

The Logic of Nominal Groups

By Tim Casteling

It is widely accepted that written language is more lexically dense than spoken language, and this difference is even more pronounced in the case of academic texts, which are often characterised by the use of complex nominal groups (Halliday, 1993; Vande Kopple, 1994; Cullip, 2000; Fang, 2004). This study investigates the ability of a group of Chinese L1 speakers to make use of extended nominal groups in a written task which was similar to an academic data report. An analysis of the nominal groups composed by the subjects reveals that they had specific difficulties with post-modification, particularly in terms of word order. The relationship between their errors and L1 is investigated in more detail, and specific recommendations are made on how to raise learners' awareness of these issues in the classroom.

The development of academic writing skills

The essential distinction between the linguistic features of spoken and written language largely has to do with the distance between reader and writer (Christie, 1998; Halliday, 2001). Without an immediate, shared context, writers must supply more information to make their meanings clear, and as a result “written English typically shows a much denser pattern of lexicalized content” (Halliday, 2001, p. 182). In other words, written language has a higher proportion of ‘content’ words. Perhaps the most notable example of this is the way in which processes can be represented by nouns instead of verbs, and this is especially prevalent in academic writing (Cullip, 2000). Consequently, even for native speakers of English, acquiring the necessary skills to write in academic genres can be a significant challenge. Specifically, this often entails increasing the writer’s use of complex nominal groups (NGs), which may also include embedded clauses (Christie, 2002). It could be argued that these lexico-grammatical features present a particular challenge for non-native writers, especially for those pursuing tertiary studies in English. One specific example of how this might affect these students is the need to paraphrase information from such NGs in their

own essays. For all of these reasons, there seems to be a specific need for research that can highlight such learners’ difficulties in this regard, and provide guidance for teachers on how to assist them.

Some background on nominal groups

A number of researchers (Halliday, 1993; Vande Kopple, 1994; Cullip, 2000; Fang, 2004) have emphasized the role of NGs in defining academic genres. One reason for the importance of NGs is that writing research reports of most kinds requires packaging information as efficiently as possible. As a result, we see that writers of academic papers often reframe processes as nominalisations or NGs.

It therefore stands to reason that texts like these are characterised by heavy lexical density (Halliday, 1993; Veel, 1997; Fang, 2004) with the majority of information contained in extended NGs. The first way in which this density is achieved is through nominalisation – replacing verbs and clauses with nouns and nominal groups. A typical example cited by Halliday (1993) is “**glass crack growth rate** instead of **how quickly cracks in glass grow**” (p. 79, author’s own emphasis). Secondly, as Vande Kopple (1994) has shown, higher lexical density is often achieved through the use of

extensive pre and post-modification of NGs. The following example from Stephen Hawking's *A Brief History of Time* illustrates how extended post-modification is commonly employed, even in popular science writing:

“the **speed** of light measured in the direction of the earth's motion through the ether” (1988, p. 12). (Bold indicates the head word, and italics indicate post-modification)

There is essentially no limit to the degree of post-modification which is possible in English, and an entire clause can be used to post-modify a head word, or even one of its post-modifiers. Any clause which operates as a post-modifier is part of an NG, and can be referred to as an embedded clause, as seen in Figure 1, taken from an IELTS test rubric.

The research question

Given the findings of previous studies (Christie, 1998, 2002; Whittaker, Llinares & McCabe, 2011), it seems unlikely that the use of complex NGs would be intuitive to relatively inexperienced writers for whom English is a foreign language. Therefore, this study set out to establish how well Chinese L1 writers from pre-intermediate to upper-intermediate levels were capable of framing complex items using nominalisation and elaborated NGs, and whether their responses would help provide patterns of systematic learner errors which could tentatively be offered as a guide to students and teachers.

