INHALT
78. Band · 1.-4. Heft · 2002
(erschienen 2004)

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Verlag: Vandenhoek & Ruprecht GmbH & Co. KG, Theaterstraße 13, 37070 Göttingen.
Internat: www.vandenhoek-ruprecht.de
E-mail: info@vandenhoek-ruprecht.de (für Bestellungen und Abonnementsverwaltung)

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Word order in Greek stichic verse: subject, verb, and object

By BRUCE FRASER, Cambridge

Summary: The paper comprises an investigation of the order of the main sentence elements (subject, verb, and object) in Greek stichic verse, and includes the first published study of regular word order in tragedy. It is shown that regularities in order do not have a purely syntactic explanation, but have a correlation with word size and with prosodic prominence, which may reflect cognitive constraints. It is proposed that the same holds generally in ancient Greek.¹

The problem

The principal problem is to explain the high degree of consistency in Greek word order, while also accounting for the high level of variation. Ancient discussions mostly considered word order as an aspect of σύνθεσις (‘composition’), and concentrated on unusual orders rather than the norm.² Modern commentaries have identified a large number of regularities in order, but, in the absence of obvious structural causes, have usually attributed them to general communicational (‘pragmatic’) factors.³ Yet order is not the same in all languages, and Greek word order changed over time, so general explanations are likely to miss many grammatical details.

¹ Thanks are offered, for their help and for comments on aspects of the argument, to Professors Geoffrey Horrocks, James Diggle, Sir Kenneth Dover, Richard Hunter and Brigitte Bauer.
² As Aristotle (Rh.), Cicero (Or.), Dionysius of Halicarnassus (Comp.), and Quintilian (Inst.). See the surveys by Denniston (1952), Scaglione (1972) and Dover (1997).
³ The term ‘pragmatic’ is used in this paper in its linguistic rather than philosophical sense (see Lyons 1977, 114ff.).
The approach

Word order patterns are considered in terms of morphology and prosody as well as syntax. As prosodic structure is especially visible in verse, the paper undertakes a study of word order in a corpus of poetic texts, and the results are compared with two prose texts, and with earlier studies of prose order.

Firstly, syntactic structure is investigated by collating finite clauses by type, and looking for correlations with order. This approach links the structural with the stylistic (since the choice of clause type is, clearly, entirely within the control of an author). Secondly, word structure is investigated, by analyzing whether there is a correlation between order and the size of the words, measured by number of syllables.

Principal findings

1) In clauses with subjects, the ordering of subject and verb is very similar in trimeters, hexameters and prose. The figures accord with those in previous studies (of prose), both in the prevalence of SV (averaging 71% of SV+VS), and also the frequency of variation from it.

2) Verb and object order is more evenly balanced, with OV constituting 60% of OV+VO, but again there is no consistent difference between poetic and prose texts, so metre appears to have no visible effect on order.

3) No syntactic rule captures both the regularities and the variations from them. Neither clause type nor clause order has a discernable effect on word order, which is comparable in main and subordinate clauses of all types. A principle of verb centrality is considered, but no support is found for it. No syntactic constraints on order are observed.

4) There is, however, a strong tendency for pronominal subjects to precede the verb, and there is a correlation between the frequency of pronominals in each clause type and subject and verb order.
5) The relation between pronominals and order appears to constitute a special case of a tendency for longer words (judged by number of syllables) to be placed later in the clause. As nouns, too, are usually shorter than verbs, this gives a high level of SV and OV.

6) Short words which are, contrary to (5), placed to the right are associated with prosodic prominence. VS normally, and VO often, has a prosodically prominent pronoun or noun, typically a disyllabic word ending the poetic line. VO appears to have an additional syntactic cause, that the governing word tends to precede the governed.

*The organization and argument of the paper*

The paper is organized in four parts. In the first, a brief historical survey of the study of Greek word order is given, in order to present the context to the discussion. In the second, a study of subject, verb and object order in a corpus of poetic texts is undertaken, and possible syntactic explanations for the regularities and variations are explored. In the third part, it is shown that the order of subject, verb and object has a correlation with word size, and to some extent with prosodic stress. The fourth part of the paper proposes an explanation for these correlations, based on a tendency for rightwards ‘weight’, as originally proposed by Behaghel (1909), but also taking into account prosodic patterns.

*Part 1: Previous approaches to word order*

*Ancient grammarians*

Ancient writers paid most attention to compositional techniques by which word order may be manipulated, and less to the nature of a regular order. This is presumably, as Matthews (1994, 101) notes, due to a separation between grammar and rhetoric: σύνθεσις was primarily a rhetorical concern. Some
grammarians mentioned a natural order, but appear to have thought it purely hypothetical: Dover (1960, 9) cites Dionysius of Halicarnassus (Comp. 5) as thinking that there was a natural criterion, τὰ ὀνόματα τάττειν πρὸ ῥήματων (to put nouns before verbs), because substance should precede accident, and yet also (at Comp. 5.17-18) as judging against the rule as a guide to style (in syntax which implies its argument):

πιθανὸς ὁ λόγος, ἀλλ’ οὐκ ἀληθὴς ἔδοξεν εἶναι μοι
The argument [is] persuasive, but did not seem correct to me.

Similarly, Demetrius (Eloc. 199-200) considered there to be a natural order, φυσικὴ τάξις, with what might be defined as the element expressing the topic, τὸ περὶ οὐ, preceding. And similarly, he introduces a note of caution:

γίγνοιτο μὲν οὖν ἂν καὶ τὸ ἔμπαλιν ... οὐ γὰρ πάντη
taǔtην δοκιμαζομεν τὴν τάξιν. Of course the opposite might occur ... we do not absolutely approve the one order.

Cadence and rhythm were also cited as important to the meaning of the Greek clause: Dionysius (Comp.) believed composition to be based on stylistic principles of rhythm and period, and Cicero (Orat. 54) cites ‘numerus’ as the crucial factor. Yet these are open to a wide range of interpretations, as analyses of the opening of the Republic by ancient and modern writers illustrate\(^4\). In Eloc. 21, Demetrius describes the opening sentence as a dialogic period in which the elements show little regularity, ἐπέρριπται γὰρ ἀλλήλοις τὰ κόλα ἐφ᾽ ἐτέρῳ ἐτέρων (for the members are flung each upon the other). Later (Eloc. 205) he describes the opening as composed of τριμέτρα κόμματα, and makes a general link between the structure

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\(^4\) The passage is from Pl.R. 327A: Κατέβην χθές εἰς Πειραιᾶ μετὰ Γλαύκωνος τοῦ Ἀρίστωνος προσευχόμενος τῇ θεῷ ... 'I went down yesterday to the Piraeus with Glaucon the son of Ariston to make my prayers to the goddess ...'
of ἵσχυσσες χαρακτήρ (the plain style) and the iambic line. Quintilian (Inst. 8.6.62-65) attributes the choice of order of the first four words (from order ‘ad necessitatem’) to rhythm, as ‘Nec aliud potest sermonem facere numerosum quam opportunata ordinis permutatio’ (it is impossible to make our prose rhythmical except by artistic alterations in the order of words). Weil (1869, 57) categorizes the passage as a ‘descending construction’, in which governing words precede the governed (a principle which is considered further in Part 4 below). Denniston (1952, 41) analyses the first eight words as composing two equal commata (κατέβην χθες εἰς Πειραιᾶ / μετὰ Γλαύκωνος τοῦ Ἀρίστωνος), of which the first has a symmetrical pattern of two monosyllables flanked by trisyllabic words.5

Few general structural principles of composition were proposed by ancient writers. The only generalization which was implied (though not always stated) was a link between government and proximity. This was usually discussed in terms of the exceptions. Hyperbaton is mentioned or described by a number of ancient authors: in Prt. 339B - 343E, Plato has Socrates develop an argument based on the possibility that the adverb ἀλαθέως in the sentence (from an ode by Simonides) ἄνδρι ἀγαθῶν μὲν ἀλαθέως γενέσθαι χαλεπῶν (it is [...] hard for a man [...] to become [truly] good) is an example of hyperbaton, being ὀρθῶς ἐπὶ ἐπιχάτῳ κείμενου (properly placed at the end). He does not define the meaning of ὀρθῶς, but it presumably implies a relation between sense and the proximity (or adjacency) of the words.6

Other discussions of composition make the same assumption of proximity. Philodemus (Rh. 1.160S) considered that the

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5 One might also note a rhythmic contrast, in the syllabic inequality of the commata, which creates a sense of acceleration.
6 On hyperbaton, see also Aristotle (Rh. 1407a26ff.), Longinus on the Sublime 22, Dionysius of Halicarnassus (Th. 31.27, 52.22), Quintilian (Inst. 8.6.62-65), and Philodemus (Rh. 1.160S).
interval between phrasal elements must not be too great, but again order was not mentioned. In *Rh.* 1407a26-30, Aristotle described a sentence in which εγώ is separated from its verb by too great an interval as δοσαφες (unclear), on the grounds of correct ordering of protasis and apodosis, and of proximity between subject and verb.

A distinctive poetic word order was not mentioned. Dover (1997, 96-112) describes how ancient rhetoricians and grammarians generally distinguished poetry and prose not by order but by lexical choices and stylistic features such as absence of the article and of prepositions with locative datives, and the use of attributive and compound adjectives (though Dover observes that such features also appear in prose).  

*Modern interpretations*

In the twentieth century, increased interest in basic linguistic structure led to the relative order of subject, verb, and object receiving particular attention. What was universally agreed is that the subject normally precedes the verb: Frisk (1932, 14), Denniston (1952, 43) and Dover (1960, 25) all describe SV as the normal order in classical Greek prose. However, there is also a high level of variation: in selected passages of prose texts, Frisk (1932, 16) finds SV levels to vary by 23% (between 64-87% of the [SV+VS] totals, though if only the classical texts are considered, the range is rather smaller: 71-87=16%). The normal order of object and verb was usually considered to be OV, though an influential contrary view is discussed below.

Variations were generally considered to be stylistic rather than syntactic features, as by Denniston (1952, 44), since ‘The grammatical order of precedence is modified at every turn by the claims of logical coherence and of rhetorical emphasis: and

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7 The crucial distinction may rather be that between sung and spoken language: see Dover (1987, 1-15). For the use of λόγος and its variants to identify prose, see Dover (1997, 185-6).
these factors, again, at every turn conflict with one another'. Denniston analyses that conflict in terms of hyperbaton, period structure and proportion, different types of antithesis (anaphora, chiasmus), and the repetition of words. Variation is explained as 'a love of pattern-weaving for its own sake', which Denniston (1952, 59) attributes to Plato.

**Pragmatic explanations**

Dover (1960, 67) notes a similar 'desire to achieve variety' in Herodotus. However, Dover also suggests a number of general communicational principles, in a systematic analysis of the interaction between logical, syntactic, and stylistic determinants of word order in three prose texts (Herodotus 3, Lysias 12, and Plato, *Laws*), in which words are categorized as prepositives, postpositives, or as mobile. The proportions of SV out of total subject and verb clauses in Dover's texts are: Hdt. 3, 59%; Lys. 12, 83%; Pl.Lg., 74%.\(^8\) Dover (1960, 41ff., 65) identifies a general logical principle (elements essential to the sense, 'nuclei', tend to precede optional ones, 'concomitants'), and four productive syntactic 'models' encouraging SV and OV:

1) Demonstratives are preferentially prepositive (so precede the verb, whether they are subject or object), even though they may be concomitants.

