

SYNTACTIC FUNCTIONS OF FINITE AND NON-FINITE CLAUSES IN ACADEMIC ENGLISH

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Abstract

Finite and non-finite clauses can perform four syntactic functions in sentences. They can substitute for clause elements commonly expressed by noun phrases or adverbials; they can pre- and postmodify noun phrases, or as comment clauses, be independent of the rest of the sentence. This paper explores the four categories in 100 consecutive sentences in four research articles from psychology and economics published at the beginning of the 20th century and a hundred years later. The findings show that finite and non-finite clauses postmodifying noun phrases are by far the most frequently used category in the older texts. In the modern texts, however, this category decreases in favour of clauses occupying a noun phrase slot and adverbial. In the disciplines explored, the data also shows that texts are more impersonal and academic English indicates a trend towards a non-finite mode of expression.

Key words

academic English, syntactic functions of finite/non-finite clauses, primary/secondary predication

1 Introduction

The present article is concerned with the text type usually referred to as academic English. Its main aim is to detect developmental trends in the syntactic functions of finite and non-finite clauses as they appear in the course of a century. The research is based on the theoretical framework of *A Comprehensive Grammar of the English Language* (CGEL), *Longman Grammar of Spoken and Written English* (LGSWE) and *Mluvnice současné angličtiny* (Dušková 1988). Since it takes a functional approach to sentence analysis and adopts a diachronic perspective, clauses in sentences are categorised according to the syntactic functions they perform in sentences with the aim of identifying changes that have occurred over time and trace their possible impact on some features of articles. The study analyses 100 consecutive sentences of four research articles: two articles from the area of clinical psychology, first published in 1907 and 2005, and two articles from the field of economics, first published in 1904 and 1997. To make the articles as comparable as possible an effort was made to analyse research articles that were written by native speakers and have similar topics.

Thus the psychology articles are from clinical psychology and both describe research carried out on hypnosis; the topic of the economics articles is fiscal policy. The whole corpus of 400 sentences contains 1,467 finite and non-finite clauses and 12,501 words. The analysis, which was carried out manually, deals with the frequency of occurrence of different types of finite and non-finite clauses and considers the syntactic functions they perform in the sentences analysed. Within the 400 sentences the analysis categorises every occurrence of explicitly expressed primary (finite) and secondary (non-finite) predication. This means that where no explicit verb forms occur, even though they are clearly implied, the structures are ignored. Thus the structure *In regard to Dr. Bramwell's experiments and my own ...* is not counted as a clause while *So far as my own experiments go* is, though both are semantically similar.

2 Categories of explicitly expressed primary and secondary predication

Explicitly expressed primary and secondary predications are categorized as main clauses and finite and non-finite subordinate clauses. Subordinate clauses are further divided into four syntactic categories according to the function they carry out in a sentence. In the examples below parts of sentences exemplifying the issues discussed are underlined.

2.1 Clauses occupying a noun phrase slot as subject, object and complement

Example 1 shows a nominal *that*-clause functioning as direct object; in Example 2 there is a *to*-clause functioning also as direct object.

- (1) *They tended to disagree that hypnosis is anti-Christian, or the work of the devil ...*
- (2) *The conception of final or marginal utility cannot, in fact, pretend to insure more than the achievement of a bargain ...*

2.2 Clauses occupying an adverbial element slot

In Examples 3 and 4 the underlined structures illustrate finite and non-finite clauses functioning as adverbial.

- (3) *At any rate, the trust ... has weakened, while the occasions for the interference of the State have grown more frequent and abundant.*
- (4) *A second argument is often produced for bringing the growth in the national debt under control sooner rather than later.*

2.3 Clauses contributing to the complexity of noun phrases in the form of pre- and post-modification.

To be consistent with the criterion of explicitly expressed predication, *-ing* and *-ed* participles premodifying noun phrases which were derived by means of the suffix *-ing* or *-ed* from a verb base were counted as non-finite clauses. They could be easily converted into finite clauses. Thus *an untrained mind* in Example 5 can be changed into *a mind that is untrained*.

- (5) *But we must remember how difficult introspection is to an untrained mind ...*

Examples 6 and 7 illustrate postmodification by a finite and non-finite clause respectively.

