Syntactic Word Order in Herodotean Greek

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The traditional view of Greek word order is that it is syntactically free. Such a view, when it is expressed, is usually explained in terms of the language's inflectional morphology which signals syntactic relationship within the sentence and obviates the need for sequencing rules.[1]) The same comment may be applied, with equal force, to other Indo-European languages such as Latin and Sanskrit. The claim has been made, nevertheless, that Greek is a special case and has freer word order than any other language of the Indo-European language group.[2])

Some more recent support for the traditional view has been offered by Dover in his book *Greek Word Order.* Here, after surveying a range of statistics for the order of subject, object and verb Dover concludes that "these statistics are very far indeed from establishing for 'Classical Greek' *simpliciter* anything worth calling a syntactical rule of word order."[3])

In view of the fact that most modern work on the word order of natural languages is syntactic in nature, Dover's claim should not go unchallenged. Indeed it is the purpose of this paper to bring forward data which cast doubt on the validity of Dover's statement. Before doing so, however, it is necessary to clarify what we mean by a "syntactical rule."

First of all we must admit that, as far as the sequence of inflected or "mobile"[4]) elements of the Greek sentence are concerned, there are virtually no absolute laws which operate without exception.[5]) In practice however ancient Greek authors tend to follow certain statistical trends. These may best be described not as "laws" but as norms or statistical tendencies. The question now arises as to how we can identify such tendencies.

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[1]) See Kühner (1898–1904), II,2,595.

[2]) According to Watkins (1964: 1039) Greek would appear to have gone farther than any other I.E. language in the elaboration of a "free" word order. For an earlier treatment of the matter see Weil (1879). Also Boldt (1884).

[3]) See Dover (1960: 31).

[4]) For the term "mobile" see Dover (1960: 12).

[5]) Two laws are: (1) The article always precedes its head noun (where the article is postposed we must assume a deleted reactivation of the head). (2) The exclamation ὦ always precedes the vocative.

The procedure adopted in this paper is to set up a simple binary model and submit the data to a statistical test of significance. If we use a standard statistical test it becomes possible to assign a numerical probability to the results of the test. In this way we can establish norms and measure their validity for selected samples of data.

The sample data used in this study is the text of Book I of Herodotus. For the purposes of the test we have analysed the word order of all the sentences of this sample.

The binary model used is the head/modifier or dependency model. The model may be briefly explained as follows. First of all every Greek construction consisting of two or more words may be analysed into two parts, the head and the modifier. Of these the head is the central and more essential element, the element which determines the functional range of the construction and gives the construction its identity. Thus we may speak of a noun phrase as typically consisting of say a noun (the head) and an adjective (the modifier), a verb phrase as consisting of a verb (the head) and an object (the modifier), of the prepositional phrase as consisting of a preposition (the head) and a noun (the modifier).[6] For the purposes of this study the main verbs in the sample have been treated as heads, and the inflected subordinate elements (subject, object, adverb etc.) as modifiers.

From the viewpoint of word order each occurrence or token of a given modifier/head construction may be classified as exhibiting either (i) modifier + head sequencing or (ii) head + modifier sequencing. When all the occurrences of the combination have been counted in the sample of data there are three possible outcomes.

I.   modifier + head predominates
II. head + modifier predominates
III. both modifier + head and head + modifier sequences are of equal or almost equal frequency.

Which of the three possible outcomes applies for any given combination can only be determined by submitting the frequencies to a statistical test.

The test which will be used in this study is Pearson's χ^2 (chi square).[7] The formula for χ^2 is as follows:

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[6] For the head/modifier model see especially de Groot (1949). The "modifier" is sometimes referred to as an "adjunct". See also Tesnière (1969). For further references see Crystal (1985: 8, 146, 197–8).

