higher percentage frequencies in the *Rep.* tended to coincide with negative logarithms, those in the *Laws* with positive logarithms, the resulting products (*Rep.* +20.183 and −46.703, *Laws* +36.996 and −15.234), when added up, produced a substantial negative balance (−26.520) in the case of the former and a similar positive balance (+21.762) in that of the latter. This figure was called the dialogue's score.

The next stage was to carry out similar calculations for *Tim.*, *Crit.*, *Soph.*, *Pol.* and *Phil.*, that is, by taking the percentage frequencies for the clausulae in these works (Table 18.1a), multiplying each by the logarithm of its corresponding significance of change factor (Table

[29] For a more detailed account see D. R. Cox and L. Brandwood, 'On a discriminatory problem connected with the works of Plato', *Journal of the Royal Statistical Society*, Ser. B, 21.1 (1959) 195–200.

[30] Table 18.10, col. 1.

Table 18.10

			1		2	3	4		5	
			% frequency				Col. 1 × col. 3			
			Rep.	Laws	Laws/Rep.	Log. of col. 2	Rep.	Laws	Rep.	Laws
I		∪∪∪∪∪	1.1	2.4	2.18	0.779	0.857	1.870	0.668	1.457
	1	−∪∪∪∪	1.6	3.8	2.38	0.867	1.387	3.295	1.203	2.857
	2	∪−∪∪∪	1.7	1.9	1.12	0.113	0.192	0.215	0.022	0.024
	3	∪∪−∪∪	1.9	2.6	1.37	0.315	0.599	0.819	0.189	0.258
	4	∪∪∪−∪	2.1	3.0	1.43	0.358	0.752	1.074	0.269	0.384
	5	∪∪∪∪−	2.0	3.8	1.90	0.642	1.284	2.440	0.824	1.566
II	1	−−∪∪∪	2.1	2.7	1.29	0.255	0.536	0.689	0.137	0.176
	2	−∪−∪∪	2.2	1.8	0.819	−0.199	−0.438	−0.358	0.087	0.071
	3	−∪∪−∪	2.8	0.6	0.214	−1.541	−4.315	−0.925	6.649	1.425
	4	−∪∪∪−	4.6	8.8	1.91	0.647	2.976	5.694	1.925	3.684
	5	∪−−∪∪	3.3	3.4	1.03	0.030	0.099	0.102	0.003	0.003
	6	∪−∪−∪	2.6	1.0	0.385	−0.956	−2.486	−0.956	2.377	0.914
	7	∪−∪∪−	4.6	1.1	0.239	−1.430	−6.578	−1.573	9.407	2.249
	8	∪∪−−∪	2.6	1.5	0.578	−0.548	−1.425	−0.822	0.781	0.450
	9	∪∪−∪−	4.4	3.0	0.680	−0.385	−1.694	−1.155	0.652	0.445
	10	∪∪∪−−	2.5	5.7	2.28	0.824	2.060	4.697	1.697	3.870
III	1	−−−∪∪	2.9	4.2	1.45	0.372	1.079	1.562	0.401	0.581
	2	−−∪−∪	3.0	1.4	0.467	−0.761	−2.283	−1.065	1.737	0.810
	3	−−∪∪−	3.4	1.0	0.294	−1.224	−4.162	−1.224	5.094	1.498
	4	−∪−−∪	2.0	2.3	1.15	0.140	0.280	0.322	0.039	0.045
	5	−∪−∪−	6.4	2.4	0.375	−0.982	−6.285	−2.357	6.172	2.315
	6	−∪∪−−	4.2	0.6	0.143	−1.946	−8.173	−1.168	15.905	2.273
	7	∪∪−−−	2.8	2.9	1.04	0.039	0.109	0.113	0.004	0.005
	8	∪−∪−−	4.2	1.2	0.286	−1.253	−5.263	−1.504	6.595	1.885
	9	∪−−∪−	4.8	8.2	1.71	0.536	2.573	4.395	1.379	2.356
	10	∪−−−∪	2.4	1.9	0.794	−0.231	−0.554	−0.439	0.128	0.101
IV	1	∪−−−−	3.5	4.1	1.17	0.157	0.550	0.644	0.086	0.101
	2	−∪−−−	4.0	3.7	0.926	−0.077	−0.308	−0.285	0.024	0.022
	3	−−∪−−	4.1	2.1	0.513	−0.668	−2.739	−1.403	1.830	0.937
	4	−−−∪−	4.1	8.8	2.15	0.765	3.137	6.732	2.400	5.150
	5	−−−−∪	2.0	3.0	1.50	0.405	0.810	1.215	0.328	0.492
V		-----	4.2	5.2	1.24	0.215	0.903	1.118	0.194	0.240

18.10, col. 3) and summing the products in the same way as for the *Rep.* and *Laws*. Assuming that *Tim.*, *Crit.*, *Soph.*, *Pol.* and *Phil.* were composed after the *Rep.* but before the *Laws*, then their scores would lie somewhere between those of the two large works, the degree of affinity in respect of prose rhythm to one or the other being indicated by the extent to which the scores were negative or positive. They were as follows:

Rep.	*Tim.*	*Soph.*	*Crit.*	*Pol.*	*Phil.*	*Laws*
−26.5	−11.8	−4.1	−3.5	13.0	20.0	21.8

The scores for the individual books of the *Rep.* and *Laws* were also calculated:

Rep.

I	II	III	IV	V
−24.0	−23.3	−20.1	−27.6	−26.3
VI	VII	VIII	IX	X
−30.9	−26.4	−32.6	−34.4	−21.8

Laws

I	II	III	IV	V	VI
15.0	21.8	21.5	20.0	25.3	26.7
VII	VIII	IX	X	XI	XII
22.1	22.0	22.0	24.1	21.4	20.5

In order to establish whether the differences between these figures were statistically significant and not merely attributable to chance, the standard error of each was calculated in the following manner. The percentage frequency of each clausula was multiplied by the square of the logarithm of its corresponding change factor,[31] and the sum (S) of the quotients obtained. The standard error was then calculated as:

$$\sqrt{\frac{100S - (\text{mean score})^2}{\text{Total no. of clausulae involved}}}$$

The results were:

Rep.	*Tim.*	*Soph.*	*Crit.*	*Pol.*	*Phil.*	*Laws*
1.4	2.7	2.4	6.3	2.0	1.9	1.0

[31] Cf. by way of illustration those for the *Rep.* and *Laws* (Table 18.10, col. 5).

Rep.

I	II	III	IV	V
3.7	4.2	3.8	4.5	3.9
VI	VII	VIII	IX	X
4.5	4.7	4.8	5.0	4.1

Laws

I	II	III	IV	V	VI
3.3	3.8	3.5	3.7	3.9	3.2
VII	VIII	IX	X	XI	XII
2.9	3.7	3.5	3.4	3.9	3.6

The fewer the clausulae on which the investigation is based, the greater the likelihood of apparent differences between dialogues being accidental. The degree of accuracy which should be attached to the final scores is indicated by the standard error; the greater this is, the greater the possible errors in the score. Thus *Crit.*, in which the clausulae included in the investigation numbered only 150, compared with the next lowest total of 764 in the *Tim.*, had a much larger standard error than the other works. The 6.3 for this work meant that, although the actual frequency distribution produced the score -3.5, chance variation from this distribution with such a small sample could, with probability about 1/3, have been such as to produce a score outside the range -9.8 to $+2.8$ (i.e. -3.5 plus or minus 6.3) and, with probability about 1/20, a score outside the range -16.1 to $+9.1$ (i.e. -3.5 plus or minus 6.3×2).

To decide whether the scores for two works differed to a greater extent than could be accounted for by chance variations, it was necessary to have a standard error for the difference between the scores of the two works, the appropriate formula being

$$\sqrt{(\text{s.e. of work A})^2 + (\text{s.e. of work B})^2}$$

The interpretation of this quantity is as follows. If there were no real difference in the distribution for the two works, the apparent difference would exceed twice the standard error only with probability about 1/20, and would exceed $2\frac{1}{2}$ times the standard error only with probability about 1/100. Hence any differences that exceed $2\frac{1}{2}$ times the standard error can safely be taken as real, while any differences between 2 and $2\frac{1}{2}$ times the

standard error are good, but by no means conclusive evidence of real differences.

According to this the relatively small differences between *Phil.* and *Laws*, between *Crit.* and *Soph.*, and even between *Crit.* and *Tim.* might have been due to chance fluctuations, and could not safely be taken as evidence of real differences. All of the remaining differences were highly significant statistically except that between *Tim.* and *Soph.*, which fell in the doubtful region. The figures for these pairs were:

Tim. : *Soph.* 2.1, *Crit.* : *Soph.* 0.1, *Crit.* : *Tim.* 1.2, *Phil.* : *Laws* 0.8.

The rest were above $2\frac{1}{2}$ times the standard error (e.g. *Soph.* : *Pol.* $5\frac{1}{2}$, *Tim.* : *Pol.* 7).

The individual books of the *Rep.* and *Laws* could not be treated in this way, and a different calculation was carried out to determine whether these works were homogeneous or not. This involved a comparison of the observed variation in score with the expected variation, the latter being given by

$$\sqrt{\text{average (s.e.)}^2} \qquad \text{i.e. } \textit{Rep.}\ \sqrt{\frac{188.2}{10}} = 4.34$$

$$\textit{Laws}\ \sqrt{\frac{150.51}{12}} = 3.54$$

The former was arrived at by the following stages:

(1) Sum of scores	*Rep.*		267.244
	Laws		262.434
(2) Sum of square of scores	*Rep.*		7340.10
	Laws		5833.09
(3) $\frac{(\text{Sum of scores})^2}{\text{No. of books}}$	*Rep.*	$\frac{71417.22}{10} =$	7141.72
	Laws	$\frac{68869.50}{12} =$	5739.13
(4) Difference between (2) and (3)	*Rep.*		198.38
	Laws		93.96
(5) $\frac{\text{Result of (4)}}{\text{No. of books} - 1}$	*Rep.*	$\frac{198.38}{9} =$	22.04
	Laws	$\frac{93.96}{11} =$	8.54
(6) $\sqrt{\text{Result of (5)}}$	*Rep.*		4.69
	Laws		2.92

Since the observed variation in score corresponded closely with the expected variation, and in the case of the *Laws* was even below it, it was concluded that the *Rep.* and *Laws* seemed to be homogeneous works in this respect. Therefore no attempt was made to draw distinctions between individual books on the basis of these statistics.

The above analysis of Kaluscha's data, then, produced the same sequence within the last group of works as he himself had arrived at. However, although objection to the method of interpreting the data had perhaps been obviated, a possible reservation still remained in that, for reasons already mentioned, the accuracy of his data could not be checked exactly. All doubt could have been dispelled by obtaining fresh data for the last group and the *Rep.* using a stated edition and specified rules of procedure, but such an investigation of the two larger works would have required a great amount of time. Instead of completely replacing Kaluscha's work, therefore, it was decided to check its results against data produced by a fresh examination of only *Tim.*, *Crit.*, *Soph.*, *Pol.*, *Phil.*, the last three books of the *Rep.* and the first three of the *Laws*. The edition used was Burnet's. No clausula of any sentence with less than fifteen syllables was included, nor any clausula containing either a dubious reading or a long vowel at the end of a word before a vowel at the beginning of the next word, or a short vowel before a combination of mute and liquid consonant (including γν, γμ, βλ etc.) in the same word or at the beginning of the next word. For the rest, the same rules were followed as in the check carried out on Kaluscha's statistics (p. 181). The results are given in Table 18.11 and, converted to percentages of the total number of clausulae, in Table 18.11a.

The same calculations as before were carried out to obtain the various scores and standard errors, which were as follows:

	Rep.	*Crit.*	*Tim.*	*Soph.*	*Pol.*	*Phil.*	*Laws*
Score	−38.5	−8.3	−3.6	4.1	23.6	29.3	31.5
S.e.	3.8	6.2	3.4	3.3	2.9	2.8	2.7

	Rep. VIII	IX	X	*Laws* I	II	III
Score	−48.2	−39.3	−29.4	24.7	33.7	36.7
S.e.	7.0	6.8	6.0	4.6	4.7	4.8

The degree of statistical significance in the differences between the scores is shown in the following table:

Table 18.11

			Number of occurrences in Burnet's edition													
										Laws			Rep.		
			Tim.	Crit.	Soph.	Pol.	Phil.	Laws	Rep.	I	II	III	VIII	IX	X
I		∪∪∪∪∪	13	5	15	8	19	16	6	4	6	6	2	1	3
	1	−∪∪∪∪	26	2	25	22	24	26	12	5	5	16	1	5	6
	2	∪−∪∪∪	43	5	26	25	18	21	8	7	8	6	3	2	3
	3	∪∪−∪∪	21	3	15	17	17	19	11	5	5	9	3	3	5
	4	∪∪∪−∪	25	10	15	22	28	31	15	12	10	9	5	2	8
	5	∪∪∪∪−	25	5	13	19	27	33	5	11	7	15	1	2	2
II	1	−−∪∪∪	32	3	22	18	23	19	10	12	3	4	3	2	5
	2	−∪−∪∪	29	5	24	13	13	10	16	6	2	2	4	7	5
	3	−∪∪−∪	17	2	11	2	2	2	26	0	0	2	11	6	9
	4	−∪∪∪−	26	10	22	20	50	67	24	23	12	32	7	10	7
	5	∪−−∪∪	28	5	26	30	36	25	11	7	6	12	4	3	4
	6	∪−∪−∪	19	4	15	4	5	5	17	3	0	2	6	3	8
	7	∪−∪∪−	18	2	14	3	2	11	26	2	2	7	12	9	5
	8	∪∪−−∪	21	4	23	19	29	16	16	4	5	7	2	5	9
	9	∪∪−∪−	24	3	15	20	20	21	31	7	3	11	15	8	8
	10	∪∪∪−−	33	9	35	31	50	51	18	22	17	12	8	2	8
III	1	−−−∪∪	23	4	36	44	40	35	18	12	10	13	6	7	5
	2	−−∪−∪	27	4	19	13	8	16	33	6	6	4	8	15	10
	3	−−∪∪−	27	5	18	4	4	6	27	4	1	1	5	10	12
	4	−∪−−∪	29	3	25	20	10	33	16	10	10	13	4	2	10
	5	−∪−∪−	21	3	15	14	23	12	39	8	1	3	13	14	12
	6	−∪∪−−	16	6	16	5	1	8	32	3	4	1	16	11	5
	7	∪∪−−−	17	2	30	31	23	28	18	15	6	7	4	6	8
	8	∪−∪−−	25	4	10	6	10	9	45	5	1	3	16	12	17
	9	∪−−∪−	22	6	29	30	40	54	38	22	9	23	11	12	15
	10	∪−−−∪	21	6	17	17	20	13	24	6	3	4	5	9	10
IV	1	∪−−−−	19	3	20	22	21	42	25	13	17	12	4	10	11
	2	−∪−−−	23	4	26	35	29	29	46	14	8	7	21	8	17
	3	−−∪−−	46	10	32	17	20	27	38	10	12	5	14	9	15
	4	−−−∪−	31	2	31	37	56	60	34	18	22	20	6	13	15
	5	−−−−∪	18	4	13	12	23	17	12	6	6	5	5	4	3
V		-----	10	6	24	48	45	46	32	12	24	10	13	7	12
		Total	775	149	677	628	736	808	729	294	231	283	238	219	272

