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SYNTACTIC PERFORMANCE

ACROSS TWO DISCIPLINES

by

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B.A. (Hons.), Carleton University, 1978

A thesis submitted to the School of Graduate Studies and Research  
of the University of Ottawa  
in partial fulfillment for the degree of Master of Arts (Linguistics)

**ACKNOWLEDGEMENTS**

I wish to thank my thesis supervisor Dr. P.G. Patel for his patience and guidance.

I would also like to thank my many friends and colleagues for their support throughout this endeavour.

Special thanks are extended to D. Badali and M. Ovenden for preparation and typing of the manuscript.

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**ABSTRACT**

Narrative and Expository writing samples were collected from a matched sample of male and female university students studying in the Science and Arts faculties at Carleton University, Ottawa, and analyzed through the means of syntactic and rhetorical instruments in order to determine the effects of the independent variables faculty, mode and sex on syntactic performance and the relationship between syntactic performance and judgments of rhetorical quality. Areas for further research into the effects of discourse mode and faculty on syntactic performance are identified.

CHAPTER I: INTRODUCTION

1.1 Preliminary Remarks

Psycholinguistic studies have traditionally maintained a speech primacy position, treating development in writing as a reflection of overall language development. There are, however, important differences between the spoken and written modes of discourse. Newman and Horowitz (1965) point to these differences when they conclude:

Although writing and speaking can represent each other, that fact should not be taken to mean that they are aspects of each other. Writing and speaking share in the manifestation and communication of language. Otherwise they are fundamentally different - as modes of verbal formulation and expression, as psychological aspects of the person, and as channels of communication.

(p. 164)

The following have been recognized as distinctive characteristics of writing:

1. Writing is acquired differently than speech. Spoken language develops both earlier and faster. Whereas humans are biologically adapted for speech and acquire it naturally, writing is a "schooling" language, one that must be learned through careful instruction (Olson, 1977, 1978; Barritt & Kroll, 1978; Bereiter, 1980).

2. Writing draws on different cognitive and motor skills than speaking does. Writing is a more complex activity, demanding integration of the working of hand, eye and brain (Emig, 1977, 1980). In addition, the physical process of writing slows down the production of written discourse, causing ideas to run ahead of words and often causing loss of meaning, particularly in the case of younger writers. Speaking, on the other hand, is "a much more fluent, automatic mode of expression" (Barritt & Kroll, 1978:50).

3. Speaking and writing are distinguished by immediacy of audience. Speakers can rely on "feedback" from their audience, whereas writers cannot. Instead, they must contend with addressing unknown readers with unknown states of knowledge in unknown contexts. This leads to writers' adopting what Olson (1977; Olson & Nickerson, 1978) refers to as "essayist" technique - a form of discourse characterized by logical entailment rather than reference to the experience shared by writer and reader.

4. Writing may require and consequently foster a different kind of thought from that involved in speaking (Vygotsky, 1962; Goody & Watt, 1963; Havelock, 1973; Olson, 1977, 1978; Bereiter, 1980). Vygotsky (1962) has theorized that speaking and writing are essentially different psychological processes which use different cognitive pathways

to translate thought into expression. He uses the term "inner speech" to designate the verbal thought that precedes expression:

Written language demands conscious work because its relationship to inner speech is different from that of oral speech: the latter precedes inner speech and presupposes its existence (the act of writing implying a translation from inner speech)...The change from maximally compact inner speech to maximally detailed written speech requires what might be called deliberate semantics - deliberate structuring of the web of meaning.  
(Vygotsky, 1962:99-100)

Although filled with implications for differences between speaking and writing at the psychological level, Vygotsky's hypothesis, that writing bears a different relationship to inner speech, has yet to be thoroughly investigated (Britton, 1970; Barritt & Kroll, 1978).

5. Writing is characterized by the use of written language, one of the recognized subsystems of human verbal behaviour. Written language distinguishes itself from spoken language in that it is usually more compact, contains more elaborately specified subjects, shows less regional variation than spoken language, and has a different distribution of linguistic devices and usage. In addition, written discourse involves conventions which are not pertinent to spoken discourse - paragraph indentation, punctuation, spelling, etc. (Gleason, 1965; Allen, 1972; Bereiter, 1980).

6. Written language and spoken language are predominantly but not exclusively linked to different modalities (Bereiter, 1980). Written language may be spoken, as in giving a dictation, and spoken language may be written, as in composing dialogue. Through a comparative analysis of spoken and written discourse, Tannen (1982) demonstrates that features which have been identified as characterizing oral discourse are also found in written discourse, and that quintessentially literary devices (repetition of sounds and words, use of rhythm) are present in ordinary spontaneous conversation.

7. Because written discourse, unlike spoken discourse, is a permanent record of verbal behaviour, it may be shaped and reshaped. Thus, writing lends itself to the development of craftsmanlike skills that speaking does not (Olson, 1977; Olson & Nickerson, 1978; Bereiter, 1980). For the same reason writing lends itself to complex productions (i.e. sonnets, novels, scholarly works) which would be extremely difficult to produce in the oral mode (Bereiter, 1980).

These seven differences between the spoken and written modes of discourse clearly establish the importance of investigating writing on its own, as one manifestation of human verbal behaviour which is distinct from speech.

## 1.2 Background: Studies Investigating the Development of Writing Abilities

Writing has only recently become the subject of formal research; relatively little is known about the factors which influence the development of writing abilities, and even less about the factors which interact with writing performance. Initial investigations into the development of writing abilities have focused on explicating the concept of syntactic maturity in writing, and on establishing the syntactic correlates of a mature style.

Syntactic maturity has been identified as increased syntactic complexity; researchers such as Hunt (1965, 1977), O'Donnell et al. (1967) and Loban (1976) have drawn one major conclusion: the older the individual is, the more transformationally complex his written syntax will be.

The studies cited above have all employed a common set of indices to measure syntactic maturity, based on the minimal terminable unit (T-unit).<sup>1</sup> According to Hunt, who introduced the measure, a T-unit is "one main clause plus any subordinate

---

<sup>1</sup>Although Loban termed the unit of measure he used a "communication unit", his definition of a communication unit is identical to Hunt's definition of a T-unit (Loban, 1976:9).

clause or non-clausal structure that is attached to or embedded in it" (Hunt, 1974:2). Crowhurst (1980) notes:

a need for such an index is obvious: it can be almost as easily calculated for long discourse samples as mean sentence length, and it is believed to be more reliable across writers than mean sentence length, which can vary according to punctuation skill or practice and writing style.

(p. 72)

Hunt (1965) investigated 1000-word samples of the free writing of school children in grades 4, 8 and 12, and the writing of skilled adults who published in The Atlantic and Harper's. He discovered that as children get older, their mean T-unit length increases as a function of learning to write longer clauses and of including more clauses per T-unit. Hunt further reported that skilled adults tend to write longer clauses than grade 12 students, although the mean number of clauses per T-unit tends to stabilize by grade 12.

In the O'Donnell study (1967) writing samples collected from children in grades 3, 5 and 7 were analyzed using Hunt's T-unit. The investigator's findings confirmed Hunt's; at every grade level mean T-unit length, mean clause length and mean number of clauses per T-unit increased.

In his twelve-year longitudinal study of written and oral language development, Loban (1976) found steady trends in indicators of quantity and complexity in verbal output,

notably mean T-unit length and mean number of clauses per T-unit. Mean number of words per clause was found to be a less reliable measure of syntactic maturity, however, for as the students matured they moved away from using finite dependent structures, which tend to be longer, to using non-finite clausal embeddings, which tend to be more compact. This study indicates that in order to be able to accurately assess syntactic maturity, clause type must be taken into account.

Hunt (1977) reported results from a number of re-writing experiments involving school-age children in grades 3 through 12 and skilled adults. Experimental input was controlled; subjects were given a list of sentences, each sentence containing only one S-constituent, and asked to combine them into a paragraph. Hunt's research confirmed his previous findings (discussed above), as well as Loban's observation that as writers mature they use increasingly more non-finite embeddings. Hunt further identified a high incidence of conjoined structures as diagnostic of less mature syntax, and a high incidence of finite dependent structures as diagnostic of an intermediate stage in written language development, characteristic of students in grades 6 through 9.

With the limited exception of the effects of sentence combining instruction on syntactic maturity scores (O'Hare,

1971; Kerek et al., 1980), the development of writing abilities beyond secondary school has been largely ignored, due to the general assumption that the writing abilities of normal students are mature by the time they complete their secondary school education. Given that late adolescence and early adulthood are periods of extraordinary intellectual and cognitive growth (Piaget, 1972), it is to be expected that writing abilities, which draw on psychological skills and cognitive resources, would show similar growth at this time. Recent investigations of student and professional syntax (Freedman & Pringle, 1980; Pringle, 1979, 1980, 1981) have suggested that students' writing abilities do indeed mature throughout their post-secondary careers, and beyond into their adult years, as increasingly more successful attempts are made to replicate the kind of writing expected of one working within a particular field.

In a paper presented at the N.C.T.E. Convention, 1979, Pringle discusses the differences between 13th (grade 13) and 16th (third-year university) year student writing in four disciplines: History, Geography, Biology and English. An analysis of the syntax on the basis of an instrument scoring over 180 syntactic variables shows that there are differences by both discipline and level, suggesting both developmental changes over time and increasingly more successful replication

of discipline-specific characteristics. In a subsequent paper delivered at the Conference on College Composition and Communication, 1980, Pringle describes a case study of the syntactic development of one student, based on an analysis of all out-of-class writing assignments undertaken for academic purposes over a five-year period. Once again differences by discipline and level are apparent. In "Student and Professional Writing in Four Disciplines," a paper presented at the Conference on College Composition and Communication, 1981, Pringle discusses the results of a study which compared the writing of third-year university students in History, Geography, Biology and English to professional writing drawn from journals in the same fields; once again differences in the choice of syntactic structures made by students and professionals, according to the field in which they were writing, were delineated.

These studies imply that, as students at the university level proceed through their education, they aim with increasing success at some model. These studies suggest that what is involved is essentially a continuation of the normal modes of language acquisition at a more advanced level: just as small children work out the linguistic structure of their native language as they are exposed to it, and replicate it with increasing success, within the constraints of

developmental patterns and, presumably, universal grammar, so too students writing at an advanced level work out for themselves what is expected of them linguistically, refining details of their already well-established linguistic competence until they can perform according to expectations.