[7] For the application of χ^2 to linguistic problems see Muller (1968: 95–103).

$$\chi^2 = \Sigma \frac{(o-e)^2}{e}$$

where o = observed frequency and e = expected frequency

In practice we begin by setting up a 2×2 table which compares the modifier + head frequency (a) and the head + modifier frequency (b) with (c) the frequency to be expected if (a) and (b) are equal. If we substitute the appropriate values the statistic may be restated as follows:

$$\chi^2 = \frac{(a-c)^2}{c} + \frac{(b-c)^2}{c}$$

As is evident from the equation we have used the average of (a) and (b) as the expected value. So the table is as follows:

Figure 1

Modifier	precedes	follows
Observed Values	a	b
Theoretical Values	c	c

In theoretical terms the expected value (c) is the value to be expected under the null hypothesis, i.e. the assumption that modifier plus head and head plus modifier sequences do not differ significantly in frequency. Whether or not the null hypothesis can be sustained in any given case may be ascertained from the value of χ^2.

The χ^2 statistic may be described as a measure of difference. Thus if the value of χ^2 is low we conclude that the observed values do not differ significantly from the values to be expected under the null hypothesis. If the χ^2 is high we conclude on the contrary that there is a significant difference between observed and expected values.

The level at which χ^2 is taken to be significant is arbitrary. If any given value of χ^2 is looked up in a table of the χ^2 distribution we will find that for each value of χ^2 there is a corresponding level of probability. The probability is the probability of the null hypothesis.

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For the purposes of this study we will take a χ^2 of 3.841 or greater, with a corresponding probability of 0.05 or less as significant. Once this value of χ^2 has been attained the null hypothesis will be rejected. Once the null hypothesis has been rejected we will state a statistical norm, i.e. that either modifier plus head or head plus modifier is the normal or regular order for the construction which is being evaluated.

If however we do not attain a significant value of χ^2 we will conclude that the null hypothesis applies and that the ordering is random.[8])

Stylistically, when a statistical norm has been identified, a stylistic consequence follows. The normal sequence is to be treated as stylistically normal or unmarked, the reverse order as stylistically marked, i.e. embellished.[9])

The question of style will not be dealt with here. Instead we will proceed to the examples and the statistics.

The examples have been chosen with two main purposes in mind.

(i)   to clarify the basis on which the statistics have been taken,
(ii) to demonstrate that both modifier plus head and head plus modifier sequences occur with almost all the combinations tested.[10])

Both statistics and examples have been tabulated under four headings:

(i)   subordinate clauses
(ii) participial clauses
(iii) noun phrases
(iv) prepositional phrases

As a matter of convenience it will be seen that the infinitive has been included with the subordinate clauses and the manner adverbial with the noun phrases.

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[8]) Dover implies a distinction between "primary" and "secondary" determinants of word order but does not clarify the distinction. We have drawn a comparable distinction between significant and non-significant values of χ^2 and have made this distinction explicit.

[9]) The concept of markedness goes back to Prague school phonology e.g. Troubetzkoy (1967).

[10]) The reason for the reversibility of modifier/head constructions in ancient Greek and other Indo-European languages has been explained by Lehmann (1973a; 1973b and 1974) in terms of a structural changeover from modifier + head to head + modifier typology.

Members of all of these four classes may be treated as modifiers of their leading verbs.

The statistical tables have been set out with the following headings for each modifier/head sequence:

(i)   number and percentage of modifiers preceding the head (Before).

(ii) number and percentage of modifiers following the head (After).

(iii) total

(iv) average

(v) χ^2

(vi) probability

(vii) result

Of these the last, the result, is tabulated as one of the following symbols.

(1) – normally precedes the head

(2) = random, i.e. no norm identified

(3) + normally follows the head

We can now look at the statistics and the examples.

I. Examples of subordinate clauses (the modifiers have been underlined)

Temporal Clauses

53,2. ὡς δὲ ἀπικόμενοι ἐς τὰ ἀπεπέμφθησαν οἱ Λυδοὶ ἀνέθεσαν τὰ ἀναθήματα, ἐχρέωντο τοῖσι χρηστηρίοισι.