2) Dispensable subjects may be expressed through the verb inflection, while nominal subjects are usually essential to the sense (and so, by the general principle, precede).

3) Verbs used as copulatives are rarely initial, and this provides a model for other verbs.

4) The pattern S=nucleus > V=concomitant provides a model for SV generally.

All Dover's four models motivate SV, while only 1 and 3 encourage OV, so there is a stronger motivation for SV than for

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\(^8\) The percentages given here are computed from the totals given by Dover (1960, 29).
OV (which is supported by the textual observations described below). The models combine structural and pragmatic criteria: subject-first is in Dover’s system partially motivated by the textual context, while verb and object order is purely a feature of clause structure. The categorization of words as nucleus or concomitant is based on predictability, judged from the context, so is analogous to the logical model of comment and topic, but makes a rather different prediction (since not every indispensable element is a topic). The subtility of Dover’s system lies in its mixture of pragmatic and structural factors, but his suggestion of a historical process by which syntactic regularities superseded logical principles does not fully explain the observed change in order from verb-last to object-last.

One purely pragmatic analysis of Greek order has been undertaken, by Dik (1995), who investigates whether the order of subject, verb and object (or a prepositional phrase) is explicable in terms of topical and focal functions. The discussion provides the first use of substantial passages (from Herodotus) to examine possible relationships between textual context and sentence style. The pragmatic model does not, as Dik candidly admits, explain all variations, and the restricted sample (of only main clauses which have 3 terms) reduces the scope of the conclusions: the most Dik (1995, 257) claims is that ‘on balance the outcome is certainly favourable for a pragmatic approach’.

However, while such approaches may demonstrate some aspects of authorial style, their power to explain regular order is less certain. It is unlikely that the position of a word within the clause simply reflects its function with respect to the surrounding text: new information may be postponed because it is most difficult to process, as suggested by Behaghel (1929), but it is equally plausible that urgent information is placed early

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9 On the origin of the topic and comment model, see Hockett (1958, 201), Li (1976), and Lyons (1977, 503). For the distinction between nucleus and concomitant, see Jespersen (1924).
(Givón 1983, 20). Nor are clauses necessarily packaged in predictable (‘known’) or ‘new’ components: textual relevance and coherence are not always expressed explicitly, but may simply be implied.\(^{10}\) As Dover (1960, 38) notes, the opening sequence of the Republic has no clearly thematic element.\(^{11}\) One might, then, expect it to have irregular order, but it has, on the contrary, usually been cited as a particularly fine example of word ordering (as by the authors cited above). Consequently, although pragmatic influences on order are very likely (because all languages are, presumably, structured to maximize communicational effectiveness), they leave unexplained many details of structure.

**Structural explanations**

On the other hand, purely clause-internal analyses have difficulty in explaining variations in order. The relative position of verb and object has proved especially troublesome. In a corpus of historical and gospel texts, Kieckers (1911) identified a tendency for the verb to be central in its clause. However, this *Mittelstellung* is only a rough tendency: in his texts the position of the verb relative to the predicate varies by up to 38%.\(^{12}\) And most other studies have proposed a contrary order: Ammann (1922, 1924) identified a prevalence of OV order in Homer, as did Fischer (1924) in a selection of prose, inscriptions and Homeric texts.\(^{13}\) Frisk (1924, 28) finds that not until Polybius

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\(^{10}\) See Strawson (1952), Karttunen (1973), and Grice (1989).

\(^{11}\) It is another question whether the first sentence of a text can contain a thematic element at all: compare Horrocks (1983, 103) and Philippaki-Warburton (1985, 125-7).

\(^{12}\) The percentages of central verbs are (computed from the totals of Kieckers 1911, 5): Hdt. 58%, Th. 52%, X. 56%, Plb. 71%, Matt. 47%, Mark 51%, Luke 37%, John 33%, Theophanes 57%.

\(^{13}\) However, Friedrich (1976) notes that in Fischer’s Homeric sample, from *Il.* 5.515-909, there is a difference between main and subordinate clauses: of 216 main verbs, 89 = 41% precede an object, while of 61 subordi-
do VO constructions outnumber OV, so verb centrality appears to be a feature of late rather than classical Greek.\textsuperscript{14} Moreover, the high level of variation appears to preclude any simple explanation.

The general problem of variation in Indo-European languages has been most influentially addressed by Greenberg (1963a), who proposed that order can be modelled as a nexus of interrelations between word and clause order, in which elements (whether words or clauses) are categorized as either head or modifier, and their relative order is unified in a system of implication (for example: if adjective before noun, then also dependent genitive before noun, relative clause before main, and also OV).\textsuperscript{15}

Although these inter-dependent ‘parameters’ have become the common currency of comparative analyses, the model has been applied to early Greek in only two published studies. Friedrich (1975) uses it in a small Homeric text-base to test the evidence for SOV as the basic order of early Indo-European (as proposed by Delbrück 1900 and generalized by Lehmann 1973).\textsuperscript{16} In his sample, relative clauses almost always follow their main clauses (92% in \textit{Il.} and 97% in \textit{Od.}), and (in 2-term clauses) SV and OV are more common than VS and VO.\textsuperscript{17}

\textsuperscript{14} Frisk’s percentages for OV are: Hdt. 66%, Th. 70, X.\textit{An.} 65, X.\textit{Hell.} 56, Pl. 74, Antipho 67, Lys. 84, D. 73, Plb. 40, Plu. 65, Philostr. 62, Matt. 15, Mark 22, Luke 19, John 16, Acts 14%. On the change from OV to VO, see Taylor (1994).

\textsuperscript{15} The head may be defined as the governing element, and a modifier a governed element.

\textsuperscript{16} His sample comprises passages from \textit{Il.} 1, 5 and 9, and citations from grammars by Schmidt (1885), Monro (1891), Cunliffe (1924), and Chantraine (1958, 1963).

\textsuperscript{17} The figures are (of 195 clauses from \textit{Il.} 5.1-296): 26 SV, 35 OV, 9 VS, and 25 VO. He also claims that OV is more common in subordinate clauses. It is not clear whether he means ‘more common than in main clau-
However, in clauses with 3 terms, SOV is only slightly more common than SVO. Friedrich concludes that there is no convincing evidence for either as a basic Homeric order.

Dunn (1988) uses a Greenbergian model of dependence to test the validity of verb centrality. In an analysis of Herodotus 1, he finds that subjects of finite verbs precede their verb with approximately the same frequency (71.31% of total [SV+VS]) as do indirect objects and manner adverbs, while direct objects precede or follow with nearly equal frequency. The SV figures differ somewhat from those in the prose texts studied by Dover (1960), being higher than Dover's figure for Hdt. 3 and lower than the figure for Lysias 12, but are close to those in the poetic texts studied here.

Dunn observes three strong regularities in clause order:
1) Finite subordinate clauses normally follow the main, except for temporal and conditional clauses, which generally precede.
2) Participial constructions usually follow the main, except for genitive absolute, datives, and nominative aorists.
3) Noun phrases usually (though by no means always) precede the verb.

The regularities in clause order are much stronger than those in word order: percentages are typically in the 80s or 90s, and even the most variable (relative clauses and infinitives) have a regularity in the 70s. Consequently, a unification between clause order and word order is not achieved. Dunn's conclusion (1988, 78) is that, since 33.33% of the modifiers tested normally precede the verb, while 44.44% follow, this demonstrates that 'from the point of view of modifier/head placement the Greek sentence emerges as verbicentric, i.e. having the verb at the

ses' or 'more common than VO'. The frequencies observed in this paper agree with both.

18 Friedrich's totals are: SOV 28, SVO 25, OVS 28, OSV 18, VOS 1, VSO 1.

19 Those functioning as complements of copula verbs follow, while objects, instrumental datives, and accusatives functioning as subjects of infinitives, all show random ordering.
centre with modifiers on either side. That conclusion exceeds the evidence, which shows only that some verbal modifiers precede the verb and some follow, but does not address their cooccurrence. Further, the variations remain to be explained (Dunn does so in terms of stylistic markedness). The goal of a systematic explanation remains elusive, and statistical analysis provides only a stepping-stone to it.

Prosodic approaches: second position

The possibility remains that word order may reflect prosodic features. It has long been noted that small enclitic words (Dover’s ‘postpositives’) regularly stand in second position, following a larger, more prominent, word; and since Wackernagel (1892) this placing has been considered to be a prosodic as well as a grammatical feature (though the initial element has always been analyzed in pragmatic terms). Although Dover (1960, 12-19) lists the principal postpositives and discusses their placing, and Dik (1995, 31-51) considers their possible functional roles, the clause start has normally been considered separately from the rest of the clause. Yet it is likely that not only second position, but the whole clause, may have a prosodic dimension.

Word order, rhythm and metre

Because prosodic features are most visible in poetry, a study of poetic order should be well placed to determine the existence of correlations between prosody and intra-clausal word order. However, though Homeric samples have been used in investigations of regular order (cited above), studies of poetic

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20 To explain variations in these terms, with unusual order being emphatic, can be circular: as Dover (1960, 5-6) notes, the regularity of an emphatic position at or near the start of the classical Greek clause shows that there is no parallel between ‘regular’ and ‘unemphatic’.
order have generally concentrated on unusual patterns, and no comparison between order in poetry and prose has been undertaken.\textsuperscript{21}

As noted above, they were usually distinguished by the ancient grammarians by lexical differences, and metre was not simply contrasted with prose rhythm: although Aristotle (\textit{Rh. 1408b21-2}) considered that \textit{τὸ δὲ σχῆμα τῆς λέξεως δεῖ μήτε ἐμμετροῦν εἶναι μήτε ἀρρυθμοῦν} (the form of [prose] diction should be neither metrical nor arrhythmic), his descriptions of iambic rhythm as \textit{μάλιστα λεκτικόν} (the best for speech - \textit{Po. 1449a24-5}), and \textit{ἡ λέξις ἡ τῶν πολλῶν} (the language of the many - \textit{Rh. 1408b19-20}) assume the existence of metrical patterns in prose. He also described the paeon as the best rhetorical rhythm (\textit{Rh. 1409a8-9}):

\begin{quote}
\textit{ἀπὸ μόνου γὰρ ὦκ ἔστι μέτρου τῶν ὑπεύντων ῥυθμῶν, ὡστε μάλιστα λαυθάνειν. ... for alone of the rhythms mentioned, it is the only one without metre, so most easily undetected.}\textsuperscript{22}
\end{quote}

This implies that the iambic rhythm is, by contrast, visible. Aristotle's objection to visible metre is that it creates predictability,\textsuperscript{23} but he seems to allow this in ordinary speech (in view of \textit{Po. 1449a24-5}).