### 1.3 The Effect of Discourse Mode on Syntactic Performance

The one factor which has been positively identified as affecting syntactic performance is discourse mode. A number of studies have found that syntactic complexity is greater in expository writing than in narration (San Jose, 1973; Perron, 1977; Crowhurst & Piche, 1979). Crowhurst and Piche found that T-unit length was significantly greater in argumentation, one type of exposition, than in narration in both grades 6 and 10, and also that T-unit length did not increase significantly between grades 6 and 10 in the narrative mode. They suggest that the structure of exposition in general, and argumentation in particular, inherently requires the interrelationship of propositions, and that this is expressed syntactically by increased subordination of clauses and less-than-clausal elements.

In a study of the semantic and syntactic correlates of their modes of discourse, Harris and Witte (1980) link narration with action, perception and the passage of time.

The principal syntactic variables which they associate with narration are verbs and adverbs. They state:

The semantic category time is most visible in tense/mood/aspect distinctions associated with verbs, sentential adverbs of time, and adverbial phrases and clauses of time. The category place appears in locative phrases and adjectives...action, represented by verbs and action nominals, is inherently associated with narration.

(p. 95)

Harris and Witte do not include the category exposition in their theory of the modes of discourse, but other researchers have identified increased frequency of modals (Pringle, 1980) and finite adverbial clauses of condition and concession (Hunt, 1977) as characteristic of the expository mode.

Crowhurst (1980) examined the relationship between syntactic maturity scores and quality ratings (holistic scores) of narrative and expository writing of pupils in grades 6, 10 and 12. She found that quality ratings varied according to mode: Expository discourse of high syntactic complexity was rated higher than expository discourse of low syntactic complexity, but narrative discourse of high syntactic complexity was not rated higher than narrative discourse of low syntactic complexity. This study clearly indicates that mode, as well as determining specific features of surface syntax, determines our perceptions of rhetorical

quality; we have different expectations of the degree of syntactic complexity required depending on the discourse mode.

#### 1.4 The Research Problem

Preliminary investigations by Freedman and Pringle (discussed above) have revealed quantitative differences in the syntactic performance of university students on academic writing tasks, and qualitative features of syntactic performance which appear to be discipline-specific. Whether these results reflect differences in subject matter or discourse purpose of the writing samples analyzed, or different stylistic mannerisms particular to academic writing only, or whether they reflect cognitive differences in the way that writers from different disciplines choose to encode information is not clear. They do, however, raise questions which have important theoretical implications for further research into the development of writing abilities, as well as for the fields of linguistics, education and cognitive psychology.

What factors influence a university student's performance on a writing task which is non-academic in nature? Is one's performance determined by one's academic background? Can discipline-specific characteristics be detected in student writing regardless of the topic? What relationships pertain

between factors which influence syntactic performance, judgements of rhetorical quality and correlates of syntactic maturity? These are but a few of the questions which writing research must answer before empirically testable hypotheses can be formulated and investigated more formally.

### 1.5 The Present Study

The aim of the present study was to compare the syntactic performance of university students from two different disciplines on two non-academic writing tasks in different modes (narrative and expository) in order to determine how their performance differed and whether discipline-specific characteristics could be delineated. Syntactic performance and rhetorical quality judgements were compared in order to determine how they interact. The design of this study is descriptive rather than experimental in nature, but nonetheless it has an ecological validity, for we are still at the stage in writing research of attempting to identify those factors which influence syntactic performance, and of attempting to describe how those factors interact.

#### 1.5.1 The Dependent Variables

Syntactic performance in writing research has been traditionally measured by syntactic maturity scores, based on

T-unit analysis, and frequency counts of various kinds of clause types (Bereiter, 1980). The syntactic instrument used for analysis (Appendix A) is based on the instrument of analysis used by Freedman and Pringle in their studies, and is more detailed than most syntactic instruments produced to date. It provides for a raw frequency count of 189 syntactic variables which have been identified as diagnostic of syntactic maturity, and which have all been operationally defined so that identification and verification are easy, and reliability very high. The analysis includes basic counts for words, sentences, and T-units; all finite auxiliary structures, including modals and passives; the depth of embedding for all finite and non-finite clause types; and range of clause types.

Rhetorical quality judgements are traditionally measured by holistic scores (Crowhurst, 1980). One problem presented with this type of analysis is that it is inherently subjective and, as a result, experimentally uncontrollable. In this study an attempt was made to isolate rhetorical variables which might significantly affect rhetorical quality judgements. The rhetorical instrument (Appendix B) includes quality ratings for 5 rhetorical variables, unity, organization, development, overall stylistic effectiveness and coherence. Pringle and Freedman (1980) have identified these

variables as being rhetorically significant; they are defined in terms of rhetorical scales (Appendix C). Holistic scores were computed by summing the ratings assigned to each of the rhetorical variables.

The experimenter was responsible for the syntactic analysis; because holistic scoring is a subjective technique, an experienced rater was employed to undertake the rhetorical analysis. The reasons for employing an experienced rater who was independent of the experimenter are two-fold:

1. assigning rhetorical quality judgements which are consistent across groups requires training (Cooper; 1977);
2. rhetorical quality judgements assigned by the experimenter would be suspect on the grounds that the experimenter could identify the writing samples with the individual subjects and the groups to which they belonged.

#### 1.5.2 The Independent Variables Controlled For

Various studies have indicated that there are correlations between writing abilities, as they are measured by syntactic maturity scores, and

1. discipline (Freedman & Pringle, 1980; Pringle, 1979, 1980, 1981);
2. discourse mode (San Jose, 1973; Peron, 1977; Crowhurst & Piche, 1979; Crowhurst, 1980);
3. sex (Barritt & Kroll, 1978; Loban, 1976);

4. age (Hunt, 1965, 1977; O'Donnell et al., 1967; Loban, 1976; Crowhurst, 1980);
5. socio-economic class-home environment (O'Donnell et al., 1967; Britton, 1970);
6. I.Q. (O'Hare, 1971; Loban, 1976).

This study investigated the interaction of three of these variables. Discipline was re-defined as faculty, since discipline specific characteristics would presumably be even more evident across faculties. The discourse modes chosen for comparison were narration and exposition; sex was controlled for by using a matched sample of males and females.

We were unable to control for socio-economic class-home environment, age or I.Q. per se. Ottawa is, however, a "government town", with no heavy industry and little poverty, and the socio-economic level of students attending Carleton University is uniformly high. All of the students included in the matched sample had entered University directly from high school, and had been enrolled at Carleton for at least four terms. So although it was not possible to individually match the subjects for age, their ages fell within a restricted range (19-23), and it was felt that random selection of the sample from this group would provide an adequate control. Grade-Point-Average (G.P.A.) was substituted for I.Q. as a control measure; subjects were matched on a group basis.

### 1.5.3 Weaknesses of the Design

This kind of study raises serious statistical problems. The number of primary variables is inordinately large, so that large sample sizes are required to rule out Type .1 errors. The difficulty of finding suitable subjects and matching the subject sample limited the sample size in this study to 14 students from each faculty. Since the study is an exploratory one, this was considered adequate for our purposes, however.

In addition, the area within which significant variability is conceivable is very slight. Crystal and Davy (1969) have noted:

...any piece of discourse contains a large number of features which are difficult to relate to specific variables in the original extra-linguistic context, even though they may be felt to have some stylistic value. The majority of linguistic features in English have very little or no predictive power, that is, they are ambiguous indications of the situational variables in the extra-linguistic context in which they are used.

(p. 62)

For this reason, most surface syntactic features which the instrument provides a count for and most rhetorical variables would not be expected to differ significantly, either across discourse modes, nor across faculties. Until an extensive sample has been analyzed in order to determine which variables do not differ significantly, it will be impossible to discuss

with any confidence the significance of any variation which seems to point to discipline-specific or modal characteristics in university students' writing. But, once again, this is an exploratory study, and designed to point to areas for future investigation and research.

### 1.6 Summary

Within the area of current psycholinguistic research into writing abilities, we have identified the specific area of interest for this study viz. the effect of the independent variables faculty, mode and sex on syntactic performance, and the relationship of rhetorical quality judgements to syntactic performance. Reasons were given for choosing the dependent variables and weaknesses in the design of this study were discussed.

## CHAPTER II: METHOD

### 2.1 Design

Two, timed writing tasks were assigned to a matched sample of fourth-year Science and Arts students studying at Carleton University, Ottawa. Writing samples were then analyzed through the means of a syntactic instrument and a rhetorical instrument in order to compare the syntactic performance of each group on each task.

### 2.2 Subjects

One Science course (Biology 61.335) and one Arts course (Linguistics 29.485) were canvassed for paid volunteers who were native-speakers of English and who had been educated in English. Courses to be canvassed were selected on the basis of student enrollment and the co-operation of the professors teaching those courses. Students were screened for fourth-year standing, which was defined as having completed a minimum of ten courses in their faculty. Twenty subjects from each course were tested. A sample of twenty-eight students (fourteen from the Faculty of Science and fourteen from the Faculty of Arts) was then selected.

Subjects were matched for sex (seven males and seven females in each group) in order to control for differences

attributable to sex. Subjects were also matched for grade-point average (G.P.A.). The average G.P.A. scores for the Faculty of Science and the Faculty of Arts differed by .1 (Science: 7.6; Arts: 7.7), which was not considered significant for our purposes.

There were, then, two major subgroups -- males and females from the Faculty of Science (14), and males and females from the Faculty of Arts (14).

### 2.3 Procedure

Subjects were asked to write for twenty minutes each on Topics A and B during one forty-five minute writing session. Topic A (narrative) was administered first:

Describe an event in your life that didn't turn out the way you thought it would.

Topic B (expository) was administered after a five-minute break:

University students have recently been described as "functionally illiterate". Should all university students be required to pass an English composition requirement before being graduated?

The two tasks were administered to subjects at their convenience on an individual basis during regular school hours.

Reasons for the ordering of Topics A and B are two-fold:

- (i) Since syntactic and rhetorical competence are achieved earliest in the narrative mode, subjects would be less inhibited writing in the easier of the two modes first; hence, Topic A was administered first.
- (ii) Since the problem addressed in Topic B would cause heightened awareness of subjects' writing abilities, Topic B was administered second.

All the subjects were told that they were representing their respective faculties, Science and Arts, and that their writing samples were being used to compare their choice of grammatical structures in written discourse. Topic A was then presented and any questions about the task were answered by the experimenter. After twenty minutes, writing on Topic A was terminated. Following a five-minute break, Topic B was administered just as Topic A had been.

Subjects were paid five dollars each at the end of the writing session.

#### 2.4 Materials

Two writing samples (one personal narrative and one expository) were produced by each subject in response to Topics A and B (see 2.3).

Each writing sample was subjected to two analyses:

- (i) an analysis of surface syntactic structure by means of the syntactic instrument (Appendix A).
- (ii) an analysis of rhetorical features by means of the rhetorical instrument (Appendix B).