186,3. ἐπιτείνεσκε δὲ ἐπ'αὐτήν, ὅκως μὲν ἡμέρη γένοιτο, ξύλα τετράγωνα.

Conditional Clauses

32,7. εἰ δὲ πρὸς τούτοισι ἔτι τελευτήσει τὸν βίον εὖ, οὗτος ἐκεῖνος τὸν σὺ ζητέεις [ὁ]ὄλβιος κεκλῆσθαι ἄξιός ἐστι.

89,2. νῦν ὦν ποίησον ὧδε, εἴ τοι ἀρέσκει τὰ ἐγὼ λέγω.

Prospective Clauses

71,4. Πέρσῃσι γάρ, πρὶν Λυδοὺς καταστρέψασθαι, ἦν οὔτε ἁβρὸν οὔτε ἀγαθὸν οὐδέν.

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13,2. τούτου τοῦ ἔπεος Λυδοί τε καὶ οἱ βασιλέες αὐτῶν λόγον οὐ-
δένα ἐποιεῦντο, πρὶν δὴ ἐπετελέσθη.

Causal Clauses

42,2. νῦν δέ, ἐπείτε σὺ σπεύδεις καὶ δεῖ τοι χαρίζεσθαι (ὀφείλω γάρ
σε ἀμείβεσθαι χρηστοῖσι) ποιέειν εἰμὶ ἕτοιμος ταῦτα ...

90,1. ταῦτα ἀκούων ὁ Κῦρος ὑπερήδετο, ὥς οἱ ἐδόκεε εὖ ὑποτί-
θεσθαι.

Relative Clauses

61,4. ... καὶ Νάξιός σφι ἀνὴρ ἀπιγμένος ἐθελοντής, τῷ οὔνομα ἦν
Λύγδαμις, προθυμίην πλείστην παρείχετο.

8,4. πάλαι δὲ τὰ καλὰ ἀνθρώποισι ἐξεύρηται, ἐκ τῶν μανθάνειν δεῖ.

Indirect Questions

47,2. ὅ τι μέν νυν τὰ λοιπὰ τῶν χρηστηρίων ἐθέσπισε, οὐ λέγεται
πρὸς οὐδαμῶν.

35,2. ἐπυνθάνετο ὁκόθεν τε καὶ τίς εἴη, λέγων τάδε.

Noun Clause Objects

209,3. ὡς δὲ ταῦτα ἀτρεκέως οἶδα, ἐγὼ σημανέω.

13,2. τοσόνδε μέντοι εἶπε ἡ Πυθίη, ὡς Ἡρακλείδῃσι τίσις ἥξει ἐς τὸν
πέμπτον ἀπόγονον Γύγεω.

Final Clauses

122,3. οἱ δὲ τοκέες παραλαβόντες τὸ οὔνομα τοῦτο, ἵνα θειοτέρως
δοκέῃ τοῖσι Πέρσῃσι περιεῖναί σφι ὁ παῖς, κατέβαλον φάτιν ...

117,2. ὁ δὲ Ἅρπαγος ὡς εἶδε τὸν βουκόλον ἔνδον ἐόντα οὐ τρέπεται
ἐπὶ ψευδέα ὁδόν, ἵνα μὴ ἐλεγχόμενος ἁλίσκηται.

Consecutive Clause

9,1. ἀρχὴν γὰρ ἐγὼ μηχανήσομαι οὕτω ὥστε μηδὲ μαθεῖν μιν ὀφθεῖ-
σαν ὑπὸ σεῦ.

