Relative Clause Variation and the Unity of *Beowulf*

John D. Sundquist

Purdue University

In this paper, I argue that quantitative data on relative clause variation in Old English provide additional evidence against the theory of multiple authorship of *Beowulf*. I show that aspects of various relative clause types in *Beowulf* are unique in the Old English poetic and prose corpus and homogenous throughout all three proposed parts of the poem. Comparison with the poems attributed to Cynewulf indicates that the frequency, distribution, and selection of relative clause types are consistent throughout an individual poet's compositions. Statistical analysis of the general distribution of relative clause types and factors such as the type of antecedent and its distance to the relative clause supports the hypothesis that *Beowulf* is a unified poem.[*]

1. Introduction.

After a century and a half of debate, the controversy over the unity of *Beowulf* continues to promote new discussion from various perspectives. Because of the contrast in content between events in Denmark in the first part of the poem and the fight against the dragon in the last portion, scholars have proposed that *Beowulf* is not a single, unified poem, but rather a composite work by two or more poets. The repetitive nature of the transition section in which Beowulf retells his adventures to Hygelac has led some to suggest that the middle portion—commonly referred to as "Beowulf's Homecoming"—was composed by a poet-editor to fuse two different poems together.[1] Levin Ludwig Schücking first formulated

---

[1] The proposal of Schücking (1905) that lines 1888–2199 mark the transition section of "Beowulf's Homecoming" has been accepted by later scholars such as Sisam (1965) and Kiernan (1996). In referring to this section of the poem I will assume the same line division. For a brief review of previous arguments on

this argument in his examination of phrasal repetition, syntactic and metrical peculiarities, and aspects of tense and mood in the transition section. The most recent attempt to examine the issue of multiplicity of authors is Kevin Kiernan's (1996) Beowulf *and the* Beowulf *Manuscript*. In his paleographical analysis of the manuscript, Kiernan revives much of Schücking's argument and maintains that the manuscript is a draft version of the poem and that *Beowulf* consists of two separate poems composed in the eleventh century during Knut's reign (1996:12). On paleographical and codicological evidence Kiernan (1996:257–258) argues that the scribe of the second poem composed and revised most of the transition section to form the long epic poem in the extant manuscript. Janet Bately considers Kiernan's argument and counters it with linguistic evidence. She suggests that linguistic data may shed light on the issue of unity or multiplicity of authorship, particularly data on unique characteristics that are homogenous throughout all three of the proposed sections of the poem (1985:415).[2] Basing her argument on aspects of *siþþan*-clauses in *Beowulf* that are unique to the poetic corpus and consistent in each of the poem's major parts, Bately presents evidence in favor of single authorship.

In this study, I provide additional evidence against the theory of a composite poem through an examination of relative clause variation in *Beowulf*. Throughout the Old English poetic and prose corpus, there is a great variety of relative clause types that occur in particular syntactic environments.[3] For example, a relative construction could be introduced by the single indeclinable particle *þe*, with any form of the declinable pronoun *se*, or with a combination of these two (specific examples to follow). Bruce Mitchell (1963:313) points out that syntacticians have not been able to detect any system that would explain the choice of one of these three types; although one can discern general patterns in the syntactic environments of each type, he warns that such generalizations

---

multiple authorship in *Beowulf*, see Shippey 1997 and Bately 1985, particularly her discussion of the earlier, 1981 edition of Kiernan's book.

[2] Fulk (1992:166–167) also suggests that consistent conformity to Kaluza's law throughout *Beowulf* sets the poem apart from others and provides evidence against multiple authorship.

[3] For an overview of previous descriptive analyses of the relative clause in OE, see Mitchell 1985 (II):87 and Mitchell 1963 and references cited therein.

are in no way explanatory "rules".[4] If the choice of relative clause type is as variable as Mitchell and others have claimed, then we might detect preferences and stylistic tendencies for particular clause types in specific environments in different poems. In the case of *Beowulf,* we can test the hypothesis that these characteristics are homogenous throughout all three of the proposed sections.

This study examines the circumstances under which certain relative clause types occur in *Beowulf* and two factors that affect their distribution: the type of antecedent and its distance to the relative clause.[5] Through comparison with frequency data from other poems, I provide evidence that these factors have a significant effect on relative clause selection in each section of the poem. In particular, I present findings from a quantitative analysis using VARBRUL (variable rule analysis), a set of computer programs for the analysis of statistical fluctuation in linguistic variation. I compare *Beowulf* and its separate parts with three poems attributed to Cynewulf to show that certain aspects of relative clause variation are unique and homogenous throughout the poem.[6] The signed poems of Cynewulf offer interesting comparative data on the issue of multiple authorship, since most scholars agree that they can be

[4] Mitchell (1963, 1985) calls attention to a number of problems with earlier attempts to explain relative clause variation. For example, Andrew (1940) suggests that selection might be dependent on whether the relative clause is restrictive or non-restrictive. However, Mitchell (1963:316) points out that such clear distinctions are difficult to make without the aid of punctuation or intonation. Whitman (1979:4) claims that clauses with only the relative particle or the declined form of *se* by itself were used when the verse structure allowed an unstressed syllable between the initial relative pronoun and the first stress; when the verse did not allow this, the poet used a compound relative form (*se + þe*) to avoid a metrically deviant verse. Mitchell (1985:177–178) lists a number of exceptions and adds that Whitman fails to make certain distinctions between specific types of compound relatives.

[5] As Amos (1981) points out, scribal alterations may have altered the distribution of relativizers in the poem. Because of the possible degree of uncertainty that these alterations may cause, I have focused mainly on larger, general trends in the data.

[6] This analysis includes *Elene, Christ II,* and *Juliana.* Another poem attributed to Cynewulf, *Fates of the Apostles,* offered too few examples of relative clauses (4) for comparison with the others in this study. For an overview of scholarship on the poems of Cynewulf, see *Cynewulf: Basic Readings* (Bjork 1996).

attributed to the same poet.[7] Comparison with them will not only allow us to highlight differences with *Beowulf* but also to show that aspects of this type of variation are subject to stylistic preferences of individual poets.