#### 2.4.1 Syntactic Instrument

The syntactic instrument is subdivided into eight sections (A-H). Subset A includes demographic data and raw counts of words, sentences and T-units. Subset B is concerned with the details of the auxiliary system of every finite clause, including raw counts of all modal, active-transitive and passive verbs. Pringle (1981:7) has noted that these syntactic variables are highly sensitive to certain aspects of how different subjects differ in the way they handle the données of their particular discipline.

The remaining six subsets of the syntactic instrument focus on details of clausal structure. Subset C provides for counts of all conjoinings of independent clauses at the level of the auxiliary and the predicate. Subset D provides for raw frequency counts of all possible types of finite dependent clauses in English and, in cases where mobility of the clause type with respect to the subordinate structure has proven

significant, allows for further breakdown of the clause types, according to their position with respect to the superordinate structure. Subset E provides for a similar raw frequency count of all possible types of non-finite dependent clausal structures embedded in independent clauses, once again broken down according to their position with respect to the superordinate structure when that is relevant; Subset F provides for an identical count of all non-finite clausal structures embedded in dependent clauses. Subset G provides for a count of instances of finite embeddings at the secondary and tertiary levels. The last subset of the syntactic instrument (H) examines the range of finite and non-finite dependent structures used, regardless of the frequency of particular structures.

The syntactic instrument, then, provides a framework for an extremely detailed analysis of surface structure clausal features and auxiliary systems used in the writing samples collected. New variables have been computed from the raw variables: the raw instances of particular clause types, for example, were divided by the total number of T-units in order to be expressed as proportions.

### 2.4.2 Rhetorical Instrument

The rhetorical instrument used (Appendix B) is what Cooper (1977) refers to as a holistic analytic instrument: a set of rhetorical criteria are specified, and each writing sample is evaluated according to these criteria. It is broadly based on the Diederich instrument of evaluation, and is similar to many other evaluation measures employed in writing research (Cooper, 1977; Bailey et al., 1980; Freedman et al., 1980).

The rhetorical instrument specifies five rhetorical criteria drawn from conventional wisdom about composition:

1. Unity - Does a clearly stated thesis prevail throughout the composition?
2. Organization - Does the composition include a logical order of presentation?
3. Development - Does the composition include supporting details?
4. Overall Stylistic Effectiveness - Is the composition enjoyable to read?
5. Coherence - Does the writing flow, or is it choppy and incoherent?

Each of these criteria are described in terms of specified points on a five-point scale (Appendix C). An experienced rater rated each writing sample with respect to these five criteria. In addition, an overall holistic score was computed for each writing sample by summing the five rhetorical criteria scores.

## CHAPTER III: RESULTS

### 3.1 Statistical Analysis

Each of the dependent variables of the syntactic instrument (Appendix A: variables 5-194) and the rhetorical instrument (Appendix B: variables 5-10) was considered as a random separate variable; raw frequencies were computed for each variable. Scores on these variables were then used to test for the effects of the independent variables: faculty, mode and sex. The 56 writing samples were classified according to the purpose of the particular test. The tests were aimed at comparing the relationship between the independent and dependent variables in each of the four groups - male and female Science students writing in the narrative and expository modes, and male and female Arts students writing in the narrative and expository modes.

### 3.2 t-Tests

Writing samples collected from the matched sample of Science and Arts students were considered as paired according to mode (narrative or expository), faculty (Science or Arts) and sex. A series of t-Tests (with 26 degrees of freedom (d.f.)) was used to test for differences in means in each of the raw variables of the syntactic instrument and various computed variables (variables grouped according to clause type

and variables computed to express proportions). A second series of t-Tests (with 26 d.f.) was used to test for differences in means on each of the rhetorical criteria specified on the rhetorical instrument, as well as differences in means on holistic scores. Means for male and female Science students and male and female Arts students writing in the same mode were compared in the same way (with 12 d.f.).

An across-groups comparison of means of Science and Arts students writing in the same mode was conducted. In this case the independent variable was faculty; independent variables which were controlled for were mode, sex and G.P.A. (see Table 3.1).

Means of Science and Arts students writing in both modes were compared within groups in order to discern differences attributable to mode. In this case the independent variable was mode; independent variables which were controlled for were faculty and sex. Subjects were not matched for G.P.A. (see Table 3.2).

Table 3.1

t-Tests for Differences in Means

Groups	
Classification Criteria	No. of Cases
Science Narrative	14
Arts Narrative	$\frac{14}{28}$
Science Expository	14
Arts Expository	$\frac{14}{28}$

Table 3.2

t-Tests for Differences in Means

Groups	
Classification Criteria	No. of Cases
Science Narrative	14
Science Expository	$\frac{14}{28}$
Arts Narrative	14
Arts Expository	$\frac{14}{28}$

In order to discern differences attributable to sex, across and within group comparisons of means for males and females writing in the same mode were conducted. In the across-groups comparison, the independent variable was

faculty; independent variables which were controlled for were mode, sex and G.P.A. (see Table 3.3). In the within-groups comparison, the independent variable was sex; independent variables which were controlled for were faculty and mode (see Table 3.4).

Table 3.3

t-Tests for Differences in Means

Groups	No. of Cases
Classification Criteria	
Science Narrative (males)	7
Arts Narrative (males)	$\frac{7}{14}$
Science Narrative (females)	7
Arts Narrative (females)	$\frac{7}{14}$
Science Expository (males)	7
Arts Expository (males)	$\frac{7}{14}$
Science Expository (females)	7
Arts Expository (females)	$\frac{7}{14}$

Table 3.4

t-Tests for Differences in Means

Groups	
Classification Criteria	No. of Cases
Science Narrative (males)	7
Science Narrative (females)	$\frac{7}{14}$
Science Expository (males)	7
Science Expository (females)	$\frac{7}{14}$
Arts Narrative (males)	7
Arts Narrative (females)	$\frac{7}{14}$
Arts Expository (males)	7
Arts Expository (females)	$\frac{7}{14}$

In order to facilitate comparison of the four groups being considered, significant results for all groups will be reported according to the subclassification of the raw variables on the syntactic and rhetorical instruments.

### 3.3 Syntactic Variables

#### 3.3.1 Syntactic Variables: Words, Sentences and T-Units

Means for raw scores of words, sentences and T-units are consistently higher for Science students than for Arts students (see Table 3.5). A comparison of Science and Arts narratives reveals a significant difference in means for all three variables; words:  $t(26 \text{ d.f.}) = 2.35, p < .05$ ; sentences:  $t(26 \text{ d.f.}) = 2.45, p < .05$ ; T-units:  $t(26 \text{ d.f.}) = 2.20, p < .05$ . In the expository mode, however, there is a significant difference for words only,  $t(26 \text{ d.f.}) = 3.56, p < .01$ .

Means for both Science and Arts students are higher in the narrative than the expository mode. Less variation is shown in a comparison of Arts students' writing across modes: there are no significant differences. Science students' writing compared across modes reveals a significant difference for sentences,  $t(26 \text{ d.f.}) = 2.41, p < .05$ , and T-units,  $t(26 \text{ d.f.}) = 3.26, p < .01$ , but not for words.

The computed variables %Words/T-unit and %T-units/Sentence show significant differences for Science students' writing across modes only (see Table 3.6); %Words/T-unit:  $t(26 \text{ d.f.}) = 3.93, p < .01$ ; %T-units/Sentence:  $t(26 \text{ d.f.}) = 3.03, p < .01$ . Although the direction of change for these

Table 3.5  
Means for Basic Syntactic Variables

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Words	334.0	103.3	250.78	83.2
Sentences	17.5	4.45	13.0	5.21
T-units	21.5	6.33	15.79	7.35

Table 3.6  
Means for Basic Computed Variables

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
%Words/ T-unit	15.82	3.13	17.09	4.54
%T-units/ Sentence	1.23	.15	1.20	.16
			18.71	4.68
			1.17	.17

variables remains constant for Science and Arts students, means for Arts students are much closer, indicating a more consistent style across modes.

Female Science and Arts students consistently used more words, and T-units than their male counterparts (see Table 3.7), providing limited evidence for the commonly held belief that females tend to be more fluent writers than males. Once again there was less variation in means for male and female Arts students when compared across modes; there are no significant differences to report. A comparison of male and female Science students' writing reveals two significant differences, however: female Science students wrote significantly more words in the expository mode,  $t(12 \text{ d.f.}) = 2.9$ ,  $p < .05$ , and significantly more sentences in the narrative mode,  $t(12 \text{ d.f.}) = 2.71$ ,  $p < .05$ .

### 3.3.2 Syntactic Variables: Finite Auxiliaries

Mode appears to be far more important in determining combinations of finite auxiliaries used (Subset B, subsection a of the syntactic instrument) than faculty, for a comparison of means across faculties reveals no significant differences (see Table 3.8).

Table 3.7  
Means for Basic Syntactic Variables, By Sex

Groups	Science Narrative (male)		Science Expository (male)		Science Expository (female)		Arts Narrative (male)		Arts Narrative (female)		Arts Expository (male)		Arts Expository (female)			
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Variables	284.0	84.17	384.0	101.03	240.71	74.27	351.57	51.63	240.71	74.27	260.86	92.06	197.29	63.12	225.7	51.86
Words	14.86	3.67	20.14	3.62	11.71	5.31	15.29	2.29	12.0	3.37	14.0	6.73	9.0	4.16	12.14	4.14

Table 3.8  
Means for Finite Auxiliaries: Combinations

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Tense + Modal	2.64	1.99	9.36	3.2
Tense + Have EN	3.29	2.84	1.36	1.21
Tense + Modal Have EN	.5	.76	0	0

Both Science and Arts students employed more Tense + Modal constructions in the expository mode, at the .01 level of significance, than in the narrative mode; Science students:  $t(26 \text{ d.f.}) = 6.67, p < .01$ ; Arts students:  $t(26 \text{ d.f.}) = 4.69, p < .01$ . Conversely, both groups employed more Tense + Have EN constructions in the narrative mode than in the expository mode, at the .05 level of significance; Science students:  $t(26 \text{ d.f.}) = 2.34, p < .05$ ; Arts students:  $t(26 \text{ d.f.}) = 2.1, p < .05$ . Science students also employed significantly more Tense + Modal + Have EN constructions in the narrative mode,  $t(26 \text{ d.f.}) = 2.46, p < .05$ .

The direction of change for the means of Science and Arts students compared across modes remains constant. These results underline characteristics which are inherent in the two discourse modes being compared. Time tends to be used as an organizing principle when writing in the Narrative mode; hence, means for Tense + Have EN constructions are significantly higher in the narrative mode for both groups. Expository discourse, on the other hand, involves formulating hypotheses and expressing possibility and probability; hence, means for Tense + Modal constructions are significantly higher in the expository mode for both groups.