Figure II: Subordinate Clauses in Relation to Main Verb

	Before	After	Total	Average	χ^2	Probability	Result
Temporal Clause	151(96.18%)	6(3.83%)	157	78.5	131.92	<.001	–
Conditional Clause	32(86.49%)	5(13.51%)	37	18.5	19.70	<.001	–
Prospective Clause	1(6.25%)	15(93.75%)	16	8	12.25	<.001	+
Causal Clause	0(0%)	13(100%)	13	7.5	14	<.001	+
Relative Clause	23(2.70%)	88(79.28%)	111	55.5	38.06	<.001	+
Indirect Question	1(4%)	24(96%)	25	12.5	21.16	<.001	+
Noun Clause Object	1(4.76%)	20(95.24%)	21	10.5	17.19	<.001	+
Final Clause	1(6.66%)	14(93.33%)	15	7.5	9.60	<.01	+
Consecutive Clause	0(0%)	14(100%)	14	7	14	<.001	+
Accusative/Infinitive	21(15.22%)	117(84.78%)	138	69	66.78	<.001	+
Infinitive	48(28.07%)	123(71.93%)	171	85.5	32.89	<.001	+

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Accusative/Infinitive

80,2. τῇ δὲ καμήλῳ ἕπεσθαι τὸν πεζὸν λεὼν ἐκέλευε.

31,2. ... ἔδεε πάντως τὴν μητέρα αὐτῶν ζεύγεϊ κομισθῆναι ἐς τὸ ἱρόν.

Infinitive

116,1. καί οἱ ὅ τε χαρακτὴρ τοῦ προσώπου προσφέρεσθαι ἐδόκεε ἐς ἑωυτὸν ...

74,4. ἄνευ γὰρ ἀναγκαίης ἰσχυρῆς συμβάσιες ἰσχυραὶ οὐκ ἐθέλουσι συμμένειν.

We can now look at Figure II which has the statistics for subordinate clauses.[11]) An inspection of the table shows that all the subordinate clauses normally follow their verbal head with the exception of temporal and conditional clauses which normally precede. The higher percentages range from 79.28 to 100, the values of χ^2 from 7.5 to 85.5, all highly significant, as can be seen from the associated probabilities which go from $< .01$ to $< .0001$. There are no random modifiers in this table. All but two of the clause types (causal and consecutive) occur on both sides of their heads.

II. Examples of participles

Genitive absolutes

98,3. πειθομένων δὲ καὶ ταῦτα τῶν Μήδων οἰκοδομέει τείχεα μεγάλα.

111,1. τότε κως κατὰ δαίμονα τίκτει οἰχομένου τοῦ βουκόλου ἐς πόλιν.

Dative participles

11,5. ὑπνωμένῳ δὲ ἡ ἐπιχείρησις ἔσται.

70,1. καὶ τοῦτο μὲν αὐτοὶ ἦσαν ἕτοιμοι ἐπαγγείλαντι.

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[11]) Most Greek subordinate clauses originate from relatives. For the details see Monteil (1963).

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Aorist participles
(nominative)

102,1. ἀλλὰ <u>στρατευσάμενος</u> ἐπὶ τοὺς Πέρσας πρώτοισί τε τούτοισι ἐπεθήκατο.

136,2. παιδεύουσι δὲ τοὺς παῖδας ἀπὸ πενταέτεος <u>ἀρξάμενοι</u> μέχρι εἰκοσαέτεος τρία μοῦνα.

Present participles
(nominative)

7,1. ἡ δὲ ἡγεμονίη οὕτω περιῆλθε, <u>ἐοῦσα</u> Ἡρακλειδέων, ἐς τὸ γένος τὸ Κροίσου.

8,3. τίνα λέγεις λόγον οὐκ ὑγιέα <u>κελεύων</u> με δέσποιναν τὴν ἐμὴν θεήσασθαι γυμνήν.

Perfect participles
(nominative)

21,1. Θρασύβουλος δὲ σαφέως <u>προπεπυσμένος</u> πάντα λόγον καὶ <u>εἰδὼς</u> τὰ Ἀλυάττης μέλλοι ποιήσειν μηχανᾶται τοιάδε·

35,3. ἀέκων πάρειμι <u>ἐξεληλαμένος</u> τε ὑπὸ τοῦ πατρὸς καὶ <u>ἐστερημέ-νος</u> πάντων.