The attribution of appropriate rhythms to different speech genres assumes a close link between prose rhythm and metre.\textsuperscript{24} There is, in fact, no reason to believe that poetic language is based on different prosodic principles to prose. Devine and

\textsuperscript{21} Only Goodell (1890, 47) has suggested comparing poetic with prose order.

\textsuperscript{22} The paeon may be defined as a cretic (- v -) with either long syllable resolved (Aristotle, \textit{Rh. 1409a10-21}, notes the contrasting effects of initial and final resolution). I am grateful to Professor Diggle for pointing out the felicitous rhythm of the citation (\textit{ἀπὸ μόνου} is a paeon).

\textsuperscript{23} Arist.\textit{Rh. 1408b21-26}.

\textsuperscript{24} Dover (1997, 160-182) demonstrates that the existence of explicit metrical sequences in prose has a correlation with identifiable literary styles.
Stephens (1994, 100-1) argue that ‘The rhythms of Greek verse are simply more highly constrained versions of rhythms already existing in Greek speech ... The basic principles of the two rhythmic systems are the same’.\textsuperscript{25} This does not imply that poetic and prose order will necessarily be the same: metre may constrain word placing, yet metrical patterns simply represent ‘a stylization or normalization of the natural rhythm of language’.\textsuperscript{26}

Metre does not, in practice, seem to have a highly constraining effect on word order (as demonstrated below). Denniston (1952, 57) considers that ‘it is the most difficult thing in the world to point to any Greek which may be regarded as „natural” ... Probably parts of Aristophanes are the best examples of spoken Greek. Certainly the metre must have had some influence on the word-order: but, as far as one can see, not much.’ Bers (1984, 12), also citing Aristophanes as attesting colloquial Attic usage of the late fifth century, considers versification ‘must have caused at least some divergence from everyday language’, but points out that this itself varies.

The study of poetic texts may, then, reveal underlying motivations for word order which are generally applicable. To test this hypothesis, subject, verb and object order in a corpus of poetic texts is examined and compared with prose order, in Part 2 of this paper.

\textit{Part 2: The textual study of poetic word order}

\textit{Scope}

The text-base is chosen so as to concentrate on tragedy, yet also to identify differences with comedy, epic and prose.

\textsuperscript{25} This assumption is also made by Allen (1987, 132), and Liberman and Prince (1977), and is implicit in the word groups discussed by Dover (1960, 17).

\textsuperscript{26} Allen (1987, 132), quoting Meillet.
Complete texts are selected (as by Dover 1960), rather than a large number of shorter passages (as by Frisk 1932),\textsuperscript{27} in order to observe larger-scale discourse patterns as well as syntactic detail. Ten books of poetry, comprising 11,343 poetic lines, are chosen, together with two prose texts as controls: \textit{Il.} 9, \textit{Od.} 9, \textit{A.Th.}, the \textit{Oresteia}, \textit{S.OT}, \textit{E.Med.}, \textit{Cyc.}, \textit{Ar.Ra.}, Th. 5. 85-113 (the Melian Dialogue), and \textit{Pl.Cr.}

This corpus does not fulfil the (impossible) role of a ‘representative sample’, but is rather intended to provide the most varied one. It includes the only extant trilogy, one tragedy by Sophocles and one by Euripides, and the only complete extant satyr play. \textit{Septem} is included in order to determine whether the unusual features of word order observed in the \textit{Oresteia} reveal a general trait of Aeschylean style. \textit{Frogs} is chosen as the comedy because it combines informal style with parody of tragic language, which may demonstrate how the high style was seen at the time.

\textit{Methodology}

1) Main and subordinate clauses are defined semantically, with no assumption of structural subordination: all finite clauses having an explicit dependency relation to another (including even clauses with γάρ) are categorized as subordinated.

2) Non-finite clauses are not included (even when functioning as objects of a finite verb). The inter-textual variations in their number may be inferred from the ratio of finite clauses to the number of lines. On average, there is one finite clause for every 1.5 lines in the poetic works, though in most texts the frequency is about 1.2: it is particularly low in Aeschylus.\textsuperscript{28}

\textsuperscript{27} Frisk’s data on verb and object order in Herodotus are taken from Bk. 1. 6-36, 2.151-176, 3.118-141, 4.118-142, 5.82-102, 7.1-9 & 121-137, 8.113-144, so comprising about 200 sections.
3) Clauses with hyperbaton about the verb by object or subject, as *Eu*. 676: ἡμῖν μὲν ἡδη πᾶν τετόξευται βέλος (for our part, every arrow has now been shot), are not included in the figures. Few clauses have SVS hyperbaton, though there is a relatively high level of SVS in Homer, and also in *OT* subordinate clauses. A rather larger number have OVO hyperbaton.\(^{29}\)

4) Figures are given with accompanying (arithmetical mean) percentages, in order to facilitate inter-textual comparison. In the interest of clarity, percentages (other than those cited from other works) are rounded to the nearest integer. No level of statistical significance is set, because variations are so high.

5) For reasons of space, textual illustration is generally omitted.

*Subject and verb order*

The majority of clauses do not have explicit subjects, so subject and verb order is effectively a minor feature: the average proportion of finite verbs with explicit subjects is 33% in main clauses, with the Homeric texts and the Melian Dialogue having the highest proportion (over 50%), while *Ar.Ra.* has the lowest (18%).\(^{30}\) The percentage of subordinate clauses with explicit subjects is comparable, at 31%. *A.Th.* has the highest proportion, at 50%, and *S.OT* the lowest, at 21%.\(^{31}\) The figures

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\(^{29}\) SVS totals are: *Il*. 9 (Main 19, Subordinate 5), *Od*. 9 (13, 9), *A.Th.* (11, 3), *Oresteia* (32, 11), *S.OT* (9, 18), *E.Med* (10, 4), *Cyc.* (1, 0), *Ar.Ra.* (5, 1), *Th.* (5, 0), *Pl.Cr.* (0, 0). See Foucault (1964), Conrad (1990) and Fraser (1999, ch.3) for discussions of OVO hyperbaton.

\(^{30}\) The figures are: Th. 5.85-113 (32 of 59 main verbs = 54%), *Od*. 9 (174 of 330 = 53%), *Il*. 9 (174 of 374 = 47%), *A.Th.* (205 of 566 = 36%), *Oresteia* (545 of 1712 = 32%), *S.OT* (180 of 731 = 25%), *E.Med.* (182 of 806 = 23%), *Pl.* (70 of 304 = 23%), *E.Cyc.* (96 of 452 = 21%), *Ar.Ra.* (174 of 796 = 18%).

\(^{31}\) The figures are: *A.Th.* (54 of 108 = 50%), *Od*. 9 (59 of 150 = 39%), *Oresteia* (189 of 519 = 36%), *Pl.Cr.* (71 of 207 = 34%), *Il*. 9 (73 of 239 =
demonstrate that the likelihood of an explicit subject does not depend on genre, and show that there is little difference in the probability of either main or subordinate clauses having subjects.

In clauses which do have explicit subjects, the average percentage of SV (of [SV+VS]) is 71%, with quite modest variation (11%, between 65-76%, apart from the Melian Dialogue). The figures are, from high to low, Melian Dialogue 88%, Od. 76%, Ra. 76%, Cyc. 75%, OT 72%, A.Th. 71%, Ag. 70%, Il. 69%, Crito 66%, Med. 65%, Eu. 65%, Ch. 65%. These figures are very similar to those previously determined for prose, including Dunn’s average for Herodotus I (71.31%), Dover’s for Pl.Lg. (74%), and Frisk’s figure of 76%.

A division into main and subordinate clauses does not change the figures significantly. Main clauses comprise 1,710 of 2,437 [SV+VS] clauses=70%\(^{32}\). The proportion of SV of [SV+VS] is 72% in main clauses and 69% in subordinate clauses, although there is considerable variation\(^{33}\). VS is slightly more common in subordinate clauses (31% of [SV+VS]) than in main (28%).

The similarity between Crito (66% SV) and the poetic texts (and Dunn’s figure for Hdt. 1), the different frequencies of the Melian Dialogue, and the variations in Frisk’s and Dover’s prose texts (23% and 24%), all show that genre cannot be an absolute determinant of order: there is a constant tendency for the subject to precede its verb, yet there is also a high level of variation.

\(^{31}\)%, Melian Dialogue (19 of 73 = 26%), E.Med. (86 of 361 = 24%), Cyc. (31 of 137 = 23%), Ar.Ra. (86 of 380 = 23%), S.OT (111 of 519 = 21%).

\(^{32}\) This figure varies in the poetic texts by 14% (between 65 and 79%), while the prose texts have a significantly higher proportion of subordinate clauses. The proportion of main clauses is, from high to low, A.Th. (79% of total [SV+VS]), Od. 9 (77%), E.Cyc. (75%), Oresteia (74%), Il. 9 (70%), E.Med. and Ar.Ra. (67%), S.OT (65%), Melian Dialogue (55%), Pl.Cr. (54%).

\(^{33}\) Il. 9 (67% main, 74% subordinate), Od. 9 (78, 80), A.Th. (71, 73), Oresteia (73, 52), OT (71, 74), E.Med. (63, 71), Cyc. (76, 71), Ar.Ra. (77, 73), Melian Dialogue (91, 84), Pl.Cr. (52, 76).
Nor does word order in lyric passages appear to be significantly different. Lyric sections of the *Oresteia* do show higher levels of VS:

*Ag.*: SV 176 (of which 57 lyric: 32%), VS 52 (of which 30 lyric: 58%)
*Ch.*: SV 103 (of which 36 lyric: 35%), VS 50 (of which 23 lyric: 46%)
*Eu.*: SV 100 (of which 31 lyric: 31%), VS 37 (of which 15 lyric: 41%)

A possible reason is that the verb is regularly preposed. VS often appears in constructions which express a general statement, as at *Ch.* 637, where the early placing of the verb emphasizes the general application of the maxim:

σέβει γὰρ οὕτις τὸ δυσφιλὲς θεοῖς.
... for none reveres the thing detested by the gods.

Alternatively, a subject followed by an apposed phrase may be postponed to increase textual cohesion, as at *Ag.* 385-6:

βιάται δ’ ἀ τάλαινα Πελθώ,
προβοῦλον παῖς ἀφετος Ἀτας...
Relentless persuasion compels (him),
unbearable child of forward-planning ruin ...

However (at least in the *Oresteia*), the effect appears mostly in main clauses: there is no higher proportion of subordinate VS in lyric sections, and most subordinate VS is not in lyric, as shown below:

Subordinate clauses

*Ag.*: SV 49 (of which 15 lyric: 31%) VS 41 (of which 15 lyric: 37%)
*Ch.*: SV 21 (of which 4 lyric: 19%) VS 20 (of which 8 lyric: 40%)
*Eu.*: SV 28 (of which 14 lyric: 50%) VS 30 (of which 7 lyric: 23%)

In the *Oresteia*, then, VS is associated with subordinate clauses in stichic metres, and with main clauses in lyric. On the other hand, in *Medea*, a high level of VS in main clauses (noted below, as 64 of 88 total VS = 73%) is only slightly higher in
lyric (12 in 241 = 1 per 20 lines) than in stichic metres (52 in 1178 = 1 per 23 lines). A high proportion of main clause VS in Crito (also noted below) again shows that VS is not only a feature of lyric. Again, genre does not appear to be a statistically significant determinant of subject and verb order: these differences cannot be due to metrical constraint. The motivation must be either structural or stylistic.

