

Function and Structure of Academic English

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The language of academic English is described with a focus on the academic paper or research report. It is maintained that the academic paper or research report opens a window of current relevance on a phenomenon or topic, establishing a generic perspective that pressures the use of present tense, complex nominal expressions, and passive voice.

本稿は、高等教育で使われる英語を、論文、研究報告を中心に分析したもので、論文や研究報告は、特定の現象や話題の現時点での意義を問題とし、一般的な視点を確立しようとするために、現在形、複雑な名詞句を用いた表現、受動態が多様されると主張される。

Every domain in which language is employed, from home to market to university to workplace, has different rules of appropriate and correct usage. These domain-appropriate rules have evolved in response to the purposes which language fulfills in a given domain and the types of discourse in which language users of that domain engage, whether dinnertime chat, bargaining for lower prices, putting forth a logical argument, or writing a sales letter.

Within the academic domain, there are special rules of appropriate language use in lectures, discussions, and office talk. Though they are often neither explicit nor conscious, those who do not know these rules or who wittingly or unwittingly break them risk being unable to participate fully and successfully in academic culture. Just as for the spoken forms of communication in academic society, the written forms have their own protocols that have evolved to express particular meanings and forms of discourse. Contrary to popular belief, "there is not in fact only one correct form of the grammar of a language but rather a range of options useful for different purposes and appropriate in different situations" (Pennington, 1995, vi).

In what follows, the specialized grammar of academic discourse is examined in the three areas of verb tenses, complex nouns, and passive voice, particularly as realized in the research paper. Through an exami-

nation of these three areas, one can gain an understanding of the logic of academic writing which elucidates some aspects of its form as well. The academic paper is described as opening a window of current relevance on a phenomenon or topic within which the relationships between complex ideas are presented in a direct, informationally dense form, and the author is removed from view.

The Relationship of Function and Structure in Academic Discourse

A discussion of the relationship of function and structure in academic discourse might logically begin with examination of the nature of one of its most highly specialized exponents, the research paper. An academic research paper has the specific function of reporting information and establishing it as reliable, valid, and worthwhile—i.e., as useful or important in advancing a field of study. As Swales (1990) observes, research articles “are rarely simple narratives of investigations. Instead, they are complexly distanced reconstructions of research activities” (p. 175). Characteristically, in research writing and other types of academic writing, and to some degree academic discourse in general, the author seeks to project objectivity, logic, and authoritativeness by establishing a “generic perspective” on the information. The perspective of an academic paper is “generic” in the sense of being temporally and personally detached or non-specific, that is, timeless and impersonal.

An academic paper can be seen as establishing a “discourse window” within which ideas are presented. This window can be thought of as bringing selected information into the immediate context of the paper, in the process setting and delimiting the reader’s schema, and at the same time establishing a view that is relatively distant and detached from the writer. In this window, information is highlighted for the knowledgeable reader by means of a simple system of tenses linking highly complex noun phrases which express the specialized meanings of a given field, and by use of the passive voice to enhance objectivity.

Establishing the Discourse Frame Through Verb Tenses

The predominance of present tense in academic writing

A research paper is generally for the purpose of describing or showing results and establishing an argument or a theoretical position (Swales, 1990). These are functions which do not require use of tenses to the same degree or in the same way as talking about events in chronological sequence (e.g., in a story or narrative). Increasingly, the main tense used in

most academic writing—and many other genres of English writing as well, including poetry—is the simple present tense. In these *present tense genres*, which establish a context of the here-and-now or the “timeless” present, other tenses function to organize and express ideas by their contrast and interplay with the simple present tense (Pennington, 1988).

The “discourse window” within which ideas are presented in an academic paper is thus not generally a *time frame* for talking about events and the order in which they occur. Rather, it is more of a *logical frame* or *space* for developing ideas and presenting information from a certain perspective or point of view. The logical relationships established between ideas in an academic paper involve reasoning and argument development, and include identifying which ideas form the basis or background for other ideas and which ideas follow in a logical progression from others.