Table 18.11a

			Frequency (as a percentage) in Burnet's edition											
									Laws			Rep.		
			Tim.	Crit.	Soph.	Pol.	Phil.	Laws	Rep.	I	II	III	VIII	IX	X
I		∪∪∪∪∪	1.68	3.36	2.22	1.27	2.58	1.98	0.82	1.36	2.60	2.12	0.84	0.46	1.10
	1	−∪∪∪∪	3.35	1.34	3.69	3.50	3.26	3.22	1.65	1.70	2.16	5.65	0.42	2.28	2.21
	2	∪−∪∪∪	5.55	3.36	3.84	3.98	2.45	2.60	1.10	2.38	3.46	2.12	1.26	0.91	1.10
	3	∪∪−∪∪	2.71	2.01	2.22	2.71	2.31	2.35	1.51	1.70	2.16	3.18	1.26	1.37	1.84
	4	∪∪∪−∪	3.23	6.71	2.22	3.50	3.80	3.84	2.06	4.08	4.33	3.18	2.10	0.91	2.94
	5	∪∪∪∪−	3.23	3.36	1.92	3.03	3.67	4.08	0.69	3.74	3.03	5.30	0.42	0.91	0.74
II	1	−−∪∪∪	4.13	2.01	3.25	2.87	3.13	2.35	1.37	4.08	1.30	1.41	1.26	0.91	1.84
	2	−∪−∪∪	3.74	3.36	3.55	2.07	1.77	1.24	2.19	2.04	0.87	0.71	1.68	3.20	1.84
	3	−∪∪−∪	2.19	1.34	1.62	0.32	0.27	0.24	3.57	0.00	0.00	0.71	4.62	2.74	3.31
	4	−∪∪∪−	3.35	6.71	3.25	3.18	6.79	8.29	3.29	7.82	5.19	11.31	2.94	4.57	2.57
	5	∪−−∪∪	3.61	3.36	3.84	4.78	4.89	3.09	1.51	2.38	2.60	4.20	1.68	1.37	1.47
	6	∪−∪−∪	2.45	2.68	2.22	0.64	0.68	0.62	2.33	1.02	0.00	0.71	2.52	1.37	2.94
	7	∪−∪∪−	2.32	1.34	2.07	0.48	0.27	1.36	3.57	0.68	0.87	2.47	5.04	4.11	1.84
	8	∪∪−−∪	2.71	2.68	3.40	3.03	3.94	1.98	2.19	1.36	2.16	2.47	0.84	2.28	3.31
	9	∪∪−∪−	3.10	2.01	2.22	3.18	2.72	2.60	4.25	2.38	1.30	3.89	6.30	3.65	2.94
	10	∪∪∪−−	4.26	6.04	5.17	4.94	6.79	6.31	2.47	7.48	7.36	4.24	3.36	0.91	2.94
III	1	−−−∪∪	2.97	2.68	5.32	7.01	5.43	4.33	2.47	4.08	4.33	4.59	2.52	3.20	1.84
	2	−−∪−∪	3.48	2.68	2.81	2.07	1.09	1.98	4.53	2.04	2.60	1.41	3.36	6.85	3.68
	3	−−∪∪−	3.48	3.36	2.66	0.64	0.54	0.74	3.70	1.36	0.43	0.35	2.10	4.57	4.41
	4	−∪−−∪	3.74	2.01	3.69	3.18	1.36	4.08	2.19	3.40	4.33	4.59	1.68	0.91	3.68
	5	−∪−∪−	2.71	2.01	2.22	2.23	3.13	1.49	5.35	2.72	0.43	1.06	5.46	6.39	4.41
	6	−∪∪−−	2.06	4.03	2.36	0.80	0.14	0.99	4.39	1.02	1.73	0.35	6.72	5.02	1.84
	7	∪∪−−−	2.19	1.34	4.43	4.94	3.13	3.47	2.47	5.10	2.60	2.47	1.68	2.74	2.94
	8	∪−∪−−	3.23	2.68	1.48	0.96	1.36	1.11	6.17	1.70	0.43	1.06	6.72	5.48	6.25
	9	∪−−∪−	2.84	4.03	4.28	4.78	5.43	6.68	5.21	7.48	3.90	8.13	4.62	5.48	5.51
	10	∪−−−∪	2.71	4.03	2.51	2.71	2.72	1.61	3.29	2.04	1.30	1.41	2.10	4.11	3.68
IV	1	∪−−−−	2.45	2.01	2.96	3.50	2.85	5.20	3.43	4.42	7.36	4.24	1.68	4.57	4.04
	2	−∪−−−	2.97	2.68	3.84	5.57	3.94	3.59	6.31	4.76	3.46	2.47	8.82	3.65	6.25
	3	−−∪−−	5.94	6.71	4.73	2.71	2.72	3.34	5.21	3.40	5.19	1.77	5.88	4.11	5.51
	4	−−−∪−	4.00	1.34	4.58	5.89	7.61	7.43	4.66	6.12	9.52	7.07	2.52	5.94	5.51
	5	−−−−∪	2.32	2.68	1.92	1.91	3.13	2.10	1.65	2.04	2.60	1.77	2.10	1.83	1.10
V		-----	1.29	4.03	3.55	7.64	6.11	5.69	4.39	4.08	10.39	3.53	5.46	3.20	4.41

Works compared	Difference between scores	Standard error of difference	Ratio	Statistical level of significance
Crit. : *Tim.*	4.7	7.07	0.7	not significant
Crit. : *Soph.*	12.4	7.02	1.8	5%
Tim. : *Soph.*	7.7	4.74	1.6	5%
Tim. : *Pol.*	27.2	4.47	6.0	highly significant
Soph. : *Pol.*	19.5	4.39	4.4	highly significant
Pol. : *Laws*	7.9	3.96	2.0	5%
Phil. : *Laws*	2.2	3.89	0.6	not significant

A higher level of statistical significance was apparent between *Crit.* and *Soph.* than with Kaluscha's data, and although the odds against the difference between *Tim.* and *Soph.* being accidental were not as great as before, possibly because the *Rep.* and *Laws*, whose style formed the basis of all the calculations, were represented in this case only by sample, the difference nevertheless still existed.

In view of the fact, therefore, that four different investigations using three sets of data established independently of one another produced exactly the same results, it seems unreasonable to doubt that, as far as prose rhythm is concerned, the chronological line of development is represented by the sequence *Tim.*, *Crit.*, *Soph.*, *Pol.*, *Phil.* and *Laws*, with the possibility that the *Phil.*, and perhaps the *Pol.* too, were written contemporaneously with the earlier books of the *Laws*.

19

H. VON ARNIM (II)

★

A second inquiry by Arnim[1] rivalled Lutoslawski's for the title of the most maligned work in the history of the stylistic method.[2] This seems rather ironical in view of the fact that its express aim was to endow the chronological conclusions previously arrived at by the stylistic method with such a conclusive force that 'any opposition would be impossible'. As it was, they did not have this force, simply because they were not absolute. In other words, while they showed that it was probable that certain dialogues belonged together by reason of a common possession of particular stylistic features, they did not show that different groupings according to other features were impossible. Although scholars had found, for instance, that a large number of features connected *Soph.* and *Pol.* to the *Phil.*, *Tim.* and *Laws* and had consequently assumed their temporal proximity, they had never thought of investigating how many features connected these same two dialogues to, say, *Hipp. Mi.*, *Phdo* and *Crat.* Yet it was theoretically possible that such an investigation would unearth a larger number of features than in the former case, and the whole chronological order would have to be revised.

This was the doubt which Arnim wished to eliminate. It meant that every dialogue would have to be compared with every other dialogue, a task which would occupy the lifetimes of several investigators, if the

[1] 'Sprachliche Forschungen zur Chronologie der platonischen Dialoge', *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften in Wien, Philos. Hist. Klasse* 169.1 (1912).

[2] It was still having repercussions in 1929, when M. Warburg attacked it in 'Zwei Fragen zum "Kratylos", *Neue Philologische Untersuchungen* 5, Berlin 1929 and received a prompt defensive counter from Arnim in 'Sprachliche Forschung als Grundlage der Chronologie der platonischen Dialoge und des "Kratylos",' *Sitzungsberichte der Akademie der Wissenschaften in Wien, Philos. Hist. Klasse* 210.4 (1929).

material were to be every possible feature of style. However, it did not have to be, since there existed a smaller, yet self-contained body of material to work on in the reply formulae. Although, with this in mind, Arnim had in 1910 carried out a completely fresh survey of the whole Platonic text (even, as he said, where Ritter and he himself in his earlier work had covered the same ground), he decided for his first investigation to limit the subject matter to affirmative reply formulae, and further only to those which he called 'pure', that is, not containing any word repeated from the preceding question, in as much as the latter were not entirely independent of the context. He intended to deal with the excluded reply formulae as well as further stylistic features in future investigations, but these were never carried out.

Having collected the statistics, therefore, his intention was to compare each pair of works[3] in respect of their overall use of the formulae (meaning both choice and frequency) in the expectation 'probable in itself but requiring verification' that dialogues written close together would show a similar pattern. Counting the books of the *Rep.* and *Laws* separately there were 42 works, and so 41 different pairs for comparison. If the relationship of each pair were expressed by an affinity value and these values compared for all 42 works, there would be altogether 861 such values.

The manner in which Arnim calculated this figure for each pair of works was as follows. It was clear that the affinity of two dialogues was measured most correctly, not simply by the number of reply formulae which they had in common, but by the proportion of those they had in common to those they had not. If the number of formulae in dialogues A and B was respectively a and b, then the number of formulae not common amounted to $a + b - 2g$ (gemeinsam), g being contained in both a and b. So the affinity value of dialogues A and B resulted from the formula:

$$\frac{a + b - 2g}{g}.$$

The calculation of the types of reply formula held in common presented no difficulty, since each was simply a unit, but what of the instances of each formula, the number of which almost certainly differed in the two works compared? In this case the smaller number was regarded

[3] *Apol.*, *Menex.*, *Tim.*, *Crit.* and *Laws* V and XI were excluded on account of their lack of dialogue.

as that held in common. If, for instance, πάνυ γε occurred 50 times in dialogue A, 38 times in B, then the number common to A and B was 38, and so on for each formula to be found in the two works, the final total representing g. Here, however, a difficulty arose. The superfluous instances could not be left in the formula to be reckoned as not-common, since that was not true. In the previous example B had as many in common with A as presumably its size allowed, so that according to Arnim its affinity value with A should be the same as that of a third dialogue C, which by reason of its larger size was able to replicate all 50 πάνυ γε of A. Assuming πάνυ γε to be the only reply formula in the three dialogues, with the formula

$$\frac{a + b - 2g}{g}$$

the affinity value of A to C was

$$\frac{50 + 50 - 100}{50} = 0$$

(i.e. the greatest possible affinity), whilst that of A to B was

$$\frac{50 + 38 - 76}{38} = 0.32.$$

Both, he said, should be the same, since within the limits set by their different sizes both B and C showed the greatest possible affinity to A. As the formula stood, however, the result 0 would only be produced when the total number of instances in both dialogues was the same, i.e. when not only $g = b$, but also $b = a$. Usually a was larger than b, and in such a case the value could not be less than

$$\frac{a - b}{b},$$

the difference in the two totals divided by the number of common instances. This unfair distinction had to be eliminated, so that every pair of dialogues compared might have the chance of producing the affinity value 0. Therefore, the formula was emended to

$$\frac{a + b - 2g}{g} - \frac{a - b}{b},$$

which could be simplified to

$$\frac{a+b}{g} - \frac{a+b}{b}.$$

With this, whenever $g = b$, the quotient was obviously 0.

For calculation of the types of reply formulae Arnim used a different affinity formula, his account of which is as follows.

To convince oneself that the same method of reckoning [sc. as for the instances] should not be used for the affinity relation of the common types (γ), one must make the following considerations. The number of types of formula (α.β.) occurring in a dialogue does not stand in a fixed relationship to the number of instances (*a.b.*). Moreover, it is not, as they are, directly governed by the extent of the dialogue, but principally by the greater or lesser endeavour of the author to vary his manner of expression. In short, with the number of types a characteristic of style is involved. A dialogue with a much greater total of instances of reply formulae can contain fewer types than another with a much smaller total. If F^{AB} (the affinity value of dialogues A and B as regards types) $= \frac{\alpha + \beta - 2\gamma}{\gamma}$, we cannot here say that the maximum value occurs when $\gamma = \beta$. Nor should $\frac{\alpha - \beta}{\beta}$ be subtracted from the fraction, resulting in the formula $F = \frac{\alpha + \beta}{\gamma} - \frac{\alpha + \beta}{\beta}$, because β is not, like b, a number fixed directly by the extent of the dialogue. We must rather regard α and β as variable if, as earlier in the calculation of instances, we wish to ascertain the value which this fraction can attain in the case most favourable for the affinity, namely, the minimum sum of the quotient. It is clear, however, that the variability of α and β is not unlimited. Even though they do not stand in a fixed relation to a and b, their relation to them still moves within an upper and lower limit, which can be established by observation. The lower limit is formed by the proportion found in the *Gorg.*, where there are only 33 types to 269 instances (i.e. the types form 12% of the instances), the upper limit by the proportion in *Laws* IX, where 20 types cover 25 instances (i.e. the types form 80% of the instances).

If we take these figures as the upper and lower value limits for the variability of α and β in relation to a and b, we shall admittedly encounter the objection that the transgression of these limits was not absolutely impossible (according to logical or natural laws), but only empirically improbable (on the ground of Plato's stylistic habit established by induction). If, however, we disregard this stylistic improbability, β could be any value from 1 to b, and α also could decrease to 1 (e.g. if all 141 instances of the *Meno* belonged to one type, say πάνυ γε), while its upper limit would only be found in the total number of types occurring in Plato, which I have discovered is 166. The objection is justified in theory, but if we bowed to it, our undertaking to ascertain the highest possible affinity value for

each separate pair of works would be impracticable. It would be equally applicable to all pairs of works that the highest possible degree of affinity was possible for them, that is to say, that the fraction could equal zero. For there would be nothing to stop $\gamma = \beta = b = \alpha$. It seems to me, however, that if we make this interpretation the basis of our calculation, we run the risk of making the affinity between dialogues with very unequal numbers of instances seem less than it is. This inequality, caused, as we have said, by the extent of the dialogue and therefore not characteristic of the style, would influence our results too much. If we wish to remedy this defect, we must regard the possibility of the variation of α and β in relation to a and b as limited. Since, however, the limits of this variation cannot be drawn with objective certainty, but only on the basis of an empirically ascertained probability, we must always be aware that the results of our calculation are less trustworthy for those pairs of works in which the numbers of instances are very different... In addition, the necessity of drawing certain limits is shown by the fact that b is sometimes smaller than α, and b is the limit for the increase of β. It is easier to imagine each instance in a small total belonging to a separate type ($\beta = b$), from which *Laws* VIII (17 instances, 13 types) and *Laws* IX (25 instances, 20 types) are not very far, than all the instances in a large total belonging to the same type (e.g. all 141 instances of the *Meno* being πάνυ γε); we cannot attribute the bad taste of such uniformity to an author like Plato.