*Variations from the 70/30 ratio of SV/VS*

Order is, then, similar in main and subordinate clauses, with variations at a generally comparable level, and VS is always less common than SV (except in subordinate clauses in A.Eu., where it constitutes 55% of [SV+VS]). However, there are three extreme variations:

1) There is a near absence of VS order in the Melian Dialogue, in both main and subordinate clauses. This appears to be a consequence of the early placing of subjects, and postponement of verbs to the end of the sentence: subordinate clauses are usually placed centrally. The resulting separation of subject and verb may be described as a form of hyperbaton.\(^{34}\)

2) There is a high proportion of VS in subordinate clauses in the Oresteia, constituting 48% of total [SV+VS] subordinates. Of the 513 [SV+VS] main clauses, 372 = 73% have the subject first, while in the 178 [SV+VS] subordinate clauses only 93 = 52% do (if the 34 with relative pronoun subjects are discounted).\(^{35}\)

3) There is an equally high proportion of VS in main clauses (48% of [SV+VS]) in Crito, together with a rather high proportion of SV in subordinate clauses: 76%. This shows that

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\(^{34}\) Aristotle’s strictures (*Rh.* 1407a26ff.) against such a pattern are noted above.

\(^{35}\) SV and VS are therefore nearly equal: 93 and 85. If clauses with relative pronoun subjects are included, the proportion of subordinate SV precisely matches the corpus average (71%).
VS is not simply a poetic trait, and is not only a feature of subordinate clauses.

A model of word order must be able to explain these large variations.\textsuperscript{36} Even if all are attributed to authorial choice, it should be possible to identify the associated structural details. Possible syntactic explanations are explored next.

\textit{Possible syntactic explanations for variations}

\textit{Clause type}

A constant difference in order between main and subordinate clauses would be structurally significant, since the subordinate order is often held to be the basic one: Frisk (1932, 38-39) believed that Greek relative clauses are ‘frei von Affekten’, and so demonstrate ‘natürliche Wortfolge’, and Kiparsky (1995, 162 n.2) describes this as a cross-linguistic rule.\textsuperscript{37} However, the opposite view has also been proposed: Denniston (1952, 43) considers that ‘order in subordinate clauses is particularly subject to influence from the context.’ As noted above, the texts studied here show no regular difference between word order in main clauses and subordinates (grouped as a whole).

The possibility remains that differences might be found in some particular type of clause. In the corpus texts, variations in types of subordinate clauses do not correlate with variations in subject and verb order. The results are summarized below in Table 1 (where it may be seen that the vast majority of subordinate clauses do not have explicit subjects):

\begin{table}
\end{table}

\textsuperscript{36} They are matched by the variations in the prose studies cited above, where $SV = 71$-87\% (Frisk 1932, 16), 59-83\% (Dover 1960, 29), and, for Herodotus, 74.1\% (Frisk), 59\% (Dover), and 71.3\% (Dunn).

\textsuperscript{37} It is most clearly so in German: see Bach (1962), and later work surveyed by Zwart (1997).
Subordinate SV of [SV+VS] (with total numbers of each type given first in brackets)

<table>
<thead>
<tr>
<th></th>
<th>Adverbials</th>
<th>Relatives</th>
<th>Conditionals</th>
<th>Complements</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Il. 9</em></td>
<td>(113) 26 of 41=63%</td>
<td>(77) 15 of 15=100%</td>
<td>(30) 9 of 13=69%</td>
<td>(11) 1 of 2=50%</td>
</tr>
<tr>
<td><em>Od. 9</em></td>
<td>(85) 25 of 35=71%</td>
<td>(37) 5 of 7=71%</td>
<td>(14) 5 of 5=100%</td>
<td>(1) 1 of 1=100%</td>
</tr>
<tr>
<td><em>A.Th.</em></td>
<td>(53) 25 of 31=81%</td>
<td>(31) 3 of 7=43%</td>
<td>(13) 8 of 8=100%</td>
<td>(9) 3 of 5=60%</td>
</tr>
<tr>
<td><em>Oresteia</em></td>
<td>(310) 68 of 133=51%</td>
<td>(84) 9 of 18=50%</td>
<td>(75) 14 of 25=56%</td>
<td>(21) 8 of 13=62%</td>
</tr>
<tr>
<td><em>S.OT</em></td>
<td>(247) 42 of 64=66%</td>
<td>(129) 21 of 23=91%</td>
<td>(84) 13 of 14=93%</td>
<td>(53) 3 of 5=60%</td>
</tr>
<tr>
<td><em>E.Med.</em></td>
<td>(182) 41 of 53=77%</td>
<td>(86) 7 of 8=88%</td>
<td>(45) 11 of 18=61%</td>
<td>(43) 4 of 7=57%</td>
</tr>
<tr>
<td><em>Cyc.</em></td>
<td>(70) 13 of 15=87%</td>
<td>(35) 2 of 6=33%</td>
<td>(16) 3 of 3=100%</td>
<td>(16) 3 of 4=75%</td>
</tr>
<tr>
<td><em>Ar.Ra.</em></td>
<td>(199) 42 of 56=75%</td>
<td>(83) 12 of 20=60%</td>
<td>(58) 7 of 8=88%</td>
<td>(38) 5 of 6=83%</td>
</tr>
<tr>
<td><em>Melian D.</em></td>
<td>(27) 9 of 11=82%</td>
<td>(18) 5 of 5=100%</td>
<td>(16) 2 of 3=67%</td>
<td>(12) 1 of 2=50%</td>
</tr>
<tr>
<td><em>Pl.Cr.</em></td>
<td>(56) 15 of 19=79%</td>
<td>(58) 18 of 24=75%</td>
<td>(52) 12 of 16=75%</td>
<td>(38) 7 of 10=70%</td>
</tr>
</tbody>
</table>

Adverbials constitute about half of the total of subordinate clauses in the poetic texts. Of these, about half are clauses with γάρ, which could alternatively be categorized as main clauses with co-ordinated links. The *Oresteia* has an unusually high proportion of adverbials, constituting 60% of subordinates (this balances a low proportion of relative clauses). It is the more striking since Aeschylean clauses with γάρ are less frequent than in other authors. In the Melian Dialogue and Pl.Cr., the frequency of adverbials is lower (and fewer conjunctions are used).³⁸

Adverbial clauses are especially likely to have VS, because there is some evidence that initial placing of an adverb can attract the verb: this appears to have occurred in Vedic, Mycenaean, and early Greek and to have become a standard feature of post-classical Greek.³⁹ Although there is a high frequency of adverbials in the *Oresteia*, and a particularly high proportion of VS (65 of 133 [SV+VS] = 49%), VS is high in all

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³⁸ About 17 adverbial conjunctions are in regular use in Homer, the *Oresteia*, and E.Cyc., while about 10 are used in A.Th., the Melian Dialogue, and Pl.Cr. Greater variety is evident in E.Med. and S.OT (26 and 34 respectively, if prepositional phrases with relative pronouns like ἐξ ὧν and ἐφ' ὧν are included, or 24 and 24 if not).

subordinates. The conjunctions associated with the highest VS frequencies (ὡς, ἐπεὶ, and ἐπεὶ δὴ) are not numerous enough to explain the percentages. Further, the comparative rarity of adverbial VS in the other authors shows that it cannot be a regular feature.

As noted above, the Oresteia has an unusually low proportion of relatives: 16% of total subordinates (compared with a fairly constant level in the other texts, being usually in the mid-20s, and highest in II. 9, at 32%). In relative clauses in the Oresteia in which the relative pronoun is the object in its clause, the subject tends to be placed on the opposite side of the verb to the pronoun, so creating VS order. However, Sophoclean practice is different: OT relatives are predominantly SV (21 of 23 [SV+VS] = 91%). Further, the low number of relatives in the Oresteia shows that word order in relative clauses does not contribute significantly to the high frequency of VS in subordinates.

The proportion of conditionals is similar throughout the poetic texts (12-16% of subordinates, though Od. 9 has a lower proportion than the others - 9%). The prose texts have a higher frequency (22% in the Melian Dialogue and 25% in Pl.Cr.). Of those with subjects, Aeschylean conditionals have quite high VS, but the proportion is matched by Medea, which does not have a high level of VS in subordinates generally.

The frequency of complement clauses differs sharply between the poetic and prose texts, with levels in the former of under 5.5%, and in the latter of about 15%42. The increase in prose balances the reduction in adverbials noted above, so

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40 Γάρ-CLAUSES generally show a slightly lower proportion of VS than do other adverbials (73 of 230 [VS+SV] = 32%, compared with 78 of 226 = 35%); in the Oresteia there is a much lower proportion (33 VS of 80 [VS+SV] = 41%; against 31 VS of 52 [VS+SV] = 60% in other adverbials).

41 The high level in A.Th. (29%) shows that clause type would constitute a poor test of authorship.

42 The figures are: II. 9 (5%), Od. 9 (1.3%), A.Th. (5.5%), Oresteia (4%), S.OT (3.8%), E.Med. (4.4%), Cyc. (3%), Ar.Ra. (3.7%), Th 5. (15%), Pl.Cr. (14.4%).
representing a movement from causal to purely formal clause linking. Although there is no correlation between clause type and subject/verb ordering, it is possible that the presence of a following subordinate clause can affect order in the main clause.\textsuperscript{43}

There is, in sum, no correlation between word order and clause type. VS may be highest either in γάρ-clauses, in other adverbials (Homer, Oresteia and Sophocles), in other subordinates (Septem, Medea), or in main clauses (Crito).