Future participle
(nominative)

210,3. ἤιε ἐς Πέρσας <u>φυλάξων</u> Κύρῳ τὸν παῖδα Δαρεῖον.

Accusative participles
(object)

10,2. <u>ἐσελθοῦσαν</u> δὲ καὶ <u>τιθεῖσαν</u> τὰ εἵματα ἐθηεῖτο ὁ Γύγης.

10,2. καὶ ἡ γυνὴ ἐπορᾷ μιν <u>ἐξιόντα</u>.

Participial complements
(nominative)

202,4. καὶ ἡ Ἐρυθρὴ μία <u>ἐοῦσα</u> τυγχάνει.

38,2. εἷς γάρ μοι μοῦνος τυγχανεις <u>ἐὼν</u> παῖς.

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Figure III: Participial Clauses in Relation to Main Verb

	Before	After	Total	Average	χ^2	Probability	Result
Genitive Absolute	82(66.13%)	41(33.06%)	123	62	12.903	<.001	–
Dative Participle	36(81.82%)	8(18.18%)	44	22	5.8	<.02	–
Aorist Participle (Nominative)	362(84.58%)	66(15.42%)	428	214	204.71	<.001	–
Present Participle (Nominative)	170(58.02%)	123(41.98%)	293	146.5	7.539	<.01	+
Perfect Participle (Nominative)	22(73.33%)	8(26.67%)	30	15	6.533	<.02	+
Future Participle (Nominative)	15(100%)	0(0%)	15	7.5	13.00	<.001	+
Accusative Participle (Object)	20(83.33%)	4(16.67%)	24	12	10.67	<.01	+
Participle Complement (Nominative)	20(83.33%)	4(16.67%)	24	12	10.67	<.01	+

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Figure III has the statistics for the participial clauses. Of these the genitive absolute, the dative participle and the nominative aorist participle normally precede the verb. The remaining five modifiers, i. e. nominative present participle, nominative perfect participle, nominative future participle, accusative object participle and nominative participial complement normally follow their main verb. Here the higher percentages range from 58.02 to 100, the values of χ^2 from 5.82 to 204.71, all highly significant with associated probabilities from .01 to .001. Again there are no random types. Each participle has its own norm of ordering.

III. Examples of noun phrases

Vocatives

85,4. ὦνθρωπε, μὴ κτεῖνε Κροῖσον.

117,5. οὕτως ἔσχε, ὦ βασιλεῦ, περὶ τοῦ πρήγματος τούτου.

Subjects

11,3. ὁ δὲ Γύγης τέως μὲν ἀπεθώμαζε τὰ λεγόμενα.

23,- ἐτυράννευε δὲ ὁ Περίανδρος Κορίνθου.

Passive subjects

84,5. καὶ πᾶν τὸ ἄστυ ἐπορθέετο.

98,4. μεμηχάνηται δὲ οὕτω τοῦτο τὸ τεῖχος.

Equational subjects

92,3. ὁ δὲ Πανταλέων ἦν Ἀλυάττεω μὲν παῖς, Κροίσου δὲ ἀδελφεὸς οὐκ ὁμομήτριος.

122,3. ἦν τέ οἱ ἐν τῷ λόγῳ τὰ πάντα ἡ Κυνώ.

Manner adverbial[12])

76,4 καὶ τὰ μὲν στρατόπεδα ἀμφότερα οὕτως ἠγωνίσατο.

5,2 περὶ δὲ τῆς Ἰοῦς οὐκ ὁμολογέουσι Πέρσῃσι οὕτω Φοίνικες.

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[12]) The manner adverbial formed from the demonstrative pronoun often functions as a relator between two sentences (Dover 1960: 21) and is thus brought close to the front of the sentence.