The most favourable case possible, therefore, for the affinity of two dialogues occurs when not only $\gamma = \beta$, but also $\beta = \alpha$, or, where this is obviously excluded, β and α approximate as closely to each other as the proportion of b to a allows (i.e. if β has the largest, α the smallest value attainable within the limits of their possible variation). In my calculation I have fixed the greatest possible value of β (on the ground of the proportion found in *Laws* IX) at $\frac{8}{10}b$, the smallest possible value of α (on the ground of the proportion found in *Gorg.*) at $\frac{1}{10}a$. Strictly speaking the 33 types in the *Gorg.* form 12% not 10% of the 269 instances, but in the interests of simpler reckoning I thought I might overstep this limit a little. If the smallest value of α in relation to a which actually occurs (i.e. *Gorg.*'s 12%), were taken as the smallest possible, the results of our calculations would be affected only inasmuch as in a comparison of the largest with the smallest dialogues the affinity quotients would be somewhat diminished.

I call the greatest value which β can attain $\beta^{\mu\gamma}$ (β τὸ μέγιστον), the smallest value which α can attain $\alpha^{\varepsilon\lambda}$ (α τὸ ἐλάχιστον). The resulting formula for the affinity of dialogues A and B as regards types of reply formula is:

$$F^{AB} = \frac{\alpha + \beta - 2\gamma}{\gamma} - \frac{\alpha^{\varepsilon\lambda} + \beta^{\mu\gamma} - 2\beta^{\mu\gamma}}{\beta^{\mu\gamma}}.$$ [4]

[4] I.e. from the affinity which each pair of dialogues actually shows Arnim subtracts the best affinity they could show, so endeavouring to place all pairs, despite their inequalities, on an equally favourable basis of comparison.

This is universally valid, if by $\beta^{\mu\gamma}$ we understand not the greatest possible value of β altogether, but only the greatest as far as the closest possible approximation to $\alpha^{\varepsilon\lambda}$. Although the second fraction, forming the subtrahend, should express the most favourable case for the affinity relation, that is, the smallest quotient possible in the circumstances, it should never be negative. This would happen, however, if $\beta^{\mu\gamma}$ were larger than $\alpha^{\varepsilon\lambda}$. If $\beta^{\mu\gamma} = \alpha^{\varepsilon\lambda}$, the subtrahend is zero, and the formula reads:

$$F^{AB} = \frac{\alpha + \beta - 2\gamma}{\gamma} \qquad \text{(I)}.$$

If, on the other hand, $\alpha^{\varepsilon\lambda}$ is greater than $\beta^{\mu\gamma}$, the subtrahend yields a positive value:

$$F^{AB} = \frac{\alpha + \beta}{\gamma} - \frac{\alpha^{\varepsilon\lambda} + \beta^{\mu\gamma}}{\beta^{\mu\gamma}},$$

and if for $\alpha^{\varepsilon\lambda}$ and $\beta^{\mu\gamma}$ we substitute the value fixed above in fractions of a and b, we get

$$F^{AB} = \frac{\alpha + \beta}{\gamma} - \left(\frac{a}{8b} + 1\right) \qquad \text{(II)}.$$

In my tables the affinity quotients for all pairs in which $a > 8b$ are calculated according to formula II, for all those in which $a < 8b$ according to formula I.

The uncertainty which, as mentioned above, adheres to certain parts of this procedure can be counteracted by our placing less confidence in the results of the calculation of types than in those of the calculation of instances, where $a > 5b$ in the pair of dialogues concerned.

The explanation of his method concluded, Arnim set out the results in various tables. These are too extensive to reproduce, and a description must suffice. Tables I and II are strictly speaking not tables but catalogues, the former (pp. 26–46) aiming to list all the reply formulae of assent found in Plato under convenient groups (e.g. πάνυ including πάνυ γε, πάνυ μὲν οὖν etc; δοκεῖ including δοκεῖ μοι, ἔμοιγε δοκεῖ etc.) together with their frequency in the various dialogues; in short, the basic material of the investigation.

In Table II (pp. 47–126) the reply formulae in each work are catalogued in four sections *A*, *B*, *C*, *D*. Under *A* are those which occur more than once in the dialogue concerned as well as in others; under *B* those which in this dialogue occur only once, but in others more than once; under *C* those which occur once only both in this and other dialogues; under *D* those which occur only in this dialogue. Thus for *Laws* VIII one finds:

Leges VIII 22[5]

A.1. ὀρθῶς 4. *Rp.* [2] , [3]2, [5]8, [6]5, [7]3, [8] , [10]2, *Th.* 2, *Pa.* 16, *So.* 10, *Po.* 14, *Phi.* 11, *Lg.* [1] , [2]2, [7]3, [9] , [10]2, [12]2.
2. πῶς γὰρ οὔ; 2. (−*I.*, *H. Mi.*, *Ap.*, *Pr.*, *Sy.*, *Lg.* [11]).[6]

Total of A: 6

B.1. τί μήν; *Ly. Rp.* [2] , [3]4, [4]5, [5]2, [6]6, [7]4, [8]6, [9]6, [10] , *Phr.* 11, *Th.* 13, *Pa.* 5, *So.* 12, *Po.* 20, *Phi.* 25, *Lg.* [1]6, [2]7, [3]13, [4]3, [6]5, [7]6, [9] , [10]3, [12]2.
2. καλῶς *Rp.* [5]2, *So.* 2, *Po.* 6, *Phi.* 2, *Lg.* [1] , [2] , [3]2, [6] , [9] .
3. τάχ' ἄν *Rp.* [2] , *So.* 2, *Po.*, *Phil.*, *Lg.* [2] , [9] .
4. καὶ πάνυ γε *Ch.*, *Rp.* [8] , *Pa.* 3, *Po.* 2, *Phi.* 4, *Lg.* [1] .
5. ὀρθότατα λέγεις *Rp.* [2] , *Phi.* 5, *Lg.* [1] , [2] , [3] , [4] , [6] , [7] , [10]2.
6. ἀληθῆ λέγεις (−*Ap.*, *Rp.* [3] , [4] , [7] , [9] , *Lg.* [1] , [2] , [6] , [9] , [10] , [11]).
7. πάνυ μὲν οὖν (−*I.*, *H. Mi.*, *Ap.*, *Ch.*, *Lg.* [11]).

Total of B: 7

C.1. εἰκότως γε *M.*, *Cra.*, *Euthd.*, *Ly.*, *Rp.*[3] , [4] , [9] , *Th.*, *Lg.*[2] .
2. εἰκὸς γοῦν *So.*, *Lg.* [3] , [7] , [9] .
3. ἔσται ταῦτα *H. Mi.*, *Th.*, *Lg.* [3] , [6] .
4. ὀρθῶς γε σὺ λέγων *La.*

Total of C: 4

D.1. καλῶς ὑπέμνησας cf. *Lg.* [1] καλῶς μνημονεύετε.
2. καλῶς ὑπέλαβες cf. *Rp.* [3] , *Phi.*, *Lg.*[7] ὀρθῶς ὑπέλαβες, *Lg.*[12] κάλλιστα ὑπέλαβες.
3. πάντῃ τοι καλῶς, ὦ ξένε, περὶ αὐτῶν τούτων εἴρηκας τὰ νῦν cf. *Phi.*, *Lg.*[7] καλῶς εἴρηκας.
4. κάλλιστα, ὦ ξένοι, ἐπεπλήξατε cf. *Lg.*[12] κάλλιστα ἐπακολουθεῖς.
5. ὀρθότατα λέγεις τό γε τοσοῦτον ὅτι ... cf. *B* 5. above.

Table III, like II, treats each dialogue separately and indicates the number of instances and the number of types of reply formula it contains, then how many of these instances and types it has in common with each of the other 41. From these figures the affinity value for each dialogue with every other in respect of both instances and types of reply formula

[5] I.e. the total number of reply formulae.
[6] Parenthesis with a minus sign indicates that the formula concerned is found in all works except those in the parenthesis.

is calculated and expressed in Table IV (Arnim, pp. 169–210), that on p. 218 being an example. In this columns *A* and *B* represent the calculation of instances common to both dialogues according to the formula

$$\frac{a+b}{g} - \frac{a+b}{b}.$$

Thus for the *Ion* 77 in column *A* is the total number of instances of reply formulae in the two works (*Lach.* 46 + *Ion* 31) divided by 11, which is the number common to both; similarly 77 : 31 in column *B* is the second half of the formula, and the quotient appears in column *C*. The calculation of types held in common according to the formula

$$\frac{\alpha + \beta - 2\gamma}{\gamma}$$

is in column *D*. Thus 31 is the sum of the types (*Lach.* 19, *Ion* 12), while 8 represents 2γ, since the number of types common to both is 4, which is also the divisor. The quotient is in column *E*. Column *F*, which is the sum of *C* and *E*, represents the affinity quotient for the *Lach.* and each of the other dialogues in respect of both instances and types; the lower the quotient, the greater the affinity.

Table V is a synopsis of the affinity values calculated in Table IV. The ten best values according to (*a*) the instances calculation, (*b*) the types calculation, (*c*) the two combined, are set out in three horizontal series for each of the 42 dialogues; e.g.:

6. CHARM.

(a)	*Lys.*	*Rep.* I.	*Euph.*	*Meno*	*Phdo*	*Gorg.*	*Euthd.*	*Crat.*
	0.53	0.65	0.78	0.92	0.95	1.02	1.02	1.08
	Parm.	*Theaet.*						
	1.43	1.55						
(b)	*Euph.*	*Euthd.*	*Lys.*	*Gorg.*	*Hipp. Ma.*		*Rep.* I.	*Rep.* II.
	0.93	1.43	1.53	1.56	1.64		1.66	1.86
	Parm.	*Lach.*	*Phdo*					
	1.87	1.90	2.21					
(c)	*Euph.*	*Lys.*	*Rep.* I.	*Euthd.*	*Gorg.*	*Phdo*	*Hipp. Ma.*	
	1.71	2.06	2.31	2.44	2.58	3.16	3.21	
	Meno	*Parm.*	*Crat.*					
	3.30	3.30	3.43					

So Arnim finally had his material in a form from which he could draw conclusions about the chronological order of the dialogues. For this he normally referred to the third series, to the first or second only when the third presented an ambiguity. His method was to examine the tables for evidence of reciprocal affinity between two or more works. Thus, for instance, he found *Pol.* and *Phil.* occupied the two highest positions in the *Soph.* table, *Phil.* and *Soph.* in the *Pol.* table, and *Pol.* and *Soph.* in the *Phil.* table, from which he concluded that these three works belonged closely together. In this way he established the following groups: 1. *Soph.*, *Pol.*, *Phil.*; 2. *Laws*; 3. *Rep.*, *Theaet.*, *Parm.*, *Phdr.*; 4. *Lach.*, *Rep.* I, *Lys.*, *Charm.*, *Euph.*; 5. *Euthd.*, *Gorg.*, *Meno*, *Hipp. Mi.*, *Crat.*; 6. *Symp.*, *Hipp. Ma.*, *Phdo*, *Cri.*, 7. *Ion*, *Prot.*

By discerning connections between dialogues in different groups he was able to produce the 'provisional' sequence:

Ion, *Prot.* – *Lach.*, *Rep.* I, *Lys.*, *Charm.*, *Euph.*, *Euthd.*, *Gorg.*, *Meno*, *Hipp. Mi.*, *Crat.* – *Symp.*, *Hipp. Ma.*, *Phdo*, *Cri.* – *Rep.* II–X, *Theaet.*, *Parm.*, *Phdr.*, *Soph.*, *Pol.*, *Phil.*, *Laws.*[7]

Reaction to Arnim's precise 'Sprachstatistik' has generally been adverse. Ritter, for example, in an unfavourable and sometimes unfair review[8] pointed to the exclusion of superfluous instances from his calculations as a mistake. 'Of the 29 ναί in *Hipp. Mi.* for instance', he remarked,

> only as many have any value in a comparison with the *Ion* as the latter contains [i.e. 15]; it would make no difference to the calculation whether it contained 15, 16, 30 or more. Suppose 14 of the 29 ναί were replaced by other formulae, say 3 extra instances of πάνυ γε and 3 extra of ἀληθῆ λέγεις, half of which would be covered by previously superfluous instances in the *Ion*, and also by a few examples of τί μήν; πῶς γὰρ οὔ; ὀρθότατα, ἀληθέστατα. According to the affinity reckoning it would then appear considerably nearer than before to the *Ion*, whereas in fact it would be considerably different from it. All Arnim's complicated calculations would be of no avail against this misinterpretation.

This, however, is not correct. Admittedly the affinity value for *Hipp. Mi.*/*Ion* would be improved by the extra instances held in common from 1.36 to 0.84, but the type calculation must also be taken into account. There are now four new types added to the *Hipp. Mi.* which are not

[7] The dashes indicate supposed lapses in Plato's literary activity to explain considerable changes in style regarding the use of reply formulae.

[8] Bursian's *Jahresbericht* (1921) 166ff.

common to the *Ion*, so that the affinity value here becomes worse (5.00 instead of 4.20), as does the value of the two calculations combined (5.84 instead of 5.56).

Although Ritter's argument goes astray, it does contain a valid objection in its opening remark, that it would make no difference how many instances of ναί *Hipp. Mi.* contained over 15, in as much as the *Ion* has only 15 and that is all they can have in common. To press the objection to its extreme, one can say that as long as two works have exactly the same types of reply formula, it makes no difference for Arnim's calculation how many instances there are of each type. Suppose we have three dialogues with the following contents:

A		*B*		*C*	
50	πάνυ γε	500	πάνυ γε	47	πάνυ γε
30	ναί	300	ναί	34	ναί
20	ὀρθῶς	200	ὀρθῶς	16	ὀρθῶς
10	καλῶς	100	καλῶς	13	καλῶς
110		1100		110	

Which of the two smaller works, *A* or *C*, is most closely related to the larger *B*? Arnim's affinity formula tells us that they are equally related, the quotient for both pairs being 0, not only in respect of types, but also of instances. Yet *A* is really the more closely related of the two, since the distribution of its instances in the four types is the same as that of *B*, whereas *C*'s is not.

To take another example, for *C* one may substitute another dialogue, *D*, which is identical to *B*. The distributions in *A*, *B*, *D*, therefore, are all the same, the only difference between them being that *A* has ten times fewer instances than each of the other two, though this makes no difference to the affinity values, both pairs *A B* and *B D* registering 0, the highest possible affinity. If, however, one instance of ὀρθότατα accrues to *A* and one to *D*, what do the affinity values for *A B* and *B D* become? The answer according to the formula

$$\frac{a+b}{g} - \frac{a+b}{b}$$

is

$$AB = \frac{1100 + 101}{100} - \frac{1100 + 101}{101} = 12.01 - 11.89 = 0.12,$$

$$BD = \frac{1101 + 1100}{1100} - \frac{1101 + 1100}{1100} = 0.$$

This result ensues from Arnim's rule that in his formula *a* always represents the larger, *b* the smaller work (reckoned by total of instances).[9] So in the second half of the fraction for *BD* we do not get

$$\frac{1101 + 1100}{1101},$$

which would produce a positive quotient. Even if we did, it would be 0.0019, which is different from that for *AB*.