2. Relative Clause Types in Beowulf and Their Frequencies.

The three main groups of relative clauses traditionally outlined in Old English syntactic studies can be classified in the following way, including examples from *Beowulf*:[8]

Type A: Relative clauses introduced by the particle *þe*

(1)   …   Hæfde East-Denum
       Gēatmecga lēod   gilp gelǣsted,
       swylce oncȳþðe   ealle gebētte,
       inwidsorge,   **þē** hiē ǣr drugon   (828b–831)

---

[7] Although there is, as Fulk (1996:4) points out, "a fairly substantial amount of scholarly agreement," that *Juliana*, *Elene, The Fates of the Apostles,* and *Christ II* can all be attributed to Cynewulf, there is some debate whether a different poet may have composed some of the signed poems and attached Cynewulf's signature in imitation. Donoghue (1987) presents this possibility, demonstrating that the use of auxiliary verbs in *Christ II* and *Fates of the Apostles* differs significantly from that of *Elene* and *Juliana*. However, he accounts for such differences in style by pointing out Cynewulf's unparalleled and limited use of a runic signature in Old English literature and the fact that the poems may come from different periods in Cynewulf's life (Donoghue 1987:114–115). In addition, Fulk (1996) questions the validity of the statistics on auxiliary use because *Christ II* and *Fates of the Apostles* are simply too short to yield enough examples in contrast to the much longer *Juliana* and *Elene*. He cites other remarkably consistent features such as the avoidance of metrically uncontracted and nonparasited forms as well as the use of dative, singular *fæder* with a long first syllable in all four poems (Fulk 1996:9). As Conner (1996:36) suggests, although the consensus favors single authorship, new evidence of homogenous stylistic characteristics is needed. Throughout this study, I assume single authorship for all four poems and point out additional evidence to support this position.

[8] Citations are from *Beowulf and the Fight at Finnsburg* (Klaeber 1950). A list of all examples of relative clauses in *Beowulf* is included in the appendix.

'The man of the Geats had carried out the boast for the East-Danes; likewise (he) remedied all distress, the sorrow that they had previously endured.'

Type B: Relative clauses introduced by a form of *se*

(2)   Ðǣm **eafera** wæs   æfter cenned
      geong in geardum,   **þone** God sende
      folce to frōfre;   (12–14a)
      'A son was born to him afterwards, young in the house, whom God sent to comfort the people.'

Type C: Compound relative constructions with a combination of *se*   and *þe* [9]

(3)   …   ond **þone   ǣnne** heht
      golde forgyldan,   **þone ðe** Grendel ǣr
      māne ācwealde,   (1053–1055)
      'and (Hrōðgar) commanded that gold be paid for the one, he whom Grendel had killed earlier with wickedness.'

   In all the examples outlined above, the relative compound has a corresponding antecedent stated in a preceding clause. However, there is a group of compound relatives that makes up a significant percentage of the examples in *Beowulf* and causes certain complications for classification. There are 26 examples (17% of all relative clauses) that have no overt antecedent in the previous clause. For example:

(4)   …   Hēold hine fæste
      sē þe manna wæs   mægene strengest
      on þǣm dæge   þysses līfes.   (788b–790)
      '(He) held him firmly, he who of men was strongest in might in the day(s) of this life.'

In this example the relative compound *se* + *þe* functions as the subject of the relative clause as well as the subject of the matrix clause, although

_____

[9] Mitchell (1985) subclassifies Type C into three groups, depending on the agreement relationship between the antecedent and the relative clause compound. Because these distinctions have no direct bearing on the current study, I subsume all compound relative constructions under the same category.

there is no stated antecedent. Mitchell (1985(II):112) suggests that these clauses are in fact not compound relatives, but rather relative clauses that begin with the particle *þe* and have a form of the demonstrative pronoun as their only antecedent.[10] This revised classification has a significant effect on the distribution of different types, since it yields a higher frequency of Type A and a lower frequency of Type C.

With these distinctions in classification, the distribution of relative clause types in *Beowulf* looks as follows:[11]

---

[10] In an earlier study, Mitchell (1963) does not take note of examples like 4, in which the only antecedent to *þe* is the adjacent demonstrative *se*, and classifies them as compound relatives. As pointed out in Troup 1992, Mitchell (1985) reclassifies these examples in his *Old English Syntax* and makes this distinction as if they were Type A clauses. Such a reclassification has a significant effect on the distribution of clauses throughout the OE poetic and prose corpus (Troup 1992:22). I follow Mitchell (1985) and Troup (1992) and identify them as Type A for reasons of comparison with their studies. As an anonymous reader has pointed out, the inclusion of these clauses among Type A is not unproblematic, since it presupposes an unusual state of affairs: the subject of the main clause is missing and is tacked on to the beginning of another clause. In subsequent sections, however, I point out that classification of these examples as Type C would not alter the overall conclusions of the study and would, in fact, bolster the conclusion that relative clause variation in *Beowulf* is unique. As Troup (1992:23) points out, a fourth and separate category would ultimately be the best solution that would require a new tabulation and reanalysis of earlier quantitative studies on relative clause variation.

[11] The 152 examples include all relative clauses with any kind of relative pronoun or particle in the relative clause. Following Mitchell's system of classification, I have not included those clauses in which the relative pronoun or demonstrative has been left out. Such examples include constructions like the following:

> Bēo wið Gēatas glæd,   geofena gemyndig
> nēan ond feorran   þū nū hafast.   1173–1174
> 'Be gracious to the Geats, mindful of gifts (that) you now have from near and far.'

	# of relative clauses	% frequency
Type A	59	39%
Type B	32	21%
Type C	61	40%
Total	152	100%

Table 1. Total relative clause distribution in *Beowulf*.

Although there is no examination of the entire Old English poetic corpus according to these distinctions of types, data from several separate studies provide a partial comparison with data from *Beowulf*. In table 2, I have included figures from Andrew Christopher Troup's (1992) analysis of the first 500 lines of *Andreas,* from Mitchell's analysis of the prose text *Homilies of Ælfric (ÆCHom),* and from my own investigation of *The Battle of Maldon* and the three Cynewulfian poems *Elene, Christ II,* and *Juliana*.[12]

	Beowulf	Cynewulf's Poems	*Andreas* (1–500)	*ÆCHom*	*Maldon*
Type A	39% (59)	57% (78)	71% (10)	69% (543)	79% (19)
Type B	21% (32)	22% (31)	14% (2)	13% (99)	13% (3)
Type C	40% (61)	22% (29)	14% (2)	18% (144)	8% (2)

Table 2. Distribution of relative clause types and number of examples.
(Data from *Andreas* in Troup 1992 and from *ÆCHom* in Mitchell 1985).