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Indirect objects

71,4 *ἐγὼ μέν νυν θεοῖσι ἔχω χάριν.*

113,1 *τοῦτον μὲν παραδιδοῖ τῇ ἑωυτοῦ γυναικί.*

Direct objects

69,4 *πέμψαντες γὰρ οἱ Λακεδαιμόνιοι ἐς Σάρδις χρυσὸν ὠνέοντο.*

17,1 *τηνικαῦτα ἐσέβαλλε τὴν στρατιήν.*

Subjectival objects[13])

98,3 *τοὺς Μήδους ἠνάγκασε ἓν πόλισμα ποιήσασθαι.*

114,3 *ἐκέλευε αὐτὸν τοὺς ἄλλους παῖδας διαλαβεῖν.*

Instrumentals

195,1 *τὰς κεφαλὰς μίτρῃσι ἀναδέονται.*

64,2 *ταύτην ὁ Πεισίστρατος κατεστρέψατο πολέμῳ.*

Equational complements

80,6 *οὐ μέντοι οἵ γε Λυδοὶ τὸ ἐνθεῦτεν δειλοὶ ἦσαν.*

6,3 *πάντες Ἕλληνες ἦσαν ἐλεύθεροι.*

Figure IV has the statistics for the noun phrases. Here we find that seven phrase types, namely vocative, temporal phrase, subject, passive subject, equational complement, manner adverbial and indirect object normally precede the verb. The direct object, subjective object and instrumental are random.

Only the equational complement normally follows the verb.[14]) The higher percentages here range from 50.91 to 90.70, the values of χ^2 from 0.18 to 138.99 with associated probabilities from >.50 to <.001.

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[13]) The term "subjectival object" is used here to refer to an accusative object which stands in subject relation to an infinitive.

[14]) This result regarding the placement of the noun phrase in relation to the verb supports the conclusion of Kieckers (1911), Frisk (1923) and Delbrück (1911)–cited by Dover (1960: 25). Dover does not refer to the earlier work by Short (1870).

Figure IV: Noun Phrases in Relation to Main Verb

	Before	After	Total	Average	χ^2	Probability	Result
Vocative	39(90.7%)	4(9.30%)	43	21.5	28.49	<.001	–
Temporal Phrase	223(86.77%)	34(13.23%)	257	128.5	138.99	<.001	–
Subject	517(71.31%)	208(28.69%)	725	362.5	131.70	<.001	–
Passive Subject	45(69.23%)	20(30.76%)	65	32.5	9.62	<.01	–
Equational Subject	78(70.91%)	32(29.09%)	110	55	19.24	<.001	–
Manner Adverbial	84(65.12%)	45(34.88%)	129	64.5	11.79	<.001	–
Indirect Object	129(65.15%)	69(34.85%)	198	99	18.18	<.001	–
Direct Object	270(49.09%)	280(50.91%)	550	275	0.18	>.50	‖
Subjectival Object	37(44.05%)	47(55.95%)	84	42	1.19	>.10	‖
Instrumental	22(46.81%)	25(53.19%)	47	23.5	0.19	>.50	‖
Equational Complement	54(40.91%)	78(59.09%)	132	66	4.36	<.05	+

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Examples of prepositional phrases

Referential

5,2 περὶ δὲ τῆς Ἰοῦς οὐκ ὁμολογέουσι Πέρσῃσι οὕτω Φοίνικες.

197,- συμβουλεύουσι περὶ τῆς νούσου.

Agent

114,5 ὑπὸ τοῦ σοῦ δούλου, βουκόλου δὲ παιδὸς ὧδε περιυβρίσμεθα.

30,1 ἐξεινίζετο ἐν τοῖσι βασιληίοισι ὑπὸ τοῦ Κροίσου.

Sociative

59,6 συνεπαναστάντες δὲ οὗτοι ἅμα Πεισιστράτῳ ἔσχον τὴν ἀκρό-
πολιν.