Apart from methodological faults there are defects in Arnim's material, which are rendered all the more serious for his results by the fine nature of his calculations. Ritter, for instance, observed that negative formulae should have been included with the affirmative (e.g. οὐκ ἔμοιγε δοκεῖ with ἔμοιγε δοκεῖ), as the distinction often depends merely on the form of the argument; ignoring them could have been prejudicial to certain works. In addition he gave a long list (*Jahresbericht über die Fortschritte der classischen Altertumswissenschaft* 187 (1921) 172–6) of instances of reply formulae supposedly missed by Arnim. There is a need, however, to be cautious about accepting these 'corrections', because, unable or unwilling to comprehend Arnim's mathematics and having scant sympathy with his mechanical procedure, Ritter evidently did not trouble to inspect the catalogue of material very carefully. Three categories may be discerned:

(a) omissions by Arnim: e.g. πῶς γὰρ οὐχί; *Rep.* III 415e8, ἀλλὰ χρή *Parm.* 163b8, οὐκοῦν χρή *Rep.* V 462e7, *Pol.* 282d3, 283c7, 289d5, καλῶς ἂν ἔχοι *Soph.* 219a3;

(b) instances which Ritter thought Arnim had missed, but which are listed under a different heading: e.g. παντάπασι μὲν οὖν ἀληθῆ *Rep.* III 409d5, which he failed to find under ἀληθῆ, is listed under παντάπασι, and ναί, τοῦτο μὲν ἀληθὲς λέγεις *Euph.* 8e2 likewise appears under ναί. There are others which Ritter did not recognise, because Arnim quoted them incorrectly in his catalogue: e.g. τοῦτο μὲν ἀληθές *Phil.* 45b5, which Arnim read with a prefixed καί;

[9] Cf. the table for the *Lach.* (Table 19.1 pp. 218–19); in column *B* the most common divisor is 46, the total number of instances in this dialogue. Where other divisors are found, they are the totals of works smaller than the *Lach.*

Table 19.1 Affinity of the *Laches* to other works in respect of reply formulae

	A	B	C	D	E	F
Ion	77 : 11 = 7.00	77 : 31 = 2.48	4.52	31 − 8 = 23 : 4	5.75	10.27
Hipp. Mi.	104 : 15 = 6.93	104 : 46 = 2.26	4.67	38 − 16 = 22 : 8	2.75	7.42
Cri.	63 : 9 = 7.00	63 : 17 = 3.70	3.30	32 − 14 = 18 : 7	2.57	5.87
Apol.	52 : 4 = 13.00	52 : 6 = 8.66	4.34	23 − 4 = 19 : 2	9.50	13.84
Hipp. Ma.	103 : 32 = 3.21	103 : 46 = 2.23	0.98	46 − 22 = 24 : 11	2.18	3.16
Charm.	112 : 27 = 4.14	112 : 46 = 2.43	1.71	43 − 22 = 21 : 11	1.90	3.61
Prot.	84 : 15 = 5.60	84 : 38 = 2.21	3.39	39 − 14 = 25 : 7	3.57	6.96
Euph.	100 : 32 = 3.12	100 : 46 = 2.17	0.95	39 − 20 = 19 : 10	1.90	2.85
Gorg.	315 : 41 = 7.68	315 : 46 = 6.84	0.84	52 − 28 = 24 : 14	1.71	2.55
Meno	187 : 37 = 5.05	187 : 46 = 4.06	0.99	52 − 26 = 26 : 13	2.00	2.99
Crat.	222 : 40 = 5.55	222 : 46 = 4.82	0.73	56 − 26 = 30 : 13	2.30	3.03
Euthd.	115 : 29 = 3.96	115 : 46 = 2.50	1.46	43 − 22 = 21 : 11	1.90	3.36
Lys.	138 : 31 = 4.45	138 : 46 = 3.00	1.45	48 − 22 = 26 : 11	2.36	3.81
Phdo	174 : 38 = 4.57	174 : 46 = 3.78	0.79	54 − 24 = 30 : 12	2.50	3.29
Symp.	71 : 19 = 3.73	71 : 25 = 2.84	0.89	31 − 14 = 17 : 7	2.42	3.31
Rep. I	140 : 37 = 3.78	140 : 46 = 3.04	0.74	50 − 28 = 22 : 19	1.57	2.31
II	116 : 23 = 5.04	116 : 46 = 2.52	2.52	53 − 24 = 29 : 12	2.41	4.93
III	140 : 25 = 5.60	140 : 46 = 3.04	2.56	56 − 29 = 32 : 12	2.66	5.22
IV	141 : 23 = 6.13	141 : 46 = 3.06	3.07	63 − 24 = 39 : 12	3.25	6.32
V	172 : 27 = 6.37	172 : 46 = 3.73	2.64	66 − 22 = 44 : 11	4.00	6.64
VI	116 : 15 = 7.73	116 : 46 = 2.52	5.21	49 − 16 = 33 : 8	4.12	9.33
VII	121 : 17 = 7.11	121 : 46 = 2.63	4.48	54 − 18 = 36 : 9	4.00	8.48
VIII	153 : 21 = 7.28	153 : 46 = 3.32	3.96	67 − 22 = 45 : 11	4.09	8.05
IX	143 : 24 = 5.95	143 : 46 = 3.10	2.85	63 − 24 = 39 : 12	3.25	6.10
X	121 : 26 = 4.65	121 : 46 = 2.63	2.02	56 − 24 = 32 : 12	2.66	4.68
Phdr.	96 : 11 = 8.72	96 : 46 = 2.08	6.64	44 − 16 = 28 : 8	3.50	10.14
Theaet.	254 : 34 = 7.47	254 : 46 = 5.52	1.95	78 − 30 = 48 : 15	3.20	5.15
Parm.	329 : 35 = 9.40	329 : 46 = 7.15	2.25	57 − 26 = 31 : 13	2.38	4.63
Soph.	296 : 32 = 9.25	296 : 46 = 6.43	2.82	73 − 26 = 47 : 13	3.61	6.43
Pol.	253 : 27 = 9.37	253 : 46 = 5.50	3.87	73 − 26 = 47 : 13	3.61	7.48
Phil.	289 : 31 = 9.32	289 : 46 = 6.28	3.04	76 − 26 = 50 : 13	3.84	6.88
Laws I	99 : 16 = 6.18	99 : 46 = 2.15	4.03	44 − 14 = 30 : 7	4.28	8.31
II	96 : 15 = 6.40	96 : 46 = 2.08	4.32	47 − 18 = 29 : 9	3.22	7.54
III	114 : 17 = 6.70	114 : 46 = 2.47	4.23	46 − 18 = 28 : 9	3.11	7.34
IV	71 : 12 = 5.91	71 : 25 = 2.84	3.07	33 − 12 = 21 : 6	3.50	6.57
VI	72 : 8 = 9.00	72 : 26 = 2.76	6.24	33 − 6 = 27 : 3	9.00	15.24
VII	102 : 18 = 5.66	102 : 46 = 2.21	3.45	43 − 18 = 25 : 9	2.77	6.22
VIII	63 : 5 = 12.60	63 : 17 = 3.70	8.90	32 − 8 = 24 : 4	6.00	14.90
IX	71 : 7 = 10.14	71 : 25 = 2.84	7.30	39 − 10 = 29 : 5	5.80	13.10
X	91 : 14 = 6.50	91 : 45 = 2.02	4.48	39 − 14 = 25 : 7	3.57	8.05
XII	65 : 10 = 6.50	65 : 19 = 3.42	3.08	30 − 14 = 16 : 7	2.28	5.36

(a) The tables contain some arithmetical errors: e.g. here *Rep.* III, col. D.

(c) occurrences regarded by Ritter as reply formulae, but not by Arnim, such as those where the formula is suffixed to the primary reply (usually repeated from the question): e.g. *Pol.* 302b10 δεῖ· πῶς δ' οὔ; Similarly rejoinders by the interrogator to the interlocutor's answer (e.g. ἦ καλῶς λέγεις *Gorg.* 447c9, *Euthd.* 282c5) were treated as reply formulae by Ritter, but generally not by Arnim, although he was not always consistent (e.g. he counted εἰκότως γε at *Meno* 74b2).

Most of the errors listed by Ritter fall under categories *b* or *c*, so that the material is not as faulty as it is made to appear. Nevertheless, there are a number of omissions from it, which owing to the fine distinctions made by his precise calculations are critical for the results.[10] Arnim's was a brave attempt to produce a self-contained material that would allow unrestricted comparison between those works which shared in it, but it depended for a chance of success on its completeness, and the fact that it was flawed in this respect made the conclusions derived from it unreliable. One has to agree with Ritter, who, though he considered that much useful information was contained in Arnim's catalogue, said: 'I consider the immense amount of labour expended on these calculations and the entire reproduction of the prodigious mass of figures neatly entered in these tables as wasted.'

[10] The omission, for instance, of even two instances is sufficient to alter the order of works in the affinity series (calculations in Thesis 368–71).

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C. RITTER (II)

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In his final article on the subject[1] Ritter said that he had hoped to leave the problem of Plato's earlier works to younger hands, but since none had appeared willing to take on the task, had finally resolved to attack it himself. The results of his research were published, despite incompleteness, in the belief that they indicated the possibility of a solution and in the hope that they would be verified and completed by others.[2]

The investigation comprised five main items: μήν, ὡς with a superlative adjective or adverb, ἄλλος and ἕτερος, ὅσος, and ὥσπερ and οἷον, each of which according to Ritter provided significant evidence on the question of chronology within the early group of works.

μήν

For this particle he re-classified and added to the material already made use of by Dittenberger. Whereas the latter had reckoned all occurrences of ἀλλὰ... μήν together as the same, Ritter pointed out that they were to be distinguished according to their sense, there being no relationship between the asseverative ἀλλ' οὐ(δὲ) μήν, ἀλλ' ἔστι μήν etc. and the interrogative ἀλλὰ τί(ς) μήν; A distinction likewise had to be made between the use of ἀλλὰ τί μήν; as a true interrogative and as a rhetorical question to form an affirmative reply. In the former case it was related

[1] 'Unterabteilungen innerhalb der zeitlich ersten Gruppe platonischer Schriften', *Hermes* 70 (1935) 1–30.

[2] There are signs of hurried composition untypical of his earlier work, such as incorrect classifications and references; these have been rectified, where possible, usually without comment.

to the personal ἀλλὰ τίς μήν; in the latter to τί μήν; The personal form (ἀλλὰ τίς μήν; etc.) was found at

Lys. 208a5, e4, *Rep.* IX 578b10,

the interrogative use of ἀλλὰ τί μήν; at

Hipp. Ma. 285d3, 292a5, *Symp.* 202d10, 206e4, *Rep.* I 348c9, II 362d4, III 410c4, IV 422e6, *Parm.* 139d4

and its affirmative use at

Rep. IV 438b13, VIII 559d3, IX 574a11, *Phil.* 37d5.[3]

In addition there were two instances of ἀλλὰ τί μήν; at *Lys.* 208b1 and 208c4. Of these Ritter said that they 'are not to be weakened into rhetorical sham questions, because they have an interrogative power just as much as the preceding and succeeding ἀλλὰ τίνα μήν; and ἀλλ' ἀντὶ τίνος μήν;' This, however, is directly contrary to the facts, since in neither case does the expression ask for or receive further information on the point in question. The context demands a positive reply. Ritter's unwillingness to recognise this use of ἀλλὰ τί μήν; in the *Lys.* is hard to understand, considering that τί μήν; in the same sense occurs at 219e4.

All the instances of asseverative ἀλλὰ . . . μήν were found in the middle or last group and so were of no help in determining the chronology of the early works. The same applied to μήν used to emphasise an interrogative other than τίς, the two examples being ποῖα μὴν λέγεις; (*Rep.* VII 523b8) and ποῦ μήν; (*Theaet.* 142a5).

A survey of the use of the simple μήν or οὐ μήν to introduce either the second member of an antithesis or a reply to a question showed that it occurred in the following places in works of the early group:

Lys. 207c7, *Rep.* I 344d3, *Gorg.* 493c4, 526a2 (the instance at 449c4 was excluded as having the sense 'fürwahr'), *Euthd.* 283c3, 284a3, *Symp.* 244b6, 268e4, 270e1, 274a4.[4]

These were to be relied upon, said Ritter, in as much as he had checked his records to ensure that no instance occurred in any other work of Group I.[5] For the middle and late group, on the other hand, his records

[3] At *Theaet.* 162b4 ἀλλὰ τί μὴν δοκεῖς; has the same function.

[4] There is an error here: all the references belong to the *Phdr.*, not the *Symp.*

[5] A fresh examination confirmed this.

were not complete, but sufficient nevertheless to show that this use too of μήν progressively increased. In the middle group he had noted 41 instances, 27 of these being in Rep. II–X,[6] and in the last group (excluding *Tim.* and *Crit.*) 93 instances distributed as follows:

Soph. 20, *Pol.* 14, *Phil.* 12, *Laws* 49.[7]

Regarding the use of μήν, therefore, he concluded that *Gorg.*, *Euthd.*, *Lys.*, *Rep.* I and *Symp.* (but see note 4) were closely related to the middle group of works.

ὡς WITH A SUPERLATIVE

Ritter noted that apart from ὡς οἷόν τε μάλιστα (*Prot.* 349e8, *Lach.* 179a5, *Gorg.* 510b3, *Euthd.* 282d3, *Phdo* 77a3, *Rep.* III 412b1, IV 424b6, VII 527b12, CI, IX 576a10, 577c7, X 602b10, *Laws* I 640e2)[8], ὡς οἷόν τε with a superlative is found only at *Phdo* 99c1, *Rep.* II 375e3, III 403d4, IV 422b6, VI 484d1, 490b8, VII 530a5, *Theaet.* 176c1, *Phil.* 55a7, *Laws* V 733e2, 734a5, VI 768b8, VIII 838a2, b1.[9] Similarly, apart from ὡς ὅτι μάλιστα (*Laws* V 731b4, VI 758a1, 759c3, X 887d8, 908a6), the pleonastic ὡς ὅτι with a superlative occurs only at *Symp.* 218d2, *Laws* V 743d1, while a superlative with a form of δύναμαι instead of οἷόν τε appears at *Gorg.* 526d7, *Phdo* 58d8, 88e3, *Menex.* 248e1, *Symp.* 177d3, 181b4, 214c1, *Rep.* II 361d7, 367b1, IV 434e1.

This combination of a superlative adjective or adverb with ὡς οἷόν τε or ὡς δύναμαι, Ritter remarked, produced a double expression of the superlative degree, which presumably became desirable once the force of the simple expression had grown weaker through constant use. He then gave a list of further examples, the occurrences within works of the first group being *Crat.* 422d12 (κατὰ τὸ δυνατὸν ὅτι μάλιστα), *Phdo* 98b5 (ὡς τάχιστα οἷός τ' ἦ) and 107b8 (καθ' ὅσον δυνατὸν μάλιστα).

Lastly, after remarking that ὡς/ᾗ δυνατόν as the equivalent of ὡς οἷόν τε is not found at all in the first group of works, he observed that the use

[6] From his references it is apparent that he included occurrences other than simple (οὐ) μήν, e.g. καὶ μὴν οὐδέ (*Rep.* IV 443a6), ἀλλ' οὐ μήν (*Rep.* VI 486d4 etc.). For (οὐ) μήν figures see Table 4.1 (p. 12).

[7] There is a mistake somewhere, as the total for the four works comes to 95, not 93.

[8] He missed *Lys.* 212c1, *Symp.* 210e1.

[9] He overlooked *Gorg.* 449d6, *Rep.* X 613a1, *Parm.* 144b5, 159a1, *Phdr.* 268d8, *Laws* VIII 838a8.

of δυνατόν to express the superlative degree was much rarer in the early dialogues than in the later, e.g.