Standard deviations for means of real counts of modals (Subset B, subsection b of the syntactic instrument) are

large, indicating a great deal of variability among subjects in all groups (see Table 3.9). There are no significant differences in means for Science and Arts students writing in the expository mode. A comparison of Science and Arts narratives, however, reveals that Science students used could significantly more often than Arts students did,  $t(26 \text{ d.f.}) = 2.27$ ,  $p < .05$ , and that Arts students used would significantly more often than Science students did,  $t(26 \text{ d.f.}) = 2.08$ ,  $p < .05$ . These results are consistent with data from Pringle's study of student syntax across four disciplines (Pringle, 1981), in which could appeared as a diagnostic variable in Biology (Science) students' writing, and would as a diagnostic variable in History (Arts) students' writing.

An across-modes comparison reveals that means for should are significantly higher for both Science and Arts students in the expository mode; Science students:  $t(26 \text{ d.f.}) = 4.33$ ,  $p < .01$ ; Arts students:  $t(26 \text{ d.f.}) = 5.59$ ,  $p < .01$ . These results, however, are attributable to the occurrence of the modal should in Topic B.

What is more interesting is that Science students' writing compared across modes reveals significantly higher means in the expository mode for the modals will,  $t(26 \text{ d.f.}) = 2.58$ ,  $p < .01$ , and would,  $t(26 \text{ d.f.}) = 4.33$ ,  $p < .01$ , and slightly lower (albeit not significantly) means for could. A

Table 3.9  
Means for Real Counts of Modal Verbs

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
WILL	.14	.36	1.14	1.4
WOULD	1.0	1.3	2.57	1.87
SHOULD	.21	.43	2.14	1.61
COULD	1.07	1.14	.71	.99
MIGHT	.07	.27	.14	.36

comparison of Arts students' writing, on the other hand, reveals significantly higher means in the expository mode for could,  $t(26 \text{ d.f.}) = 2.35$ ,  $p < .05$ , and might,  $t(26 \text{ d.f.}) = 2.48$ ,  $p < .05$ , and no significant difference in means for would. The direction of change is completely unpredictable from results obtained in an across-faculties comparison of Science and Arts students' writing, and fails to support claims that could and would are diagnostic variables in Science and Arts students' writing. It appears more likely that choice of modals depends on the author's rhetorical stance vis-a-vis the topic.

### 3.3.3 Syntactic Variables: Conjoinings

Means for the various types of conjoined independent clauses (Subset C of the syntactic instrument) remain fairly constant across groups. Conjoining at the level of the verb phrase occurs most frequently in all groups. Science students' means for Conjoined VP's are consistently higher in both modes than Arts students' means, although t-Tests reveal no significant difference in an across-faculties comparison (see Table 3.10).

A comparison of Arts students' writing across modes reveals a significantly higher number of Conjoined VP'S in the narrative mode,  $t(26 \text{ d.f.}) = 2.31$ ,  $p < .05$ , indicating that

Table 3.10  
Means for Conjoined VP's

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Conjoined VP's	1.93	2.6	.57	.54
			.86	1.02
			.14	
				S.D.

Arts students use conjoinings to help sequence events in the narrative mode (a process commonly referred to as 'chaining'). There are no significant differences in Science students' means.

### 3.3.4 Syntactic Variables: Finite Dependent Clause Types

Means for finite dependent clause types (Subset D of the syntactic instrument) tend to be small and standard deviations large, indicating a great deal of variability between subjects in each group. This, in part, is a function of the wide range of finite clause types available for use.

An across-groups comparison of Science and Arts students' writing reveals significant differences in means for two relative clause types (Subset D, subsection a of the syntactic instrument). Means for Science students writing in the expository mode are significantly higher than Arts students' means for restrictive relative clauses attached to subject NP's,  $t(26 \text{ d.f.}) = .64, p < .01$ , and non-restrictive relative clauses attached to object NP's,  $t(26 \text{ d.f.}) = .45, p < .05$  (see Table 3.11).

Means for restrictive relative clauses attached to subject NP's are identical for Science and Arts students writing in the narrative mode. Comparing means within groups

Table 3.11  
Means for Finite Relative Clause Types

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Restrictive relatives attached to subject NP's	.43	.65	.43	.51
Non-restrictive relatives attached to object NP's	.21	.58	.07	.27

reveals different directions of change, however; Science students used more restrictive relative clauses attached to subject NP's in the expository mode than the narrative, while Arts students used more in the narrative mode than in the expository mode.

Arts students' means for non-restrictive relative clauses attached to object NP's shared little variation when compared across modes. The mean for Science students is marginally lower in the expository mode than it is in the narrative mode.

A series of t-Tests run on the individual means for nominal that, nominal WH interrogative and nominal relative clauses (Subset D, subsections b, c and d of the syntactic instrument) reveals no significant differences. Computed means for nominal that and nominal WH interrogative clauses show little variation across the four groups.

The computed means for nominal relative clauses are consistently higher in Science students' writing (see Table 3.12). The direction of change is constant; both Science and Arts students used more nominal relative clauses when writing in the expository mode, which is consonant with Britton's observation that more abstract topics tend to be syntactically more complex (Britton, 1970). Means for Science students writing in the expository mode are significantly higher than

Table 3.12  
Means for Nominal Relative Clauses (Summed)

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Nominal relative clauses	.71	.73	1.21	1.63
			.5	.65
			$\bar{X}$	S.D.
			$\bar{X}$	S.D.

Arts students',  $t$  (26 d.f.) = 2.05,  $p < .05$ , which is contrary to Pringle's observation (1980) that greater frequency of finite nominal relative clauses is a diagnostic variable in Humanities (Arts) writing.

A comparison of means for finite adverbial clauses (Subset D, subsection e of the syntactic instrument) reveals significant differences for three adverbial clause types: time preposed, conditional preposed and conditional final (see Table 3.13). Science students' means show greater variation across modes than Arts students', although the direction of change is constant between modes across groups.

Science students used significantly more time preposed clauses when writing in the narrative mode than Arts students,  $t$  (26 d.f.) = 3.4,  $p < .01$ . A high incidence of finite adverbial clauses has been identified as a feature of narrative discourse (Crowhurst, 1980). Science students' means compared across modes reveals significantly fewer time preposed clauses in the expository mode,  $t$  (26 d.f.) = 3.98,  $p < .001$ .

Arts students' writing compared across modes reveals a slightly lower mean for time preposed clauses in the expository mode. What is more surprising is the very low frequency of time preposed clauses in the Arts narratives.

Table 3.13  
Means for Finite Adverbial Clauses

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Time proposed	1.36	1.08	.14	.36
Conditional proposed	.14	.54	1.43	1.6
Conditional final	.14	.54	.93	1.2
			.29	.47
			.21	.43
			.64	1.21
			.29	.47

Means for preposed and final conditional clauses are higher in the expository mode than the narrative mode for both groups. Science students' means are significantly higher; preposed conditional clauses:  $t(26 \text{ d.f.}) = 2.85, p < .01$ ; final conditional clauses:  $t(26 \text{ d.f.}) = 2.23, p < .05$ . There are no significant differences in Arts students' means.

Both Science and Arts students indicate a preference for preposed conditional clauses over conditional clauses in final position in the expository mode.

### 3.3.5 Syntactic Variables: Non-finite Embeddings in Independent Clauses

A series of  $t$ -Tests run on means for non-finite embeddings in independent clauses (Subset E of the syntactic instrument) reveals no significant differences in an across faculties comparison. In an across modes comparison three variables prove significant: TO restrictive relative clauses postposed to dominant NP's, ING noun prepositional complement clauses and ING non-restrictive relative clauses postposed to non-dominant NP's (see Table 3.14).



Science students writing in the expository mode used significantly more ING noun prepositional complement clauses,  $t(26 \text{ d.f.}) = 2.8, p < .05$ .

Arts students writing in the expository mode used significantly more TO restrictive relative clauses postposed to dominant NP's,  $t(26 \text{ d.f.}) = 2.45, p < .05$ . In the narrative mode Arts students used significantly more ING non-restrictive relative clauses attached to a surface NP but not immediately postposed,  $t(26 \text{ d.f.}) = 2.64, p < .05$ .

There are no significant differences to report for t-Tests run on non-finite embeddings grouped according to clause type.

### 3.3.6 Syntactic Variables: Non-finite Embeddings in Dependent Clauses

As is the case for non-finite embeddings in independent clauses, a series of t-Tests run on non-finite embeddings in dependent clauses (Subset F of the syntactic instrument) reveals no significant differences in an across-faculties comparison, and significant differences for three variables in a comparison across modes: ING noun prepositional complement clauses, ING adverbial clauses and ING non-restrictive relative clauses attachable to a surface NP but not immediately postposed (see Table 3.15).

Table 3.15  
Means for Non-Finite Embeddings in Dependent Clauses

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
ING noun prepositional complement	.35	.63	1.43	1.4
			.79	.7
			.57	.85
ING adverbial	0	0	.79	.89
			0	0
			.64	.93
ING non- restrictive relative clause attached to surface NP, not immediately postposed	.14	.54	.07	.27
			.43	.27
			0	0

Science students embedded significantly more ING noun prepositional complement clauses into dependent structures in the expository mode than in the narrative mode,  $t(26 \text{ d.f.}) = 2.61$ ,  $p < .05$ , which is also the case for ING noun prepositional complement clauses embedded in independent structures (see 3.3.5). Why science students show such a preference for ING noun prepositional complement structures is not clear, although the significantly higher frequency of them in the expository mode is indicative of greater syntactic maturity in that mode (O'Hare, 1971; Crowhurst, 1980). The direction of change in means for ING noun prepositional complement structures is inconsistent across faculties; Arts students used fewer of these structures in the expository mode than in the narrative mode.

Both Science and Arts students used significantly more ING adverbial clauses when writing in the expository mode; Science students,  $t(26 \text{ d.f.}) = 3.29$ ,  $p < .01$ ; Arts students,  $t(26 \text{ d.f.}) = 2.59$ ,  $p < .05$ . Means for both groups in the narrative mode are zero.

In the narrative mode, Arts students embedded significantly more ING non-restrictive relative clauses attachable to a surface NP but not immediately postposed in dependent clauses,  $t(26 \text{ d.f.}) = 2.12$ ,  $p < .05$ . This data is consonant with findings for ING non-restrictive relative

clauses attachable to any non-dominant NP embedded in independent clauses (see Section 3.3.5), but it conflicts with the results obtained in other syntactic maturity studies, which suggest that more non-finite embeddings should occur in the expository mode.