- (6) *This total reflects the fact that no income is earned directly on many of the assets that the public sector owns ...*
- (7) *In the case of my own subject F. D., the period of natural sleep seemed to be the time chosen for the working out of the calculations.*

2.4 Comment clauses

Comment clauses are (usually as parenthetical disjuncts) independent of the rest of the sentence (CGEL 2003: 1112). They express a speaker's comment on the content or style of what is being said in a clause they are attached to. *The Cambridge Grammar of the English Language* (CAGEL 2002: 1350) calls such clauses supplements. As regards their forms in the corpus analysed, they have the forms of main clauses (Example 8), adverbial clauses (Example 9) or *to*-infinitive clauses (Example 10).

- (8) *Here visual representation is the rule; and it will, I think, be found that skill in mental arithmetic is almost always accompanied ...*

- (9) *So far as I can find, writers on hypnotism have not dealt explicitly with this question.*
- (10) *But she similarly failed, to begin with, in the hypnotic state.*

Within the syntactic categories discussed in Sections 2.1-2.4 14 types of finite clauses and 21 types of non-finite clauses were distinguished. The types of clauses occurring at least in two out of the four texts are listed in the Appendix.

3 Findings

3.1 Representation of individual categories

Tables 1 and 2 display percentages of finite and non-finite clauses in individual texts. In order to detect possible developmental trends, the situation in the old texts is always taken as a starting point with which the situation in the modern texts is compared and contrasted. A look at percentages for postmodification in Tables 1 and 2 suggests that postmodification by means of finite and non-finite clauses is by far the most frequently used category in the older texts. Another striking feature in this corpus is that comment clauses occur only in the older texts and only in very small quantities. Table 1 for finite clauses exhibits the following results: there is a slight increase in the percentage of finite clauses expressing postmodification in the modern psychology text and a dramatic fall in the percentage of clauses expressing postmodification in the modern economics text. Finite clauses expressing adverbial show a substantial fall in the psychology text and an apparent increase in the economics text. A feature common to both modern texts is a significant rise in the percentage of clauses used as a substitute for a clause element normally expressed by a noun phrase (from 26% to 47% in the psychology texts and from 15.5% to 34% in the economics texts). The most common clause type expressing this function is a nominal *that*-clause used as object direct in which *that* is preserved. The fact that it is an essential clause type of academic prose is entirely conceivable, because it enables researchers to express their stance or report results of their or somebody else's research. The retention of *that* in written language makes reading comprehension easier because superordination/subordination relationships are obvious at first sight.

Finite clauses – psychology			Finite clauses – economics		
	1907	2005		1904	1997
Postmodification	36	38	Postmodification	57	29
Adverbial element	33	13	Adverbial element	25.5	37
Noun phrase slot	26	47	Noun phrase slot	15.5	34
Comment clauses	5	–	Comment clauses	2	–
Premodification	–	2	Premodification	–	–
Total	100	100	Total	100	100

Table 1: Finite clauses in four academic articles

Non-finite clauses – psychology			Non-finite clauses – economics		
	1907	2005		1904	1997
Postmodification	45	32	Postmodification	46.5	30
Premodification	13	17	Premodification	15	12
Adverbial element	14	25	Adverbial element	14	31
Noun phrase slot	26	26	Noun phrase slot	24.5	27
Comment clauses	2	–	Comment clauses	–	–
Total	100	100	Total	100	100

Table 2: Non-finite clauses in four academic articles

The percentages for non-finite clauses in Table 2 display similar developmental trends in both texts. They indicate a rather significant decrease in the percentage of clauses expressing postmodification and a substantial increase in the percentage of non-finite clauses expressing adverbial (from 14% to 25% in the psychology texts and from 14% to 31% in the economics texts). The percentages of clauses used instead of clause elements normally expressed by noun phrases and the percentages of premodification are more or less the same in both texts. There are six kinds of non-finite clauses used as a substitute for an adverbial element slot. Of the two infinitival kinds of clauses (the infinitive of purpose illustrated in Example 11 and the infinitive of sufficiency/excess illustrated in Example 12), the

infinitive of purpose plays a dominant role in all four texts and its representation in the modern texts is even more distinctive than in the older texts.