The flow of ideas in an academic paper is for the most part a *logical*, not a *chronological*, flow in which the focus of discussion is foregrounded and highlighted by presenting it in a present tense “window of current relevance.” Less focal ideas may be presented in the past tense as outside the focal perspective (Riddle, 1986). The tenses thus function in academic writing primarily to establish the importance and the relevance of different pieces of information to the argument or theoretical point being advanced. This is the reason that the simple present tense dominates even in describing past research, as in a literature review or discussion of results. By using the present tense, the author signifies to the reader that the research reported is considered to be of immediate relevance to establishing the argument or theoretical focus.

Past tense as a backgrounding device

It would not, however, be accurate to say that the past tense never occurs in an academic paper. It may in fact occur in presentation of past research in a literature review or discussion of results section. If the author’s purpose is to establish a clear break between older and newer research traditions, the contrast of past and present tenses may help to do this. For example, in a literature review, one paragraph or group of paragraphs may review in the past tense a group of studies the author wishes to present as “traditional,” no longer relevant, or less relevant than another group reviewed in the present tense. Or, an author may wish to contrast an older or less effective methodology with a newer or more effective one by using the past tense to de-emphasize the relevance of the former methodology and the present tense to highlight the relevance of the latter methodology.

The past tense sometimes occurs in the method or procedures section of a research paper, as when the author describes the procedures used for finding subjects or for other aspects of conducting the research, such as the way in which a questionnaire or experimental protocol was administered. The past tense is also used in describing the results of research, but generally only where it is necessary to establish a definite time or chronological order, e.g., in time series designs, historical studies, or reports of detailed observations of sequential human behavior in psychology or ethnographic studies.

As a specific example of these differential tendencies of tense usage in academic writing, Swales (1990, pp. 135ff) summarizes research describing the occurrence of tenses in one scientific journal. This research shows that past tense occurs in the science articles primarily in the methods and results sections rather than in the more abstract introduction and discussion sections, precisely where the present tense tends to occur.

The occurrence of other tenses in academic writing

While the past tense signifies a definite break with a current frame of reference, the present perfect tense establishes a *relationship* with the current frame of reference. The present perfect tense is therefore commonly used in a literature review or discussion section to link one finding or idea with another and to make a logical transition from one to the other, as in:

- (1) While previous studies *have suggested* that . . . , the present investigation *demonstrates* a different effect.

In addition to the logical frame of a report of research, the academic paper establishes a *physical frame* and a *spatial flow* of ideas, i.e., from the beginning to the end of the paper. An author may employ a tense shift to open or to close the frame of the paper or its individual sections. For example, the author may open or close the introductory section of a paper by presenting a view of the structure or content of the report to come, using *will*, as in:

- (2a) In what follows, it *will be shown* that . . .
- (2b) In the first section of this report, background to the investigation *will be presented*.

However, the pressure to favor a "timeless" concept as the frame of an academic paper is so strong that the present tense is increasingly the verb form of choice:

(3a) In what follows, it *is shown* that . . .

(3b) In the first section of this report, background to the investigation *is presented*.

Authors often use the present perfect tense to open a new frame by relating it to the information presented in the previous frame. Thus, a discussion or conclusion section may begin:

(4) In the preceding discussion, it *has been shown* that . . .

Here, the present perfect tense links sections or subsections of the paper to make a logical transition between them.

Will has a similar usage in linking the closing of one frame with the opening of the next, as in:

(5) In the next section, it *will be demonstrated* that . . .

Here again, though, the pressure seems increasingly to favor present tense usage, as in:

(6) In the next section, it *is demonstrated* that . . .

Will can also be used in a research report for prediction of behavior, e.g., in statements of hypotheses or in discussion or conclusion sections drawing implications for future studies or for the future state of the phenomenon or population studied. However, hypotheses are more often than not stated in the present tense; and predictions and implications, too, tend to be couched in present tense language, such as:

(7a) Our findings *predict* a more regular and less diffuse pattern of behavior as the system *matures*.