### 3.3.7 Syntactic Variables: Range of Clause Types

A series of t-Tests run on means for range of clause types (Subset H of the syntactic instrument) reveals significant differences for one variable only, the range of non-finite clause types embedded in dependent structures. Arts students' means are consistently lower than Science students' means (see Table 3.16), which indicates less variation in their choice of syntactic structure. From these results it cannot be concluded that Science students' writing is syntactically more mature, however. The difference in means could be a function of the fact that Science students wrote more in both modes, which increased their chances of using more different kinds of clause types.

An across-faculties comparison reveals that Science students used significantly more non-finite clause types embedded in dependent structures when writing in the expository mode than Arts students did,  $t(26 \text{ d.f.}) = 2.95$ ,  $p < .01$ . Means for range of non-finite clause types embedded in

Table 3.16  
Means for Range of Clause Types

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Range of conjoined clause types	.79	.58	.57	.51
Range of finite clause types	8.71	2.95	7.79	3.04
Range of non-finite clause types in independent structures	5.57	2.68	4.86	1.79
Range of non-finite clause types in dependent structures	4.0	1.79	5.71	2.49

dependent clauses are fairly constant across modes for Arts students. Science students' writing compared across modes, however, reveals a significant difference for the range of non-finite dependent clause types embedded in dependent clauses. The mean for this variable in the expository mode is significantly higher,  $t(26 \text{ d.f.}) = 1.93, p < .05$ . These results indicate that Science students' writing shows greater variation across modes than Arts students'.

### 3.4 Rhetorical Variables

Means for rhetorical variables, including holistic scores compared across faculties reveal no significant differences (see Table 3.17). Means for Arts students writing in the narrative mode were consistently (albeit marginally) higher than Science students' means. In the expository mode means for Science and Arts students show little variation and the means for holistic scores in the two groups are identical.

Writing samples in the narrative mode of both Science and Arts students were judged to be superior to writing samples in the expository mode. Science students' writing compared across modes, reveals no significant differences; the quality of their writing appears to be more consistent on the two tasks. Means for Arts students writing in the narrative mode were significantly higher for three rhetorical variables;

Table 3.17  
Means for Rhetorical Variables

Groups	Science Narrative	Science Expository	Arts Narrative	Arts Expository
Variables	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Unity	3.43	1.28	3.14	3.86
Organization	3.43	1.22	3.07	3.5
Development	3.51	1.23	2.93	3.71
Overall stylistic effectiveness	3.07	.98	2.78	3.14
Coherence	3.21	1.0	2.71	3.43
Holistic score	16.64	5.49	14.64	17.93
				3.34
				14.64
				2.87

unity,  $t$  (26 d.f.) = 3.12,  $p < .005$ ; development,  $t$  (26 d.f.) = 3.03,  $p < .01$ ; and holistic score,  $t$  (26 d.f.) = 2.79,  $p < .01$ , indicating greater variability in quality on the two tasks.

## CHAPTER IV: DISCUSSION

### 4.1 The Independent Variables and Syntactic Performance

The main purpose of this study was to compare the syntactic performance of male and female university students from two different faculties on writing tasks in two different modes, in order to observe the effect of each of the independent variables faculty, mode and sex on syntactic performance. Statistical tests revealed significant differences for only a small percentage of all the syntactic variables investigated, but this was anticipated due to weaknesses inherent in the design of this kind of study -- namely, the relatively small size of the matched sample and the very large number of variables being considered (see Section 1.5).

Results of the present study indicate that sex of the subject bears no relation to syntactic performance in university students' writing. There are only two instances of means differing significantly in comparisons of males and females across and within faculties: means for raw frequencies of words and sentences in Science students' writing are significantly higher for females than males. These results are anomalous, however, and would probably not have occurred if the sample size had been larger.

Of the three variables being investigated here, discourse mode clearly has the greatest effect on syntactic performance. Results from the present study confirm observations made by Harris and Witte (1980) and Pringle (1980, 1981) regarding the relationship of particular finite auxiliary structures to mode. Both Science and Arts students predictably used more Tense + Have EN constructions in narration, and more Tense + Modal constructions in exposition.

Significant differences in means for a number of other syntactic variables were reported, but none of these variables were the same for both groups. This can be explained as a function of the large number of syntactic variables being considered and the small sample size. In the narrative mode Science students used more preposed adverbial clauses of time and Arts students more Conjoined VP's; in the expository mode Science students used more ING noun prepositional complement clauses and Arts students used more TO restrictive relative clauses. Beyond noting that these features of surface syntax have been identified with either narration or exposition, these results remain uninterpretable, however. We cannot know what it means for writers to use more of one kind of structure in a certain discourse mode without considering the semantics of the discourse, and this type of investigation goes beyond the bounds of the present study.

Results of the present study fail to support claims that the expository mode is inherently more complex (San Jose, 1973; Crowhurst & Piche, 1979). Only one measure of syntactic complexity proved significant: Science students writing in the expository mode wrote significantly longer T-units, as reflected in the computed variable %Words/T-unit. The direction of change is constant for both Science and Arts students across modes, however. These results suggest a narrowing of the gap between narrative and expository writing styles at the university level, possibly as a function of university students having to write almost exclusively in the expository mode.

The paucity of significant results in across-faculties comparisons of Science and Arts students' writing could, at first glance, be taken to indicate no difference in their writing styles. The only significant difference between Science and Arts students' writing which is consistent across modes is length: Science students wrote more words, sentences and T-units than Arts students on both tasks in the same amount of time (20 minutes per task). Since the two writing tasks were administered uniformly, there is no reason to assume that these results reflect different degrees of motivation towards the tasks on the part of the two groups of students. It would seem instead that they hint at possible

differences in the composing strategies of Science and Arts students which are worthy of further investigation. Perhaps Science students, as a group, tend to be less conscious of their writing than Arts students, monitoring its production less closely and, consequently, writing more fluently.

All of the compositions analyzed in this study reflect what Hunt (1977) terms "mature syntactic performance". With the exception of finding that Science students used significantly more ING noun prepositional complement clauses embedded in both independent and dependent structures in the expository mode, the present study failed to uncover any discipline-specific characteristics of surface syntax. Indeed, some of the results of the present study contradict results reported by Pringle (1981); in the expository mode the modals could and would do not appear as diagnostic variables in the writing of Science and Arts students respectively, and the frequency of nominal relative clauses in Science students' exposition is significantly higher than in Arts students' exposition, which is the opposite of what Pringle found. These results suggest that discipline-specific characteristics of surface syntax are more likely the function of either the subject matter being dealt with, or of a particular academic style, and that any discipline-specific characteristics of surface syntax which might be isolated in studies of academic

writing are not transferred to non-academic writing tasks.

What is most interesting in the present study is the degree of variability in syntactic performance demonstrated by Science and Arts students writing in the narrative and expository modes. Arts students display a more consistent style across modes. A comparison of Arts narrative and expository writing samples reveals no significant differences in length or syntactic complexity, and fewer significant differences for specific surface syntax structures identified with either narration or exposition. An across-modes comparison of Science students' writing, on the other hand, reveals significant differences that indicate greater length in the narrative mode (as measured by sentence and T-unit scores), greater syntactic complexity in the expository mode (as measured by %Words/T-unit), and significantly higher frequencies for specific surface syntax structures identified with narration and exposition -- more preposed adverbial clauses of time in the narrative mode; more nominal relative clauses, more ING noun prepositional complement clauses and a greater range of non-finite embeddings in dependent clauses in the expository mode.

Science students' writing, then, displays more differences attributable to discourse mode than Arts students' writing does. These results seem to indicate that Science

students perceive of the narrative and expository modes of discourse differently than Arts students do. Aviva Freedman (personal communication) has suggested that this is possibly the result of Science students being required to write scientific reports, which are narrative in nature, as well as expository essays, whereas Arts students are generally required to write in the expository mode only. The greater variability in syntactic performance on the part of Science students may be the result of having had more practice writing in the narrative and expository modes and, consequently, of developing a writing style which is more influenced by discourse mode.

#### 4.2 Syntactic Performance and Judgments of Rhetorical Quality

Neither Science nor Arts students' writing samples were judged to be significantly better; judgments of rhetorical quality are consistent for both Science and Arts students across modes. In both groups narrative writing samples were rated higher than expository writing samples, although only in the case of Arts students did a significant difference across modes appear.

Results of the present study fail to indicate any correlation between syntactic performance and judgments of rhetorical quality. Science students' writing, which displays

greater syntactic variability across modes and more mode-specific characteristics, was judged to be more consistent in terms of rhetorical quality, while Arts students' writing, which appears to be syntactically more consistent, was judged to be more variable in terms of rhetorical quality. Judgments of rhetorical quality of university students' writing, then, do not appear to be influenced by syntactic performance, but, because of the small sample size being considered, these results can only be considered tentative.

#### 4.3 Areas for Further Research

Results of the present study indicate that the writing of Science and Arts students at the fourth-year level is more alike than it is different, both in terms of syntactic performance and rhetorical quality judgments. Sex appears to bear no relation to university students' writing, and discourse mode clearly has the greatest effect on syntactic performance.

Although the present study failed to uncover any clear-cut discipline-specific characteristics of either Science or Arts students' writing, the results obtained do hint at one fruitful area for further research -- namely, investigations into why Science students' writing appears to

be more influenced by discourse mode than Arts students does. Could this be the result of having had more experience writing in the narrative and expository modes, as Freedman has suggested? Do Science and Arts students perceive of the narrative and expository modes differently? The answers to these questions have important implications for the teaching of writing at the post-secondary level, as well as for cognitive psychology. How does one's educational experience influence one's writing abilities and one's writing performance? A greater understanding of the effect of discourse mode on syntactic performance is required, however, before any attempt to answer this important research question can be made.

As previously noted, results obtained in the present study indicate that discipline-specific characteristics of surface syntax which might be identified in academic writing are not transferred to non-academic writing tasks. This suggests that further investigations into discipline-specific characteristics should focus on explicating the relationship between the subject matter being dealt with in writing which is particular to an academic field and any discipline-specific characteristics isolated in student writing.

## CHAPTER V: SUMMARY AND CONCLUSION

The objectives of this study were to examine the effect of the independent variables faculty, mode and sex on the syntactic performance of Science and Arts students on two writing tasks which were non-academic in nature, and to observe the relationship of syntactic performance to judgments of rhetorical quality. Studies investigating the development of writing abilities, the notion of syntactic complexity and possible discipline-specific characteristics of surface syntax were reviewed, as well as results of experimental studies investigating the effect of discourse mode on syntactic performance. Reasons were given for choosing the dependent variables of the syntactic and rhetorical instruments, and for using a sample of matched pairs. Weaknesses in the design of this study, notably the relatively small size of the matched sample and the very large number of syntactic variables being considered, were also discussed.