Materials and subjects

IELTS writing task one requires candidates to describe a visual representation of information, generally some form of a graph or diagram. In the test, the rubric itself states the purpose of

the graph and in order to meet the requirements of the task candidates need to paraphrase, but not copy, the rubric to form the purpose statements of their own reports. As a result, these opening sentences are ideal for characterising learners' ability to succinctly nominalise relatively complex ideas based on information in the graph and the rubric. In this study, ten such purpose statements were analysed in terms of their NGs. Participants in this study were recent college graduates and native speakers of Mandarin Chinese from Taiwan who had just completed a sixty-hour IELTS test preparation course. Their English ability varied from pre-intermediate to upper-intermediate.

Data analysis procedures

The nominal group (NG) for each purpose statement was isolated so that these NGs could be further analysed. Each distinct NG was broken down according to Hallidayan principles, as laid out by Halliday and Matthiessen (2004, pp. 309-334). In this instance, there was potential for ambiguity because in Systemic Functional Grammar two NGs connected by means of a linking conjunction such as 'and' are known as nominal group complexes, which may work together as a single subject or complement (Bloor & Bloor, 2004, pp.146-147). However, since each separate NG can be clearly identified, they will be dealt with separately here. The mechanics of this analysis are probably best demonstrated by looking more closely at the purpose statement from the provided IELTS model answer.

“The chart gives information about post-school qualifications in terms of different levels of further education reached by men and women in Australia in 1999” (Cambridge IELTS 4, p.82). (The

Figure 1. Embedded clause. (Cambridge IELTS 4, 2007, p. 82)

Pre-modifier	the
Head	proportion
Post-modifier 1	of men and women [who held them]
Post-modifier 2	in 1999

Figure 2. (Cambridge IELTS 4, 2007, p. 82)

Head	information
Post-modifier 1	about post-school qualifications
Post-modifier 2	in terms [of different levels [of further education [reached by men and women]]]
Post-modifier 3	in Australia
Post-modifier 4	in 1999

NG is highlighted in italics)

As the square brackets in Figure 2 show, the second post-modifier itself is subject to heavy post-modification, including an embedded clause.

Every clearly identifiable NG from all participant responses, as well as the test rubric and model answer, were subject to the same analysis, and the results were tabulated.

Results

As expected, on average, the participants' NGs are highly elaborate, with almost all of them showing the full complement of pre-modifier, head word and post-modifier. It is also clear that post-modification is far more extensive than pre-modification, and pre-modification is always performed by basic determiners, usually 'the'. Given that the test rubric itself has the complement broken into two distinct NGs, it is hardly surprising that this pattern was followed by four out of ten participants. However, this

situation has left us with two fairly distinct data sets – those which can be compared to the test rubric, with two NGs (hereafter referred to as 2NG), and those which are comparable to the IELTS sample answer, with a single NG (1NG). These differences are significant, as borne out by the data shown in Table 1.

It is clear that the simpler 2NG formula produced less variation between participants, and between their responses and the rubric, whereas the opposite is true for the 1NG formula. Obviously, in contrast to the 1NG pattern, the 2NG pattern reduces the need for elaborate post-modification. As we have seen, it is possible for a single NG to contain a great deal of information, often achieved through post-modification. Unsurprisingly, then, these NGs are characterised by a higher average number of post-modifiers and embedded clauses.

Given this situation, it seems likely that the 2NG group would generally have the more coherent responses, and this seems to be borne out by the data. In fact the 1NG group

Table 1: Pre and Post-Modifiers for each NG.

Name	Number of pre-modifiers	No. of post-modifiers	Embedded clauses
Rubric NG 1	2	2	0
Rubric NG 2	1	2	1
Carol NG 1	2	2	0
Carol NG 2	1	2	1
Vincent NG 1	1	2	0
Vincent NG 2	1	2	0
Sylvia NG 1	1	2	0
Sylvia NG 2	1	2	1
Albert NG 1	2	2	0
Albert NG 2	1	2	0
2 NG Gp mean	1.3	2	0.3
Model Answer	0	4	1
Tanya	1	3	1
Mary	1	2	0
Lance	0	2	1
Mark	1	4	0
Eunice	1	3	0
Claire	1	3	1
1 NG Gp mean	0.833	3	0.571

exemplifies a number of problems with post-modification. Figure 3 shows the response by Mark².