From these statistics we can detect a number of tendencies in relative clause distribution in *Beowulf*.[13]   When we compare data from the Type

---

[12] All examples from *Elene* are from *The Vercelli Book* (Krapp 1932b) and all examples from *Christ II* and *Juliana* are from *The Exeter Book* (Krapp 1932a). Examples from *Maldon* are from *The Battle of Maldon* (Scragg 1981).

[13] The different usage of compound relatives in *Beowulf* stands out even more if the "headless" relatives (like example 4) were categorized as Type C instead of A (see footnote 11). The numbers for *Beowulf* versus Cynewulf's poems would

C clauses, we observe a higher number of compound relatives in *Beowulf* (40%). In the three poems by Cynewulf, and in *Andreas* and *Maldon,* the frequency of all Type C compound relative clauses is only 22% and 14% and 8%, respectively, and in the prose texts this number is also lower (18%). In addition, data on Type A in *Beowulf* show a lower number of Type A relative clauses (39%) in comparison to the higher frequencies in *Maldon* (79%), *Andreas* (71%), Cynewulf's poems (57%), and *ÆCHom* (69%).[14] Unfortunately, *Maldon* and the sample from Troup's (1992) study of *Andreas* have too few examples to establish statistical significance, and *ÆCHom* poses problems for comparison because it is a prose text. However, a chi-square test of the data from *Beowulf* and Cynewulf indicates that the difference between the two samples of poetry in table 2 is very significant (p = 0.001, χ^2 = 13.38).[15] In the following sections, I examine two factors of relative clause variation that influence these patterns and present the findings from a statistical analysis on the significance of this influence.

3. Two Factors in Relative Clause Variation in *Beowulf*.
3.1. *Distance of the Relative Clause to the Antecedent*.
Although all relative clauses in *Beowulf* occur after the main clause, the antecedent does not always occur immediately before the relative

---

be as follows: Type A: 22% (N = 33) vs. 54% (N = 74); Type C: 57% (N = 87) vs. 24% (N = 33).

[14] A discussion of relative chronology and dating based on relative clause variation is beyond the scope of the present study. The extreme differences between *Maldon* and *Beowulf* in table 2*,* for instance, could be a result of the date of composition. Although data on relative clause variation provide probabilistic evidence for dating, scribal alterations prohibit us from using it as any kind of absolute proof.

[15] The chi-square test establishes the significance of difference between two sets of data such as the distribution of relative clause types in *Beowulf* and in Cynewulf's poems. It allows us to estimate the level of confidence we have in accepting or rejecting the null hypothesis that the difference between the data sets is due to random chance. The test compares the actual frequencies in table 2 with probable frequencies we might expect from a data set of this size. The result from this test, the *p*-value of 0.001, means that the probability that the difference between the poems is due to random fluctuation is 1 out of 1,000. In other words, there is a highly statistically significant difference in the relative clause variation of *Beowulf* and Cynewulf's poems.

pronoun. The looser word order of Old English poetic texts places no restrictions on the position of the antecedent. Yet aspects of the word order may reflect the oral nature of poetic composition and the poet's consideration of the listening audience. A particular poet may prefer certain clause types in which grammatical features are repeated to provide a clearer connection between the antecedent and the relative clause. Thus, the restatement of morphological content may function as a rhetorical device to link the relative clause more closely to the antecedent.

In the data outlined below I analyze the position of the antecedent in terms of "distant antecedents" and "adjacent antecedents."[16] Those antecedents that occur immediately before a relative clause are considered adjacent, and "distant antecedents" are those after which at least one word intervenes before the relative clause. Consider the following examples:

(5)   Distant antecedent
      …   þā gēn sylf cyning
      gewēold his gewitte,   **wæll-seaxe** gebrǣd
      biter ond beaduscreap,   **þæt hē** on byrnan wæg. (2702b–2704)
      ' … then the king himself still controlled his senses, drew the battle-knife, sharp and battle-sharp, that he wore on his coat of mail.'

(6)   Adjacent antecedent
      Hē ðā mid **þǣre sorhge**,   **þe** him tō sār belamp,   (2468)
      'With the sorrow that had too painfully befallen him, he then . . . '

The distribution of relative constructions with distant and adjacent antecedents is organized below according to clause type in *Beowulf*:

---

[16] I have borrowed these terms from Dekeyser (1989), who examines similar data in Bede's *Historia Ecclesiastica*.

	Distant Antecedents (N)	Distant Antecedents (%)	Adjacent Antecedents (N)	Adjacent Antecedents (%)
Type A	15	19%	44	**61%**
Type B	19	24%	13	18%
Type C	46	**57%**	15	22%
Total:	80	100%	72	100%

Table 3. Distant and adjacent antecedents and relative clause types in *Beowulf*.

A noteworthy statistic from this table is the high number (57%) of compound relatives (Type C) that refer to distant antecedents. In addition, adjacent antecedents occur in Type A clauses much more frequently than in other types (61%). Comparison of these figures with data from the poems of Cynewulf shows some similarities and differences with *Beowulf*:

	Distant Antecedents (N)	Distant Antecedents (%)	Adjacent Antecedents (N)	Adjacent Antecedents (%)
Type A	41	49%	37	69%
Type B	23	27%	8	15%
Type C	20	**24%**	9	17%
Total:	84	100%	54	100%

Table 4. Distant antecedents and relative clause types in Cynewulf's poems.

Data from both *Beowulf* and Cynewulf's poems reflect the same tendency to refer to adjacent antecedents with Type A clauses.[17] On the

---

[17] It is interesting to note that this similarity between the poetic texts does not exist if clauses with *þe* immediately adjacent to the antecedent *se*, like example 4, are reassigned from Type A to C. There would be no difference among

other hand, distant antecedents in both poetic texts behave quite differently: the frequency of 24% in Cynewulf's poems for distant antecedents is considerably lower than the 57% of Type C constructions in *Beowulf*. In addition, the percentage of 49% for distant antecedents in Type A is high in the Cynewulf group compared to the low frequency of 19% in *Beowulf*. Thus, the overall pattern in *Beowulf* indicates a tendency to refer to distant antecedents with compound relative constructions, while the poems of Cynewulf indicate a preference for Type A over all compound types. A chi-square test comparing the distribution of distant antecedents in *Beowulf* and Cynewulf produces a *p*-value of .00001 (χ^2 total = 22.61), revealing a highly significant difference in this category.