- (11) *...witnesses have been hypnotised to remember details of the scene of a crime in law courts.*
- (12) *Thus the feedback from net worth onto expenditure is powerful enough to stabilise the government's net worth at a target value.*

The other four kinds of non-finite clauses used as a substitute for an adverbial element slot are *-ing* and *-ed* clauses with an overt subordinator (Examples 13 and 14) or without an overt subordinator (Examples 15 and 16).

- (13) In this article we begin by presenting the current budgetary position.
- (14) ... when hypnotised, participants can exhibit physical strength greater than their normal capacity.
- (15) *Looking first at Fig. I., for government expenditure, we can see that actual expenditure has markedly exceeded the forecast value in 1994 and 1995.*
- (16) *Looked at in the same way, many of the other suggestions are rendered very simple.*

The LGSWE classifies *-ing* clauses without an overt subordinator as adverbials which “have an implicit and somewhat ill-defined relationship with the main clause” (LGSWE: 783), because the semantic relationship between the two clauses is not unequivocal. The ambiguity lies in the fact that they can be interpreted as clauses expressing two or even more semantic relationships. Example 15, for example, can be interpreted as giving time or condition.

In accordance with the LGSWE in the present study such clauses are classified as adverbials. However, when non-finite *-ing* clauses follow the clauses to which they are related, there is one more interpretation of their possible semantic relationship to the clauses to which they are related. The interpretation is suggested by Alexander when he deals with “participle constructions in place of co-ordinate clauses” (Alexander 1988: 31). Instead of a coordinating conjunction *and* followed by a finite clause, he suggests dropping *and* and using a present participle. The example given by Alexander uses an *-ing* clause instead of another main clause after *and*. In our corpus this is the case illustrated in Example 17.

- (17) *The deficit is affected by the current level of capacity utilisation as well as the level of unemployment, but expenditure is affected only by unemployment, indicating a greater overall cyclical effect on tax revenue.*

Moreover, it appears that it would also work for finite subordinate (18) or non-finite clauses (19). In those cases the kind of clause that could be linked by parataxis would be the same as the kind of clause preceding an *-ing* clause.

- (18) *Britain's primary deficit is such that, if it continues, the stock of debt will rise without limit, eventually reaching a point at which the taxes needed to service the debt become politically impossible.*
- (19) *A reference point for the current position is provided by considering what budget deficit or surplus would be needed in order to maintain the current balance sheet position of the government, keeping both assets and liabilities constant proportions of GDP.*

In Example 17 *indicating a greater overall cyclical effect on tax revenue* could be another main clause *and indicates*; in Example 18 *eventually reaching a point* follows an appositive clause *that ... the stock of debt will rise without limit* and could thus be another appositive clause joined by *and* to the previous clause *and will eventually reach a point*. Similarly, in Example 19 *keeping both assets and liabilities constant proportions of GDP* follows a non-finite clause expressed by means of the infinitive of purpose *in order to maintain the current balance sheet position of the government* and could thus be another clause expressed by means of the infinitive of purpose *and to keep both assets ...* The alternative with a non-finite *-ing* clause raises the number of non-finite clauses and is at the same time more economical because we need fewer words.

The LGSWE, which analysed academic articles published mostly after 1980, states that non-finite adverbial clauses are often used without overt subordinators. Academic prose is a register which uses overt subordinators in non-finite clauses most commonly of all the registers because it aims at communicating precise information. However, even in this register, the percentage of non-finite clauses with overt subordinators is roughly only 25 per cent, which means that the semantic relationship between clauses may often be not explicit (LGSWE 1999: 838).