As we can see, the post-modification in this NG appears in the form of four simple qualifiers, not coherently linked together. It

Figure 3. Mark's response.

Pre-modifier	how many
Head	percentage
Post-modifier 1	in different licenses
Post-modifier 2	in Australia
Post-modifier 3	due to sex
Post-modifier 4	in 1999

Figure 4. Compensated response.

Pre-modifier	the
Head	percentage
Post-modifier 1	of different licenses/ qualifications
Post-modifier 2	in Australia
Post-modifier 3	according to sex
Post-modifier 4	in 1999

Figure 5. Tanya's response.

Pre-modifier	the
Head	proportion
Post-modifier 1	of post school qualifications [which men and women acquired]
Post-modifier 2	in Australia
Post-modifier 3	in 1999

may appear that their failing lies in surface lexical issues, and we might compensate for these in the following chart (Figure 4).

However, this modified NG would still fail to identify the appropriate sentential focus because we are looking at 'percentages of men and women', not 'percentages of qualifications'. This highlights the fact that problems such as this are not merely questions of surface grammar, but of confusion about the logic of post-modification itself. This same confusion is clearly illustrated in Tanya's response (Figure 5).

In fact, it is revealing to look at the number of participants who correctly focused on the percentage/proportion of men and women, and then post-modified that with possession of qualifications. Significantly, we see that only four (Carol, Sylvia, Eunice and Claire) could reasonably be said to have done so, and two could be said to have transposed the focus to a percentage/proportion of qualifications (Mark, Tanya), while two (Vincent and Albert) failed to connect the two concepts in a meaningful way. Vincent's response is a clear example:

"The given information illustrates the qualifications in the several levels in Australia, and it also reveals the proportion of men and women in 1999."

The remaining two responses were too ambiguous to be neatly categorized. The results are summarised in Table 2.

Moreover, given the distribution of data into two distinct groups, it is also informative

Table 2: Percentage/Proportion of Men and Women Post-modified by Possession of Qualifications

Correct order of post-modification:	Transposed	Treated as separate entities	Ambiguous
4	2	2	2

Table 3: Percentage/Proportion of Men and Women Post-modified by Possession of Qualifications (according to group)

	Correct order of post-modification	Transposed	Treated as separate entities	Ambiguous
Total	4	2	2	2
1NG group	2	2		2
2NG group	2		2	

²Participants' real names are not given.

to look at the differences by group, as shown in Table 3.

On the whole, it seems that using a single, more elaborated NG made the key elements more likely to be transposed or ambiguous, while the double NG pattern raised the risk of treating them as entirely separate entities. Overall, in terms of readability and coherence, the most serious problems were related to the ordering of post-modifiers, and of lexical issues with prepositional phrases.

Discussion

These results strongly suggest that almost all participants experienced difficulty following the intuitive logic of post-modification to at least some extent. In fact, since all come from a Chinese (Mandarin) L1 background, it does raise the question of L1 interference. Particularly relevant is the fact that while English relative clauses are post-modifying, the same kind of qualification would be realised by pre-modification in Chinese. In Mandarin, this pre-modification is achieved through the use of the particle *de*, as in Figure 6, from Chen (2006, p. 101).

The implication of this is corroborated in a study by Fang and Wu (2010) highlighting the particular difficulties which embedded clauses presented for Chinese L1 translators. Nonetheless, it is also important to note that the effect of L1 interference may be reduced with increasing L2 proficiency, as shown in Chan's (2004) study of lower and upper intermediate learners in Hong Kong. Furthermore, research by Whittaker, Llinares and McCabe (2011) suggests that as a group of Spanish students went into their third and fourth year of high school, they made increases in pre and post-modification of nominal groups in English.

Finally, while the present research did not focus on lexical issues, it is obvious that prepositional phrases, which are an integral part of post-modifiers, were a source of

difficulty for almost all participants, and this might be a fruitful area for future study.

