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# The effect of thematic structure on the variability of annual report readability

Effect of thematic structure

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**Abstract** The readability of annual reports has been the focus of extensive prior research. However, the extent of readability variability has only recently received specific attention. In response to a perceived need for further research into this area, an analysis of 60 UK chairman's statements was conducted in order to test for possible determinants of readability variability. Results show the introduction to the chairman's statement is systematically easier to read than other parts of the chairman's statement. No evidence was found to support prior research that, rather than present accounting narratives objectively, managers use readability variability to emphasise good news and obfuscate bad news. The thematic structures within the chairman's statement were investigated to explore whether they were responsible for systematic patterns in the variability of annual report readability. Findings indicate that thematic structure of the chairman's statement is indeed a key driver of the variability of annual report readability.

## Introduction

Accounting narratives are becoming increasingly important in external financial reporting. Arthur Andersen (1996), for example, report that in a survey of 100 UK listed companies narrative information equalled or exceeded the statutory financial information in the majority of annual reports examined. Such changes reinforce the evolution of the annual report from a statutorily-produced document into one in which narratives, photographs and graphs dominate. Smith (1998) and Smith and Taffler (1995) find that the content of the chairman's narrative can provide useful information to discriminate between failing companies and healthy companies, while Kaplan *et al.* (1990) demonstrate that these narratives impact on individuals' judgements of share price. This is particularly important as, traditionally, these accounting narratives have been unaudited. There is, therefore, potential scope for managers to control and manipulate the impression conveyed to users of accounting information (see, for example, Deegan and Gordon, 1996). Management may well seek to manage their narratives just as they manage other features of the annual report such as earnings (for a review, see Schipper, 1989).

Academic research into accounting narratives can be broadly divided into two categories: content analysis studies and readability research. This current article focuses primarily on readability research which investigates the

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syntactical difficulty of text[1]. In particular, this article explores the content of accounting narratives as a hypothesised explanatory variable for the variability of readability. It is the first accounting readability research that we know of, which effectively bridges these two research categories. Essentially, there are two main approaches to the measurement of textual difficulty. The first involves “sophisticated psycholinguistic and socio-linguistic techniques such as Cloze, multidimensional scaling, association analysis, and classification analysis” (Courtis, 1998, p. 459), while the second principally uses syntactical analysis. The first approach, in particular the cloze procedure, is associated with understandability. The second approach, which involves the use of readability formulas, is associated primarily with syntactical complexity. The focus in this article is on syntactical complexity, where an increase in syntactical complexity indicates narratives which are more difficult to read and vice versa. In this context, readability may, but importantly also may not, be equivalent to understandability (see discussions in Jones and Shoemaker, 1994; Smith and Taffler, 1992a). Such syntactical difficulty may vary between profitable and unprofitable companies. For example, Smith and Taffler (1992b) and Jones (1994) suggest evidence of a relationship between the readability of accounting narratives and firm performance, primarily measured by profitability.

The most popular measure used to assess syntactical complexity is the Flesch readability formula. This measure was devised by Rudolph Flesch in 1948, and is thus now over 50 years old. The formula is based on the McCall-Crabbs Standard Test Lessons in Reading and Comprehension, using coefficients from a regression analysis on two linguistic features: average sentence length in words and a syllable count (expressed as number of syllables per 100 words)[2]. The Flesch test was originally devised to test the reading abilities of US primary school children. Since 1948, it has been widely used in pedagogic and non-pedagogic fields, inside and outside the US, on children’s and adult texts. Other tests such as the Flesch-Kincaid formula represent more modern versions. The Flesch test has also been computerised and is now available on most word-processing packages.

The basic Flesch methodology, however, has been criticised on several grounds. First, there is concern that the Flesch index focuses only on the number of syllables and sentence length. Thus, “other important attributes such as syntax, style, format, graphic design, logic, conceptual density, human interest, organisation and reinforcement are not considered” (Courtis, 1998, p. 460). Second, there is concern that because the Flesch index is now over 50 years old, it has failed to take account of the evolution and changes in language over this period. Third, the application of the Flesch index to adult, technical accounting materials may be inappropriate, given the Flesch technique’s origins as a measure to evaluate primary school texts. Finally, there is concern that researchers sometimes misinterpret the results of the Flesch test when they report their findings in terms of understandability rather than readability.