3.2. Type of Antecedent.
Another factor that may affect the distribution of relative constructions is the type of antecedent in main clauses. Old English nominals may occur alone without a qualifying article, since the noun itself is inflected for person, case, and number; however, a noun may also be qualified by preceding demonstratives and/or adjectives, or it may be preceded by indefinite pronouns such as *an*, *manig,* or *eall*. Mitchell notes such differences in types of antecedents and concludes that antecedents preceded by demonstratives show a clear preference for Type A constructions in poetry (1963:311). Although this is only a generalization, we can use Mitchell's insight as a starting point for our analysis of the role of different antecedent types in clause selection in *Beowulf*.

I organize antecedents into the following three groups based partially on Mitchell's distinctions but also on aspects of antecedents he does not mention.

(i)   Pronouns: a demonstrative, personal, or indefinite pronoun occurs by itself

---

clauses with distant antecedents, whereas the data on adjacent antecedents in *Beowulf* would look as follows: Type A with adjacent antecedents: 25% (N = 18); Type C with adjacent antecedents: 57% (N = 41). Data from Cynewulf's poems would be as follows: Type A with adjacent antecedents: 61% (N = 33); Type C with adjacent antecedents: 24% (N = 13). Such reclassification provides additional evidence that the poems are significantly different in their distribution of relative clause types.

(7)   …   Wēl bið **þǣm þe** mōt
       æfter dēaðdæge   Drihten sēcean   (186b–187)
       'Well is he who may seek the Lord after death.'

(ii) Definite NPs: a demonstrative, possessive adjective, or indefinite pronoun occurs before the qualified noun

(8)   Ða **se ellengǣst**   earfoðlīce
       þrāge geþolode,   **sē þe** in þystrum bād   (86–87)
       'Then the demon painfully endured hardship, he who dwelled in darkness.'

(iii) Indefinite NPs: a noun or proper noun occurs *without* a preceding demonstrative, possessive adjective, or indefinite pronoun

(9)   Hæfde se gōda   Gēata lēoda
       cempan gecorone   **þāra þe** hē cēnoste
       findan mihte;   (205–207a)
       'The good man had chosen warriors from the people of the Geats who were the bravest he could find.'

The distribution of these three groups is presented in the following table:

	Type A	Type B	Type C	Total for Group
Pronouns	81% (34)	10% (4)	10% (4)	100 % (42)
Definite NPs	38% (11)	24% (7)	38% (11)	100% (29)
Indefinite NPs	17% (14)	26% (21)	**57% (46)**	100% (81)

Table 5. Groups of antecedents and types of relative clauses in *Beowulf* (in percentages, with number of examples in parentheses).

These figures support Mitchell's claim that definite NP antecedents (*se* + noun) occur frequently in Type A relatives. Since Mitchell has found this correlation to be a characteristic of Old English poetry in general, I will assume that the data from *Beowulf* do not exhibit any unusual tendencies.[18] A more noteworthy statistic in this table is the high number

---

[18] Although the frequency of pronominal antecedents in Type A clauses seems high (81%), I attribute this unusually high number to the group of "headless" relative clauses like 4 in which *se* occurs immediately before *þe*. As the data from Cynewulf confirm in table 6, the frequency of pronominal antecedents in

of indefinite NPs that occur in constructions with compound relatives (Type C in bold type). 46 of the 81 examples of indefinite NPs occur in Type C constructions (57%), indicating a preference to link antecedents without preceding pronouns to compound relative constructions.

If we compare these numbers to data from the poems of Cynewulf, we notice there is no such tendency for indefinite-NP antecedents. On the contrary, antecedents in this group occur most commonly in Type A constructions:

	Type A	Type B	Type C	Total for Group
Pronouns	62% (22)	26% (9)	11% (4)	100% (35)
Definite NPs	60% (30)	22% (11)	18% (9)	100% (50)
Indefinite NPs	**49% (26)**	21% (11)	30% (16)	100% (53)

Table 6. Groups of antecedents and types of relative clauses in Cynewulf's poems (in percentages, with the number of examples in parentheses).

By focusing on indefinite-NP antecedents, we see that while 49% occur in Type A constructions, only 17% of this group occurs in this type of relative clause in *Beowulf*. In addition, data on compound relatives show that only 30% of these antecedents occurs in these constructions. The high frequency of 57% in *Beowulf* indicates that the characteristics of compound relatives in Cynewulf's poems are different. A chi-square test confirms this conclusion: the *p*-value for the significance of difference between *Beowulf* and Cynewulf in the distribution of indefinite-NP antecedents is 0.0003 (χ^2 total = 16.09).

3.3. VARBRUL Analysis of Type C in Beowulf *and Type A in Cynewulf's Poems.*

As the previous sections have shown, Type C relative clauses in *Beowulf* exhibit several characteristics that set them apart from those in Cynewulf's poems. On the other hand, certain features of Type A clauses in the Cynewulf corpus are also distinct from those in *Beowulf*. But how

Type A clauses will naturally be high for all texts when we assume Mitchell's system of classification.

certain can we be that these unique aspects are not due to random chance, the interaction of several competing factors, or to the high frequency of certain clause types? The set of computer programs known as VARBRUL is specifically designed to handle statistical data on linguistic variation of this sort. Originally used in analysis of phonological variation, these programs have become a common tool for analyzing discourse marking, codeswitching, syntax, and morphophonology in sociolinguistics, historical linguistics, and acquisition.[19]

The main purpose of VARBRUL is to analyze how much individual factor groups (independent variables) or combinations of factor groups affect the choice of discrete linguistic alternatives (variants of the dependent variable). The null hypothesis in such an analysis is usually that none of the independent variables has a significant effect on the dependent variable and that patterns in variation are due to random fluctuation; VARBRUL allows us to reject or accept this hypothesis by quantifying the effect of each factor group. In this study of relative clause variation, I conducted a multilevel regression analysis that allows the program to go through a step-up/step-down procedure to test for significance. VARBRUL starts by adding each independent variable (such as the type of antecedent) into an equation to determine whether it has an effect on the choice of the dependent variable (here, the relative clause type) at or above the $p < 0.05$ level. The program proceeds in the step-up part of the analysis by adding one independent variable at a time, building the statistical model that best accounts for the variation pattern observed in the data. In the step-down procedure, VARBRUL removes all factor groups that are insignificant. Upon completion, if the best models in the step-up and step-down procedures are identical, the program has determined the model whose variables have the highest probabilistic weight. This key figure in a VARBRUL analysis, the measurement of a variable's effect, appears in the output as a number between 0.00 and 1.00. A factor weight above 0.50 promotes the choice of a dependent variant while a weight below this threshold does not.