Two timed writing tasks, one narrative and one expository, were assigned to a matched sample of fourth-year Science and Arts students studying at Carleton University, Ottawa. Procedures for selection of subjects and administration of writing tasks were outlined. Writing samples were then analyzed through the means of syntactic and rhetorical instruments and results compared by means of t-tests in order

to observe any differences in syntactic performance to judgments of rhetorical quality.

Significant results were reported for all groups according to the sub-classification of the variables on the syntactic and rhetorical instruments. Sex appeared to have no effect on syntactic performance. Of the three independent variables being investigated, discourse mode had the most pronounced effect on syntactic performance. Results of the present study failed to identify characteristics of surface syntax which were clearly attributable to faculty. Differences in the length of the compositions written by Science and Arts students and the greater degree of variability in syntactic performance across modes on the part of Science students seemed to point to differences in the way that Science and Arts students perceive of the narrative and expository discourse modes, however. No correlation between syntactic performance and judgments of rhetorical quality was found.

Results of the present study indicated two fruitful areas for further research into discipline-specific investigations of syntactic performance:

1. further investigations into greater variability in syntactic performance across modes for groups from specific disciplines;

2. the limitation of investigations into discipline-specific characteristics of surface syntax to academic writing samples only and further investigations into the relationship between the subject matter being dealt with in academic prose and syntactic performance.

APPENDIX AWRITING PROJECT: SYNTACTICSCORE SHEETA. DEMOGRAPHICS

CASE I.D. \_\_\_\_\_

CARD I.D. \_\_\_\_\_

1. STUDENT NUMBER \_\_\_\_\_

2. FACULTY \_\_\_\_\_

3. MODE \_\_\_\_\_

4. SEX \_\_\_\_\_

5. NO. OF WORDS \_\_\_\_\_

6. NO. OF SENTENCES \_\_\_\_\_

7. NO. OF T-UNITS \_\_\_\_\_

B. FINITE AUXILIARIES (ALL FINITE CLAUSES)a. Combinations:

Number of instances of:

8. Mandative subjunctive (-T) \_\_\_\_\_ :

9. T + M \_\_\_\_\_ :

10. T + have EN \_\_\_\_\_ :

11. T + be ING \_\_\_\_\_ :

12. T + have EN be ING \_\_\_\_\_ :

13. T + M + have EN \_\_\_\_\_ :

- 14. T + M + be ING \_\_\_\_\_ : \_\_\_\_\_
- 15. T + M + have EN + be ING \_\_\_\_\_ : \_\_\_\_\_
- b. Modals: (including negations):
- 16. will \_\_\_\_\_ : \_\_\_\_\_
- 17. would \_\_\_\_\_ : \_\_\_\_\_
- 18. shall \_\_\_\_\_ : \_\_\_\_\_
- 19. should \_\_\_\_\_ : \_\_\_\_\_
- 20. can \_\_\_\_\_ : \_\_\_\_\_
- 21. could \_\_\_\_\_ : \_\_\_\_\_
- 22. may \_\_\_\_\_ : \_\_\_\_\_
- 23. might \_\_\_\_\_ : \_\_\_\_\_
- 24. must \_\_\_\_\_ : \_\_\_\_\_
- 25. ought to \_\_\_\_\_ : \_\_\_\_\_
- 26. used to \_\_\_\_\_ : \_\_\_\_\_
- 27. am/is/are/was/were to \_\_\_\_\_ : \_\_\_\_\_
- c. Passivization
- 28. Instances of EN \_\_\_\_\_ : \_\_\_\_\_
- 29. Instances of get EN \_\_\_\_\_ : \_\_\_\_\_
- 30. Total passive and active VT's \_\_\_\_\_ : \_\_\_\_\_

NEW CARD

C. INDEPENDENT CLAUSES, CONJOINED

- 31. Conjoined Aux (Common Main Verb) \_\_\_\_\_ : \_\_\_\_\_
- 32. Conjoined Main Verbs (No further comp.) \_\_\_\_\_ : \_\_\_\_\_
- 33. Conjoined Main Verbs (Common further comp.): \_\_\_\_\_ : \_\_\_\_\_

34. Conjoined VP's \_\_\_\_\_ : \_\_\_\_\_
35. Conjoined Aux + V (+ further comp.) \_\_\_\_\_ : \_\_\_\_\_
36. Conjoined Aux. + VP \_\_\_\_\_ : \_\_\_\_\_
37. All other conjoined \_\_\_\_\_ : \_\_\_\_\_
38. Total Words in all conjoinings \_\_\_\_\_ : \_\_\_\_\_

D. FINITE DEPENDENT CLAUSE TYPES

a. Relatives

Restrictive finite relatives attached to:

39. Subject NP's \_\_\_\_\_ : \_\_\_\_\_
40. Object NP's (direct or indirect) \_\_\_\_\_ : \_\_\_\_\_
41. Subject complement NP's \_\_\_\_\_ : \_\_\_\_\_
42. NP object of preposition within a prepositional phrase modifying predicate of independent clauses \_\_\_\_\_ : \_\_\_\_\_
43. Other NP's \_\_\_\_\_ : \_\_\_\_\_

Non-restrictive finite relatives attached to:

44. Subject NP's \_\_\_\_\_ : \_\_\_\_\_
45. Object NP's (direct or indirect) \_\_\_\_\_ : \_\_\_\_\_
46. Subject complement NP's \_\_\_\_\_ : \_\_\_\_\_
47. NP object of preposition within a prepositional phrase modifying predicate of independent clauses \_\_\_\_\_ : \_\_\_\_\_
48. Other NP's \_\_\_\_\_ : \_\_\_\_\_
49. Sentential non-restrictive \_\_\_\_\_ : \_\_\_\_\_

b. Nominal THAT

50. Focus of cleft \_\_\_\_\_ : \_\_\_\_\_
51. Subject \_\_\_\_\_ : \_\_\_\_\_

52. Subject extraposed \_\_\_\_\_ :
53. Subject complement \_\_\_\_\_ :
54. Direct object (+/- extraposed) \_\_\_\_\_ :
55. Appositive to NP \_\_\_\_\_ :
56. Adjective complement \_\_\_\_\_ :
57. Other \_\_\_\_\_ :
- c. Nominal WH interrogative (yes/no and WH)
58. Subject \_\_\_\_\_ :
59. Subject extraposed \_\_\_\_\_ :
60. Subject complement \_\_\_\_\_ :
61. Direct object (+/- extraposed) \_\_\_\_\_ :
62. Indirect object \_\_\_\_\_ :
63. Appositive to NP \_\_\_\_\_ :
64. Adjective complement \_\_\_\_\_ :
65. Prepositional complement \_\_\_\_\_ :
66. Other \_\_\_\_\_ :
- d. Nominal Relative
67. Subject \_\_\_\_\_ :
68. Object \_\_\_\_\_ :
69. Indirect object \_\_\_\_\_ :
70. Subject complement \_\_\_\_\_ :
71. Object complement \_\_\_\_\_ :
72. Appositive to NP \_\_\_\_\_ :
73. Prepositional complement \_\_\_\_\_ :

74. Other \_\_\_\_\_ :

e. Adverbial

75. Time preposed \_\_\_\_\_ :

76. Time elsewhere \_\_\_\_\_ :

77. Place postposed \_\_\_\_\_ :

78. Place elsewhere \_\_\_\_\_ :

79. Conditional preposed \_\_\_\_\_ :

NEW CARD

80. Conditional medial \_\_\_\_\_ :

81. Conditional final \_\_\_\_\_ :

82. Concession preposed \_\_\_\_\_ :

83. Concession medial \_\_\_\_\_ :

84. Concession final \_\_\_\_\_ :

85. Reason, cause, circumstance, purpose and  
result preposed \_\_\_\_\_ :

86. Reason, cause, circumstance, purpose and  
result medial \_\_\_\_\_ :

87. Reason, cause, circumstance, purpose and  
result final \_\_\_\_\_ :

88. Manner, comparison, proportion and  
preference \_\_\_\_\_ :

89. Comment \_\_\_\_\_ :

90. Total no. of words in all finite  
dependent structures \_\_\_\_\_ :

E. NON-FINITE EMBEDDINGS IN INDEPENDENT CLAUSESa. Catenatives

91. Catenative TO \_\_\_\_\_ : \_\_\_\_\_
92. Catenative ING \_\_\_\_\_ : \_\_\_\_\_
93. Catenative  $\emptyset$  \_\_\_\_\_ : \_\_\_\_\_
94. Catenative Other \_\_\_\_\_ : \_\_\_\_\_

b. Non-Catenatives

95. TO Noun subject \_\_\_\_\_ : \_\_\_\_\_
96. TO Noun subject extraposed \_\_\_\_\_ : \_\_\_\_\_
97. TO Noun subject complement \_\_\_\_\_ : \_\_\_\_\_
98. TO Noun direct object (+/- extraposed) \_\_\_\_\_ : \_\_\_\_\_
99. TO Noun appositive to NP \_\_\_\_\_ : \_\_\_\_\_
100. TO Noun adjective complement \_\_\_\_\_ : \_\_\_\_\_
101. TO ENOUGH/TOO comp. \_\_\_\_\_ : \_\_\_\_\_
102. TO Adverbial preposed \_\_\_\_\_ : \_\_\_\_\_
103. TO Adverbial medial \_\_\_\_\_ : \_\_\_\_\_
104. TO Adverbial postposed \_\_\_\_\_ : \_\_\_\_\_
105. TO Restrictive relative postposed to any dominant NP (as in 39-41) \_\_\_\_\_ : \_\_\_\_\_
106. TO Restrictive relative postposed to other NP \_\_\_\_\_ : \_\_\_\_\_
107. TO Non-restrictive relative immediately postposed to any dominant NP \_\_\_\_\_ : \_\_\_\_\_
108. TO Non-restrictive relative modifying dominant NP but not immediately postposed \_\_\_\_\_ : \_\_\_\_\_
109. TO Non-restrictive relative immediately postposed to a non-dominant NP \_\_\_\_\_ : \_\_\_\_\_