εἰς τὸ δυνατόν: *Phdo* 112d8, *Rep.* II 381c8, V 464d4, 473e1, VI 500d1, IX 586e7, *Laws* VII 795d5, VIII 830b5, IX 862b7, X 887c4, 900c7, XII 957e3,[10]

κατὰ τὸ δυνατόν: *Crat.* 435c3, 7 (also 422d12 mentioned above), *Phdo* 67c9, 69d3, *Rep.* V 460a5, 466d1, 469b10, X 619a7, *Theaet.* 176b2, *Laws* VII 804d5.[11]

Other such phrases occurred at *Symp.* 196d6, *Rep.* VI 498e4, 509c9, *Tim.* 65c3, 69b5, *Laws* III 688e7, VII 790c9, VIII 837d7, XII 966c3. On the basis of the evidence in this section Ritter believed that the works of the early group which were most similar linguistically to the later ones were *Crat.*, *Phdo* and *Symp.*

ἄλλος AND ἕτερος

In all Plato's works, according to Ritter, ἄλλος and ἕτερος are used as synonyms with the meaning 'different', but with the meaning 'other' ἄλλος is the equivalent of Latin *alius*, ἕτερος of *alter*. Such at least was the original state of affairs. Gradually, however, ἕτερος lost its peculiar sense of 'the other of two' and became generalised to such an extent that it could usually be employed in place of ἄλλος. This change of meaning had already taken place by the time of the third chronological group, as was shown by the alternation of the two words in the same construction, e.g. *Phil.* 57a11 ἆρ' ἔστι τις ἑτέρας ἄλλη καθαρωτέρα ἐπιστήμης ἐπιστήμη;

Examining the earliest group for evidence of this change in progress he came to the conclusion that it was to be found in the dialogues which he suspected on other grounds were the latest of this group, namely the *Euthd.*, *Crat.*, *Symp.*, *Phdo* and *Rep.* I. Only in these were there unambiguous examples of ἕτερος equivalent to ἄλλος, i.e. *Euthd.* 272d1, *Crat.* 394c5, 419a7, 422a7, b1, d11, 436a5, *Symp.* 196e6, 221c8, *Phdo* 93d2, 4, e8, *Rep.* I 342a7. Ritter also gave a list of instances which he considered ambiguous, but sometimes it is difficult to see the difference between these and the above. That at *Euph.* 2b2, for example, with its corresponding ἄλλος (b4) seems no different from *Symp.* 196e6, and his explanation

[10] Missing are *Phdr.* 252d2, *Laws* V 739c6, VI 770a9.

[11] He overlooked *Symp.* 207d1, *Pol.* 297b3, *Tim.* 46c8, *Laws* I 646a9, VI 771e5.

for treating it as normal, that 'it is possible to regard the plaintiff and defendant as two contrasted persons', is rather strained. Similarly, if *Prot.* 347e6 can have its usual function, because it 'can be understood as a differentiation from what has been mentioned previously', why should the same not be said of *Crat.* 436a5 and *Euthd.* 272d1?

ὅσος

The evidence for the chronology of the early dialogues which Ritter derived from this was extremely slight. It consisted merely of an observation that in the phrases used by Plato to close a series of items the ἄλλος characteristic of the early period (e.g. *Gorg.* 468a3 καὶ τἄλλα τὰ τοιαῦτα) was not infrequently replaced in the later ones by some form of ὅσος (e.g. *Phil.* 46a8 καὶ ὅσα τοιαῦτα), which in function had here become virtually equivalent to the definite article. The only early dialogue in which he found anything approximating to this usage was the *Symp.* 218b2. (Σωκράτη δὲ αὐτὸν τί δεῖ λέγειν καὶ ὅσοι ἄλλοι;), though the *Phdo* (99a6, 113e4) used ὅσος with a finite verb in the same way.

ὥσπερ AND οἷον

In the comparison of these two words Ritter was concerned not with all their uses, but only with the two principal ones, that of ὥσπερ to express similarity and that of οἷον to present an illustration. So that his results could be checked, however, he quoted all the instances of each word in the early dialogues[12] (apart from referential ὥσπερ in short phrases, e.g. ὥσπερ ἐλέγομεν) including those with functions other than the two just mentioned.

He had observed that in the works of the middle and late groups the distinction between their meanings tended to become blurred, so that ὥσπερ could sometimes be used to introduce an illustration (e.g. *Rep.* 599d7) and οἷον to express a comparison (e.g. *Parm.* 131b3), though the latter was far more frequent than the former. Looking in the early dialogues for signs of a similar interchange of meaning he was able to divide them into two groups; whereas *Hipp. Mi.*, *Lach.*, *Charm.*, *Prot.*, *Euph.*, *Apol.*, *Symp.*, *Menex.* and *Cri.* showed no departure from the regular usage in this respect, isolated examples were to be seen at *Gorg.*

[12] With the exception of the *Euthd.* and *Meno*, for which his records were incomplete.

Table 20.1

	I												II				III				
	Lach.	Prot.	Gorg.	Meno	Hipp. Ma.	Euthd.	Menex.	Crat.	Lys.	Symp.	Phdo	Rep. I	II–X	Parm.	Phdr.	Theaet.	Soph.	Pol.	Tim.	Phil.	Laws
ἀλλὰ τίς μήν; etc.									2				1								
ἀλλὰ τί μήν; interrogative					2				2 (0)	2		1	3	1							
ἀλλὰ τί μήν; affirmative									(2)				3							1	
μήν and οὐ μήν			2			2			1	4 (0)		1	27	5	3	3	20	14		12	49
ὡς οἷόν τε μάλιστα	1	1	1			1			(1)	(1)	1		7								1
ὡς οἷόν τε + superlative			(1)								1		6 (7)	(2)	(1)	1				1	5 (6)
ὡς ὅτι + superlative										1											6
δύναμαι + superlative			1				1			3	2	1 (0)	2 (3)								
'double superlative'								1			2		8		2		2	1	2	1	8
δυνατόν phrase = superlative								2		1 (2)	3		11		(1)	1		(1)	1 (3)		10 (15)
ἕτερος = ἄλλος						1		6		2	3	1									
ὅσος = ὁ										1											
ὥσπερ for οἷον			1		1	1		2	1		1										
οἷον for ὥσπερ				1				2			1										

See note (d).

(a) The figures for the double superlative and the last four items are unchecked.
(b) μήν and οὐ μήν: see notes 4 and 6 (p. 222).
(c) δύναμαι + superlative: Ritter mistakenly took the instance at *Rep.* 367b1 to be in book I instead of II.
(d) Only selected statistics provided by Ritter, sufficient to show that the incidence increased in these groups.

483a5, *Hipp. Ma.* 294a4, *Euthd.* 276a5, *Crat.* 414d4, 432a9, *Lys.* 217c4, *Phdo* 73d9. In all these ὥσπερ took the place of the normal οἷον, since it was an example being given in each case rather than a comparison drawn. Conversely, in the following οἷον usurped the function of ὥσπερ: *Meno* 74a1, *Crat.* 400d2, 408a4, *Phdo* 94d6.[13] With this criterion, Ritter observed, an *argumentum e silentio* was not permissible, especially when the total number of occurrences of ὥσπερ or οἷον in a dialogue was small. He was nevertheless of the opinion that, combined with the other features investigated, it enabled the early works to be subdivided into an earlier and a later group, the former comprising *Hipp. Mi.*, *Charm.*, *Lach.*, *Prot.*, *Euph.*, *Apol.*, *Cri.*, with *Gorg.* and *Meno* at the end, and the latter *Hipp. Ma.*, *Euthd.*, *Menex.*, *Crat.*, *Lys.*, *Symp.*, *Phdo* and *Rep.* 1.

The question arises whether this conclusion is valid. One of the criteria should be rejected from the outset. The fact that ὡς ὅτι with a superlative occurs only in the *Symp.* and *Laws* is used by Ritter as evidence for a late position of the former in the early group, but when two dialogues were written so far apart in time as these, it is clear that any linguistic feature peculiar to them alone is so by pure accident and should not be treated as evidence for the affinity of one to the other. The occurrences of the other features are summarised in Table 20.1 on p. 226. Considering how low the figures are, one has to say that Ritter's remark about the impossibility of an *argumentum e silentio* with reference to ὥσπερ and οἷον really applies to all of them. The greater number of features exhibited by *Gorg.*, *Crat.*, *Lys.*, *Symp.* and *Phdo* might suggest that they were among the last dialogues of Group 1 to be written, but this would need to be confirmed by more substantial evidence.

[13] In this instance and at times elsewhere Ritter's interpretation of function appears arbitrary.

21

A. DÍAZ TEJERA

★

In an article,[1] perhaps suggested by J. Humbert,[2] the author, like Campbell, takes as his material the vocabulary of Plato. However, whereas Campbell's standard of reference was internal, in that he measured the degree of affinity of other dialogues to the *Laws*, Díaz Tejera's is external. Assuming that the development of individual Greek dialects into the *Koine* should be traceable, he collects together what he calls 'the non-Attic vocabulary which is well documented in the *Koine*', then examines its incidence in Plato's works.

Of this vocabulary he distinguishes three classes, the specification of each involving, he acknowledges, an increased degree of subjective judgement; they are Platonic neologisms,[3] Ionicisms[4] and Ionic poeticisms.[5]

[1] 'Ensayo de un metodo lingüistico para cronologia de Platón', *Emerita* 29, (1961) 241–86.

[2] 'Remarques sur la structure de la phrase de Platon', *Actes du Congrès de l'Ass. G. Budé (1953)*, Paris 1954, 189–92.

[3] While noting that many of these words also occur in Xenophon, Aeschines and Demosthenes, he denies that this is evidence for their Attic character, maintaining instead that all three authors 'reflect the age when the new vocabulary of Hellenistic Greek was beginning to evolve'.

[4] He admits that the words in this class are often judged to be Ionic on the evidence of the Hippocratic writings, despite his awareness of the problems of authenticity and chronology affecting them. Observing that some words are also found in Euripides he nonetheless considers them Ionic on the grounds that this author's language is heavily Ionicised. 'His Ionicisms are not poetic, but philosophical terms; for example, against the 120 terminations in -μα attested in Aeschylus and 94 in Sophocles we find 205 in Euripides.' He fails to take account of the greater size and scope of the latter's text.

[5] His distinction of this class from the preceding is obscure; it is apparently intended to comprise Ionic words which, though originally poetic, had by Plato's time lost their poetic colouring.

I. NEOLOGISMS

This class comprises a list of 77 words; the author provides the reference[6] for each instance except in the case of the most common words, where only the total occurrence for each dialogue is supplied. He then calculates the overall frequency of these words in each dialogue by dividing the total number of instances[7] by the number of pages occupied by the dialogue in Stephanus' edition and expressing this as a percentage. Thus 100% indicates that there is on average one instance per page. The results, according to Díaz Tejera, separate the dialogues into three groups, corresponding to decreasing affinity with the *Koine*.

Late Group

Laws –,[8] *Crit.* 60%, *Tim.* 57%, *Pol.* 56%, *Soph.* 36%, *Phil.* 35%

Middle Group

Phdr. 32%, *Theaet.* 30%, *Symp.* 25%, *Rep.* II–X 22%, *Crat.* 21%, *Phdo* 20%, *Parm.* 10%

The low percentage in *Parm.* is ascribed by Díaz Tejera to the peculiar character of the dialogue, which is 'so monotonous, using the same vocabulary for several pages at a time'.[9]

For the remaining works he considers the frequency of occurrence to be too low to permit any firm decision about the order of composition, but thinks it likely that the dialogues nearest in time to the middle group are *Rep.* I., *Gorg.*, *Prot.* and *Meno.*[10]

[6] The references throughout the article are often incorrect, indicating perhaps some carelessness on the part of the author.

[7] To avoid inflating this where the word in question is constantly repeated, he counts a word occurring more than once in the same paragraph as only one instance. He does not, however, define what he takes to be a paragraph.

[8] He gives no percentage for the *Laws* on the grounds that he had not recorded words common only to it and the *Koine*, though noting that they were very numerous. 'Suffice it to say', he remarks, 'that even the few which have been listed produce a percentage far greater than the other dialogues.' This is disingenuous; a calculation from his list yields 148 instances in 317 pages, less than 50% and thus considerably below the averages of *Crit.*, *Tim.* and *Pol.*

[9] It seems not to have occurred to him that the *Parm.* provides an extreme illustration of a factor which may apply in varying degrees to other dialogues too, thereby affecting the reliability of his comparisons.

[10] No figures are given, but an examination of his list reveals that the percentage frequencies for the four works are respectively 10, 8, 5 and 1. It is not clear why he considers the

II. IONICISMS

A list of 76 such words produces the following results:

Late Group

Crit. 80%, *Tim.* 80%, *Pol.* 70%, *Phil.* 60%, *Soph.* 53%

Middle Group

Phdr. 31%, *Theaet.* 30%, *Phdo* 28%, *Rep.* II–X 26%, *Symp.* 18%, *Crat.* 11%, *Parm.* 10%

He takes these to confirm the division into three chronological groups established from his first list. However, in the early group the words attested are generally too few to permit any conclusions, though he again regards *Rep.* I, *Gorg.*, *Prot.* and *Meno* as distinguishable from the remainder.[11]

III. IONIC POETICISMS

The author cautions that the choice of this list of 73 words is more controversial and involves greater subjective judgement than the others. It is meant to comprise words which, though once Ionic and poetical, had lost this poetic association by Plato's time. His criteria for this loss are that the passage in which such a word occurs should be 'in the low style without any emotional charge', and that the word should be well documented in the popular *Koine*. The results are as follows:

Late Group

Crit. 73%, *Tim.* 70%, *Pol.* 42%, *Soph.* 30%, *Phil.* 27%

Middle Group

Theaet. 28%, *Rep.* II–X 23%, *Crat.* 20%, *Phdr.* 19%, *Phdo* 15%, *Parm.* 12%, *Symp.* 12%

These are taken as yet further confirmation of the tripartite chronological division; no comment at all is made regarding works of the early group owing to the very low frequency in them of the words in question.

Meno to be close to the middle group, when other dialogues show higher frequencies (e.g. *Lach.* 3% *Apol.* and *Ion.* 2%); in any case, given the limited nature of the data and the resulting statistics, such fine distinctions are meaningless.

[11] Again no percentages are supplied, but calculated from his list they are respectively 0, 14, 6 and 0. It would appear, therefore, that at least as far as *Rep.* I and *Meno* are concerned, there is no evidence for this view in his own data.

As an 'appendix' Díaz Tejera includes in his article two further lists of words, which, though they may not be attested in the *Koine*, are considered important, 'because they are found in exactly the same dialogues as occur in the previous lists'. The first of these comprises 26 words specified as in use from Plato onwards, but not common in the *Koine*,[12] the second 36 words 'previously occurring in literary Ionic and reappearing in Plato, but likewise not common in the *Koine*.'[13] The results for the two lists combined are as follows:

Late Group

Crit. 33%, *Pol.* 26%, *Soph.* 25%, *Phil.* 22%, *Tim.* 20%[14]

Middle Group

Phdr. 21%, *Theaet.* 17%, *Parm.* 17%, *Rep.* II–X 15%, *Crat.* 15%, *Phdo* 11%, *Symp.* 10%

In the middle group the author is gratified to find that here, at least, the figure for the *Parm.* compares favourably with that for the other works. Again no percentages are given for dialogues of the early group owing to the paucity of examples.