(7b) This study *suggests* that the future is likely to be one in which a more vocal population *expresses* higher levels of dissatisfaction with the status quo.

A rule of thumb for tenses in academic writing

As a rule of thumb, when writing a research paper, the "default value" for verb inflection should be simple present tense, with the author deviating from this setting only when there is a logical need or reason to:

- (a) show the time or the order of events,
- (b) present information from different perspectives,
- (c) contrast the relative importance of ideas, or
- (d) make explicit the structure of the paper or the argument.

In short, uses of other tenses in academic writing are best made as conscious, reasoned decisions about departing from the "timeless" or schema of the simple present tense, which represents the simplest format for presenting relationships among complex ideas.

Developing Specialized Content Through Nouns

The complexity of the noun group in academic writing

Although most grammar books and most students and teachers of English place a strong focus on verbs and verb tenses, the complexity of academic writing resides far more in the noun group (nouns and noun phrases) than in the verb group (verbs and verb phrases). While the verb groups in academic writing tend to be of a simple structure, largely simple present tense, noun groups often are extremely complex. In the following typical example, everything preceding the verb *offer* is one noun group, and everything following this simple verb is another:

- (8) The measured increases in the level of greenhouse gases *offer* increasing evidence of a global warming trend in the direction predicted by the model.

As this example illustrates, not only the structure but also the content and meaning of the noun group, which establish the topical focus and themes of the text, tend to be highly complex in comparison to the verb group in academic discourse. Whereas the verbs tend to be drawn from a relatively small set of reporting or relationship verbs (e.g., *be*, *appear*, *show*, *demonstrate*, *indicate*, *report*), the nouns of academic discourse are more extensive, with less transparent meanings.

In academic discourse, nouns tend to occur in combinations with prepositions and adjectives to make noun "stacks" and noun phrase clusters, as in:

- (9a) global warming trend

ADJ ADJ NOUN

- (9b) opportunity cost indicators

NOUN NOUN NOUN

- (9c) (the measured increases) in[(the level) of (greenhouse gases)]

NOUN PHRASE

NOUN PHRASE

NOUN PHRASE

These stacked nouns, or noun clusters, embody the specialized and abstract meanings required in a particular field for precise and in-depth communication. Some of the complexity of academic discourse lies in

the fact that the abstract nouns or parts of the noun group are frequently derived from other parts of speech, especially verbs. In (8), the following parts of the noun groups are in fact based on verbs:

measured (fr. verb *measure*)
increases, increasing (fr. verb *increase*)
warming (fr. verb/adjective *warm*)
predicted (fr. verb *predict*)

The nature of reference in academic discourse

Another type of complexity involves the degree of specificity or directness of reference in academic discourse. The nature of reference in academic texts can be seen in the use of *the* in complex noun phrases. As in all its uses, the definite article in academic discourse identifies a specific referent of the noun. In the illustrative sentence of (8) above, the initial *the* in *the measured increases in the level of greenhouse gases* implies that specific measurements are referred to, perhaps in an earlier section of the paper where these have been described. If the author were to write *measured increases* without a preceding *the*, the noun phrase would refer more generally and could not be pinned down to a specific referent, that is, to specific measurements. Similarly, whereas *the opportunity cost indicators* specifies a particular set of opportunity cost indicators, the phrase *opportunity cost indicators* makes less precise reference to such indicators. The difference is a subtle but important one having to do with whether specific facts or only a general area of information is being adduced in support of an argument.

A difficulty in academic writing (and other forms of English discourse) is that nouns often make reference to ideas not defined in the text or refer generally or abstractly to previous sections of text. In such cases, the referents of nouns must be inferred from the discourse context or from knowledge not represented. Thus, when an author mentions *opportunity cost indicators*, it may be with the intention of defining this concept in the text or with the assumption that the reader will already be familiar with the concept or can infer the meaning from context.