110. TO Non-restrictive relative modifying a non-dominant NP and not immediately postposed: \_\_\_\_\_
111. ING Noun subject \_\_\_\_\_: \_\_\_\_\_
112. ING Noun subject extraposed \_\_\_\_\_: \_\_\_\_\_
113. ING Noun subject complement \_\_\_\_\_: \_\_\_\_\_
114. ING Noun direct object (+/- extraposed) (see variable 98) \_\_\_\_\_: \_\_\_\_\_
115. ING Noun appositive to NP \_\_\_\_\_: \_\_\_\_\_
116. ING Noun adjective complement \_\_\_\_\_: \_\_\_\_\_
117. ING Noun prepositional complement \_\_\_\_\_: \_\_\_\_\_
118. ING Adverbial \_\_\_\_\_: \_\_\_\_\_
119. ING Restrictive relative postposed to any dominant NP \_\_\_\_\_: \_\_\_\_\_
120. ING Restrictive relative postposed to any other NP \_\_\_\_\_: \_\_\_\_\_
121. ING Non-restrictive relative immediately postposed to any dominant NP \_\_\_\_\_: \_\_\_\_\_
122. INP Non-restrictive relative attachable to a dominant surface NP not immediately postposed \_\_\_\_\_: \_\_\_\_\_
123. ING Non-restrictive relative immediately postposed to a non-dominant NP \_\_\_\_\_: \_\_\_\_\_
124. INP Non-restrictive relative attachable to a non-dominant NP not immediately postposed \_\_\_\_\_: \_\_\_\_\_
125. ING Non-restrictive relative not attachable to any surface NP \_\_\_\_\_: \_\_\_\_\_
126. Other ING \_\_\_\_\_: \_\_\_\_\_
127. EN Restrictive relative postposed to any dominant NP \_\_\_\_\_: \_\_\_\_\_
128. EN Restrictive relative postposed to any other NP \_\_\_\_\_: \_\_\_\_\_

129. EN Non-restrictive relative immediately post-  
posed to any dominant NP \_\_\_\_\_:
130. EN Non-restrictive relative attachable to any  
dominant NP not immediately postposed \_\_\_\_\_:
131. EN Non-restrictive relative immediately post-  
posed to any non-dominant NP \_\_\_\_\_:
132. EN Non-restrictive relative attachable to any  
non-dominant NP not immediately postposed: \_\_\_\_\_:
133. EN Non-restrictive relative not attachable to  
any surface NP \_\_\_\_\_:
134. EN adverbial \_\_\_\_\_:
135. EN other \_\_\_\_\_:
136. Verbless adjectival \_\_\_\_\_:
137. Verbless adverbial \_\_\_\_\_:
138. Verbless other \_\_\_\_\_:
139. Total no. of words in all non-catenative non-  
finite structures embedded in independent  
clauses \_\_\_\_\_:

F. NON-FINITE EMBEDDINGS IN DEPENDENT CLAUSES

NEW CARD

a. Catenatives

140. Catenative TO \_\_\_\_\_:
141. Catenative ING \_\_\_\_\_:
142. Catenative  $\emptyset$  \_\_\_\_\_:
143. Catenative Other \_\_\_\_\_:

b. Non-Catenatives

144. TO Noun subject \_\_\_\_\_:

145. TO Noun subject extraposed \_\_\_\_\_ : \_\_\_\_\_
146. TO Noun subject complement \_\_\_\_\_ : \_\_\_\_\_
147. TO Noun direct object (+/- extraposed) \_\_\_\_\_ : \_\_\_\_\_
148. TO Noun appositive to NP \_\_\_\_\_ : \_\_\_\_\_
149. TO Noun adjective complement \_\_\_\_\_ : \_\_\_\_\_
150. TO ENOUGH/TOO complement \_\_\_\_\_ : \_\_\_\_\_
151. TO Adverbial preposed \_\_\_\_\_ : \_\_\_\_\_
152. TO Adverbial medial \_\_\_\_\_ : \_\_\_\_\_
153. TO Adverbial postposed \_\_\_\_\_ : \_\_\_\_\_
154. TO Restrictive relative postposed to any dominant NP \_\_\_\_\_ : \_\_\_\_\_
155. TO Restrictive relative postposed to other NP \_\_\_\_\_ : \_\_\_\_\_
156. TO Non-restrictive relative immediately postposed to any dominant NP \_\_\_\_\_ : \_\_\_\_\_
157. TO Non-restrictive relative modifying dominant NP but not immediately postposed \_\_\_\_\_ : \_\_\_\_\_
158. TO Non-restrictive relative immediately postposed to a non-dominant NP \_\_\_\_\_ : \_\_\_\_\_
159. TO Non-restrictive relative modifying a non-dominant NP and not immediately postposed: \_\_\_\_\_
160. ING Noun subject \_\_\_\_\_ : \_\_\_\_\_
161. ING Noun subject extraposed \_\_\_\_\_ : \_\_\_\_\_
162. ING Noun subject complement \_\_\_\_\_ : \_\_\_\_\_
163. ING Noun direct object (+/- extraposed) \_\_\_\_\_ : \_\_\_\_\_
164. ING Noun appositive to NP \_\_\_\_\_ : \_\_\_\_\_
165. ING Noun adjective complement \_\_\_\_\_ : \_\_\_\_\_
166. ING Noun prepositional complement \_\_\_\_\_ : \_\_\_\_\_

167. ING Adverbial \_\_\_\_\_: \_\_\_\_\_
168. ING Restrictive relative postposed to any dominant NP \_\_\_\_\_: \_\_\_\_\_
169. ING Restrictive relative postposed to any other NP \_\_\_\_\_: \_\_\_\_\_
170. ING Non-Restrictive relative immediately postposed to any dominant NP \_\_\_\_\_: \_\_\_\_\_
171. ING Non-restrictive relative attachable to a dominant surface NP not immediately postposed \_\_\_\_\_: \_\_\_\_\_
172. ING Non-restrictive relative immediately postposed to a non-dominant NP \_\_\_\_\_: \_\_\_\_\_
173. ING Non-restrictive relative attachable to a non-dominant NP not immediately postposed: \_\_\_\_\_
174. ING Non-restrictive relative not attachable to any surface NP \_\_\_\_\_: \_\_\_\_\_
175. Other ING \_\_\_\_\_: \_\_\_\_\_
176. EN Restrictive relative postposed to any dominant NP \_\_\_\_\_: \_\_\_\_\_
177. EN Restrictive relative postposed to any other NP \_\_\_\_\_: \_\_\_\_\_
178. EN Non-restrictive relative immediately postposed to any dominant NP \_\_\_\_\_: \_\_\_\_\_
179. EN Non-restrictive relative attachable to any dominant NP not immediately postposed \_\_\_\_\_: \_\_\_\_\_
180. EN Non-restrictive relative immediately postposed to any non-dominant NP \_\_\_\_\_: \_\_\_\_\_
181. EN Non-restrictive relative attachable to any non-dominant NP not immediately postposed: \_\_\_\_\_
182. EN Non-restrictive relative not attachable to any surface NP \_\_\_\_\_: \_\_\_\_\_
183. EN Adverbial \_\_\_\_\_: \_\_\_\_\_
184. EN Other \_\_\_\_\_: \_\_\_\_\_

185. Verbless adjectival \_\_\_\_\_ : \_\_\_\_\_
186. Verbless adverbial \_\_\_\_\_ : \_\_\_\_\_
187. Verbless other \_\_\_\_\_ : \_\_\_\_\_
188. Total no. of words in all non-catenative non-  
finite structures embedded in independent  
clauses \_\_\_\_\_ : \_\_\_\_\_

G. DEPTH OF EMBEDDING

189. Instances of finite embedding within a  
finite embedding \_\_\_\_\_ : \_\_\_\_\_
190. Instances of finite embedding within  
189 above \_\_\_\_\_ : \_\_\_\_\_

H. RANGE OF CLAUSE TYPES

191. Range of conjoined clause types \_\_\_\_\_ : \_\_\_\_\_
192. Range of finite dependent clause types \_\_\_\_\_ : \_\_\_\_\_
193. Range of non-finite types in independent  
structures \_\_\_\_\_ : \_\_\_\_\_
194. Range of non-finite types in dependent  
structures \_\_\_\_\_ : \_\_\_\_\_

APPENDIX B

RHETORICAL INSTRUMENT

- 1. Case I.D. \_\_\_\_\_
- 2. Faculty \_\_\_\_\_
- 3. Mode \_\_\_\_\_
- 4. Sex \_\_\_\_\_
- 5. Unity \_\_\_\_\_
- 6. Organization \_\_\_\_\_
- 7. Development \_\_\_\_\_
- 8. Overall Stylistic Effectiveness \_\_\_\_\_
- 9. Coherence \_\_\_\_\_
- 10. Holistic Score \_\_\_\_\_

SCALES FOR RHETORICAL INSTRUMENT<sup>1</sup>

UNITY

1. There is no discernible thesis, no point of view or conclusion. Though the entire essay may be about a subject, it simply brings up random points.
- 2.
3. The thesis is not sufficiently restricted or unified. For example, the writer is making two separate points which are related but not logically integrated, although potentially they could be; or, he is biting off more than he can chew -- the thesis is a little too broad for the length available.
4. The thesis is restricted, and unified, but not always clear.
5. The thesis is clear, restricted and unified.

ORGANIZATION

1. There is no discernible order of presentation, with incoherent hopping from sentence to sentence and from paragraph to paragraph. Thoughts are rambling and uncontrolled.
2. There are certain small sections which have a sense of sequence, but no overall sense of pattern for the whole essay.
3. There is an overall pattern for the essay, but within these larger units there is frequently no pattern, no obvious development of ideas.
4. There is a clearly discernible order in the essay as a whole as well as within each smaller unit, with only occasional lapses.

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<sup>1</sup>Adapted from "Current-Traditional" Rhetorical Criteria, a system of rhetorical scales developed by Aviva Freedman, Carleton University.

5. The order is clear and convincing, leading the reader from idea to idea. The line of thinking begins in the introduction and carries through to the conclusion. There is no aimless moving back and forth. There is a general feeling of control and competence.

#### DEVELOPMENT

1. The paper remains a skeleton, with no concrete details to support its sweeping generalizations, or what illustrations etc., it does use do not actually support the generalizations.
2. The paper has made use of some appropriate examples, illustrations, etc., but these are not occasional and not always relevant or convincing.
3. There is a fair amount of supporting detail; at the same time a fair number of generalizations are without any support and perhaps some of the details are not entirely relevant.
4. Generally speaking, sufficient concrete and appropriate material fills out the skeleton structure with only the occasional lapse.
5. The development is full, appropriate and satisfying, creating an impression of thoroughness.

#### OVERALL STYLISTIC EFFECTIVENESS

1. The writer has little sense of language or style. One struggles unnecessarily to grasp his meanings. He stumbles over words and sentences.
- 2.
3. There is no actual difficulty reading but the style is undistinguished.
- 4.
5. A joy to read. A sense of control and grace. Either elegance without mannerism, or simplicity without simple-mindedness.