Finally he combines the figures from all four lists with the following results:

Late Group

Crit. 247%, *Tim.* 228%, *Pol.* 190%, *Soph.* 150%, *Phil.* 145%

While accepting these as confirmation of the conclusion reached by earlier stylometric research, that the six dialogues in question form a final chronological group, Díaz Tejera argues for a different relative order, assigning the earliest position to the *Phil.* He also claims that this place

[12] However, he is not always careful to choose words that do occur in later authors; e.g. for ἐπανερωτάω he quotes *Laws* 'frequent' (i.e. 7), *Phil.* 2 (in reality 4), *Crat.* 1, *Tim.* 1, *Ep.* VII 1, *Theaet.* 1, *Hipp. Mi.* 1, *Gorg.* 2, plus one instance in Xenophon, adding that it is not found subsequently (thus also LSJ)!

[13] It is hard to understand how some of these can be used to determine early or late composition, occurring as they do fairly evenly in works of all three periods, as accepted by the author; e.g. δυσμαθής *Lach.* 1, *Euphr.* 1, *Phdo* 1, *Rep.* 3, *Tim.* 1, *Laws* 1, *Epin.* 2, *Ep.* VII 1. It is also found, as he notes, twice in Euripides.

[14] The figure 20% for the *Tim.* appears to be incorrect, possibly a misprint. The author's list contains 31 instances, which for 75pp. (Stephanus) yields 41%. Likewise *Crit.* (7 instances in 15pp.) should be 47%, *Pol.* (14 in 55pp.) 25%, *Soph.* (16 in 53pp.) 30% and *Phil.* (12 in 56pp.) 21%.

for it is indicated by Dittenberger's and Schanz's statistics of μήν (p. 12) and not contradicted by those of other words investigated by them.[15]

Later Middle Group
Parm. 50%, *Theaet.* 119%, *Phdr.* 113%

Díaz Tejera considers *Parm.* to be the later work despite the low percentage, which, as mentioned, he regarded as a consequence of the monotonous nature of the subject matter, especially the ontological section. He therefore proposes to disregard this, thus reducing the number of pages by about a half and correspondingly doubling the percentage, bringing it somewhat nearer to that of the other two works. In commercial circles this would no doubt be referred to euphemistically as 'massaging the figures'.

Earlier Middle Group

These are *Rep.* II–X, *Phdo*, *Symp.* and *Crat.*, but before determining their relative order, Díaz Tejera examines the percentage frequency in individual books of *Rep.*, i.e.

I 40% II 70% III 80% IV 68% V 77%
VI 100% VII 95% VIII 100% IX 100% X 80%

The low figure for book I he takes as evidence for the view adopted by some previous investigators, that this was originally a separate work, written somewhat earlier than the rest. The book X figure, low by comparison with those of preceding books, is attributed to the book's discrete character, the first part being concerned with the nature of poetry and mainly dialogue, the second with the nature of soul and mainly myth. Finding that all but three of the words in his lists which are used in this book occur in the first part, he proposes that the second part should be disregarded, thereby reducing the number of its pages and raising the figure to 110%.

As for the other books he notes that II–V have lower percentages than VII–IX, while VI provides a bridge between the two groups; the first section of this book, 484a–502e, has a lower percentage than 503a–511e, the division corresponding with the summary of earlier arguments and

[15] As regards the ὥσπερ : καθάπερ ratio (p. 20) this is manifestly untrue; likewise with τῷ ὄντι : ὄντως and ὡς ἀληθῶς : ἀληθῶς (p. 35) at least for the order of *Phil.* relative to *Soph.*

transition to the training of the guardians. He infers that these two halves of the *Rep.* were written at different, widely separated times.

Observing that the percentages for *Phdo*, *Symp.* and *Crat.*, i.e.

Phdo 78%, *Symp.* 65%, *Crat.* 62%

are roughly comparable with those for the earlier half of the *Rep.*, he concludes that *Rep.* II–VI were written between 388 B.C. (Plato's return from his first visit to Sicily) and 384 B.C. (*terminus post quem* of *Symp.*), and that there was then a break, in which he composed *Symp.*, *Crat.* and *Phdo.*, before resuming the *Rep.*

Early Group

Referring to these dialogues Díaz Tejera comments that the linguistic trend towards the *Koine* is generally too indistinct to permit any relative dating; some works indeed precede the trend altogether, showing no signs of it, e.g. *Lach.*, *Charm.*, *Apol.* and *Cri.*[16] Nevertheless, he says, four works stand out by reason of their higher percentages, i.e.

Rep. I. 40%, *Gorg.* 38%, *Prot.* 38%, *Meno* 30%

so that these may reasonably be regarded as the latest of the early group.[17]

Apart from those already noted, some general criticisms may be made of this investigation. First, starting from the chronological divisions established by previous research, Díaz Tejera accepts as evidence of late composition words common to the *Koine* and Plato's final group of dialogues (not always including the *Laws*). Hence the argument tends to be circular.

Second, his determination of Ionic origin often seems arbitrary; it has already been mentioned that he refuses to recognise the occurrence of a word in Xenophon, Aeschines or Demosthenes as evidence for its being Attic. There are also occasions when he classes as Ionic a word which is found in the earlier Attic prose authors; e.g. μέτοχος in his second list (Ionicisms), which occurs in Antiphon and Thucydides. He would no

[16] He appears to forget that in his lists he quotes several instances of *Koine* words in each of these dialogues (e.g. in the first list alone ἀποβολή *Lach.* 195e, διερωτάω *Apol.* 22b, καλλωπίζω *Cri.* 52c, μεταθέω *Lach.* 194b, προσχράομαι *Apol.* 23a, συμφωνέω *Lach.* 193e).

[17] The *Meno* figure at least appears to be erroneous; the author's lists contain only 7 words for this dialogue, which in 30 pages yields an average of 23%. However, *Lach.* and *Charm.*, for example, show 6 and 5 words in 23 and 24 pages respectively, giving averages of 26% and 21%. In any case, comparisons with such small figures are fairly meaningless.

doubt argue that they were strongly influenced by the then predominant Ionic prose tradition, which, though perhaps true in general, is hard to prove in respect of any individual word. The upshot is that there are not many Attic authors whose evidence he is not prepared to discount in treating a word as Ionic in origin; perhaps he would have drawn the line at Lysias. However, ἀποχωρίζω in his first list (neologisms!) appears in oration XVI, 16 (as LSJ would have told him).

Lastly, the instances which he gives for the occurrence of a word are frequently incomplete. A few examples must suffice. For διαπονέω (1st list) there are two instances, not one, in *Ep.* VII and one each in *Euthd.*, *Soph.*, *Pol.*, *Phil.* and *Amat.*, none of them recorded by him. For διασχίζω (2nd list) he quotes *Laws* 1, *Phil.* 2, *Gorg.* 2. The instances in *Phil.* are wrongly ascribed, belonging in fact to *Phdo*, but he has also missed an occurrence in *Symp.* and *Phil.* For ἀπεργάζομαι (2nd list) his figures are misleading in the extreme; they are as follows, with those obtained from the Word Index in parentheses: *Laws* 19 (59), *Phil.* 8 (13), *Soph.* 7 (9), *Pol.* 10 (14), *Rep.* 18 (29), *Phdr.* 3 (3), *Phdo* 1 (2), *Tim.* 17 (34), *Gorg.* 3 (4), *Charm.* 2 (8). He gives no other examples, but the verb occurs in fourteen other dialogues, the more significant being *Euthd.* 8, *Epin.* 5, *Crat.* 4, *Euph.* 4.

While one might not have expected completeness in his references, given the absence of a word index, it is difficult to comprehend why his lists are defective even in relation to Ast's *Lexicon*. The final judgement on his whole work must be that, since it is suspect both in methodology and in execution, its results cannot be accepted without reservation.

22

D. WISHART & S. V. LEACH

★

'The time has come' the Walrus said,
'To talk of many things:
Of Principal Components and Eigen Values,
And Multidimensional Scalings.'
(With acknowledgements to F. J. W. Rendall and apologies to Lewis Carroll)

The most recent investigation again concerned prose rhythm,[1] not that of the clausula, as with Kaluscha and Billig, but of the whole sentence. On account of its exhaustive nature both the initial categorization of the text into long or short syllables and the subsequent assessment of the resulting statistics were carried out by computer. For the same reason only samples rather than whole works were examined.

Like Kaluscha the authors tooks as their unit of measurement a group of five syllables, yielding thirty-two permutations. Each sentence was analysed into such groups sequentially, that is to say, firstly syllables 1–5, then 2–6, then 3–7 and so on, after which the occurrence of each of the thirty-two types was expressed as a percentage of the total number of syllable groups in the sample. The investigation covered thirty-three samples taken from ten works, as shown in Table 22.1. The frequencies of the various syllable groups were not provided by the authors for the samples, only for the ten works as a whole (Table 22.2).

As a measure of the similarity between samples or works the 'euclidean distance' coefficient was chosen, according to which the distance between two samples, A and B, is defined as the sum of the squares of the differences between all thirty-two pairs of syllable group percentages for

[1] 'A multivariate analysis of Platonic prose rhythm', *Computer Studies in the Humanities and Verbal Behaviour* 3 (1970) 90–9.

Table 22.1. The table shows origins and sizes of the thirty-three passages. The left column contains codes used to identify the passages in the text and in Figures 1 and 3.

Sample code	Reference		Number of syllable groups
TIM1	Timaeus	21e1–25d6	2536
TIM2	Timaeus	25d7–31b2	2773
TIM3	Timaeus	31b3–38b5	3326
TIM4	Timaeus	38b6–42e4	2989
TIM5	Timaeus	42e5–47e2	3307
TIM6	Timaeus	47e3–53c3	3578
TIM7	Timaeus	53c4–58c4	3254
TIM8	Timaeus	58c5–64a1	3667
TIM9	Timaeus	64a2–69a5	3288
SOPH	Sophist	242c8–244b3, 251a7–251e1, 258d5–260b1 (Xen. only), 260c11–261d2	2930
PHIL	Philebus	14d4–15c2 (Soc. only), 15d3–16b7, 16c7–17a5, 19a1–20c1 (excluding short questions), 46d6–47d3 (Soc. only), 58b10–58d8, 63d1–64a5	3355
CRIT1	Critias	106a1–111d8	3248
CRIT2	Critias	111e1–116c2	3123
CRIT3	Critias	116c3–121c5	3478
LAWS1	Laws IX	876a9–879b5	2220
LAWS2	Laws IX	879b6–882c3	2079
LAWS3	Laws V	726a1–731d5	3099
LAWS4	Laws V	731d6–736c4	3130
LAWS5	Laws V	736c5–741a5	3030
EP7	Epistle VII	326b3–330c8	2761
REP1	Republic II	365a4–367e5	1880
REP2	Republic X	614b2–617d5	2312
REP3	Republic X	617d6–621d2	2374
POL	Politicus	270c12–274e4	2861
PHA1	Phaedrus	244a3–248e3	3039
PHA2	Phaedrus	248e4–253c6	2979
PHA3	Phaedrus	253c7–257b6	2512
PHA4	Phaedrus	230e7–234c5 ('Lysias' Speech')	2169
PHA5	Phaedrus	237b6–238c4, 238d8–241d1	2566
SYMP1	Symposium	189d5–193d6 (Aristophanes)	2631
SYMP2	Symposium	180c4–185c2 (Pausanias)	2990
SYMP3	Symposium	185e6–188e5 (Eryximachus)	1897
SYMP4	Symposium	208c1–212a8 (Diotima)	2371

Table 22.2. Percentage occurrences of the 32 5-syllable groups for the ten book data

These figures were obtained from concatenation of the original 33 extracts into their parent sources. The two columns at the right are the eigenvectors associated with components I and II of the principal components analysis using these data.

Syllable group	TIM	CRIT	LAWS	REP	PHA	SYMP	SOPH	PHIL	EP7	POL	PCI	PCII	EPIST
1 ∪∪∪∪∪	2.09	1.93	1.37	0.85	0.52	1.07	2.22	1.28	1.09	1.71	0.180	0.171	1.05
2 −∪∪∪∪	2.77	2.79	2.10	1.64	1.11	1.68	2.80	2.32	2.50	3.01	0.221	0.137	2.36
3 ∪−∪∪∪	3.11	2.83	2.52	1.98	1.81	2.03	3.34	2.59	2.86	2.69	0.196	0.178	2.76
4 ∪∪−∪∪	3.13	3.00	2.00	2.36	2.18	2.50	3.07	2.09	2.46	2.41	0.048	0.265	2.25
5 ∪∪∪−∪	2.95	2.95	2.35	1.81	1.61	2.05	2.70	2.41	3.30	2.87	0.202	0.140	3.23
6 ∪∪∪∪−	2.75	2.83	2.02	1.60	1.08	1.76	2.87	2.30	2.39	2.90	0.215	0.144	2.33
7 −−∪∪∪	3.45	3.38	4.00	2.24	1.74	2.08	3.28	3.82	3.88	4.09	0.243	−.006	3.89
8 −∪−∪∪	2.99	2.57	2.23	2.60	3.33	2.64	3.24	2.09	2.72	2.45	−.133	0.241	2.80
9 −∪∪−∪	3.00	2.88	1.79	2.98	3.80	3.16	2.80	1.88	2.75	1.99	−.208	0.154	2.73
10 −∪∪∪−	3.71	3.40	4.46	2.53	2.49	2.51	3.55	4.02	4.27	3.81	0.222	−.023	4.40
11 ∪−−∪∪	3.50	3.10	2.40	2.67	2.71	2.59	2.97	2.68	2.90	3.46	0.091	0.241	2.94
12 ∪−∪−∪	2.57	1.84	1.81	2.79	3.80	2.71	2.32	1.91	2.54	1.47	−.231	0.070	2.76
13 ∪−∪∪−	2.97	2.74	1.70	2.89	3.63	3.08	2.90	1.61	2.28	2.10	−.198	0.173	2.25
14 ∪∪−−∪	3.55	2.85	2.66	2.58	2.81	2.57	3.17	2.83	2.83	3.36	0.107	0.236	2.87
15 ∪∪−∪−	2.85	2.77	2.16	2.50	3.22	2.63	2.56	2.24	3.55	2.45	−.091	0.163	3.71
16 ∪∪∪−−	3.50	3.24	4.00	2.35	1.95	2.25	3.65	3.90	3.40	4.09	0.242	−.001	3.49
17 −−−∪∪	3.27	3.69	4.10	3.29	3.24	3.32	3.11	4.05	3.91	3.50	0.141	−.196	3.78
18 −−∪−∪	3.20	2.75	2.79	3.69	3.94	3.39	3.48	3.01	2.72	2.94	−.218	0.053	2.76
19 −−∪∪−	3.28	3.38	2.47	3.66	4.27	3.81	2.73	2.80	2.97	2.94	−.229	0.046	2.80
20 −∪−−∪	3.55	3.32	3.19	3.58	3.71	3.12	3.55	3.07	3.33	3.50	−.112	0.205	3.42
21 −∪−∪−	2.82	2.03	2.35	3.88	4.52	3.39	2.66	2.83	2.54	1.99	−.241	−.020	2.73
22 −∪∪−−	3.24	3.27	2.41	3.47	4.13	3.76	2.90	2.56	2.54	3.08	−.214	0.076	2.33
23 ∪∪−−−	3.20	3.59	3.74	3.21	3.22	3.38	3.38	3.55	2.97	3.77	0.128	−.131	2.83
24 ∪−∪−−	3.05	2.94	2.74	3.50	3.98	3.21	3.00	3.22	3.51	2.90	−.209	0.018	3.63
25 ∪−−∪−	3.59	3.04	3.50	3.64	3.84	3.10	3.69	3.31	3.37	3.39	−.102	0.091	3.45
26 ∪−−−∪	3.28	3.48	2.94	3.70	4.20	3.52	3.11	3.19	3.11	2.97	−.237	0.024	3.05
27 ∪−−−−	3.00	3.71	5.02	4.14	3.44	4.31	3.31	4.64	3.77	4.19	0.062	−.302	3.67
28 −∪−−−	3.08	3.57	4.15	4.64	4.45	4.46	3.04	4.44	3.84	3.53	−.143	−.250	3.89
29 −−∪−−	3.57	3.98	4.51	4.71	4.27	4.34	3.58	4.17	3.69	4.09	−.106	−.256	3.78
30 −−−∪−	3.18	3.62	4.05	4.63	4.45	4.55	3.24	3.96	3.19	3.74	−.171	−.207	3.27
31 −−−−∪	3.05	3.76	5.15	4.20	3.46	4.28	3.31	4.74	3.91	4.26	0.070	−.300	3.85
32 −−−−−	2.75	4.66	7.32	5.68	3.07	6.50	4.47	6.47	4.93	4.37	0.060	−.278	4.94

A and B. Thus the formula is

$$d^2_{AB} = \frac{1}{32} \sum_{j=1}^{32} (PAj - PBj)^2$$

where PAj and PBj represent the frequency percentage of syllable group j in samples A and B respectively. The results of the calculations according to this formula are contained in Table 22.3. In order to determine the relationship to each other of the various samples and works, the authors applied five different statistical techniques: three of cluster analysis, one of principal components analysis and one of multidimensional scaling.