The various forms of nominal reference can be illustrated by several examples of a type which is common in academic discourse, *viz.*, where a noun preceded by *this* establishes a connection to a previous portion of text through relationships of generalization and description. For example, in the literature review section of a research paper or report, the paragraph following a review of key studies might begin in any of the following ways:

- (10a) *This group of studies* is in indication that . . .
- (10b) *As this literature* shows, . . .
- (10c) *This review of the literature* offers an insight into the process of . . .
- (10d) *These findings* make clear that . . .
- (10e) *These early findings* have been superceded by more recent research showing that . . .
- (10f) *As these wide-ranging results* make clear, . . .
- (10g) *This inconsistency of results* suggests . . .

As we move down the list from (10a) to (10g), we are moving from more direct to more indirect forms of reference. Example (10a) generalizes on a concrete level, referring to the research reviewed as a *group of studies*, (10b) is a somewhat more general and abstract form of reference in which the studies reviewed are invoked as a collective or mass noun in the phrase *this literature*, and (10c) describes the previous text in a still more abstract way, in terms of its function, as a *review of the literature*.

Unlike (10a-c), (10d) extracts the information content of the previous text in referring to the results of the studies as *findings*. Examples (10e) and (10f) are different from preceding examples in adding an attributive adjective to the general noun used to refer to the studies. In doing so, the author slips in some additional information about the studies, referring back to them while at the same time advancing the content of the discourse. Use of an attributive adjective is a more compact way to add information to a discourse theme or topic than making a proposition in the form of a clause or whole sentence. It is also a way to both assert a point of view and to subtly bring the reader into that point of view, ostensibly in the act of referring to previous text.

In (10e) the author classifies the reviewed studies as *early findings* and so backgrounds them in comparison to some more recent findings. In (10f), the author indicates his/her perspective on the previous research as showing a diversity of results. Although this could be a positive or negative attribution, it is common in a literature review section to cast previous literature in a somewhat negative light, as a way to motivate the author's research. It is therefore likely that the author will make clear in the same paragraph that this comment is intended to indicate a shortcoming of the previous research.

In example (10g), the author makes a direct critical assertion about the quality of the previous research studies by describing them as inconsistent. Note that this evaluation is accomplished not through an

adjective but through instantiation of *inconsistency* as a noun. Hence, the reader is required not only to recall the content of the literature review just provided but also to assent to the author's evaluation. Such a form of reference expresses highly complex meanings and relationships among ideas in a succinct fashion that establishes clear topics, themes, and relationships.

Inherently singular and countable nouns in academic discourse

A subtle and surprisingly difficult aspect of noun usage in academic writing involves singular and plural. A main reason for this difficulty is the fact that a large number of nouns are inherently singular (i.e., "non-count" nouns) in some contexts but in others may occur in the singular or the plural (i.e., as "count" nouns). A prime example of this crossing of categories is the group of nouns which can refer to either (a) a concrete and differentiated "thing" (an object or a unit of some kind) or (b) some type of mass or undifferentiated substance (matter or material). Examples are *pie* and *cake*, which can both refer to concrete objects—a *pie/some pies*, a *cake/some cakes*—as well as to the undifferentiated substance of *pie* and *cake*, as in:

(11a) Which would you like, pie or cake?

(11b) I'll have cake, please.

Now the difficulty is that many nouns formerly considered inherently singular and uncountable have developed countable senses by a process of conventionalized ellipsis. This is a process in which a noun phrase becomes conventionally abbreviated to a simple noun. By this process, *a coffee* comes to stand for "a cup of coffee," and *two sugars* is understood as an abbreviated form of "two portions of sugar." When this happens, the noun which specifies the countable unit, that is, the container or measurable portion, must be understood and inferred from the context.