Despite these criticisms, the Flesch test has been the most frequently used method by which accounting researchers have attempted to assess the syntactical complexity of accounting narratives. For example, up to 1993, 20 out of 26 studies testing the readability of annual reports used a Flesch-based test[3]. The resilience of the Flesch test can be attributed to a number of factors, most notably its computational ease, understandability and comparability (Courtis, 1998, p. 459). By using the Flesch index to assess relative readability as opposed to absolute readability, researchers can avoid many of the test's main limitations. The purpose of this article is not to re-evaluate the prior literature or to revisit the perceived criticisms of the Flesch test, but rather to evaluate a specific feature of readability which has recently been investigated, namely the topic of the variability of readability in the annual report.

The topic of the variability of readability has been a largely neglected topic in the financial reporting literature, with the recent contribution by Courtis (1998) providing an important exception. After examining the chairman's statements of 120 Hong Kong companies, Courtis (1998, p. 468) finds that "variability of readability is pervasive". The specific aim of this study is to extend Courtis (1998) by investigating, for the first time, the impact of the thematic structure of accounting narratives on the variability of annual report readability. We know of no prior studies in the accounting literature that have investigated this topic

The remainder of this article is presented in four sections, followed by a conclusion. The next section draws on the prior readability literature to investigate the topic of variability of readability in the annual report. The methodology section then follows. In the fourth section, we present and discuss our findings based on a study of 30 profitable and 30 unprofitable UK listed companies. Then, in the fifth section, we investigate thematic structure as a novel explanation of the variability of readability.

### **Annual report readability variability**

The prior readability literature demonstrates not only considerable intra-study (i.e. within the same annual reports) variability, but also inter-study (i.e. different annual reports) variability. Four studies (Barnett and Leoffler, 1979; Courtis, 1986; Schroeder and Gibson, 1990; and Courtis, 1995b) examined differences in the readability of different sections of the same annual report (see Table I which summarises the three of these studies which used the Flesch index, i.e. Barnett and Leoffler, 1979; Courtis, 1986; 1998)[4]. In a number of studies, differences in average readability occur between different sections of the annual report. For example, Courtis (1986) investigates the chairman's statements and footnotes from 142 annual reports. The footnotes are found to be consistently more difficult to read than the chairman's statement[5]. This reflects the different functions of these sections. The chairman's statement is designed to provide an easy-to-read narrative summary of the year, while the footnotes are necessarily more technical.

Study	Number of annual reports	Every other page	Total	Footnotes	Total	Chairman's statement	Total
Pashalian and Crissy (1952)	26	34.37	893.62				
Soper and Dolphin (1964)	25	28.76	719				
Smith and Smith (1971)	50			23.49	1174.5		
Still (1972)	50					42.5	2125
Dolphin and Wagley (1977)	19	16.05	304.95				
Healy (1977)	50			30.2	1510		
Barnett and Leoffler (1979)	50			12.88	644		
Holley and Early (1980)	23	23.05	530.15				
Curtis (1986)	46			28.06	1290.76	31.34	1441.64
Curtis (1986)	96			25.96	2492.16	28.96	2780.16
Jones (1988)	32					47.2	1510.4
Smith and Taffler (1992a)	18					34.2	615.6
Baker and Kare (1992)	44					39	1716.0
Curtis (1995b) 1986 reports	32			30.72	983.04	38.35	
Curtis (1995b) 1991 reports	32			27.72	887.04	36.85	
Curtis (1998)	120					46.38	5565.6
Mean		26.31		25.22		38.64	

**Table I.**  
Flesch scores of different sections of the annual report

The finding that readability varies between different sections of the same annual reports is also consistent with the results of an analysis of separate studies on different annual reports. The three most commonly studied aspects were: every other page, footnotes and chairman's statements. Unfortunately, the every other page section is an amalgam of scores across annual reports and is not, therefore, particularly effective for detecting readability variability. The studies included confirm that the footnotes are the most difficult to read. The research into the readability of the chairman's statement, however, finds that it is substantially more readable than the other sections. These results have important implications for research into annual report readability where different sections of the annual report are sometimes taken to be representative of the report as a whole. This is not the case as the results of the Flesch test clearly depend on the section selected.