---

[19] For a history of VARBRUL analysis, see Montgomery 1990 and Pintzuk 1999. Pintzuk (1988) and Young and Bayley (1996) provide a helpful overview on how to use the programs. Sankoff and Labov (1978) and Sankoff (1988) describe the algorithms and mathematical models used in the programs' designs.

Because Type C clauses in *Beowulf* stood out most in comparison to other relative constructions, I focus on this clause type to measure the effects which the distance and type of antecedent have on its frequency.[20] The results of the step-up/step-down procedure are as follows:

		%	N	Probabilistic Weight
Type of Antecedent:	Indefinite NPs	57%	46/81	**0.68**
	Definite NPs	38%	11/29	**0.46**
	Pronouns	10%	4/42	**0.20**
Distance of Antecedent:	Distant Antecedent	57%	46/80	**0.65**
	Adjacent Antecedent	21%	15/72	**0.33**

Table 7. Best model from VARBRUL binomial multilevel analysis of Type C relative clauses in *Beowulf*.

The VARBRUL analysis confirms the results reported above. The program selected the combination of both independent variables—type of antecedent *and* distance of the antecedent—for the model that best describes the variable use of Type C relative clauses in *Beowulf*. Table 7 shows that indefinite nominal antecedents most favor Type C clauses with their probabilistic weight of 0.68. Definite NPs slightly disfavor Type C, while pronouns strongly disfavor this clause type. Distance of the antecedent also significantly influences the use of Type C relatives: they are favored following a distant antecedent with a weight of 0.65 and disfavored following an adjacent antecedent with a weight of only 0.33.

A similar regression analysis of Type C in the poems by Cynewulf yielded very different results. Instead of identifying both factor groups as significant, VARBRUL discarded both in the step-down procedure. In other words, the same two variables that influence the selection of Type

---

[20] VARBRUL imposes restrictions on how many variants of the dependent variable may be analyzed in a step-up/step-down procedure. Thus, it is necessary to select a binomial dependent variable: a variable with two options, such as the occurrence and nonoccurrence of Type C. Trinomial and multinomial analyses in VARBRUL are limited to simpler one-level procedures.

C relative clauses in *Beowulf* fail to have a significant effect on this clause type in Cynewulf's poems.

As sections 3.1 and 3.2 demonstrated, Type A relative clauses in Cynewulf's poems also exhibited a number of distinctive patterns that seem to set this type of clause apart from others. Table 8 displays VARBRUL's output on this clause type in Cynewulf's poems:

		%	N	Probabilistic Weight
Distance of Antecedent:	Adjacent Antecedent	69%	37/54	**0.62**
	Distant Antecedent	49%	41/84	**0.42**

Table 8. Best model from VARBRUL binomial multilevel analysis of Type A relative clauses in Cynewulf's poems.

VARBRUL determined that only one factor group, distance of the antecedent, had a significant effect on the selection of Type A relative clauses in the Cynewulf canon. Adjacent antecedents favor Type A relatives with a probabilistic weight of 0.62, while distant antecedents disfavor this clause selection. VARBRUL determined that the type of antecedent had no significant effect on the frequency and selection of Type A. Because their weights were only marginally different from each other (pronominal antecedents = 0.54; definite-NP antecedents = 0.54; indefinite-NP antecedents = 0.44), the step-down procedure discarded this insignificant factor group from the equation.

The same type of analysis of Type A in *Beowulf* indicates that there are both similarities and differences in selection of this clause type in Cynewulf's poems. Consider the following VARBRUL analysis of Type A in *Beowulf*:

		%	N	Probabilistic Weight
Distance of Antecedent:	Adjacent Antecedent	61%	44/72	**0.70**
	Distant Antecedent	19%	15/80	**0.32**
Type of Antecedent:	Pronouns	81%	34/42	**0.84**
	Definite NPs	38%	11/29	**0.58**
	Indefinite NPs	17%	14/81	**0.27**

Table 9. Best model from VARBRUL binomial multilevel analysis of Type A relative clauses in *Beowulf*.

According to table 9, *Beowulf* exhibits the same overall tendency as Cynewulf's poems for adjacent antecedents to favor Type A clauses and for distant antecedents to disfavor this clause type. The large difference in probabilistic weight in this factor group (0.70 and 0.32) indicates that this tendency is even stronger in *Beowulf* than in the Cynewulfian poems. Another difference between the two poetic corpora is that, whereas type of antecedent in Cynewulf was discarded as an insignificant variable, it plays a signficant role in Type A selection in *Beowulf:* pronominal objects have a strongly favoring effect on the selection of Type A (0.84), while definite NPs have a slightly favoring effect (0.58), and indefinite NPs have a strongly disfavoring effect (0.27).[21] In sum, a VARBRUL analysis of Type A in *Beowulf* indicates that the effect of antecedent distance in Cynewulf's poems is not as unusual as first assumed in sections 3.1 and 3.2. However, the regression analysis also shows that there are some differences in the two data sets: type of antecedent is an additional factor group which significantly affects Type A selection in

[21] As was pointed out in section 3.2, the data on Type A clauses for both poetic groups may be skewed slightly by the classification system for Old English assumed here (see fn.14), which follows Mitchell 1985 and includes headless relatives like 4 as Type A clauses. Because there is a particularly high number of such clauses in *Beowulf,* and because these examples invariably include adjacent and pronominal antecedents, the probabilistic weights for these factors are very high in *Beowulf.*

Beowulf, and the effects of adjacent/distant antecedents are more extreme in *Beowulf* than in Cynewulf's poems.

In the next section I examine how consistent a number of these characteristics are throughout the three sections of *Beowulf* and in the three poems of Cynewulf. In addition to the tendencies described above, I also examine the general frequency of relative clause types. The obtained data provide support for the argument that *Beowulf* is a unified poem.