\textit{Verb and object}

Clauses with verb and objects are comparable in number, though more even in ordering. In the corpus, OV constructions constitute 1,344 of 2,254 = 60\% of the [OV+VO] total, of which main clauses constitute 986 of 1,737 = 57\%, and subordinates 358 of 517 = 69\%. The figures are collated by text in Table 2 below (and compared with the proportions for SV):\textsuperscript{44}

<table>
<thead>
<tr>
<th></th>
<th>Main OV of VO+OV</th>
<th>Sub. OV of VO+OV</th>
<th>Main SV of VS+SV</th>
<th>Sub. SV of VS+SV</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{ll. 9}</td>
<td>99 of 141=70%</td>
<td>42 of 56=75%</td>
<td>104 of 155=67%</td>
<td>50 of 68=74%</td>
</tr>
<tr>
<td>\textit{Od. 9}</td>
<td>72 of 118=61%</td>
<td>26 of 39=67%</td>
<td>131 of 168=78%</td>
<td>39 of 49=80%</td>
</tr>
<tr>
<td>\textit{A.Th.}</td>
<td>83 of 145=57%</td>
<td>21 of 27=78%</td>
<td>138 of 194=71%</td>
<td>37 of 51=73%</td>
</tr>
<tr>
<td>\textit{Ag.}</td>
<td>112 of 184=61%</td>
<td>28 of 41=68%</td>
<td>171 of 225=76%</td>
<td>47 of 85=55%</td>
</tr>
<tr>
<td>\textit{Ch.}</td>
<td>63 of 125=50%</td>
<td>11 of 26=42%</td>
<td>103 of 153=67%</td>
<td>22 of 40=55%</td>
</tr>
<tr>
<td>\textit{Eu.}</td>
<td>89 of 152=59%</td>
<td>17 of 21=81%</td>
<td>98 of 135=73%</td>
<td>24 of 53=45%</td>
</tr>
<tr>
<td>\textit{S.Ot}</td>
<td>121 of 198=61%</td>
<td>62 of 90=69%</td>
<td>122 of 171=71%</td>
<td>69 of 93=74%</td>
</tr>
<tr>
<td>\textit{Med.}</td>
<td>96 of 208=40%</td>
<td>49 of 71=69%</td>
<td>108 of 172=63%</td>
<td>59 of 83=71%</td>
</tr>
<tr>
<td>\textit{Cyc.}</td>
<td>76 of 147=52%</td>
<td>29 of 39=74%</td>
<td>72 of 95=76%</td>
<td>22 of 31=71%</td>
</tr>
<tr>
<td>\textit{Ar.Ra.}</td>
<td>126 of 245=51%</td>
<td>50 of 79=63%</td>
<td>130 of 169=77%</td>
<td>62 of 85=73%</td>
</tr>
<tr>
<td>\textit{Mel. D.}</td>
<td>15 of 22=68%</td>
<td>13 of 15=87%</td>
<td>21 of 23=91%</td>
<td>16 of 19=84%</td>
</tr>
<tr>
<td>\textit{Crito}</td>
<td>34 of 52=65%</td>
<td>10 of 13=77%</td>
<td>26 of 50=52%</td>
<td>53 of 70=76%</td>
</tr>
</tbody>
</table>

\textsuperscript{43} A following relative clause or indirect question may encourage VS or VO in the main. See further in Part 4 below.

\textsuperscript{44} The collation does not include accusatives which are part of accusative and infinitive constructions (though proleptic accusatives are included), nor relative pronouns which function as objects within their clause.
It may be seen that:

1) OV is the predominant order, except in *Ch.* and in *Medea* main clauses.

2) In every text except *Ch.*, OV is more common in subordinate clauses than in main, especially in *Med.* (by 18%) and *Crito* (by 13%). This result accords with the view of Friedrich (1975, 23), and with the data collected by Frisk (1932, 28-31). It does not support an ordering based on verb centrality, which would imply that not only VS but also VO would be more common in subordinate clauses, where there is a conjunction preceding the verb.

3) The ordering of verb and object is similar to that of verb and subject, though with OV lower than SV in main clauses (except in *Il.* 9). This suggests that there might be a common reason for the placing of subjects and objects.

The general relationship between the two may be seen in the rare clauses which contain both. Those in the *Oresteia, Medea,* and *Crito* are collated in Table 3, with figures for main and subordinate clauses given for each type:

<table>
<thead>
<tr>
<th></th>
<th>Ag.</th>
<th>SOV 23, 12</th>
<th>SVO 13, 3</th>
<th>OSV 11, 1</th>
<th>VSO 0, 4</th>
<th>VOS 2, 1</th>
<th>OVS 9, 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch.</td>
<td>SOV 13, 3</td>
<td>SVO 6, 1</td>
<td>OSV 5, 1</td>
<td>VSO 3, 2</td>
<td>VOS 3, 0</td>
<td>OVS 5, 1</td>
<td></td>
</tr>
<tr>
<td>Eu.</td>
<td>SOV 12, 3</td>
<td>SVO 11, 1</td>
<td>OSV 8, 1</td>
<td>VSO 3, 1</td>
<td>VOS 1, 1</td>
<td>OVS 9, 3</td>
<td></td>
</tr>
<tr>
<td>Med.</td>
<td>SOV 11, 16</td>
<td>SVO 8, 1</td>
<td>OSV 7, 4</td>
<td>VSO 3, 1</td>
<td>VOS 2, 1</td>
<td>OVS 7, 7</td>
<td></td>
</tr>
<tr>
<td>Cr.</td>
<td>SOV 4, 3</td>
<td>SVO 1, 1</td>
<td>OSV 0, 1</td>
<td>VSO 0, 0</td>
<td>VOS 1, 1</td>
<td>OVS 3, 0</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>100 (63, 37)</td>
<td>46 (39, 7)</td>
<td>39 (31, 8)</td>
<td>17 (9, 8)</td>
<td>13 (9, 4)</td>
<td>50 (33,17)</td>
<td></td>
</tr>
</tbody>
</table>

The principal features of these 3-term clauses are:

1) SV orders are more common than VS, except in constructions with a preposed object (since OVS and OSV orders occur with comparable frequency). The SV/VS ratio is very similar to the overall ratio for all clauses with explicit subjects (noted above and repeated here in Table 4 in the right-hand column):
2) SOV is substantially more common than SVO (and particularly so in subordinate clauses in Medea).

3) Of the VS orders, OVS is most common, and VSO and VOS are rare, in both main and subordinate clauses. The rarity of VSO and VOS suggests that VS might encourage the preposing of an object (and so accord with verb centrality). The converse, however, is not likely (since OVS and OSV are equally common).

4) In texts other than Ch., the proportion of OV is higher than the total OV percentage of all clauses with objects (given in the last column of Table 5):

<table>
<thead>
<tr>
<th>Criteron</th>
<th>Clauses with explicit subject and object</th>
<th>Total OV%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OV</td>
<td>VO</td>
</tr>
<tr>
<td>Ag.</td>
<td>43+19=62</td>
<td>15+8=23</td>
</tr>
<tr>
<td>Ch.</td>
<td>23+5=28</td>
<td>12+3=15</td>
</tr>
<tr>
<td>Eu.</td>
<td>29+7=36</td>
<td>15+2=17</td>
</tr>
<tr>
<td>Med.</td>
<td>25+27=52</td>
<td>13+3=16</td>
</tr>
<tr>
<td>Cr.</td>
<td>7+4=11</td>
<td>2+2=4</td>
</tr>
</tbody>
</table>

This demonstrates that SOV, OSV, and OVS are, together, more common than SVO, VSO, and VOS. The rarity of SVO and VSO is especially striking, since these orders became more common in Hellenistic Greek.

Interrogative and passive constructions

Two further syntactic features might affect order: interrogatives and passive verbs. VS is not especially associated with questions: of the 48 interrogative constructions in the
Oresteia which have explicit subjects, most (34 = 71%) have SV order (in 16 of which the subject is the interrogative), compared to 10 VS = 21%.45 These percentages accord with the textual average.

There does, however, appear to be a link between passivization and VS, from the proportion of passive constructions in the Oresteia. Here, 109 out of 2,231 finite verbs are passive (= 5%), and of the 67 with an explicit subject, 33 are SV, 27 VS, and 7 SVS. The VS constructions therefore constitute 45% of the [SV+VS] totals, which is very high, compared to the ratio of all finite verb and subject constructions in the Oresteia, which is 231 out of 709 (= 33%). The reason could be that subjects of passive verbs are often inanimate nouns, which tend to be delayed.46 It is, however, of minor statistical importance, since the proportion of clauses with passive verbs is so low.

The lack of correlation between word order and clause type appears to rule out any motivation based on clause structure. An explanation based on inter-clausal structure remains possible.

Clause order

As noted above, Greenberg (1963a) proposed that the ordering of head and modifier can be generalized to include both word and clause order. The likelihood of a correlation between word and clause ordering may be illustrated from the placing of subordinate clauses in the Oresteia, OT and Medea. VS subordinate clauses overwhelmingly follow their main clause, yet so also do SV subordinates, as shown in Table 6:

---

45 In another 4 (= 8%), VS constructions are headed by a question word modifying the subject, creating SVS hyperbaton. There are a further 103 finite questions without subjects.

46 At least, they tend to follow animate nominals, and so, perhaps, verb inflections too. See Silverstein (1976, 113), Mallinson and Blake (1981, 80), and Tomlin (1986, 102).
Word order in Greek stichic verse: subject, verb, and object

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Ag.</strong></td>
<td>9</td>
<td>2</td>
<td>30</td>
<td>11</td>
<td>2</td>
<td>35 (17 excluding γάρ clauses)</td>
</tr>
<tr>
<td><strong>Ch.</strong></td>
<td>1</td>
<td>2</td>
<td>16</td>
<td>4</td>
<td>4</td>
<td>13 (or 8)</td>
</tr>
<tr>
<td><strong>Eu.</strong></td>
<td>4</td>
<td>2</td>
<td>24</td>
<td>1</td>
<td>5</td>
<td>21 (or 10)</td>
</tr>
<tr>
<td><strong>OT</strong></td>
<td>7</td>
<td>3</td>
<td>18</td>
<td>12</td>
<td>16</td>
<td>56 (or 40)</td>
</tr>
<tr>
<td><strong>Med.</strong></td>
<td>9</td>
<td>2</td>
<td>15</td>
<td>13</td>
<td>3</td>
<td>49 (or 30)</td>
</tr>
</tbody>
</table>

Clause order therefore has no overall relation with subject and verb order. Nor is there a correlation in terms of subordinate clause type. While the proportion of conditionals and other adverbials which precede or follow their main clause varies between texts, complements and relatives overwhelmingly follow. If a modifier and head ordering were universally applicable, then VS would be more common in subordinate clauses following the main (if, as is the canonical view, we analyse subjects as verbal modifiers - cf. Chomsky 1981, 50-2; Dunn 1988, 64), and so would be more common in complement and relative clauses than in conditionals and adverbials. The absence of such a correlation shows that word order does not simply reflect clause order.

The presence of following phrases may, however, affect order in the main clause. In the Oresteia, a high frequency of phrases in apposition to subordinate clauses may contribute to the high VS level in the trilogy. Of 92 subordinate VS constructions, 22 have appositional phrases following (= 24%). This compares with 6 of the 99 subordinate SV constructions (= 6%). The frequency of appositional phrases may reflect the low number of finite relative clauses in the Oresteia.

Appositional phrases might encourage VS for stylistic or cohesive reasons (noted above in the discussion of lyric): there can be a certain lack of cohesion when SV is followed by one, as

47 The totals excluding γάρ-clauses are given to demonstrate that, even without them, SV subordinates preferentially follow their main clause.
at A.Th. 24 (where the apposed phrase continues for two more lines):

\[\nu\nu\nu\ \delta' \ \omega\zeta \ \delta \ \mu\acute{a}n\tau\i\varsigma \ \phi\nu\sigma\acute{i}n, \ \deltai\omega\nu\nu\nu \ \betao\tau\i\rho \ldots\]

And now so the prophet says, the shepherd of birds ...

However, there is no correlation between VS and following phrases in Crito. Nine VS clauses (of 41 = 22%) have following infinitives or participles, which is similar to the proportion of SV constructions (16 of 79 = 20%).