Recent research has focused specifically on readability variability. Curtis (1998) is primarily concerned with variability within one particular section of the annual report. Curtis's specific focus is the variability of readability within the chairman's statements of Hong Kong annual reports for 1994/1995. The 30 most profitable companies and 30 least profitable companies as judged by percentage change in annual profit are selected from 500 Hong Kong

companies. A systematic sampling methodology is adopted: three passages of 100 words are taken from the beginning, middle and end of each text. The Flesch reading ease is calculated as the average of the three scores. Importantly, the readability of the overall passage is not calculated. The Flesch readability ease output from the readability statistics (from *Microsoft Word*) is used to generate the Flesch scores.

Courtis's findings are intriguing. First, substantial variability (as measured by the coefficient of variation) is discovered in the readability of the three separate passages (average of 25.87 per cent)[6]. Second, Courtis finds discernible patterns of reading ease. The three passages were systematically different in their difficulty. In over half the chairman's statements (58 per cent), the first 100 words were the easiest to read of the three passages. Courtis (1998, p. 465) is particularly concerned with annual reports in which the first passage is the easiest to read and the middle passage is the most difficult. He suggests that "management would use the middle passages of this address to 'bury' adverse or negative news through a writing style that is more difficult to read than the introduction and conclusion passages of the narrative". A logical extension of this argument is that unprofitable companies' chairman's statements will contain more adverse and negative news, thus the variability of the readability of these passages should be higher than for profitable companies (i.e. good performers with little or no adverse news or events to report will not have to obfuscate anything).

The possibility that managers deliberately conceal the communication of bad news in the middle passage, however, is only one of several competing and, equally plausible, hypotheses: "For example, there is no a priori reason to predict the middle passage is used to 'bury' adverse news. Management could equally well get rid of negative news in the first passage in the hope that it will be forgotten by the reader, or leave it until the last passage in the hope that the reader will not read that passage" (Courtis, 1998, p. 470). Alternatively, management may not deliberately obfuscate the textual narratives at all. Courtis acknowledges that alternative obfuscation hypotheses are possible, but fails to explore them. Indeed, Courtis finds no evidence that unprofitable companies have significantly different average readability indices than profitable companies, nor that the variability between the two groups of companies supports the idea of obfuscation.

Courtis (1998, p. 468), calls for further research: "Further country studies are recommended to determine whether this is a general phenomenon of contemporary reporting practice or whether it is an artefact of the data set studied". This paper takes up Courtis's (1998) call and investigates the chairman's statements of 30 profitable and 30 unprofitable UK company annual reports. We test a general hypothesis:

*H1:* There will be no systematic differences in the readability of different passages taken from the chairman's statement.



We test this in a variety of ways using three passages of 100 words taken from the front, middle and end of the chairman's statements of 60 companies (30 profitable and 30 unprofitable). We test these passages against each other and against the mean of the overall passage.

In addition to investigating the topic of variability of readability and to exploring whether profitable and unprofitable narratives have different patterns of variability, we consider the impact of thematic structure as a potential explanatory variable[7]. By this, we mean does the inherent structure of the accounting narrative determine its readability and readability variability? We know of no prior literature which investigates or provides guidance on this issue.

We test two specific hypotheses using our three sample passages of 100 words:

*H2:* The underlying thematic structure of the chairman's statement will determine its readability.

*H3:* The chairman's statements of profitable and unprofitable companies will have different thematic structures.

### **Methodology**

A database of over 200,000 UK companies (FAME) was used to select the sample. All listed companies were ranked by percentage change in profit before taxation and the top and bottom 30 companies with chairman's statements over 300 words long were selected. A hard copy of the annual reports was then requested from these 60 companies in order to replicate Courtis (1998). A computer file containing a copy of the chairman's statement for each company was also downloaded from the "UK Corporations" database which contains full-text annual reports for UK plcs[8]. The sample was selected at the end of June 1997 and includes 1995 and 1996 financial year ends. Three sample passages of 100 words were then taken from the beginning, middle and end of the chairman's statement.

We then proceeded as follows. First, the Flesch readability scores for each of the three passages from the chairman's statement were calculated. Second, as per Courtis (1998), the arithmetic average of the three passages was used to determine the overall mean of readability scores for each chairman's statement. Finally, the overall readability score for each whole chairman's statement was measured. The results for each of the two data sets for profitable and unprofitable companies were then aggregated. We therefore computed averages for the readability scores for the three individual passages, for the mean of the three individual passages and for the whole chairman's statement. In addition to the mean readability scores, in line with Courtis (1998), for each company, we measured the standard deviation and coefficient of variation of the three individual passages as a measure of the variability of the readability of the chairman's statements.