61,2 ἐβουλεύετο ἅμα τοῖσι παισί.

Ablative

31,2 οἱ δέ σφι βόες ἐκ τοῦ ἀγροῦ οὐ παρεγίνοντο ἐν ὥρῃ.

81,- ἔπεμπε ἐκ τοῦ τείχεος ἄλλους ἀγγέλους.

Locative

194,3 ἐν ἑκάστῳ δὲ πλοίῳ ὄνος ζὼς ἔνεστι.

48,2 ἤψεε αὐτὸς ἐν λέβητι χαλκέῳ.

Allative

171,5 καὶ οὕτως ἐς τὴν ἤπειρον ἀπίκοντο.

42,1 ἄλλως μὲν ἔγωγε ἂν οὐκ ᾖα ἐς ἄεθλον τοιόνδε.

Figure V has the statistics for the prepositional phrase. Here five types, namely referential, agent, sociative, ablative and locative are indeterminate. There remains the allative which normally follows its leading verb. The higher percentages range from 51.28 to 77.56, the values of χ^2 from 0.08 to 47.41 with associated probabilities from >.30 to <.001.

Having reviewed the data and statistics we can now state our conclusions. These are summarised in Figure VI. Of a total of 36 modifiers tested statistically 12 (33.33%) normally precede their verbal

Figure V: Prepositional Phrases in Relation to Main Verb

	Before	After	Total	Average	χ^2	Probability	Result
Referential	14(56%)	11(44%)	25	12.5	0.36	>.5	=
Agent	3(27.27%)	8(72.73%)	11	5.5	0.73	<.30	=
Sociative	3(27.27%)	8(72.72%)	11	5.5	1.45	>.10	=
Ablative	24(47.06%)	27(52.94%)	51	25.5	0.18	>.70	=
Locative	57(48.72%)	60(51.28%)	117	58.5	0.08	>.30	=
Allative	35(22.44%)	121(77.56%)	156	78	47.41	<.001	+

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head, 16(44.44%) normally follow their head and 8(22.22%) are
indeterminate. Thus we have identified 28 statistical norms which
cover 77.77% of the data tested. From the viewpoint of modifier/
head placement the Greek sentence emerges as verbicentric, i.e. hav-
ing the verb at the centre with modifiers on either side.

Figure VI: Summary of Results

	Clause	Participle	Phrase	Prepositional Phrase	Total
Before	2	3	7	0	12((33.33%)
After	9	5	1	1	16(44.44%)
Random	0	0	3	5	8(22.22%)
Totals	11	8	11	6	36

So what can we say regarding Dover's claim that ancient Greek
has nothing "worth calling a syntactical rule of word order"? In fact
the 28 norms which we have identified are all of a syntactical nature
and determine the word order behaviour of a large sample, i.e. the
Greek text of Herodotus I. So Dover's view as he states it cannot be
fully sustained. On the other hand we must admit that in some of
the combinations tested modifier/head ordering has been shown to
be random. Given the inflectional structure of ancient Greek the
existence of some randomness in modifier/head placement is not
surprising. We conclude therefore, that although Dover's claim is
true in some respects it is misleading with regard to the general pic-
ture which has emerged from our research.

In summing up the results we must emphasize above all that
Greek word order is not a matter of absolute laws, but is, by its very
nature a statistical phenomenon.[15] It follows that Greek word order
must be investigated by statistical methods. These require formal
models. It seems reasonable to say, in the light of our results, that

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[15] The relevance of statistics to linguistic work is emphasised by Herdan
(1966: esp. V–VII).

the binary model, i.e. the modifier/head model, is useful and appropriate for the study of Greek word order. Certainly it has the advantage of simplifying a very complex problem. Whether other more complex models of stochastic processes are suitable for word order studies is a matter for further research.

Further statistical research on the word order of a range of Indo-European languages might also be expected to show if the word order of Greek is really freer than that of its cognates, e.g. Latin and Sanscrit.

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