In Part 4 below, it is suggested that following finite clauses may also affect main clause order (relatives encouraging VS and complements encouraging VO). However, the presence of clauses, like phrases, can be only a contributory factor: in the corpus, most VS and VO constructions are not followed by either.

**Summary of syntactic factors**

None of the possible syntactic explanations predicts the observed distribution of variations in word order. It might, then, appear that classical Greek is a truly ‘free word order’ language, with regularities of the main elements motivated purely stylistically. However, structural motivation does not involve only syntactic patterning, especially in a highly inflected language, where morphological and prosodic factors may be equally important in determining order. These are examined in Part 3.

**Part 3: Word order and rightwards weight**

**Summary**

A correlation between pronominal subjects and SV order holds throughout the corpus. A verb or a noun may follow, but rarely a pronoun. The few VS constructions with pronouns
usually involve enclitic τις, or a disyllabic pronominal such as ἐγώ (as in the stock phrase σάφει ὁ δή ἐγώ).

This appears to reflect a general principle of word length, because, in constructions with nominal subjects and objects, order is directly associated with the comparative length of the words, judged by number of syllables.

Pronominal subjects and objects

The proportion of pronominals varies greatly between texts. The most striking variation is that Aeschylus uses fewer pronouns than the other authors. This does not, overall, affect word order (since Aeschylean order is comparable with those in the other texts). However, the proportion of pronominals differs between main and subordinate clauses, and this does have a correlation with word order, since pronominals are overwhelmingly associated with SV:

Table 7: Pronominal subjects

<table>
<thead>
<tr>
<th></th>
<th>Main</th>
<th>Subordinate</th>
</tr>
</thead>
<tbody>
<tr>
<td>II. 9</td>
<td>49 of 155= 32% [SV 47, VS 2]</td>
<td>18 of 68= 26% [SV 17, VS 1]</td>
</tr>
<tr>
<td>Od. 9</td>
<td>80 of 168=48% [all SV]</td>
<td>15 of 50=30% [SV 14, VS 1]</td>
</tr>
<tr>
<td>A.Th.</td>
<td>53 of 194=27% [SV 48, VS 5]</td>
<td>8 of 51=16% [SV 6, VS 2]</td>
</tr>
<tr>
<td>Oresteia</td>
<td>153 of 513=30% [SV 141, VS 12]</td>
<td>29 of 178=16% [SV 21, VS 8]</td>
</tr>
<tr>
<td>S.O.T</td>
<td>75 of 171=47% [SV 61, VS 14]</td>
<td>49 of 93=53% [SV 41, VS 8]</td>
</tr>
<tr>
<td>E.Med.</td>
<td>58 of 172=34% [SV 47, VS 11]</td>
<td>30 of 83=36% [SV 25, VS 5]</td>
</tr>
<tr>
<td>Cyc.</td>
<td>51 of 95=54% [SV 44, VS 7]</td>
<td>15 of 31=48% [SV 10, VS 5]</td>
</tr>
<tr>
<td>Ar.Ra.</td>
<td>103 of 169=61% [SV 86, VS 17]</td>
<td>35 of 85=41% [SV 26, VS 9]</td>
</tr>
<tr>
<td>Melian Dlg.</td>
<td>11 of 23=48% [all SV]</td>
<td>7 of 19=27% [all SV]</td>
</tr>
<tr>
<td>Pl.Cr.</td>
<td>18 of 50=36% [SV 11, VS 7]</td>
<td>34 of 70=49% [SV 29, VS 5]</td>
</tr>
</tbody>
</table>

The correlation between SV and pronominal subjects explains many variations in word order. The high frequency of VS in Oresteia subordinate clauses (48% of subordinate [SV + VS], noted above) appears to be largely motivated by a low number of subject pronouns, which are much less common in subordinate than main clauses. In the Oresteia, there are only 29 subject pronouns in subordinate clauses (and only 8 VS). This
compares with 153 subject pronouns in main clauses (of which 12 = 8% are VS).

The much lower proportion of subordinate VS in OT (28% of [SV+VS]) is associated with a greater number of pronominal subjects. OT has 49 subordinate subject pronouns (8 of which are VS), and 75 subject pronouns in main clauses (of which 14 are VS). Subordinate subject pronouns are therefore much more common than in the Oresteia, totalling 65% of main clause subject pronouns.\(^{48}\)

The data from Medea show a similar correlation between pronominal subjects and SV. Subordinate VS constitutes 29% of total [SV+VS]. There are 30 subordinate subject pronouns, of which 5 are in VS constructions, in contrast with 58 subject pronouns in main clauses, of which 11 are VS. Subordinate subject pronouns constitute 52% of main clause subject pronouns: rather fewer than in OT, but much more than the Oresteia.

In Crito, a strong correlation between pronominal subjects and SV in subordinates (where VS is 24% of total [SV+VS]) contrasts with a lower proportion of pronominals (and high VS: 48% of total [SV+VS]) in main clauses. There are 34 subordinate subject pronouns (of 70 subordinate subjects = 49%), and just 18 main clause subject pronouns (of 50 main subjects = 36%).\(^{49}\)

Frogs also shows a correlation between pronominal subjects and SV. In main clauses, nominal subjects constitute only 66 of 169 = 39% of the [SV+VS] total (of these, 22 of 66 = 33% are VS), while in subordinates, they constitute 50 of 85 = 59% of the [SV+VS] total (of these, 14 = 28% are VS). The higher

\(^{48}\) The proportion is particularly high in relatives: in the 23 relative clauses which have explicit (non-relative) subjects, 20 subjects (= 87%) are pronouns.

\(^{49}\) Only 5 of the subordinate pronoun subjects are in VS constructions. The highest level of pronominal VS occurs in Crito main clauses, where 7 of 18 = 39% are VS.
proportion of VS in subordinate clauses (23 of 85 = 27%, against 39 of 169 main = 23%) accords with this. Analogous relations hold in the other texts.\textsuperscript{50}

\textit{Pronominals and word order: variations}

A similar association between OV and pronominal objects in the \textit{Oresteia}, \textit{Medea}, and \textit{Crito} is shown in Table 8:

\begin{table}
\begin{center}
\begin{tabular}{lccc}
\hline
OV (of [OV+VO]) pronominal objects &
\multicolumn{3}{c}{\textit{Ag.}} \\
& 35 OV of 44 main (=80%) & 8 of 9 subordinate (=89%) & total 43 of 53=81% \\
& 28 OV of 37 main (=76%) & 5 of 5 subordinate (=100%) & total 33 of 42=79% \\
& 21 OV of 31 main (=68%) & 6 of 6 subordinate (=100%) & total 27 of 37=73% \\
& 38 OV of 74 main (=51%) & 20 of 25 subordinate (=80%) & total 58 of 99=59% \\
& 24 OV of 34 main (=71%) & 7 of 8 subordinate (=87%) & total 31 of 42=74% \\
\hline
\end{tabular}
\end{center}
\end{table}

However, there is considerable variation. In \textit{Medea}, although there are fewer pronominal objects than subjects, there is indeed a higher proportion of pronouns with OV than with VO, but the proportion (58 of 99 = 59\%) is far less than for pronominal subjects (72 of 88 = 82\%), so there is a relatively high level of pronominal VO, especially in main clauses. When pronominal VO does occur, the pronoun always follows immediately on the verb, suggesting a structural motivation (the reason does not appear to be metrical, since position in the line is quite variable, being anywhere between the second and the last words in the line). There is, therefore, a much looser correlation between pronominals and OV than between pronominals and SV, with a greater tendency for objects to follow their verbs.\textsuperscript{51}

Nor is subject and verb order determined only by the choice of pronominal or nominal subjects. The proportion of pronominal VS is extremely variable, being highest in main

\textsuperscript{50} A comparison undertaken by Ebeling (1902) between SOV and SVO with pronominals and nominals, in Pl.\textit{Prt.} and \textit{Grg.}, \textit{X.An.1}, and Isoc.1, 2, 3 and 9, shows a similar correlation.

\textsuperscript{51} See also Dover (1960, 18), and Luraghi (1998, 192).
clauses in *Medea* (11 of 58 = 19%) and in *Crito* (7 of 18 = 39%). In both texts, this reflects a generally high level of main clause VS. The proportion of VS with nominal subjects is also variable, as may be seen from *Od. 9* and *A.Th.*: though there are more nominals in subordinate clauses in *Od. 9* than in main, VS is much higher among main clause nominals than among subordinates.\(^{52}\) VS is also higher in main clause nominals in *A.Th.*, though, again, there are more nominals in subordinate clauses.\(^{53}\) It may be seen that pronominals are overwhelmingly associated with SV, but the pronominal SV/VS ratio is not constant between texts, and the presence of pronominals is not enough to explain the SV/VS ratios.

**Nominal subjects**

The proportion of VS with nominals must, therefore, vary between authors. In order to determine whether order with nominal subjects is associated with word size, all such clauses in the corpus are collated here, with subject and verb order categorized by relative number of syllables, as ascending (with the longer word to the right), descending (the converse), or constant order. A strong connection between SV and ascending order is evident from Table 9:\(^{54}\)

---

52 In main clauses in *Od. 9*, nominal subjects constitute 88 of 168 = 52% of the [SV+VS] total, and, of these, VS constitute 37 of 88 = 42%. In subordinate clauses, nominal subjects constitute 35 of 50 = 70% of the [SV+VS] total, and of these, VS constitute 10 of 35 = 29%.

53 In main clauses in *A.Th.*, nominal subjects constitute 141 of 194 = 73% of the [SV+VS] total, and, of these, VS constitute 51 of 141 = 36%. In subordinate clauses, nominal subjects total 43 of 51 = 84% of [SV+VS], and of these, VS are 12 of 43 = 28%.