To compound the difficulty of interpretation related to ellipsis and the changing grammatical properties of English nouns, almost any noun can be used in a countable or differentiated sense to mean "a type of"—a usage that is particularly common in the discourse of specialized fields. For example, to the average person, *two beers* most likely refers to "two portions (pints, bottles, cans, mugs, glasses) of beer", while for the brewery owner or beer aficionado, *two beers* may equally well refer to "two types of beer" (such as two different brands or two different varieties such as stout and lager). To the non-specialist, many instances of plural nouns, such as *steels* or *Englishes*, may seem uninterpretable or incorrect. A me-

chanical or construction engineer, however, might speak of *steels* meaning "different types of steel" (e.g., as made from different proportions of carbon and iron), and a linguist might speak of *the Englishes of the world*, referring to different varieties of English. The latter is a good example of how changing times and circumstances, such as the spread of English around the globe, affect language—in the creation of new words and sometimes new grammatical possibilities as well.

Learning nouns as the specialized meanings of a field

A main difficulty in both interpreting (as reader) and constructing (as writer) academic discourse resides in the decoding and the encoding of complex noun phrases to express the specialized and abstract meanings current in a particular field (Halliday and Martin, 1993). On the "down" side, the forms and the usage of these nominal expressions can probably only be learned through extended experience and apprenticeship in a given field. On the "up" side, however, they are learned as part and parcel of the content and concepts of a field which a scholar will usually have chosen out of strong personal interest. Consequently, the usage of nouns in academic discourse is driven by intrinsic motivation to learn and to understand one's field ever more deeply, and to express that knowledge and understanding ever more precisely. In this way, the apprentice scholar expands the mental store of English nouns and acquires a more elaborate system of their usage in the service of more detailed and specialized communication.

Objectivizing Perspective with Passive Voice

The special character of the passive voice

In school, students of English learn that the passive construction is formed, based on a sentence in the active voice such as

(12) *John has eaten all the rest of the pie.*

in three steps:

- (a) Invert the positions of the subject and object, so that what is logically the object (i.e., the receiver of the action) becomes the grammatical subject, while what is logically the subject (i.e., the doer of the action) moves to the position following the verb.
- (b) Place *by* before the logical subject, now in position following the verb.

- (c) Put the main verb in the form of the past participle and insert *be* as the main verb, making the latter verb the same tense as the former main verb.

Through this series of steps, a speaker of English may produce the passive voice sentence:

- (13) *All the rest of the pie has been eaten by John.*

Students of English, both native and non-native speakers, may go to some trouble to learn to practice this three-step process to form passive constructions. Yet they may well wonder about the point of all this grammatical manipulation, given that a simpler active voice alternative is available. There is more to use of passives than this set of syntactic procedures. A clue to the fact that this set of instructions is not the whole story can be gained by noting that in the passive voice the *by*-phrase made of the logical subject is often omitted, as in:

- (14) All the rest of the pie has been eaten.

The fact that a doer does not occur in many passive sentences suggests that they have a different meaning and purpose from active sentences, where the doer is the necessary grammatical subject (see Lock, 1995, for further discussion). In fact, the passive voice, which is common in academic writing, is the only or the most natural choice when an objective voice or perspective is wanted, as in:

- (15) The chemicals were combined.
NOT The scientist/I combined the chemicals.
(16) It was determined that . . .
NOT I determined that . . .

The value of the passive voice in academic discourse

The difference between the active and the passive can be summarized, both literally and figuratively, as that between a “subjective” and an “objective” focus. The “object focus” which differentiates the passive from the active voice is realized in different ways and for different communicative purposes. Two broad types of motive exist for use of passive voice:

Thematization—To express a logical or natural focus by foregrounding the receiver or the result of an action;

Avoidance—To make a statement without mentioning the logical subject or doer.

Thematization of the logical object of the verb to become the gram-

matical subject of the sentence foregrounds this element by placing it at the beginning of the sentence. The purpose of thematization, a common reason for using the passive voice in academic discourse, is to highlight or focus on:

- (a) the receiver of an action,
- (b) the result of an action, or
- (c) outcomes and consequences more generally.