The purpose of cluster analysis[2] was to identify groups of samples or works exhibiting a uniform use of prose rhythm. With the original thirty-three samples, if this resulted in the clustering of separate samples from one and the same work, it would confirm that this work displayed consistent rhythms and so could be regarded as a homogeneous entity. If, however, any sample were not associated with the others, it would suggest one of three things: a difference of genre, a chronological gap or unauthenticity. The same considerations would apply to the ten parent works.

The first method of cluster analysis used, that of Ward,[3] is based on the error sum of squares. If for a cluster of samples one calculates first the mean percentage occurrence of each of the thirty-two syllable groups, then the squared euclidean distance from each sample to this mean for every syllable group, the error sum of squares is the sum of all these distances and measures the compactness of the cluster. The objective of Ward's method is to optimise the error sum of squares at various levels of clustering. At the first level, therefore, one combines into a single cluster those two samples which by their fusion produce the smallest increase in the error sum of squares. At the next and subsequent levels the clusters produced at the previous level are combined on the same principle, until the process is completed by the fusion of the last two clusters.

The results of the application of this method to the thirty-three

[2] A technique for assigning objects to groups so that there is as much similarity within and difference between groups as possible.

[3] J. H. Ward, 'Hierarchical grouping to optimise an objective function', *J. Amer. Statist. Assoc.* 58 (1963) 236.

Table 22.3. Distance matrix for the ten-book data contained in Table 22.2

These coefficients, which are inversely proportional to similarity, are derived from the formula defined in the text.

CRIT	0.2675								
LAWS	1.4542	0.6943							
REP	1.0134	0.6307	0.8743						
PHA	1.0837	1.2217	2.2347	0.4515					
SYMP	1.1124	0.5743	0.7911	0.0706	0.6736				
SOPH	0.1455	0.1549	0.9145	0.7811	1.2419	0.7983			
PHIL	1.0328	0.4403	0.0804	0.6113	1.7314	0.5842	0.6344		
EP7	0.3967	0.1945	0.5679	0.7033	1.2772	0.7075	0.2732	0.3403	
POL	0.4030	0.1581	0.5263	0.9026	1.6787	0.9173	0.2725	0.3261	0.2665
	TIM	CRIT	LAWS	REP	PHA	SYMP	SOPH	PHIL	EP7

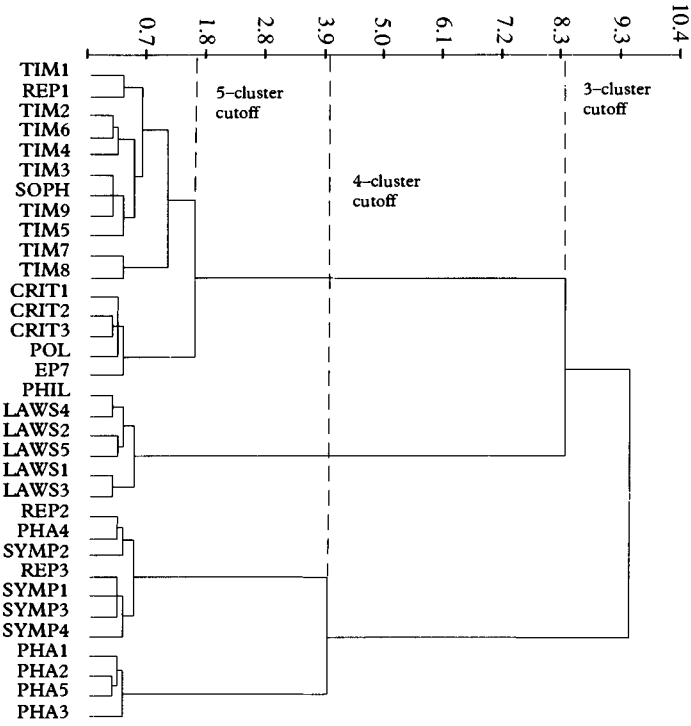

Fig. 1. Dendrogram for the hierarchical classification by Ward's method using the thirty-three extracts in Table 22.1. The 4-cluster cutoff probably indicates the best grouping of the passages.

samples listed in Table 22.1 are shown in the dendrogram of Figure 1. The authors observed that, with two exceptions (REP1 and PHA4), the samples were grouped together according to their origin. For the position of the former (i.e. *Rep.* II) they suggested three possible explanations, though without any great confidence: (*a*) the shortness of the sample;[4] (*b*) the fact that it was a speech, whereas the other two samples from the *Rep.* were narrative; (*c*) a long interval between the composition of books II and X. Regarding PHA4 (Lysias' speech) they considered that in view of the uniformity of rhythm in the four *Symp.* samples, despite their being parodies, imitation of Lysias' style by Plato would not account for

[4] It is in fact the shortest, but SYMP3 is not much longer, yet its rhythm is consistent with that of the other three samples from the same work, as the authors note. On the other hand, the inadequacy of its size may have been compounded by the fact that it contains six quotations or adaptations of poets. From a check of the total number of syllable groups it is clear that these were mistakenly included in the analysis, affecting about ninety (5%) of the syllable groups.

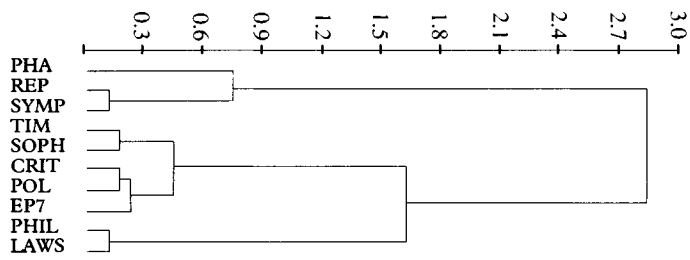

Fig. 2. Dendrogram for the hierarchical classification by Ward's method of the ten books given in Table 22.2.

its deviation from the other four *Phdr.* samples; they therefore concluded tentatively that it was a genuine speech of Lysias.

From the point of view of whole works rather than individual passages they noted that at the five-cluster level the groups were (1) *Tim.*, *Soph.*, *Rep.* II, (2) *Crit.*, *Pol.*, *Epist.* VII, (3) *Phil.*, *Laws*, (4) *Symp.*, *Phdr.* (Lysias' speech), *Rep.* X, (5) *Phdr.* At the four-cluster level the first two combined, at the three-cluster level the last two; beyond this the error sum of squares showed a significant increase, indicating an appreciably higher within-group variation. With the thirty-three samples collected together into their ten parent works, application of the same method produced the dendrogram of Figure 2, where the grouping was in general not significantly different from that of Figure 1.[5] Here too the large increase in the error sum of squares beyond the four-cluster level suggested that this represented the optimum classification in respect of prose rhythm.

The other two methods of cluster analysis, iterative relocation and probabilistic, confirmed the results of the first with the following exceptions. For the thirty-three samples (Fig. 1) the iterative relocation method transferred *Rep.* II from the *Tim.* to the *Phdr.* group at both five- and four-cluster levels, the first passage of *Tim.* to the *Crit.*, *Pol.*, *Epist.* VII group at the five-cluster level. The authors interpreted this new position of *Rep.* II as evidence supporting explanation (*c*) for its separation from book X by Ward's method, namely a long interval between their composition, since they believed that their data showed the *Phdr.* to be the earliest of the ten works under investigation. The relocation of the first *Tim.*

[5] The authors' comment, that their position for *Epist.* VII between *Pol.* and *Phil.* was 'more satisfactory from the historical point of view than the position allocated by Levison *et al.* ('The seventh letter of *Plato*', *Mind* 77, 1968, 309–25) using the Cox–Brandwood method', misses the point that the method was applied to inappropriate material. See my article in *R.E.L.O. Revue* (1969) 1–25, where its correct application yielded a result identical to their own.

sample was considered unimportant in view of the fact that at the four-cluster level the *Tim.* and *Crit.* groups were combined. With the probabilistic method no distinction occurred between the *Tim.* and *Crit.* groups at the five-cluster level, contrary to Ward's method, and the conclusion was drawn that regarding prose rhythm the ten works fell naturally into four, not five distinct classes.

The fourth method used by the authors for assessment of their results was principal components analysis.[6] Each sample may be represented by a point in a space or graph having thirty-two dimensions, that is, one for the percentage frequency of each group of five syllables. Since the distribution of a set of points on such a multidimensional graph is not easily comprehensible, the purpose of this method is to reduce the graph to a two-dimensional one by finding that plane through the thirty-two dimensions which provides the optimum least-squares fit to the distribution. When the various points have been transferred to this plane, its accuracy is expressed by the extent to which it accounts for their various deviations from it; the higher the percentage covered, the more accurately the graph represents the thirty-two dimensional distribution. The results, obtained from the data of Table 22.2, are shown in Figures 3 and 4, where the major axis (1st component) was taken to correspond to chronological development, the secondary axis (2nd component) to the degree of variation in the prose rhythm, which appears greater in the late compared with the earlier works.[7]

From the distribution of points in both figures the authors concluded, given the late date of the *Laws*, that the samples and works were arranged in approximately chronological order along the first component. There

[6] From a set of explanatory variables (here thirty-two) this establishes a new 'artificial' set called principal components. Each is a linear combination of the explanatory variables, and since there are thirty-two variables there will be thirty-two principal components. However, the first is the most powerful in the sense that it explains a bigger proportion of the total variability than the second, which in turn is more powerful than the third, and so on. In most cases the first four or five explain 90% or more of the variability. The other main characteristic of this analysis is that each principal component is uncorrelated with the others. This is one of the major reasons for the method's development, since it is highly likely that many of the explanatory variables will be correlated with each other, making testing and interpretation hazardous. Its two main advantages, therefore, are that it reduces the number of explanatory variables down to manageable proportions and circumvents the problem of their being interrelated.

[7] The simplification of the data from thirty-two explanatory variables to two (the 1st and 2nd principal components) resulted in some loss of detail, but the authors still managed to explain 72.6% and 80.2% respectively of the variation in the data for the thirty-three passages and ten books.

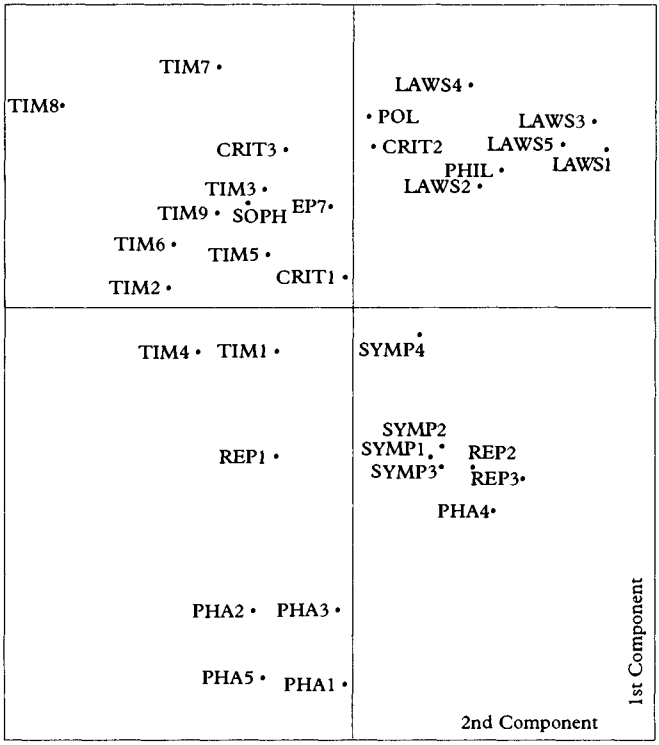

Fig. 3. Scatter diagram for the 33-passage data obtained by plotting principal component I against principal component II; 72.6% of the overall variation is contained in this diagram.

was a reservation, however, about the position of the *Phdr.* in Figure 4, because it represented all five constituent passages, whereas it was evident from Figure 3 that PHA4 (Lysias' speech) was later than the other samples from the work; if it were excluded, as perhaps not Platonic, the effect would be to put the *Phdr.* in Figure 4 still earlier.

The fifth method of assessment was that of multidimensional scaling, a technique developed by J. B. Kruskal[8] for transferring a population of points from a larger to a smaller number of dimensions in such a way that the distances between them retain a sensible relationship to the original distances. By iteration (i.e. clustering and reordering) all the observations are eventually squeezed into one plane, so that their re-

[8] 'Multidimensional scaling by optimising goodness of fit to a nonmetric hypothesis', *Psychometrika* 29 (1964) 1–27.

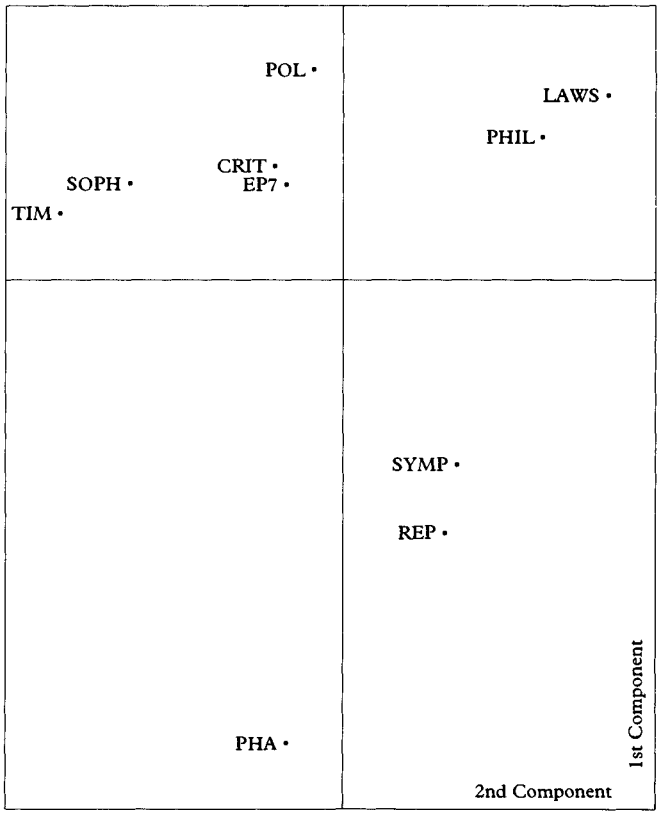

Fig. 4. Scatter diagram of component I versus component II for the ten-book data obtained by concatenating the 33 original samples; 80.2% of the variation is explained by this diagram.

lationships are represented in two- or even one-dimensional space. Starting from Table 22.3, which gives distances measured in thirty-two dimensions corresponding to the thirty-two types of syllable groups, the authors reduced the distribution of points after thirty-three iterations to two dimensions (Fig. 5) for a stress value of 0.038, and after sixteen iterations to one dimension (Fig. 6) for a stress value of 0.384.[9] They

[9] This is an indication of how much accuracy has been sacrificed in changing from the multidimensional reality to an artificial two- or one-dimensional scheme. According to Kruskal the 3.8% stress value for Figure 5 would denote a goodness of fit somewhere between 'excellent' and 'very good', while that of 38% for Figure 6 would be considered 'very poor'. In other words the arrangement of the points in two dimensions is satisfactory in retaining the original relationships in thirty-two sample space, but not so when further squashed into one dimension.