Our approach was thus to replicate Curtis's methodology as far as possible. We did not specifically assess the overall validity of his approach. In particular, despite the potential criticisms of computer-generated Flesch scores, *Microsoft Word* was used to compute the Flesch scores[9].

The general methodological approach underpinning our exploration of the thematic structure of the chairman's statement and readability was content analysis. Content analysis is a research method which draws inferences from data by systematically identifying characteristics within the data. Holsti (1969), for example, sees content analysis as a technique for making inferences which objectively and systematically identify specified characteristics of messages within the text. A particular feature of content analysis is that it is unobtrusive, in that the researcher is able to evaluate documents, without the cognisance of the preparer of the document.

In order to explore the thematic structure of the chairman's statement, each passage was read systematically. The topics of discussion were then coded and recorded. Tennyson *et al.* (1990) and Frazier *et al.* (1984) also examine themes in accounting narratives by using a factor analysis on keyword counts, but to our knowledge, our study is the first to examine the relationship between the themes discussed and their location in the narrative. Although our approach involved a subjective coding procedure, computer-based methods which typically involve frequency counts of keyword occurrences also require an element of subjectivity in the interpretation of the factors (see, for example, Ingram and Frazier, 1983; Frazier *et al.*, 1984; Tennyson *et al.*, 1990; Smith and Taffler, 2000). After the topics were coded, they were counted and synthesised into 11 major themes. These themes were:

- (1) future and/or outlook;
- (2) results;
- (3) employees;
- (4) acquisitions and disposals;
- (5) outline of major events;
- (6) discussion of major events;
- (7) overview of the year;
- (8) board changes;
- (9) operations;
- (10) business segments; and
- (11) finance/investment[10].

## Results

In order to test for differences between the means of the five different readability measures, we carried out an overall analysis of variance (ANOVA) test. This showed (Table II total column) that overall, the means of the first

passage, middle passage, final passage, average of the three passages and the overall chairman's statement were significantly different from each other ( $p = 0.000$ ,  $F = 7.19$ ) for all 60 companies. Thus,  $H1$  is not confirmed. We then conducted a univariate analysis in order to establish what was driving the results. We tested the average readability of each passage against every other passage, and also each passage against the mean of all three passages and against the mean overall readability, using a series of two-tailed  $t$ -tests. We found three significant results out of ten at the 0.01 level. In each of these three cases, it was the first passage which drove the overall ANOVA result. In essence, the first passage (mean of 50.8) was significantly easier to read, at the 0.01 level, than both the middle (mean of 42.3) and final (mean of 41.8) passages. In addition, the first passage was significantly easier to read (at the 0.05 level) than the mean of all three passages and (at the 0.01 level) than the whole statement. The  $t$ -tests revealed no other systematic differences between the five measures of passage readability.  $H1$  is not, therefore, wholly supported. We did find differences in readability, but only in terms of the first passage.

When the sample was partitioned into profitable and unprofitable companies, a similar pattern emerged. An ANOVA test revealed significant differences between the five means at the 0.01 level ( $p = 0.000$ ,  $F = 6.44$ ) for profitable companies. The average Flesch scores for the first passage were higher than the other passages for both sub-samples, particularly for profitable companies. For profitable companies, the mean Flesch score of the first passage was 55.0 which is significantly higher (at the 0.01 level) than the means for the middle and final passages (41.9 and 41.7, respectively). However, for unprofitable companies, an ANOVA test failed to detect any significant differences between the five different means ( $p = 0.278$ ,  $F = 1.29$ ). Once more though, the mean of the first passage (46.5) was significantly higher (at the 0.10 level) than the final passage in a two tailed  $t$ -test.