Limitations

Given that the present study was limited to a relatively small sample, these findings should be read with caution. Nonetheless, these results are suggestive of certain patterns in learner errors, and therefore highlight the need for further research in this area. In particular, it may be instructive to investigate the response of Chinese L1 writers to a non-verbal prompt without the need for paraphrasing.

Applications

As we have seen, research reports are lexically very dense, and characterised by extended nominal groups. Consequently, they are bound to present problems for unskilled writers for a number of reasons. I would suggest that there are two key elements to the mastery of nominal groups.

Firstly, nominalisation itself is a matter of knowing the nominal equivalents of both verbs (grow/growth), and noun clauses (how fast cracks grow/crack growth rate), as well as how they are applied in practice. While this is clearly not intuitive for students, there are countless opportunities for teachers of academic English to raise learners' awareness of nominalisation. For instance, students could be asked to highlight sentential Themes (topics) and Rhemes (comments) in sentences, which could lead into raising their awareness of those subjects and complements which are in fact nominalisations. In fact, it has been shown that that reading comprehension would also be improved by such awareness (Chen, Song & Wang, 2011).

Secondly, and perhaps more significantly, we have seen how post-modification presents particular difficulties for learners from a Chinese L1 background. There are two elements to consider here. Firstly, embedded

Figure 6: Example of pre-modification in Mandarin Chinese. Ptcl indicates 'particle' and Loc-V indicates 'locative verb'. (Chen, 2006, p.101)

na4ben3	Ni3	zuo2tian1	yao4	jie4	de	shu1	zai4	zhe4er2
that	you	yesterday	want	borrow	(Ptcl)	book	(Loc-v)	here

Here is the book you wanted to borrow yesterday.

clauses can be an issue. While it is tempting to focus on grammatical accuracy, simply practicing the mechanics of relative clauses is unlikely to remedy the central problem, which often has more to do with meaning – as revealed in the present study. In this case, we would be advised to have students use the target language for meaningful communicative tasks which require defining or paraphrasing. Then, there are post-modifying prepositional phrases, which seem to create problems not only with syntax, but also lexical choice. Here we may want to raise students' awareness of prepositional phrases by having them recognise prepositions and help them to analyse examples such as the following:

“the first [of many steps [on the road [to ruin]]]” (Bloor & Bloor, 2004, p. 146)

In conclusion, I would argue that teachers have a duty to provide learners with appropriate ‘consciousness raising’ activities and meaningful, communicative tasks. Without explicit instruction and necessary scaffolding, it is unlikely that learners of English for academic purposes will begin to master the intricacies of complex nominal groups, which are so vital for academic discourse.

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Appendix

IELTS Test Rubric

The chart below shows *the different levels of post-school qualifications in Australia and the proportion of men and women who held them in 1999*.

IELTS Model Answer

The chart gives *information about post-school qualifications in terms of different levels of further education reached by men and women in Australia in 1999*.

Participant Responses

Mark: The chart demonstrates that *how many percentage in different licenses in Australia due to sex in 1999*.

Carol: The Chart illustrates *the various types of high education certificates in Australia and the percentage between male and female who owned them in 1999*.

Tanya: The graph indicates *the proportion of the post school qualifications which men and women acquired in Australia in 1999*.

Vincent: The given information illustrates *the qualifications in the several levels in Australia, and it also reveals the proportion of men and women in 1999*.

Mary: This chart shows *the number of men and women difference between all kinds of qualifications of post school in Australia*.

Sylvia: The given graph indicates *the relationship between the certifications for Australian students highest diploma in five levels and the proportion of females and males who possessed them in 1999*.

Albert: The graph illustrates *the several levels of post-school qualifications in Australia and the percentage of males and females there during 1999*.

Lance: Given is a bar chart displaying *change that men and women was in five different degrees of post school qualifications in Australia in 1999*.

Eunice: The bar chart indicate *the percentage of both genders in the five levels of post-school qualifications in Australia in 1999*.

Claire: The figure indicates *the percentage of different genders who held the post-school qualifications of different levels in Australia in 1999*.