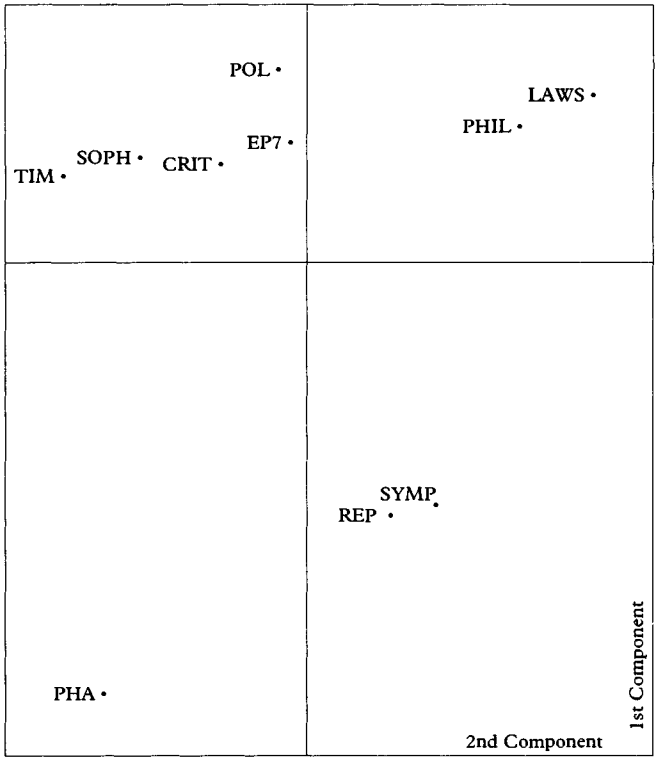

Fig. 5. Two-dimensional graph of the distribution of points resulting from multi-dimensional scaling of the unstandardised distance matrix (Table 22.3) for the ten-book data.

observed that the same pattern of clusters and relationships resulted from this method as from cluster analysis (Fig. 2) and principal components analysis (Fig. 4).

From the general agreement of their various analyses the authors concluded that the chronological order of the works investigated was *Phdr.* (*Symp.* and *Rep.*), *Tim.*, *Soph.*, *Crit.* (*Epist.* VII and *Pol.*), *Phil.*, *Laws*,[10] confirming the sequence arrived at by Cox and Brandwood,[11] at least from the *Rep.* to the *Laws*, while emanating from a 'more thorough investigation of the prose'. Contrary, however, to prevailing opinion the *Phdr.* was neither homogeneous nor late. The fourth sample, Lysias' speech, was so different from the rest, that it was possibly written by

[10] The relative order of works in parenthesis could not be determined.

[11] *Journal of the Royal Statistical Society*, Ser. B. 21.1 (1959) 195–200.

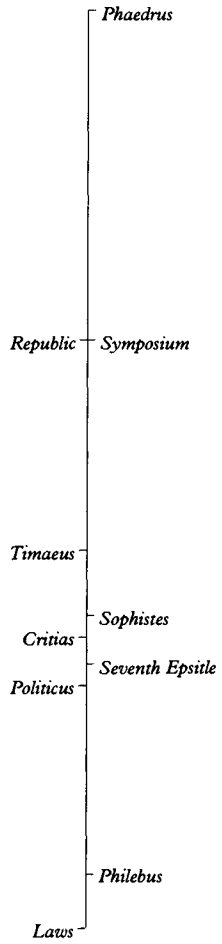

Fig. 6. Projection of the ten books into one dimension by multidimensional scaling using the distance matrix of Table 22.3. The scale is believed to correspond closely to Platonic chronology.

Lysias rather than Plato; the other samples were diametrically opposed in character to the *Laws*, regarded as the latest work, so that this had to be considered the earliest of the ten dialogues surveyed.

By way of verification of this inquiry two specimen checks were made. The first, procedural rather than factual, involved a repetition of the principal components analysis using the authors' data for the ten books.[12]

[12] The computer program for this was written and its results made available by F. J. W. Rendall, who also kindly provided an explanation of the statistical techniques mentioned in this chapter.

The results obtained were identical to those in Figure 4. The second was aimed at testing the accuracy of the data in Table 22.2, but because the metrical scansion had been carried out by computer, and it seemed advisable to check this manually,[13] limitations of time necessitated the check being restricted to one work only, *Epist.* VII.[14] Comparison of the ensuing figures (Table 22.2 under EPIST) with those of the authors reveals a difference for every syllable group, but since this is generally small, it seems unlikely, even if repeated over the other nine works, that the overall result would be significantly affected.

Regarding the chronological order arrived at by the authors there is a serious objection to the position allocated to the *Phdr.* All five samples of this work were taken not from the dialogue section, but from speeches: one from that attributed to Lysias, one from Socrates' first speech and three from his second. However, it has already been mentioned (p. 160) that Socrates' two speeches are specifically indicated by Plato as poetical in character, including their rhythm, a fact borne out by observation. It is not surprising, therefore, if in a comparison with the late works the *Phdr.* shows less similarity than do the *Symp.* and *Rep.*, and in these circumstances it is a mistake to infer that it must be earlier than they. The failure of the authors to take account of the multiplex nature of the *Phdr.* has also led to their absurd conclusion that the Lysias speech was a later composition than those of Socrates, although the latter stem from and are a criticism of the former.

This aberration on their part does not necessarily invalidate their findings in respect of the sequence of the later works, which—apart from the slight displacement of the *Crit.*—corresponds to that arrived at by Kaluscha ánd Billig. It may also be noted that there is a common factor linking the present statistics with those of Billig, who identified the clausula based on the fourth paeon (∪∪∪⏑) as the most popular in Plato's final period, rising from about 25% of all clausulae in *Tim.* and *Soph.* to over 40% in parts of the *Laws*.[15] A calculation from Table 22.2 of the percentage of all thirty-two syllable groups formed by the eight containing three or more consecutive short syllables yields the following result:

[13] From a scepticism, in the light of the varying quantity of some vowels, about the feasibility of a purely mechanical analysis.

[14] The usual rules of Attic scansion were followed. Since, on the other hand, the authors did not say how they treated a long vowel at the end of a word before a following vowel (see Chap. 18, p. 183), a double calculation was made to see which scansion produced the closer statistics to theirs; it would appear that they regarded it as remaining long.

[15] See Tables 18.6 and 18.9.

Phdr.	*Rep.*	*Symp.*	*Phil.*	*Laws*	*Crit.*	*Epist.* VII	*Tim.*	*Soph.*	*Pol.*
12.31	15.00	15.43	22.64	22.82	23.35	23.69	24.33	24.41	25.17

From the dichotomy apparent in these figures it would appear that while writing the later dialogues Plato acquired a predilection for series of short syllables, both in the clausula and the rest of the sentence, which is not evident in his earlier compositions.

23

CONCLUSION

★

It appears that there were two broad developments in Plato's literary style: an earlier one which was slow and gradual and a later, starting when he was about sixty, which was sudden and rapid. Regarding the former, where the changes concerned his vocabulary and were for the most part probably unconscious, one would expect the trend to be uneven and at times haphazard;[1] in the latter, which concerned the euphony of his prose and involved a deliberate choice in respect of hiatus avoidance and rhythm, a more rational and systematic evolution might be anticipated, with any aberrations in it explicable by known or deducible factors.

The early research on Plato's vocabulary by Campbell, Dittenberger and Schanz, culminating in Ritter's book on the subject, identified in *Soph.*, *Pol.*, *Phil.*, *Tim.*, *Crit.* and *Laws* a group of dialogues which were distinguished from the rest by an exclusive or increased occurrence in them of certain words and phrases. Subsequent investigations into this aspect of style arrived at the same conclusion, and the dichotomy was confirmed by two further criteria with the discovery that only in these works, together with the *Epin.* and *Epist.* VII, did Plato make a consistent attempt to avoid certain types of hiatus and achieve a different kind of prose rhythm.

It has been argued that Plato avoided hiatus changeably rather than consistently after a certain date.[2] This is to attribute to an elderly philosopher the disposition of a young woman pleased with a new hat, who

[1] Nevertheless, as mentioned previously (pp. 78 and 94), in the case of individual linguistic features, it is necessary to assume, at least initially, that the trend is, if not even, at least continuous. Comparison of several such criteria provides the necessary correction.

[2] E.g. G. Ryle, *Plato's Progress*, Cambridge 1966, 297; R. A. H. Waterfield, 'The place of the *Philebus* in Plato's dialogues', *Phronesis* 25 (1980) 274–6.

then tires of it and lays it aside, only to rediscover its charm after a brief passage of time. Of course Plato could change his style within a single dialogue, as in the *Symp.* and *Phdr.*, but these changes were made for a purpose, a purpose which is immediately apparent. No reason has so far been adduced why he should have employed the principle of hiatus avoidance intermittently, and in the absence of such a reason it is unsatisfactory to resort to the use of analogy, especially of Isocrates' forensic speeches, where the greater or lesser avoidance of hiatus is explicable on various grounds, not least temporal and commercial, considerations that hardly applied to Plato.

Regarding the question of sequence within the final chronological group, in comparing the various kinds of evidence particular weight should perhaps be attached to prose rhythm and the avoidance of hiatus, because unlike vocabulary they appear to be independent both of a work's form and of its content. While the testimony of the data for hiatus avoidance was ambiguous, three independent investigations of clausula rhythm and one of sentence rhythm agreed in concluding that the order of composition was *Tim.*, *Crit.*, *Soph.*, *Pol.*, *Phil.*, *Laws*. In the light of this the ambiguity of the hiatus evidence regarding the place of the *Phil.* (p. 166) may be resolved in favour of its proximity to the *Laws*, a position supported by particular aspects of hiatus[3] and by other features, such as the reversion to longer forms of reply formulae after a predominance of abbreviated versions in the preceding works,[4] the culmination of a trend towards the more frequent use of superlative expressions,[5] the high proportion of πέρι[6] and an increased preference compared with *Tim.*, *Crit.* and *Soph.* for a long final syllable in clausulae (p. 190).

By comparison with the differences which distinguish the final group, those which separate the dialogues of Plato's middle period from all

3 E.g. the frequency in both works of addresses like ὦ ἑταῖρε and ὦ ἄριστε (Table 17.8, p. 165), whereas in the other works of this group they are not found at all. If the *Phil.* had represented Plato's first serious attempt at reducing the occurrence of hiatus, he would hardly have failed to eliminate such eminently avoidable instances. On the other hand, the temporary jump in the incidence of 'permissible' hiatus in *Tim.* and *Crit.* (Table 17.6, p. 163) might well be the result of an initial endeavour to diminish the 'objectionable' kind, which at this transitional stage succeeded only at the expense of an increase in the former.

4 E.g. ἀληθῆ λέγεις (p. 88) and ὀρθότατα λέγεις (pp. 62 and 88).

5 Only in *Phil.* and *Laws* do the superlative reply formulae equal or surpass the positive forms (Table 11.1, p. 88).

6 Table 14.2, p. 121. Note also that its occurrence in *Tim.* and *Crit.* is much lower than in the other works of the late group.

preceding it are not as sharp, connected as they are with the earlier, gradual development of his style. Ritter, incorporating the results of his predecessors' research with his own, found that many of the criteria used to identify the final group also served to separate *Parm.*, *Phdr.*, *Rep.* and *Theaet.* from the remaining dialogues.[7] Additionally, the same division was made by later investigators.[8]

Now on the question of the unity of the *Rep.* both Ritter (p. 74) and Arnim (p. 107) followed Siebeck (p. 50) in concluding that Book 1, which contained several features characteristic of the early dialogues, was originally a separate work written some time before the rest, but possibly revised at the time of its incorporation.

Despite the fact that there cannot be the same certainty about the sequence within this group as about that in the last, examination of Ritter's criteria (pp. 82ff.) suggested that the order of composition was *Rep.*, *Theaet.*, *Phdr.*, which agreed with his own conclusion (p. 77).[9] While the *Parm.* unquestionably belonged in the same group (cf. p. 66), its peculiar character made it difficult to determine its relationship to the above three works (p. 84). On the other hand, if one also takes into account the apparent reference in *Theaet.* to *Parm.* and the fact that in the *Theaet.* Plato renounces the use of the reported dialogue form, which seems to be merely an explicit declaration of a practice already implicitly adopted early in the *Parm.* (137c), presumably induced by recollection of the wearisome repetition of ἔφη etc. in the *Rep.* and the prospect of its still greater occurrence in a dialogue with such frequent changes of speaker, then the correct place for the *Parm.* would appear to be between *Rep.* and *Theaet.*

On the sequence of dialogues in the early group little can be said. Division into sub-groups also seems out of the question. The difficulty is that the statistics produced by past research usually relate to linguistic features which are primarily characteristic of works belonging to Plato's

[7] Nos. 2, 3, 6–8, 10, 11, 15–19, 21–4, 38, 45 (p. 57ff.).

[8] E.g. Arnim (see p. 108) and Baron (see Table 14.1.).

[9] The late position of the *Phdr.* is further supported by its higher proportion of ὄντως to τῷ ὄντι (p. 81), a percentage of rhetorical questions as reply formulae equalling that found in works of the last group (p. 103), the frequency of πέρι (p. 121), and passages in which there appears to be a conscious effort to avoid hiatus (p. 155) leading to its lowest incidence outside works of the final group (p. 156). In addition, the evidence of an interest in prose rhythm (p. 158) together with mention of Isocrates (p. 160) perhaps presages the development of this in subsequent works.

middle and late periods; consequently, their occurrence in the early period tends to be slight and spasmodic.

The problem is compounded by two other factors: first, many investigations concerned the use of reply formulae, which was prejudicial to works containing little dialogue (e.g. *Menex.*, *Apol.* and *Cri.*); second, most scholars of the last century omitted certain works altogether from their inquiries, especially those suspected at that time of being unauthentic, making a general comparison impracticable.

If, within these limitations, one were prepared to accept the greater or lesser frequency with which features characteristic of Plato's later works occur in the early dialogues as indicative of their relative proximity to those works, then the nearest would be found among *Phdo*, *Lys.*, *Rep.* I, *Symp.*, *Crat.*, *Menex.*, *Euthd.* and *Hipp. Ma.* The precise order of these and the rest, however, must wait upon the discovery of criteria, primarily rather than incidentally relevant to this group, which exhibit a definite trend.

INDEXES

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IV: Greek words and phrases