The partitioned samples were tested to see whether there were systematic differences between the readability of the chairman's narratives of matched samples of profitable and unprofitable companies. A series of  $t$ -tests was conducted on the matched means of the three passages, and the overall statement. Of the five matched comparisons, the only significant difference (at the 0.05 level) was between the first passage of the chairman's statements of

**Table II.**  
Summary of means and ANOVA results from Flesch scores of passages selected from the chairman's statements of profitable and unprofitable UK companies

Passage	Profitable companies ( $n = 30$ )	Unprofitable companies ( $n = 30$ )	Total ( $n = 60$ )
First	55.0	46.5	50.8
Middle	41.9	42.7	42.3
Last	41.7	41.9	41.8
Mean of three passages	46.2	43.1	44.2
Whole statement	45.3	43.7	45.0
ANOVA results	$F = 6.44$ $p = 0.000$	$F = 1.29$ $p = 0.278$	$F = 7.19$ $p = 0.000$



profitable and unprofitable companies. It is interesting to note, however, that the first passage of the accounting narratives of profitable companies was significantly easier to read (55.0 versus 46.5) than that of unprofitable companies[11].

We then analysed the distribution of the coefficient of variation in order to see if profitable and unprofitable companies had different distributions. In general, the passages selected from the profitable companies were much more variable than those of unprofitable companies (see Table III). Indeed, 70 per cent of unprofitable companies had coefficients of variation of 20 per cent or under, compared to 47 per cent of profitable companies. This pattern is confirmed by the average coefficients of variation for the two samples: 15 per cent for unprofitable companies and 22 per cent for profitable companies. A *t*-test revealed that this difference is significant at the 0.05 level ( $t = 2.05, p = 0.045$ ). This result is somewhat surprising as it runs counter to Curtis' (1998) argument. If obfuscation is present, the passages of unprofitable companies are expected to be more variable than those of profitable companies. This is not, however, supported by our results. Curtis also finds that profitable companies had higher coefficients of variation than unprofitable companies, but the difference was not statistically significant.

In contrast to the findings of Curtis (1998), these results provide no evidence that the middle passage is the most difficult to read or that management attempts to "bury" adverse news in the middle of the chairman's statement. In fact, an analysis of the amount of bad news in each passage revealed that, on average, the first section of the chairman's statement contained more bad news than both the middle and final passage[12]. The sequence of ease of reading evident in our results across the entire sample and sub-samples is ABC where A is the easiest to read and C the most difficult (i.e. on average, the first passage has the highest Flesch score, the middle section has the second highest and the third section the lowest). Our finding was supported for the sample as a whole, and when split between profitable and unprofitable companies. By contrast, Curtis finds that the ACB sequence (i.e.

	Profitable companies ( <i>n</i> = 30)		Unprofitable companies ( <i>n</i> = 30)		Total ( <i>n</i> = 60)	
	Number	Per cent	Number	Per cent	Number	Per cent
Over 80 to 90	0	0	0	0	0	0
Over 70 to 80	0	0	0	0	0	0
Over 60 to 70	1	3.3	0	0	1	1.7
Over 50 to 60	0	0	0	0	0	0
Over 40 to 50	2	6.7	1	3.3	3	5
Over 30 to 40	4	13.3	0	0	4	6.7
Over 20 to 30	9	30.0	8	26.7	17	28.3
Over 10 to 20	7	23.3	10	33.3	17	28.3
Under 10	7	23.3	11	36.7	18	30.0
Mean (per cent)		22		15		19

**Table III.**  
Distribution of coefficient of variation

where the first section is the easiest to read, the second section the most difficult to read and the final section lies between these two) is the most prevalent and occurs almost twice as often as is expected. Our results do, however, confirm Curtis's finding that the first passage of the chairman's narrative is the easiest to read.

We also find no evidence to suggest that overall there are significant differences between the readability of profitable and unprofitable accounting narratives. However, profitable companies appear to make the opening section of the chairman's statement comparatively more easy to read than unprofitable companies. This may result from unprofitable companies attempting to convey their poor results in a contrived manner relative to profitable companies, who may wish to communicate their success more directly[13]. Smith and Taffler (2000) for example, find that the thematic content of the chairman's statement is generally a good indicator of a company's performance.

Overall, however, our findings run counter to the argument propounded by Curtis (1998, pp. 466-7) that:

Wider ranges of variability (i.e. higher [coefficients of variation]) and lower reading ease scores will be associated with the release of corporate "bad news". Management will seek to divert the attention of readers from the full impact of negative news by incorporating variable degrees of reading with more difficult to read passages.

Indeed, we find evidence that the average coefficient of variation is greater for profitable companies than for unprofitable companies, which militates against the obfuscation hypothesis. The fact that no significant differences exist between the average readability indices for the chairman's statements of profitable and unprofitable companies as a whole (as measured by both the means of the three passages and the whole statement) is also inconsistent with management obfuscating bad news[14]. If this were the case, one would expect the average Flesch scores of unprofitable companies to be significantly lower than for those of profitable companies owing to management's attempts to conceal the bad news via the use of less readable narratives.