3.2 Main and finite, non-finite clauses in all the four texts

The prime difference between the older and modern texts is that the modern texts are in both cases more than 1,500 words shorter and they contain fewer clauses. The number of clauses is shown in Table 3. In the left columns of each section there are absolute numbers of main, finite subordinate and non-finite clauses. In the right columns next to the data about the modern texts there is always an arrow pointing downwards (because the frequency of occurrence of main, finite subordinate and non-finite clauses is always lower in the modern texts) and next to it there are percentages by which the particular kinds of clauses decreased in the modern text. We can thus see that the number of main clauses in psychology 2005 and economics 1997 decreased by 17 per cent and 6 per cent respectively. If we consider that the study analysed 100 sentences in each corpus and each sentence must have at least one main clause, as regards main clauses this means that in the modern texts there are fewer sentences that contain more than 1 main clause. A comparison of the decrease in finite and non-finite clauses reveals a striking, and perhaps the most significant, difference between the older and modern corpora, namely that finite clauses in both corpora are reduced roughly by one half (48% and 50%), while non-finite clauses by one third (34%) in psychology 2005 and one fourth (26%) in economics 1997. Thus finite clauses were reduced much more than non-finite clauses. This indicates that the developmental trend in academic prose shows a tendency towards a non-finite mode of expression.

	Main clauses		Finite sub. clauses		Non-finite clauses	
	absolute number	per cent	absolute number	per cent	absolute number	per cent
Psychology 1907	138		182		116	
Psychology 2005	115	↓ 17	94	↓ 48	77	↓ 34
Economics 1904	126		181		131	
Economics 1997	119	↓ 6	91	↓ 50	97	↓ 26

Table 3: Main and finite/non-finite subordinate clauses in all the four texts

4 Conclusion

The main findings of the present study, which are common to both sets of texts, could be summarised as follows: in the modern texts finite clauses are reduced much more than non-finite clauses and there is no use of comment clauses. Moreover, there is a decrease in the percentages of non-finite clauses used as postmodification, a significant rise of the percentages of finite clauses substituting for clause elements normally expressed by noun phrases and a substantial increase in the percentage of non-finite clauses used as adverbials. Bazerman (1984) considers different functions of individual clause types. He states that relative clauses specify noun phrases “adding information or precision but not adding to intellectual complexity ...” (Bazerman 1984: 175), while “noun clauses can keep two thoughts in the air at the same time ...” and adverbial clauses put “two ideas or events in relation to one another ...” (Bazerman 1984: 176). Psychology and economics (the two disciplines whose articles are analysed in this study) are disciplines of social sciences. Bazerman states that “... many social scientists have attempted rather direct importation of what they perceive to be the methods and communication styles of the natural sciences. As in the case of experimental psychology, the model of scientific communication adopted is likely to be a simplified abstraction ...” (Bazerman 1988: 279).

In light of what has been quoted above and what the data collected in the present study shows, it can be said that current academic English as opposed to academic English written a hundred years ago indicates a trend towards a mode of expression that is more factual, more impersonal, more condensed syntactically and more complex intellectually. It is more factual and more impersonal because there are no comment clauses in the modern texts. It is more condensed syntactically because finite clauses are reduced much more than non-finite clauses. Non-finite clauses are used instead of hypotactically or paratactically linked finite clauses. Such clauses would be introduced by a conjunction and would contain a subject and a finite verb form. As Hladký (1961: 114) points out, such elements are obvious from the surrounding context and are thus weak from the point of view of communicative dynamism. The use of non-finite clauses or sentence condensers thus significantly contributes to “structural compactness” (Tárnyiková 1993: 72) of an English sentence. Finally, current academic English as opposed to academic English written a hundred years ago is more complex intellectually because the developmental trend indicates an increase in the usage of clauses used instead of elements normally expressed by noun phrases and those expressing adverbial and a decrease in finite and non-finite clauses expressing postmodification. In other words it seems to prefer thoughts and different kinds of circumstances to details about noun phrases.

The findings presented in this study are based on only a small number of texts, and it cannot be claimed that they are typical for all scientific texts, or even for all writers on psychology and economics. Whether or not they are more universally valid will have to be proved by further research in other academic disciplines.