54 Only the subject noun, rather than a whole phrase, is considered. Analysis by phrases could change a descending VS order to an ascending one, or an ascending SV to a descending one. More importantly, an analysis taking account of syllable weight would reduce the figures for ‘constant’ order (on syllable duration and weight, see Devine and Stephens 1994, 43-84).
Nominal subjects and word size

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>VS 57</td>
<td>34=60%</td>
<td>15=26%</td>
<td>8 Sub.</td>
<td>SV 33 14=42%</td>
<td>10=30%</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>VS 49</td>
<td>24=49%</td>
<td>17=35%</td>
<td>8 Sub.</td>
<td>VS 17 4=24%</td>
<td>8=47%</td>
<td>5</td>
</tr>
<tr>
<td>Od. 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>SV 51</td>
<td>28=55%</td>
<td>12=24%</td>
<td>11 Sub.</td>
<td>SV 25 14=56%</td>
<td>1=4%</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>VS 37</td>
<td>5=14%</td>
<td>13=35%</td>
<td>19 Sub.</td>
<td>VS 10 0</td>
<td>6=60%</td>
<td>4</td>
</tr>
<tr>
<td>A. Th.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>SV 90</td>
<td>52=58%</td>
<td>19=21%</td>
<td>19 Sub.</td>
<td>SV 31 19=61%</td>
<td>4=13%</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>VS 51</td>
<td>12=24%</td>
<td>19=37%</td>
<td>20 Sub.</td>
<td>VS 12 1=8%</td>
<td>3=25%</td>
<td>4</td>
</tr>
<tr>
<td>Oresteia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>SV 231</td>
<td>139=60%</td>
<td>44=19%</td>
<td>48 Sub.</td>
<td>SV 72 35=49%</td>
<td>21=29%</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>VS 129</td>
<td>55=43%</td>
<td>53=41%</td>
<td>21 Sub.</td>
<td>VS 77 33=43%</td>
<td>32=42%</td>
<td>12</td>
</tr>
<tr>
<td>S.O.T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>SV 61</td>
<td>38=62%</td>
<td>15=25%</td>
<td>8 Sub.</td>
<td>SV 28 16=57%</td>
<td>5=18%</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>VS 35</td>
<td>16=46%</td>
<td>13=37%</td>
<td>6 Sub.</td>
<td>VS 16 9=56%</td>
<td>4=25%</td>
<td>3</td>
</tr>
<tr>
<td>E.Med.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>SV 61</td>
<td>36=59%</td>
<td>11=18%</td>
<td>14 Sub.</td>
<td>SV 34 22=65%</td>
<td>2=6%</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>VS 53</td>
<td>23=43%</td>
<td>23=43%</td>
<td>7 Sub.</td>
<td>VS 19 5=26%</td>
<td>8=42%</td>
<td>6</td>
</tr>
<tr>
<td>Cyc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>SV 27</td>
<td>15=56%</td>
<td>4=15%</td>
<td>8 Sub.</td>
<td>SV 12 7=58%</td>
<td>2=17%</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>VS 17</td>
<td>4=24%</td>
<td>10=59%</td>
<td>3 Sub.</td>
<td>VS 4 2=50%</td>
<td>1=25%</td>
<td>1</td>
</tr>
<tr>
<td>Ar.Ra.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>SV 44</td>
<td>24=55%</td>
<td>8=18%</td>
<td>12 Sub.</td>
<td>SV 36 16=44%</td>
<td>8=22%</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>VS 22</td>
<td>8=36%</td>
<td>7=32%</td>
<td>7 Sub.</td>
<td>VS 14 10=71%</td>
<td>2=14%</td>
<td>2</td>
</tr>
<tr>
<td>Melian Dialogue</td>
<td>Main</td>
<td>SV 10</td>
<td>4=40%</td>
<td>2=20%</td>
<td>4 Sub.</td>
<td>SV 9 4=44%</td>
<td>3=33%</td>
</tr>
<tr>
<td></td>
<td>VS 2</td>
<td>1=50%</td>
<td>0</td>
<td>1 Sub.</td>
<td>VS 3 2=67%</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pl. Cr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>SV 15</td>
<td>9=60%</td>
<td>4=27%</td>
<td>2 Sub.</td>
<td>SV 24 10=42%</td>
<td>7=29%</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>VS 17</td>
<td>7=41%</td>
<td>3=18%</td>
<td>7 Sub.</td>
<td>VS 12 3=25%</td>
<td>5=42%</td>
<td>4</td>
</tr>
</tbody>
</table>

Four principal patterns are evident:

1) Descending constructions are in the minority in all texts, compared with [ascending + constant] orders.

2) An ascending order is more common with SV in all texts, in both main and subordinate clauses, with the exception of subordinate clauses in A.Eu.

3) A few ascending SV orders may be categorized as descending if the whole noun phrase (NP) is considered. However, in no text does this create a majority of descending SV (and some descending VS could be categorized as ascending, in terms of the NP).

4) The ascending / descending ratio is much more even in VS constructions, descending order being in the majority in Ill. 9 subordinates, all clauses in Od. 9 and A.Th., Ag. and Ch. subordinates, Eu. main, E.Med. subordinates, Cyc. main, and Crito subordinates. However, descending VS rarely outweighs
[ascending + constant] together (it does so only in Od. 9 and Ch. subordinates and Cyc. main clauses).

A number of the descending VS constructions include a disyllabic subject in metrically prominent position at the line end. They are most common in Medea and Aeschylus, but occur in all texts.\(^{55}\) If these subjects are discounted, only Od. 9 and Cyc. have a majority of descending VS constructions. It is possible that emphasis may partially compensate for a morphologically ascending trajectory in these constructions. It may be concluded that SV is closely associated with ascending order, while VS is associated with ascending order only if a prosodic feature, of emphasis, is allowed.

**Nominal objects**

As with pronominals, the OV/VO ratio is more even with nominals than is the SV/VS ratio. In the Oresteia, Medea and Crito, VO varies between 27% and 71% of [OV+VO], and may be higher in main clauses (in Ag., Eu. and Med.) or in subordinates (Ch. and Crito). As with SV, OV is overwhelmingly ascending. The figures for VO, however, are more closely associated with descending order than is VS, as may be seen from Table 10:

---

\(^{55}\) At E.Med. (18 of 31 descending nominal VS = 58%), Oresteia (47 of 85 = 55%), A.Th. (10 of 22 = 45%), Il. 9 (9 of 25 = 36%), Od. 9 (6 of 19 = 32%), E.Cyc. (3 of 11 = 27%), S.OT (4 of 17 = 24%), Ar.Ra. (2 of 9 = 22%).
<table>
<thead>
<tr>
<th></th>
<th>Nominal objects and word size</th>
<th></th>
<th>Subordinate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Main</td>
<td></td>
<td></td>
<td>Asc.</td>
</tr>
<tr>
<td><em>Ag.</em></td>
<td>OV77</td>
<td>40</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Main</td>
<td>VO63</td>
<td>9</td>
<td>35</td>
<td>19</td>
</tr>
<tr>
<td><em>Ch.</em></td>
<td>OV35</td>
<td>15</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Main</td>
<td>VO53</td>
<td>10</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td><em>Eu.</em></td>
<td>OV68</td>
<td>38</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Main</td>
<td>VO53</td>
<td>6</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td><em>E.Med.</em></td>
<td>OV58</td>
<td>38</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Main</td>
<td>VO76</td>
<td>11</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td><em>Pl.Cr.</em></td>
<td>OV14</td>
<td>10</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Main</td>
<td>VO 8</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

It may be seen that SV and OV orders are predominantly ascending, VS is quite evenly balanced, and VO is predominantly descending. There is, as with VS, a tendency for disyllabic nouns to be placed in the last foot, and the further factor that many descending construction become ascending in terms of the whole phrase, but there is an extra (presumably syntactic) tendency for the object to follow its verb. The interplay between morphology, prosodic emphasis, and syntax is discussed in Part 4.

---

57 Main-clause VO descending constructions which are phrasally ascending: *Ag.* (17 of 35), *Ch.* (8 of 22), *Eu.* (6 of 26), *Med.* (9 of 40), *Cr.* (0 of 2).
Part 4: Motivations for weight as a determinant of order

Word order and rightwards weight

Behaghel (1909) first proposed a ‘Gesetz der wachsenden Glieder’ in Indo-European languages. It was also observed by Frisk (1932, 44, 87, and 94) and Schwyzer (1950, 691) that, in Greek prose subordinate constructions, longer words tend to follow shorter ones, and Chantraine (1952, 72) suggested that it may be a general rule of Greek for the longer term to follow the shorter. The same feature was noted in English sentences by Jespersen (1949, ch. 2) and Quirk et al. (1985, ch. 14), and termed ‘end-weight’.

The explanations which have been proposed are either cognitive or pragmatic. Behaghel (1909, 138-139) initially suggested a cognitive motivation: that longer words follow shorter ones (in the absence of factors like temporal or causal sequence) because a more complex task tends to be delayed. Subsequently, Behaghel (1929) suggested that the principle may be associated with the postponing of new information. Later commentators have generally followed one of these explanations, though Wasow (1997) proposes a rhetorical motive, arguing that it may be in speakers’ interests to ‘keep their options open’ by delaying heavy elements.

The heaviest constituents are, of course, phrases. However, the relationship between phrases and individual words is also important. This is especially so in an inflected language,

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58 In English, this often involves phrases, as in ‘Heavy NP Shift’ (see Ross 1967), and extraposition (rightwards placing of subject clauses: see Jespersen 1924, Koster 1978).
59 Hawkins (1983) and Dik (1978) support the former, while Mallinson and Blake (1981, 151-157) suggest both: that heavy elements are delayed, and topical ones are early.
60 This is captured by the Early Immediate Constituent (EIC) model of Hawkins (1990, 1994), and also the ‘language-independent order of constitu-
where words often function as full phrases,\textsuperscript{61} and inflections add weight, so that the relative size of noun and verb encourages SV and OV, and the size of nominative and accusative motivates SO.\textsuperscript{62}

The importance of inflections may be seen in the similarity of order between different styles. Although large compounds, which add ὅγκος (weight) to the Aeschylean style, are preferentially placed later in the stichic line,\textsuperscript{63} and although ἐπέκτασις (lengthening by long vowel or extra syllable), considered by Aristotle (Po. 1457b35-1458a25) to be a feature of λέξις σεμνή (dignified style), always involves adding elements to the right, the similarity of word order across the texts suggests that inflection is the most influential factor.

*Rightwards weight and the clause start*

The regular presence of a large, prominent, word at the clause start (noted above in Part 1) does not accord with an ascending clausal trajectory of subject and verb, especially in early Greek, where enclitic verbs may be placed in second position following an initial subject. A prosodically analogous pattern appears throughout the corpus texts, where an initial genitive may depend on a noun following the verb (and usually its object). An ascending sequence must, therefore, start after the initial word group. The crucial finding, however, is that this does not affect the SV relation, which is overwhelmingly ascending. A totally

\textsuperscript{61} See Siewierska (1993), who examines subject and object order by number of words in a phrase, and Dryer (1992), who (reasonably) associates VO with word> phrase order.

\textsuperscript{62} See Gil (1982), who notes that inflections are particularly important with pronominals, because they add proportionately more weight to small words.

\textsuperscript{63} Of the 107 compounds in *Ag.* dialogue listed by Earp (1948, 30-1), only 30 (= 28\%) are positioned in the first colon of the line.
rightwards trajectory may sometimes be maintained if the boundaries are defined textually: it has been argued elsewhere (Fraser 1999) that in connected discourse the last position of one clause may overlap grammatically with the initial position of the following one, so a recurring ascending order may occur.\(^{64}\)

**Rightwards weight and prosody**

It remains to consider the possible correlation between order and prosodic emphasis which is suggested by the disyllabic subjects and objects associated with descending order.\(^{65}\) While there is no linear tendency of increasing emphasis in the classical Greek clause,\(^{66}\) the later part of the stichic line appears to be prosodically prominent in two respects: having a more regular metrical organisation in the second colon than in the first, and a prominent last word. It is observed by Allen (1973, 106) that the second colon of the stichic line is normally defined more rigidly than the first.\(^{67}\) This seems to have been a feature of tragic iambics, from the evidence of the joke at Ar.Ra. 1198ff., where Euripides is mocked for his (predictable) Lekythion pattern commencing at the enthemimeral caesura,\(^{68}\) and from the metrical regularity of

\(^{64}\) An obvious example is constituted by ‘proleptic’ accusatives, where the logical subject of a subordinate clause is placed (usually clause-finally) in the main.