### **Tests of thematic structure**

In order to test alternative explanations for the variability of readability, we analysed the 11 main themes established as important after reviewing the accounting narratives. We recorded their appearance in the first, middle and final passages of each of the 60 chairman's statements. Our results are presented in Table IV. They show that different thematic patterns do indeed underpin the chairman's statement. The first passage, for example, is clearly dominated by a discussion of the results, an overview of the year and an outline of major annual events, a style which has been found to be popular elsewhere (see, for example, Marino, 1995). The middle passage, however, is typically more detailed, looking at operations, business segments, financing and, in particular, at a more comprehensive discussion of major events. Finally, the end passage focuses more on the future and outlook, employees and board changes. The first and final passages are the most homogeneous. For example,

Theme	Profitable companies (n = 30)			Unprofitable companies (n = 30)			Total (n = 60)		
	First section	Middle section	Final section	First section	Middle section	Final section	First section	Middle section	Final section
Future/outlook	0	1	23	0	2	20	0	3	43
Results	23 <sup>b</sup>	2	0	15	4	0	38	6	0
Employees	0	3	12	0	1	15	0	4	27
Acquisitions and disposals	7	5	0	9	2	1	16	7	1
Outline of major events	8	0	0	11	0	1	19	0	1
Discussion of major events	1	7	1	3	7	0	4	14	1
Overview of year	6	0	0	11	0	0	17	0	0
Board changes	0	4	3	0	2	7	0	6	10
Operations	0	7	0	0	8	0	0	15	0
Business segments	0	5	1	0	7	2	0	12	3
Finance/investment	0	5	1	1	2	2	1	7	3

Notes: <sup>a</sup> \*\*\*, \*\* indicates statistical significance at 0.01 and 0.05 levels respectively, using chi-squared tests. <sup>b</sup> Using the two-sample proportions test (Clarke and Cooke, 1992), we tested whether the thematic patterns of profitable versus unprofitable companies were statistically significant. The only difference found was in the first section for "results" ( $p = 0.036$ )

**Table IV.**  
Thematic content of different passages within chairman's statements

38 (63 per cent of the total 60) companies discuss their results in the first passage, while 43 (72 per cent) discuss the future in the final passage. By contrast, the themes in the middle passage are more diverse, with no definite patterns or themes of discussion emerging.

We tested whether or not the distribution of themes was statistically different between passages, using a chi-squared test. Overall, we determined that the themes were randomly distributed (at the 0.10 level), i.e. the total sum of all the themes mentioned was spread evenly across the three sections of the chairman's statement. However, for all of the 11 themes, the thematic content of the three passages was statistically different (10 were significant at the 0.01 level, and one was significant at the 0.05 level). The consistent nature of the patterns supports the view that the themes discussed, and their location in the chairman's statement are not accidental. We therefore conclude that *H2* is supported: different sections of the chairman's statement do convey different information and certain themes appear more frequently in particular sections of the chairman's statement. Consequently, given the differences in the subject matter of these themes, such differences are likely to lead to differences in syntactical complexity, leading, in turn to different readability scores and variability of readability.

Different structural patterns are also evident when profitable and unprofitable samples are compared. These are not, however, as pronounced as the differences between the three passages. There are five major differences between the partitioned samples. First, in the opening passage, profitable companies dwell more upon their results (23 versus 15 companies discussing). Second, in the first passage, profitable companies present an overview of the year less frequently (6 against 11 companies discussing). Third, in the second passage, profitable companies dwell more on acquisitions and disposals (5 against 2). Fourth, in the second passage, profitable companies focus more on finance/investment (5 against 2). Finally, in the last passage of the narrative, profitable companies focus less on board changes than unprofitable companies (3 against 7).

In order to test these differences statistically, a two-sample proportions test was used. This showed that only the discussion of results in the first passage was significant (at the 0.05 level). This result implies that profitable companies are keen to discuss their results early on in the chairman's statement in order to create a good impression. Overall, however, there is no real statistical evidence that the thematic structure of profitable companies is different from unprofitable companies. *H3* is, therefore, not supported.