Note

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Appendix

Finite clauses occupying a noun phrase slot

1. *That*-clause after a verb
I know *that there are 365 days in a year*.
2. Extraposed *that*-clause
It is clear *that these deficits matter*.
3. *That*-clause after a copular verb
The most curious detail of these problems is *that no conscious calculation could be traced*.
4. *That*-clause as adjectival complementation
She said she was sure *she could not do this*.
5. Nominal *wh*-interrogative clause
She did not know *when she had solved the problem*.
6. Nominal *yes/no* interrogative clause
On another occasion I asked her, while awake, *if she knew...*
7. Nominal relative clause
... each surrenders *what he then values less ...*

Finite clauses occupying an adverbial element slot

8. Adverbial clauses of time, condition, concession, manner.
9. Adverbial clauses of comparison (equivalence, non-equivalence, sufficiency-excess)
...the marginal elements in the conscious field may become so wholly submerged *that only at the end of the experience do we "come to ourselves"*

Finite clauses contributing to the complexity of noun phrases in the form of postmodification

10. Defining relative clause
Higher borrowing leads to a larger debt service burden *which may offset the initial advantage*.
11. Non-defining relative clause
Had a parallel series of problems been given to Miss D. in the waking state from the beginning, or even from the 8th of January, *when she was first asked to make calculations during hypnosis, ...*
12. Appositive clause
The mistaken belief *that hypnosis per se confers analgesia* is quite untrue;
13. *Wh*- nominal relative clause
Nor has the separate treatment been at any time so marked, in connection with *what may be called the theory of international value,*

Finite comment clause

Here visual representation is the rule; and it will, *I think*, be found that skill in mental arithmetic is almost always accompanied

Non-finite clauses occupying a noun phrase slot

1. *To*-infinitive clause after a verb
Of this number 17 would like *to be hypnotised again*.
2. Extraposed *to*- infinitive clause
However, in reality, it is not very difficult *to perform this action without hypnosis*.
3. *To*- infinitive clause after a copula
The only mental arithmetic necessary is *to subtract 80 from 115*.
4. *To*- infinitive clause as adjectival complementation
We should rather be inclined *to expect* that somnambules who have.....
5. *To*- infinitive clause involved in the subject to subject raising construction
... that individuals competing freely with one another are likely *to be worsted in a contest* ..
6. *To*- infinitive clause after O_d
... this *would*, in effect, force today's earners *to save up for their own public pensions and public health care*
7. *-ing* clause after a verb
F. D. *said* that she sometimes remembered *thinking in her sleep*.
8. *-ing* clauses as adjectival complementation
I presume *that* by this phrase Dr. Bramwell means that the subject herself was not conscious *of making any calculation*.
9. *-ing* clauses after O_d
... in their *abandonment* of the Mercantile System, which they found *existing in their day*,...

Non-finite clauses occupying an adverbial element slot

10. *- ing* clause with an overt subordinator
... when she said that she went into such a very deep sleep *when doing them*
...
11. *-ing* clause without a subordinator
So far as my own experiments go, I have found that if a somnambule is a good *visuel* he will, *other things being equal*, be more expert at ...
12. *-ed* clauses with an overt subordinator
More importance is attached to collective, *as contrasted with individual*, action.

13. *-ed* clauses without a subordinator

Looked at in the same way, many of the other suggestions are rendered very simple.

14. Infinitive of purpose

... would it be necessary for her to make any calculation *to tell* when an act suggested to be done in 10,090 minutes fell due?

15. Infinitive of sufficiency and excess

And it is reasonable to suppose that the subliminal is seldom so completely segregated from the supraliminal consciousness *as not to be to some extent disturbed in its operations...*

Non-finite clauses contributing to the complexity of noun phrases in the form of postmodification

16. *-ed* postmodification

In the case *of* my own subject. F. D., the period of natural sleep seemed to be the time *chosen for the working out of the calculations.*

17. *-ing* postmodification

There is abundant *evidence* that acts *originating subliminally* are remembered.

18. Infinitival postmodification

...the *investigation* is more difficult, and the conclusions *to be arrived at* more doubtful.

Non-finite clauses contributing to the complexity of noun phrases in the form of premodification

19. *-ed* premodification

As to remembered things there is, of course, plenty of evidence.

20. *-ing* premodification

That contention *treats* our fiscal policy of Free Trade as the *surviving* article of a general faith in *laissez-faire* ...

Non-finite comment clauses

21. But she similarly *failed, to begin with*, in the hypnotic state.