\(^{65}\) See footnotes 55 and 56 above.

\(^{66}\) The traditional view (as of Thomson 1938, 18; Denniston 1952, 44) is that emphasis declines.

\(^{67}\) This appears to be a very ancient feature: West (1982, 3) notes that, in early Indo-European poetry, syllable quantities were free, except towards the end of the verse.

\(^{68}\) Professor Diggle points out to me that the joke is directed to the syntactic structure (which creates SOV order), but it also involves a distinctive metrical pattern following the caesura.
hyperbatic constructions about the verb starting at the same position, as at Ch. 149:69

τολοθοθ&tau;ς ἔπειρις ἔσοδις ἐπισπένδω χοάς ...  
after such prayers I pour forth these libations ...

The consequent visibility of form in the latter part of the line creates a kind of prominence.70 An additional factor is that the last word itself tends to be especially prominent, even in prose (as noted by Quintilian, Inst. 9.4.29). Stylistic reasons why this might be so, involving the notion of a key or thematic word, have been suggested.71 There may also be a prosodic function: the marking of a period, which canonically involves a long syllable.72 In verse, period-final usually equates with line-final: although Thomson (1938, 368) argues that ‘the end of the line, as such, is never emphatic’, the trimeter line and the clause regularly coincide (as is implied by the fact that enjambement is worthy of note, and by the correlation proposed by Demetrius, Eloc. 204-205, between the trimeter line and the ideal length of a prose clause).73

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69 Such phrasal hyperbaton about the verb is common throughout tragedy, and (at Ra. 1240) Aristophanes matches it against the Lekythion. See Foucault (1964) and Fraser (1999) for discussions of the trimeter pattern, and Conrad (1990) on similar hyperbaton in hexameters.

70 Aristotle, Rh. 1408b21-26 discusses the emphatic effect of a conspicuous metrical form.

71 By Delbrück (1900, 110), Kühner (1904, 597), Thomson (1938, 19), and Denniston (1952, 45).

72 Quintilian (Inst. 9.4.91-3) considers that long syllables create a sentence ending which is firmissima (strongest), Demetrius (Eloc. 39) describes a long final syllable in prose as μεγάλεϊν (grand), and a tendency for the last syllable of a word group to be long is noted by Allen (1973, 204-207) and Devine and Stephens (1984, 25-28).

73 Even Sophocles does not go against the norm: only 35% of trimeters in OT lack line-end punctuation in the OCT text (and Griffith 1977, 99-100 gives 39% for Tr. and 34% for Ph.). Even his extreme enjambement, το Σοφοκλείον είδος (once per 45-50 lines, according to Yorke 1936), may be so effective precisely because the regular sense-pause at position 10 con-
Final emphasis is also encouraged by metrical 'bridges', which avoid the repeated coincidence of word boundaries with metrical units, except in the final feet. This results in a high frequency of final disyllabic nouns throughout tragic trimeters: Raalte (1986, 207, 214 table XX) shows that more than 75% of trimeters have word breaks before either the penultimate or the final foot. The late position is the more common, with similar proportions in Aeschylus, Sophocles, and Euripides (with percentages in the mid-50s, rather than the 30s after the second metron). The feature is interpreted by Raalte (1986, 21) as a return to the initial rising movement of the iambic, but it is also a feature of the hexameter line, so it is not simply the coincidence of word and foot, but the disyllabic beat itself, which is 'a rhythmic index of verse-end'. The high frequency with which subjects in VS clauses and objects in VO are placed in this position (noted above) suggests that stress may compensate for size.

Prose rhythm

As similar prosodic groupings exist in prose and in verse, and since, as shown in Part 2 above, prose and poetic order are comparable, a similar relationship between prosody and word order might be expected. This is partially supported by the prose

founds the expectation of a coincidence between clause and line (as Raalte 1986, 160 suggests).

74 Raalte (1986, 29). It seems to be a contrastive effect, because final trisyllabic words are permitted when preceded by a monosyllable, as described by 'Porson's bridge', which disfavours [- - | - v - ||], again ensuring final emphasis. See Porson (1802, xxx-xxxiii, reproduced in Allen 1973, 308-9).

75 Fischer (1924) argues that there is also a metrical constraint in Homer, where verb forms ending in two short syllables cannot be line-final.

76 On cola in prose, see Fraenkel (1932, 1933). Citations of discussions of clausulae (the last few syllables preceding a pause) may be found in Dover (1996).
texts considered here: in the Melian Dialogue and *Crito*, SV is always associated with ascending order. VS, too, is associated with ascending or constant order (in both texts, though only in *Crito* main clauses is there a substantial number of examples), and a predominance of ascending constructions can be seen in verb and object ordering in *Crito*. VO is also associated with prosodic stress (as has been observed in modern languages).\textsuperscript{77} It may be inferred that there is the same association of word size and order in poetry and prose, but that the last position of the stichic line is more prominent than the final word of a prose period.

*VS, VO, and the stress accent*

Weight and prominence are, of course, intimately linked with accent. Classical Greek is known to have had a word accent based on pitch,\textsuperscript{78} which is closely tied to morphology, as there is (normally) only one accent per word, and vowel length affects the type and placing of the accent.\textsuperscript{79} The development in later Greek of a sentence accent,\textsuperscript{80} and the change to an accent based on stress, constitute an increase in scale, where word size is less important.\textsuperscript{81}

\textsuperscript{77} A regular association between syntactic object and prosodic stress has been frequently noted: see Hopper and Thompson (1982).

\textsuperscript{78} The primary evidence is that of Dionysius of Halicarnassus, *Comp.* 11.40. For bibliography, see Devine and Stephens (1994, 171).

\textsuperscript{79} See Sauzet (1989).

\textsuperscript{80} See Dunn (1989), Devine and Stephens (1994, 429ff.).

\textsuperscript{81} Allen (1987, 130) observes that, on the evidence of Christian hymn metres, the change to a stress accent in Greek must have happened by the late 4th century AD, and possibly by the late 2nd century. It could have been even earlier: Allen (1973, 296-304; 1987, 131-139) considers that even in classical Greek there was likely to have been some syllabic prominence additional to quantity, which could have been the precursor of a stress accent, and Devine and Stephens (1994, 215) cite evidence of stress elements in vulgar Attic of the 4th century BC.
There is some evidence that these accentual changes were already in progress in classical Greek, where there seem to have been more general intonational elements: an initial rise and terminal fall in pitch is proposed by Devine and Stephens (1994, 429-431), from the apparent relationships between word groups and musical pitch in the Delphic hymns. More research would be needed to clarify details of the accentual changes, but it is possible that there is a causal connection with the changes in word order from OV to VO and (to some extent) from SV to VS.

*Rightwards weight and governing structure*

A weight-based explanation of word ordering has similarities with the earlier view that variations may be interpreted in terms of governing relations. It was noted above in Part 1 that the opening of the *Republic* was categorized by Weil (1869, 57) as a ‘construction descendante’, because the governing words precede the governed. Weil contrasted this pattern with ‘constructions ascendantes’, in which governing words follow. If the subject is defined as governing the predicate, SV and VO exemplify governor-first (henceforth G>), VS and OV are governor-last (henceforth <G), and SVO order is G>.

Weil (1869, 51-63) considers that G> emphasizes the ideas which the individual words represent (he notes its frequency in Aristotle’s definitions, as well as in Plato), while <G emphasizes the unity of a phrase, because ‘l’attention est éveillée, l’esprit est

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82 Tonal intonation was proposed as a motivation for word order in Plato and Menander by Loepfe (1940), who associated the two orders of Weil (1869), described below, with falling and rising intonation. A critique may be found in Dik (1995, 266-273).

83 This analysis accords with prepositional logic: as Lyons (1968, 241-242) notes, the subject-verb relation implies semantic dependence of the verb upon the subject, which determines number. However, SV could also be modelled as <G, with the basic clause (IP) governed by the verb inflection (see Chomsky 1981, 50-52). The ‘canonical position’ of the subject may therefore be following it: see Koopman and Sportiche (1991).
en suspens et demande qu'on lui donne le terme qui gouverne'.
This is similar to the view of Demetrius (Eloc. 201) that
narrative naturally starts with a nominative (or accusative in an
indirect construction), αἵ ἄλλαι πτώσεις ἀσάφειάν τινα
παρέξουσι καὶ βάσανον τῷ τε λέγοντι αὐτῷ καὶ τῷ ἀκούοντι
(but the other cases will cause obscurity and put on tenterhooks both speaker
and listener).

The reason could be that G> is easier to remember: Yngve
(1960) showed that when constituents are organized in a pattern
of dependency, a speaker has to remember each until the
utterance is complete, and the effort required will vary with
order: a feature he characterized as 'sentence depth'. Yngve's
model predicts that right-branching structures (SV and VO),
which correspond to Weil's G>, are easier to remember than
left-branching ones.

The same cognitive principle, then, underlies ordering by
governing relations and by word size, although they give
different predictions of order. The weight criterion captures the
striking freedom of ancient Greek word order, and also
encompasses differences in order in different languages, which
is not well explained by the syntactic criterion.84 However, the
latter suggests a link between order and literary style which
could usefully be integrated with other pragmatic approaches:
Weil's identification of <G as 'l'ordre pathétique' may help
explain many instances of variation. The syntactic criterion may
also help model changes in post-classical Greek, with its
increased frequency of transitive constructions and of
subordination: a consistently G> or <G structure is simpler than
a mixed one, so changes in order might well be cumulative85.

84 There are two main objections. 1: It is unlikely that <G languages
(which are not markedly less common than G> ones) are 'inefficient'
(though see Kayne 1994). 2: The model cannot in itself explain variation:
Goodell (1890, 10) noted that Weil's model does not explain variations in
order, and Yngve's model is open to the same objection.
The two criteria may represent competing tendencies, whose relative importance changed over time, with governing relationships becoming more important, and word size less so, as syntactic structure became more complex, and word morphology simpler. This accords with the relative freedom of verb and object order observed in classical Greek, and with the change from SV and OV (both showing rightwards weight), to SVO and possibly also VSO.\textsuperscript{86}

\textit{Conclusion: weight, prosody, and metre}

The comparable word order in hexameter, trimeter, and prose texts described above shows that metre is not a significant constraint on Greek word order. There appear to be no syntactic constraints either. However, there is a correlation between word order and size, and between order and prominence, which may be summarized as a tendency for weight to be placed to the right. This criterion has a number of distinctive advantages: it links morphology and syntax, so taking account of the inflectional system; it links prosody and syntax, so capturing the sound of the language; it is a formal, objectively identifiable, feature, and yet gives maximum scope to authorial style; and (together with the criterion of governing relationships) it may also help to explain chronological changes in order.

\textsuperscript{85} The rarity of classical Greek clauses with explicit subjects and objects has been noted above. On the historical increase in transitive constructions, see Bauer (1993).

\textsuperscript{86} The last two exemplify G> in logic and in structural syntax respectively: see n. 83 above.
Bibliography