4. Relative Clause Variation in Three Parts of *Beowulf.*
Scholars who have argued for multiple authorship of *Beowulf* have suggested various numbers of authors and different divisions of the text. In the present analysis I adopt the following line divisions proposed by Schücking (1905) and later accepted by Sisam (1965) and Kiernan (1996): Part I (1–1887), Part II (1888–2199), and Part III (2200–3182). An analysis of the relative construction in these three sections is not without statistical complications. The three divisions are not equal in line numbers, since Part I includes 1887 lines, while Parts II and III contain only 311 lines and 983 lines, respectively. In the case where Part II provides too few examples I have compared only Parts I and III.

4.1. Frequency of Clause Types in the Three Parts of Beowulf
As section 2 above showed, *Beowulf* has a lower frequency of Type A and B clauses and a higher frequency of compound relatives, or Type C, than other Old English texts (see table 2 above). Table 10 shows that this distribution is consistent in the three parts of the poem:

	Part I	Part II	Part III
Type A	38% (33)	29% (4)	44% (22)
Type B	19% (17)	21% (3)	24% (12)
Type C	43% (38)	50% (7)	32% (16)
Totals	100% (88)	100% (14)	100% (50)

Table 10. Relative clause types in three parts of *Beowulf*.

We can draw a number of conclusions from these data. First of all, the number of relative clauses remains quite uniform throughout each part. If we divide the number of lines in each part by the number of relatives, we

arrive at a frequency rate of the relative constructions. In Part I, a relative clause appears in every 21 lines, in Part II in every 22 lines, and in Part III in every 20 lines. We also see a consistency in the use of Type B. The frequency is similar in all three parts, indicating that the poet favors this type of relative clause the least throughout the poem. Although the percentage for Type A is higher in Part III, it is only 5% higher in this section than the average 39% for the entire poem. A chi-square test of Type A confirms that there is no significance of difference between the parts (p = 0.536, χ^2 total = 1.25). Data on Type C examples show that Parts I and II have a higher frequency of the compound relatives than Part III. However, when we compare the data from all three sections, there is a uniform tendency to prefer compound relatives over those introduced by a form of *se* alone (Type B). Although the frequency of Type C compound relative clauses in Part III is lower than in the other parts, the frequency of 32% is still higher than in all other Old English prose and poetry (see table 2).

There is also a remarkable homogeneity of clause distribution throughout the three poems of Cynewulf. Table 11 shows that the higher frequency of Type A is consistent throughout the group of poems:

	Elene	*Christ II*	*Juliana*
Type A	49% (38)	58% (14)	70% (26)
Type B	29% (22)	21% (5)	11% (4)
Type C	22% (17)	11% (5)	19% (7)
Totals	100% (77)	100% (24)	100% (37)

Table 11: Relative clause types in Cynewulf's poems.

Although *Elene* has a slightly lower frequency of Type A clauses than *Christ II* and *Juliana*, all three poems exhibit the opposite tendency of *Beowulf:* they show a higher preference for Type A than for Type C constructions. If we assume that all three poems were composed by the same poet, we have a possible explanation for this general consistency.

4.2. Distance of the Antecedent in the Three Parts of Beowulf.
A VARBRUL analysis of antecedent distance allows us to test the hypothesis that individual poets maintain the same stylistic preferences in relative clause selection throughout their poetry. Recall that

VARBRUL provides a specific measurement, probabilistic weight, that describes how much a factor promotes or inhibits the occurrence of a particular relative clause type. If the probabilistic weight for a factor like adjacent antecedents is very similar in each poem by the same poet, or in each part of a poem, we have additional evidence that unique characteristics of relative clause variation are homogenous throughout a poet's works. Assuming that *Elene, Christ II,* and *Juliana* were all composed by Cynewulf, for instance, we have an explanation for the consistency of probabilistic weight for factors of antecedent distance throughout each of his poems. Consider the results of a VARBRUL analysis of Type A in Cynewulf's poems:

		%	N	Probabilistic Weight
Elene	Adjacent Antecedent	63%	19/30	**0.64**
	Distant Antecedent	40%	19/47	**0.41**
Christ II	Adjacent Antecedent	70%	7/10	**0.62**
	Distant Antecedent	50%	7/14	**0.41**
Juliana	Adjacent Antecedent	73%	11/15	**0.54**
	Distant Antecedent	68%	15/22	**0.47**

Table 12. VARBRUL results for multilevel analyses of Type A in each of Cynewulf's poems.

Recall from section 3.3 that regression analyses determined that adjacent antecedents were a significant variant in Type-A selection in the Cynewulf group. Table 12 shows that this same tendency is carried out in each poem and that adjacent antecedents consistently favor Type A relatives and distant antecedents consistently disfavor this clause type. The weights for the variants in *Elene* and *Christ II* are almost identical; although the figures are slightly different in *Juliana*, adjacent antecedents are still above the 0.50 threshold for significance.

Turning now to Type C clauses, we see that data on the distance of the antecedent support the claim that the treatment of relative constructions is uniform in each part of *Beowulf*. Recall that Type C relatives in *Beowulf* refer to distant antecedents with a significantly higher frequency than other types of clauses. As Table 13 indicates, this

frequency in *Beowulf* is relatively high and stable (between 71% and 76%) throughout the entire poem:

	# of Type C with Distant Antecedents	# of Type C Clauses	% of Distant Antecedents in Type C Relative Clauses
Part I	29	38	76%
Part II	5	7	71%
Part III	12	16	75%

Table 13. Distant antecedents in Type C relative clauses in *Beowulf*.

A chi-square test of statistical significance estimates the difference between each part of the poem as $p = 0.961$ (χ^2 total $= 0.078$).[22] The probability that any difference between parts is due simply to random fluctuation is very high (96 out of 100 chances). In other words, there is no significant difference in the frequency of distant antecedents in Type C clauses in each part of the poem.