Thematic structure, therefore, provides a possible explanation for overall readability variability. The contents of the first passage, which typically involves a broad discussion, are more readable than the middle and final sections, which typically involve more varied complex technical issues, such as firms' operations, financing or segmental analyses, employees and future outlook. Unless management deliberately chooses which topics to discuss with a view to obfuscation, variability in readability is likely to arise more from



thematic structural differences than from deliberate obfuscation (i.e. Courtis's rationale for variability).

### Conclusion

This study investigates the topic of the variability of readability in annual reports. Prior research suggests variability is present both between different sections of the annual report and within the same section of the annual report. In particular, Courtis (1998) suggests that variability in the readability of Hong Kong annual reports may be attributable to managers attempting to obfuscate the transmission of bad news. Specifically, bad news is buried in the middle of the chairman's narrative in the hope that little or no attention is paid to it by readers.

A replication study based on the chairman's statements of 30 profitable and 30 unprofitable UK company annual reports fails to support Courtis' obfuscation hypothesis. There is, however, support for Courtis' finding that the first passage of the chairman's narrative is easiest to read. This is most obviously explained by the underlying thematic content of the chairman's statement. Management appears keen to provide an easy-to-understand introduction, providing an overview of the year's results in a more readable manner than the issues which follow in the middle and end passages. Variability in the readability of different passages in the chairman's statement therefore appears to be more attributable to factors in the common thematic structure, rather than any deliberate attempt to obfuscate negative or adverse news. Unless, of course, management deliberately structures its chairman's statements with obfuscation in mind.

Our research therefore suggests that contrary to Courtis (1998), managerial obfuscation is not a determinant of readability variability. Indeed, our findings suggest that Courtis assumes an excessive degree of sophistication on behalf of managers in the communication of accounting narratives. If this is the case, further explanations for the variability of readability need to be sought. We suggest one possible explanatory factor which has been so far neglected in the accounting readability literature and is worthy of much further study, namely the thematic structure underpinning the narrative.

### Notes

1. Readers seeking a review of the content analysis literature in accounting up to 1993 are referred to Jones and Shoemaker (1994).
2. The Flesch test is expressed as:  $206.835 - ((L \times 1.015 + (S \times 0.846))$ . Where L is the mean length in words and S is the total number of syllables per 100 words. The lower the score the more difficult the passage.
3. These studies are well summarised by Jones and Shoemaker (1994); Courtis (1995a); and Jones (1996) and, therefore, will not be covered again here.
4. The findings of Schroeder and Gibson (1990) are not included in Table I as they report grade levels rather than Flesch readability scores.
5. A further study of different sections of the annual report by Heath and Phelps (1984) uses the Gunning measure of readability. ANOVA tests revealed significant differences



between footnotes, management discussion and analysis (MD&A) and the president's letter. The footnotes were the most difficult to read, whereas there was little difference between the MD&A and chairman's letter.

6. The coefficient of variation is the standard deviation divided by the mean. The rationale for using this rather than the standard deviation is that it controls for scale effects and therefore standardises the measure of variability.
7. We investigated the corporate characteristics of size (sales) and industry (manufacturing versus service sectors) to assess whether this impacted readability. We found no significant evidence for either of these factors. We do not, therefore, discuss them further in this paper.
8. The *UK Corporations* database has now been discontinued.
9. Criticisms of the computer-generated approach to the computation of the Flesch score include the computer's lack of sophistication and flexibility. For example, when counting the average number of words per sentence, Flesch (1948, p. 229) recommends that one should "follow the units of thought rather than the punctuation: usually sentences are marked off by periods; but sometimes they are marked off by colons and semicolons". The computer is unable to detect such nuances.
10. Although these themes do not constitute an exhaustive list, there was little consistency or pattern to the remaining topics mentioned.
11. We also tested the means of the three passages against the overall mean for the entire chairman's statement using a two-tailed *t*-test. In all cases, there were no significant differences. This result is particularly important, for prior pedagogic literature has suggested that sampling is not a valid methodology when assessing the readability of narratives (e.g. Schuyler, 1982; Klare, 1984; Coke and Rothkopf, 1970).
12. The average percentages of bad news contained in each passage were: first passage 23.85 per cent; middle passage 15.9 per cent and final passage 4.97 per cent.
13. We are grateful to an anonymous reviewer for this point.
14. Note, however, that this finding is inconsistent with the findings of Smith and Taffler, 1992(b).

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