COHERENCE

1. The general effect is choppy, disjointed, incoherent.
- 2.
3. Some sections flow smoothly, but there is still frequent choppiness.
4. ♦ The style is smooth, with only the occasional lapse.
5. The writing flows.

TOPICS

TOPIC A (Narrative)

Describe an event in your life that didn't turn out the way you thought it would.

TOPIC B (Expository)

University students have recently been described as 'functionally illiterate'. Should all university students be required to pass an English composition requirement before being allowed to graduate?

REFERENCES

- Allen, R. L. English Grammar and English Grammars. New York: Scribner's, 1972.
- Applebee, A. "Writing and Learning in School Settings" in Nystrand (Ed.), 1982, pp. 365-381.
- Baker, C. L. and McCarthy, J. J. (Eds.). The Logical Problem of Language Acquisition. Cambridge, Massachusetts: M.I.T. Press, 1981.
- Barritt, L. S. and Kroll, B. M. "Some Implications of Cognitive-Developmental Psychology for Research in Composing" in Cooper and Odell (Eds.), 1978, pp. 49-57.
- Bereiter, C. "Development in Writing" in Gregg and Steinberg (Eds.), 1980, pp. 73-93.
- Britton, J. Language and Learning. Harmondsworth: Pelican, 1970.
- Britton, J. "Shaping at the Point of Utterance" in Freedman and Pringle (Eds.), 1980, pp. 61-65.
- Britton, J. "Spectator Role and the Beginnings of Writing" in Nystrand (Ed.), 1982, pp. 149-169.
- Chafe, W. (Ed.). The Pear Stories: Cognitive, Cultural and Linguistic Aspects of Narrative Production. Norwood, New Jersey: Ablex Publishing Co., 1980.
- Chafe, W. "The Development of Consciousness in the Production of a Narrative" in Chafe (Ed.), 1980, pp. 9-50.
- Christensen, F. and Christensen, B. A New Rhetoric. New York: Harper and Row, 1976.
- Christensen, F. and Christensen, B. Notes Toward a New Rhetoric. New York: Harper and Row, 1978.
- Cooper, C. R. "Holistic Evaluation of Writing" in Cooper and Odell (Eds.), 1977, pp. 3-31.
- Cooper, C. R. and Odell, L. (Eds.). Evaluating Writing: Describing, Measuring, Judging. Buffalo: National Council of Teachers of English, 1977.
- Cooper, C. R. and Odell, L. (Eds.). Research on Composing. Urbana, Illinois: National Council of Teachers of English, 1978.

- Crowhurst, M. "Syntactic Complexity in Narration and Arguments at Three Grade Levels", Canadian Journal of Education, 1980, pp. 6-13.
- Crowhurst, M. and Piche, G. L. "Audience and Mode of Discourse Effects on Syntactic Complexity in Writing at Two Grade Levels", Research in the Teaching of English, May 1979, 13, 101-109.
- Crystal, D. and Davy, D. Investigating English Style. Harlow: Longmans, 1969.
- Daiker, D., Kerek, A. and Morenberg, M. (Eds.). Sentence Combining and the Teaching of Writing. Conway, Arkansas: L & S Books, 1979.
- De Beaugrande, R. "Linguistic Theory and Composition", College Composition and Communication, May 1978, 29, 134-140.
- De Beaugrande, R. "Psychology and Composition", College Composition and Communication, February 1979, 30, 50-57.
- De Beaugrande, R. "Psychology and Composition: Past, Present and Future" in Nystrand (Ed.), 1982, pp. 211-267.
- Emig, J. The Composing Process of Twelfth Graders (Research Report No. 13). Urbana, Illinois: National Council of Teachers of English, 1971.
- Emig, J. "Writing as a Mode of Learning." College Composition and Communication, May 1977, 28, pp. 122-128.
- Emig, J. "Hand, Eye, Brain: Some "Basics" in the Writing Process" in Cooper and Odell (Eds.), 1978, pp. 59-72.
- Emig, J. "The Tacit Tradition" in Freedman and Pringle (Eds.), 1980, pp. 9-18.
- Freedman, A. and Pringle, I. (Eds.). Reinventing the Rhetorical Tradition. Conway, Arkansas: L & S Books, 1980.
- Freedman, A. and Pringle, I. "Writing in the College Years: Some Indices of Growth", College Composition and Communication, October 1980, 32, 311-324.
- Gleason, H. A., Jr. Linguistics and English Grammar. New York: Holt, Rinehart and Winston, Inc., 1965.

- Goody, J. and Watt, I. "The Consequences of Literacy", Comparative Studies in Society and History, 1963, 5, 305-345.
- Gregg, L. and Steinberg, E. (Eds.). Cognitive Processes in Writing. Hillsdale, New Jersey: Erlbaum Associates, 1980.
- Harris, S. L. and Witte, S. P. "Sentence Combining in a Rhetorical Framework: Directions for Further Research", in Freedman and Pringle (Eds.), 1980, pp. 89-98.
- Havelock, E. A. "Prologue to Greek Literacy" in C. Boulter (Ed.), Lectures in Memory of Louise Taft Semple, second series. Cincinnati: University of Oklahoma Press for the University of Cincinnati, 1973.
- Hirsch, E. The Philosophy of Composition. Chicago: University of Chicago Press, 1977.
- Hunt, K. Grammatical Structures at Three Grade Levels. Champaign, Illinois: National Council of Teachers of English, 1965.
- Hunt, K. "Early Blooming and Late Blooming Syntactic Structures" in Cooper and Odell (Eds.), 1977, pp. 91-106.
- Kerek, A., Daiker, D. and Morenberg, M. "Sentence Combining and College Composition", Perceptual and Motor Skills, 1980, 51, 159-157.
- Kinneavy, J. A Theory of Discourse. Englewood Cliffs, New Jersey: Prentice-Hall, 1971.
- Kinneavy, J., Cope, J. and Campbell, J. Writing - Basic Modes of Organization. Dubuque, Iowa: Kendall/Hunt Publishing Co., 1976.
- Krashen, S. "The Input Hypothesis" in Current Issues in Bilingual Education, J. Alatis (Ed.). Washington, D.C.: Georgetown University Press, 1980.
- Krashen, S. "The Role of Input (Reading) and Instruction in Writing Ability", Mimeo. Ottawa: University of Ottawa, Centre for Second Language Learning, 1981.
- Krashen, S. Second Language Acquisition and Second Language Learning. Oxford: Pergamon Press, 1981.

- Loban, W. Language Development: Kindergarten through Grade Twelve, N.C.T.E. Research Report No. 18. Urbana, Illinois: National Council of Teachers of English, 1976.
- Marland, M. Writing Across the Curriculum. London: Heineman, 1977.
- Martin, N. D'Arcy, P.; Newton, B. and Parker, R. Writing Across the Curriculum 11 - 16. London: Schools Council Publications, 1976.
- Menyuk, P. Language and Maturation. Cambridge, Massachusetts: M.I.T. Press, 1977.
- Miller, S. "Rhetorical Maturity: Definition and Development" in Freedman and Pringle (Eds.), 1980, pp. 119-127.
- Newman, J. B. and Horowitz, M. W. "Writing and Speaking", College Composition and Communication, 1965, 16, 160-164.
- Nystrand, M. (Ed.). What Writers Know. New York: Academic Press, 1982.
- O'Donnell, R. C., Griffin, W. J., and Norris, R. C. Syntax of Kindergarten and Elementary School Children: A Transformational Analysis, Research Report No. 8. Champaign, Illinois: National Council of Teachers of English, 1967.
- O'Hare, F. Sentence Combining: Improving Student Writing Without Formal Grammar Instruction, N.C.T.E. Research Report No. 15. Urbana, Illinois: National Council of Teachers of English, 1971.
- Olson, D. R. "From Utterance to Text: The Bias of Language in Speech and Writing", Harvard Educational Review, 1977, 47, 257-281.
- Olson, D. R. and Nickerson, N. "Language Development Through the School Years: Learning to Confine Interpretation to the Information in the Text" in K. E. Nelson (Ed.), Children's Language, Vol. I. New York: Gardner Press, Inc., 1978, pp. 117-169.
- Palmer, F. R. Modality and English Modals. New York: Longman, 1979.
- Perron, J. D. "Written Syntactic Complexity and the Modes of Discourse." Paper presented at the annual meeting of the American Educational Research Association, New York, April, 1977.

- Piaget, J. "Intellectual Evolution from Adolescence to Adulthood", Human Development, 1972, 15, 1-12.
- Pringle, I. "Measuring Syntactic Maturity in Post-Secondary Writing", paper presented at the National Council of Teachers of English Convention, San Francisco, California, November 23, 1979.
- Pringle, I. "The Development of Writing Ability: A Case Study", paper presented at the Conference on College Composition and Communication, Washington, D.C., March 14, 1980.
- Pringle, I. "Student and Professional Syntax in Four Disciplines", paper presented at the Conference on College Composition and Communication, Dallas, Texas, March 22, 1981.
- Pringle, I. and Freedman, A. "Modal Differences in Student Writing: Rhetorical Control", paper presented at the Fifth Annual Boston University Conference on Language Development, Boston, Massachusetts, October 11, 1980.
- Pringle, I. and Freedman, A. "Reflections of Syntactic Maturation in Student Writing", paper presented at the Sixth International Conference of Applied Linguistics, Lund, Sweden, August 10, 1981.
- Pringle, I. and Freedman, A. Explorations in the Development of Post-Secondary Writing. Urbana, Illinois: National Council of Teachers of English, forthcoming.
- Quirk, R., Greenbaum, S., Leech, G. and Svartvik, J. A Contemporary Grammar of English. London: Longman, 1972.
- San Jose, C. P. M. "Grammatical Structures in Four Modes of Writing at Four Grade Levels", (Doctoral dissertation, Syracuse University, 1972). Dissertation Abstracts International, 1973, 33, 5411A. University Microfilms No. 73-9563.
- Tannen, D. "Oral and Literate Strategies in Spoken and Written Narratives", Language, March 1982, 58, 1-22.
- Vygotsky, L. S. Thought and Language, (E. Hanfmann and G. Vaker, trans.). Cambridge, Massachusetts: M.I.T. Press, 1962. Originally published, 1934.

Whiteman, M. S. (Ed.). Writing: The Nature, Development and Teaching of Written Communication, Vol. 1: Variation in Writing: Functional and Linguistic-Cultural Differences. Hillsdale, New Jersey: Erlbaum, 1981.

Winterowd, R. (Ed.). Contemporary Rhetoric: A Conceptual Background with Readings. New York: Harcourt Brace Jovanovich Inc., 1975.