A VARBRUL analysis of Type C in each part of *Beowulf* confirms this conclusion. As section 3.3 showed, VARBRUL identified distant antecedents as a factor with significant influence on the occurrence of Type C relative clauses in *Beowulf*. Although there are too few relative clauses in Part II for a VARBRUL analysis, Parts I and III have enough tokens for a multilevel analysis of Type C:[23]

---

[22] Chi-square approximations are less valid with lower raw frequencies, like those in table 13. Although these numbers are small for Part II, they still meet the minimum threshold necessary for the chi-square test. To perform the test on the number of distant antecedents vs. the number of close antecedents in Type C constructions in each part of the poem, we need a 2x3 table. In a table of this size, each cell must have an expected frequency of least 2. For a helpful overview of the chi-square test and the minimum threshold for various tables, see Connor-Linton's chi-square tutorial: http://www.georgetown.edu/cball/webtools/web_chi_tut.html.

[23] VARBRUL cannot analyze small data sets like Part II, because they contain "knockout factors," or empty cells in the data, which have a categorical effect on the dependent variable. VARBRUL requires that such factors be eliminated through recoding in the program's condition file and through combining data sets. In this study, combining Part II with one of the others would defeat my purpose, which involves comparing each individual part of the poem.

		%	N	Probabilistic Weight
PART I	Distant Antecedent	63%	29/46	**0.67**
	Close Antecedent	21%	9/42	**0.32**
PART III	Distant Antecedent	46%	12/26	**0.63**
	Close Antecedent	17%	4/24	**0.36**

Table 14. VARBRUL results for multilevel analyses of Type C in parts I and III of *Beowulf*.

As the results indicate, the probabilistic weight for the influential factors is very similar in both sections of the poem (0.67 and 0.63). Although the overall frequency of Type C clauses is lower in Part III, the distance of the antecedent has a stable pattern of influence in both parts. The results imply that the same stylistic tendency to link distant antecedents to compound relatives runs through both sections of *Beowulf*.

4.2. Type of Antecedent in the Three Parts of Beowulf.
The final set of data on the type of antecedent in Type C clauses also argues against multiple authorship of *Beowulf*. As section 3.2 showed, indefinite-NP antecedents occur more frequently with compound relative clauses in *Beowulf* than in Cynewulf's poems. In table 15 we see that this pattern is nearly identical in each part of the poem:

	# of Indefinite-NP Antecedents with Type C	# of Indefinite-NP Antecedents	%
Part I	29	51	57%
Part II	5	9	55%
Part III	12	21	57%

Table 15. Number and frequency of indefinite-NP antecedents and Type C relative clauses in *Beowulf*.

A chi-square test of the occurrence and nonoccurrence of indefinite-NP antecedents in Type C clauses indicates that there is no significant

difference between each part ($p = 0.996$, χ^2 total $= 0.0067$).[24] In other words, the slight difference in frequency (55% vs. 57%) is due to random chance and not to any inherent difference in parts of the poem. This conclusion is confirmed by the results of a VARBRUL analysis of Parts I and III. As in the analysis of distance of the antecedent, the program could not analyze Part II because of the small data set. However, Parts I and III both have a high probabilistic weight (0.65 and 0.75, respectively) which the regression analysis identified as an influential factor group in the step-up and step-down analyses of both sections of the poem.

5. Conclusions.
The initial goals of this study were to examine the frequency and characteristics of relative clause types in *Beowulf* and to evaluate the unity or disunity of the poem. This quantitative study, including a logistic regression analysis with several independent variables, provides additional evidence against the theory of multiple authorship in *Beowulf*. This conclusion is based not on one characteristic alone, but rather on the combined evidence of various aspects of relative clause selection.

By analyzing the general frequency of clause types, type of antecedent, and distance between the antecedent and relative clause, I have identified several unique features in *Beowulf* that set the poem apart from other Old English prose and poetic texts such as *Andreas, The Battle of Maldon,* and three poems by Cynewulf, *Elene, Christ II,* and *Juliana*. In particular, the general frequency of compound relatives, or Type C clauses, is significantly higher in *Beowulf* than in other texts. Examination of the relative distance between antecedent and relative clause indicates that Type C clauses most often refer back to distant antecedents in *Beowulf*. In addition, Type C relatives frequently refer to indefinite-NP antecedents. Using a tool for statistical analysis of linguistic variation, VARBRUL, I found that both these variables have a significant effect on Type C selection in *Beowulf*. On the other hand, a similar analysis of Cynewulf's poems shows no such tendencies in

---

[24] Once again, although the number of tokens in Part II is relatively small again, the 2x3 table with the occurrences and nonoccurrences of indefinite-NP antecedents in Type C fulfills the minimum threshold requirements for a chi-square test.

relative clause distribution. VARBRUL discarded these factors as insignificant in the selection of Type C clauses in the Cynewulf group.

Because these features of relative clause variation in *Beowulf* are both unique and homogenous throughout all three proposed parts of the poem, they lend support to the theory of single authorship. The set of poems by Cynewulf offers a convenient model for comparison in such analysis of authorship, since the relative clause data show that various characteristics and general preferences in relative clause selection are consistent in each of the poems composed by the same poet. VARBRUL found that the probabilistic weight of adjacent antecedents, or the measurement of the variable's effect, is nearly identical in each of Cynewulf's poems. Furthermore, the general distribution of clause types indicates a consistent preference for Type A relative clauses in this group of poems. In the same way, *Beowulf* exhibits consistent patterns of clause distribution and selection that may be attributable to a single poet: there is an unusually high frequency of Type C clauses in each of the three parts of the poem, and as VARBRUL indicated, the significant effects of the type and distance of the antecedent are stable from part to part. The data show that the same characteristics that set *Beowulf* apart from other Old English texts are consistent in frequency and behavior throughout the entire poem.

Such a linguistic study alone will not ultimately prove the absolute unity or disunity of the poem. Further studies on semantic or syntactic features of antecedents may uncover additional correlations, or an investigation of the contexts of relative clauses within various passages might determine whether certain clause types occur more often in speech, description, or action. By examining such factors, we may be better able to identify unique characteristics of variation that set certain texts apart from others. Studies of this sort have direct implications for issues of authorship in regard to *Beowulf* and Old English texts in general.