The following are examples of thematization where the receiver (which may be a thing or a person), the result of an action, or outcomes and consequences more generally are the logical or natural focus rather than the doer or the act itself:

- (16a) Lab Director: How could the beaker have got cracked?
Lab Technician: *The bunsen burner was turned up too high.*
- (16b) Curious Colleague: Why is George celebrating?
Knowledgeable Colleague: *His paper was accepted by SSLA.*
- (16c) After centuries of hapless and monumentally disastrous expeditions, *the search for the Fountain of Youth was finally abandoned by New World explorers.*
- (16d) *The theorem, as proved by Whitehead, states that ...*

The other main motive for using the passive is when it is necessary or desirable, for various reasons, to avoid mentioning the doer of an action or to shift attention away from the act itself. One of the most common examples of this motive in academic discourse is the use of passive voice to remove or distance the author's personal voice from a report of research findings or a logical construction of ideas. Use of passive voice here makes the report or discussion of results sound more neutral or objective, as in:

- (17a) *It is suggested that . . .*
RATHER THAN I suggest that . . .
- (17b) In this investigation, *the question has been given a negative answer.*
RATHER THAN In this investigation, we have given the question a negative answer.

Similarly, scientific experiments are often described using the passive voice. Thus, Swales (1990, p. 137) reports research showing the highest use of passive voice occurring in the methods section of scientific articles.

As another example of the second motive, the passive voice may be used in reporting an event in order to avoid attributing responsibility, blame, or causation for some act or outcome, as in:

- (18a) *The President's image has been damaged.*
- (18b) *The information has been leaked to the press.*
- (18c) The public record is not complete because *some critical records have been lost or destroyed.*
- (18d) In the reaction, *two ions were diverted from their original trajectories.*

In some of these cases, the cause or person responsible for the action may be unknown. In other cases, the intention may be to withhold information in an attempt to be secretive, polite, selective, or careful in reporting an event.

A writer can display a theoretically neutral stance or a cautious and conservative approach to interpretation of results by deliberately avoiding any mention of particular human agents or actions, as in:

- (19a) *The Korean language is thought to be genetically related to both Japanese and Turkish.*
- (19b) *This system is found to be unstable under conditions of . . .*
- (19c) *Its structure has been determined to be . . .*
- (19d) This solution to the problem, *which is widely accepted*, has the advantage over the traditional solutions of . . .

In sum, it is a misconception to think of active and passive voice sentences as being in any sense interchangeable in meaning or as originating from the same underlying sentence or logical structure. Rather, passive voice sentences have a meaning and a logic all their own that makes them especially useful in academic discourse.

Conclusion

As is clear from the examples presented here, while the role of tenses—and verbs more generally—is diminished in academic writing as compared to some other forms of discourse such as ordinary conversation, the role of nouns is highly developed. This is because in academic writing, the verb group provides a simple frame within which complex ideas and relationships can be expressed by means of the noun group. As is also clear from the examples of passive voice, a

structure that may be of little value in some forms of discourse, such as conversation or narrative, may have special utility in academic writing. Whereas the active voice is central to vivid descriptions of "who did what, where, to whom" in everyday discourse, in academic writing this active, subjective perspective is replaced by a more detached and objective orientation to events, ideas, and their relationships.

As this brief look at the discourse structure of academic writing suggests, real grammar—as opposed to the textbook or traditional school type of grammar—can only be taught and learned in relation to the specific purposes and communicative acts which the speaker or writer needs to perform. There is no shortcut to academic writing, which must be learned in relation to the specific texts and concepts of a given field, particularly as these are embodied in noun groups. Scholars learn the specialized usage of their field as they acquire additional linguistic resources and a more elaborated grammar and rhetoric of academic discourse in relation to their subject area. In this way, they become better able to express their precise intent as they concurrently develop their knowledge and their language.

This paper is a revised version of the author's paper entitled, "English for Real: A Perspective on the Language of Academic Writing," which appeared as a special publication of the Professional Development Unit, City University of Hong Kong, 1995.

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