Appendix: Relative Clause Examples and Types—listed by line number in individual poems

Beowulf
Type A: Relative Clauses introduced by the relative particle *þe*
15, 45, 79, 90, 138, 183, 186, 192, 238, 355, 441, 88, 500, 517, 603, 788, 809, 825, 831, 950, 993, 1003, 1061, 1135, 1271, 1387, 1482, 1497, 1618, 1652, 1700, 1839, 1858, 1967, 2041, 2135, 2183, 2222, 2468,

2490, 2542, 2595, 2601, 2605, 2712, 2733, 2766, 2795, 2797, 2864, 2866, 2898, 2982, 3001, 3009, 3034, 3055, 3059, 3085

Type B: Relative Clauses introduced by a form of *se*
13, 41, 113, 143, 310, 369, 373, 453, 704, 766, 1267, 1305, 1428, 1610, 1617, 1688, 1794, 1977, 2048, 2198, 2237, 2259, 2406, 2420, 2500, 2704, 2751, 2848, 2865, 3070, 3071, 3157

Type C: Compound Relatives with a form of *se + þe*
86, 97, 102, 206, 230, 288, 377, 494, 506, 784, 842, 868, 877, 908, 936, 996, 1048, 1051, 1053, 1123, 1195, 1258, 1298,1343,1405, 1445, 1448, 1461, 1462, 1577, 1591, 1625, 1684, 1744, 1755, 1779, 1882, 1887, 1915, 1998, 2005, 2042, 2055, 2130, 2173, 2211, 2215, 2250, 2256, 2271, 2291, 2294, 2383, 2410, 2684, 2807, 2860, 2999, 3002, 3116, 3124

Elene
Type A: 159, 162, 183, 280, 295, 297, 319, 357, 360, 373, 400, 407, 410, 414, 416, 452, 469, 575, 583, 588, 612, 624, 638, 733, 743, 755, 772, 826, 896, 903, 965, 974, 993, 1064, 1135, 1210, 1225, 1233
Type B: 243, 317, 354, 398, 417, 419, 437, 466, 568, 585, 587, 633, 749, 908, 927, 932, 985, 1091, 1139, 1194, 1201, 1235
Type C:154, 304, 327, 379, 283, 315, 508, 817, 911, 941, 970, 1013, 1019, 1125, 1161, 1182, 1286

Christ II
Type A: 505, 521, 559, 570, 580, 601, 613, 615, 640, 655, 659, 799, 837, 854
Type B: 449, 574, 636, 761, 775
Type C: 496, 526, 619, 640, 794

Juliana
Type A: 37, 75, 84, 111, 122, 124, 136, 144, 173, 205, 208, 258, 268, 273, 278, 280, 313, 377, 396, 429, 467, 496, 521, 646, 710, 720
Type B: 100, 223, 500, 617
Type C: 13, 207, 352, 415, 447, 507, 599

Maldon
Type A: 36, 48, 52, 77, 78, 129, 139, 148, 158, 174, 181, 185, 188, 189, 190,197, 201, 212, 325
Type B: 27, 75, 153
Type C: 316, 258

REFERENCES

Primary Sources
Klaeber, Fr. (ed.). 1950. Beowulf and the fight at Finnsburg. 3rd edn. Lexington, MA: D. C. Heath.
Krapp, George Philip (ed.). 1932a. Exeter book. New York: Columbia University Press.
——— (ed.). 1932b. Vercelli book. New York: Columbia University Press.
Scragg, D. G. (ed.). 1981. The battle of Maldon. Manchester: Manchester University Press.

Secondary Sources
Amos, Ashley Crandall. 1981. Linguistic means of determining the dates of Old English literary texts. Cambridge, MA: Medieval Academy of America.
Andrew, S. O. 1940. Syntax and style in Old English. Cambridge: Cambridge University Press.
Bately, Janet. 1985. Linguistic evidence as a guide to the authorship of Old English verse: A reappraisal, with special reference to *Beowulf*. Learning and literature in Anglo-Saxon England, ed. by Michael Lapidge and Helmut Gneuss, 409–431. Cambridge: Cambridge University Press.
Bjork, Robert E. (ed.). 1996. Cynewulf: Basic readings. New York: Garland.
Conner, Patrick W. 1996. On dating Cynewulf. In Bjork 1996, 23–55.
Dekeyser, Xavier. 1989. Adjacent and distant antecedents and the compound relative *se þe* in Old English prose. Leuvense Bijdragen 78.385–399.
Donoghue, Daniel. 1987. Style in Old English poetry: The test of the auxiliary. New Haven: Yale University Press.
Fulk, R. D. 1992. A history of Old English meter. Philadelphia: University of Pennsylvania Press.
———. 1996. Cynewulf: Canon, dialect, and date. In Bjork 1996, 3–21. New York: Garland.
Kiernan, Kevin S. 1996. *Beowulf* and the *Beowulf* manuscript. Ann Arbor: University of Michigan Press.
Mitchell, Bruce. 1963. Adjective clauses in Old English poetry. Anglia 81.298–322.
———. 1985. Old English syntax. 2 vols. Oxford: Clarendon Press.
Montgomery, Michael. 1990. Introduction to variable rule analysis. Journal of English Linguistics 22.111–187.

Pintzuk, Susan. 1988. VARBRUL programs [computer program]. Philadelphia: Department of Linguistics, University of Pennsylvania.

———. 1999. Phrase structures in competition. New York: Garland.

Sankoff, David. 1988. Variable rules. Sociolinguistics: An international handbook of the science of language and society, ed. by Ulrich Ammon, Norbert Dittmar, and Klaus J. Mattheier, 2.984–997. Berlin: Mouton de Gruyter.

———, and William Labov. 1978. On the uses of variable rules. Language in Society 8.189–222.

Schücking, Levin Ludwig. 1905. Beowulfs Rückkehr. Studien zur englischen Philologie 21.1–74.

Shippey, Thomas. A. 1997. Structure and unity. A *Beowulf* handbook, ed. by Robert E. Bjork and John D. Niles, 149–174. Lincoln: University of Nebraska Press.

Sisam, Kenneth. 1965. The structure of *Beowulf*. Oxford: Oxford University Press.

Troup, Christopher Andrew. 1992. The Old English relative clause: Ambiguity in context. Doctoral dissertation, University of Texas at Austin.

Whitman, F. H. 1979. Constraints on the use of the relative pronoun forms in Beowulf. Texas Studies in Literature and Language 21.1–16.

Young, Richard, and Robert Bayley. 1996. VARBRUL analysis for second language acquisition research. Second language acquisition and linguistic variation, ed. by Robert Bayley and Dennis Preston, 253–306. Amsterdam: John Benjamins.

Department of Foreign Languages and Literatures
Purdue University
Stanley Coulter Hall 166
West Lafayette, IN 47907
[jsundqui@purdue.edu]