8 Rhetorical–grammatical relationships

8.1 Introduction

Up to this point the analysis process has been applied to the paragraph, the rhetorical techniques and the rhetorical functions, with only occasional reference to the grammatical problems encountered by the non-native EST student. I am not referring here to the basic grammar of the English language but to those specific grammatical elements that appear to stand in a special relationship with some of the rhetorical concepts that we have been examining.

Our work in the area of rhetorical–grammatical relationships began at almost the same time as our research. In analyzing students' reading performances we discovered that writers of scientific and technical discourse make certain assumptions – which we call presuppositions – concerning the kind and amounts of grammatical–rhetorical information that they assume readers share with them; that is, that readers bring to their EST reading. These assumptions appear to be, for the most part, valid for the native learner, but not for the non-native learner. Our research showed – and continues to show – that the majority of non-native students lack the cultural background that enables them to bring more than a very limited amount of the presupposed information to their reading of EST discourse.

Out of this same research has grown the realization that the number of ways in which the grammatical elements involved with the rhetoric can be expressed is not just a matter of choice on the part of the writer. Further exploration of this idea has resulted in the following conclusions:

1. The expression of the grammatical elements that are very frequently coupled with specific rhetorical features is sufficiently patterned to allow us to make generalizations concerning the relationships between these grammatical elements and the specific rhetorical features.
2. Part of the presuppositional information that a native student brings to reading EST discourse is the ability to comprehend these grammatical elements without special training. The same is not true, however, for the majority of non-native students.
3. Thus, we conclude that a good deal of the ability of a reader to handle the presuppositional factors in written EST discourse is a function of

the relationship between the language and those socio-cultural elements associated with it.

4. The rhetorical functions most affected by the grammar are those that writers choose most frequently to transmit much of the basic scientific and technical information on which they base a given technical piece of discourse.

The areas of rhetoric most involved with the more difficult grammatical elements are 1. description; 2. instructions; and 3. a very narrow area in the field of 'peer writing'. This area we call 'the rhetoric of background information': we find it in sections of scientific articles, books, reports, dissertations, theses, etc. in which it is necessary for writers to report on the work of others in the same field of research, especially that most affecting the writers' own work.

The grammatical elements that cause the most difficulty are 1. passive–stative distinctions in the rhetoric of description and of instructions; 2. modal use in the rhetoric of instructions; 3. non-standard use (and non-use) of the definite article in the rhetoric of description and of instructions; and 4. tense choice in the rhetoric of description and of background information, this choice depending on what we call 'non-temporal' factors. Each of these problems is taken up in detail below.

8.2 Passive–stative distinctions

Both passive and stative verbs are found primarily in the rhetoric of description; we find them also in the rhetoric of instructions but less frequently. By stative we mean those constructions that on the surface resemble passives in that they consist of the verb 'to be' plus a past participle. (We are not concerned here with those verbs that are inherently stative such as 'weigh', 'have' – meaning 'possess' – etc.) Example 8.1 illustrates passive and stative forms that are similar in appearance but distinctly different in meaning and in function.

EXAMPLE 8.1 SIMILARITIES AND DIFFERENCES IN PASSIVE AND STATIVE VERB FORMS

Passives

'The heat exchanger assembly *is lowered* from the compartment while resting on the platform. The platform *is lowered* and *raised* by the hoist crank.'

Statives

'The RS-5 system *is composed of* an undersea acoustic beacon, a surface-vessel mounted array . . . a vertical reference unit . . . [and]

control unit. The sensor *is housed* in a support assembly.... When the gear *is down* and *locked*....'

[Sources: Passive, quoted in a student report; precise source unknown. Stative, *Honeywell Acoustic Position Indicator RS-5 Operation and Maintenance Manual*, vols. I and II (Seattle, Honeywell Marine Systems Center, 1970), p. 1–4.]

[The passive paragraph contains three passives, one without an agent (sentence 1) and two with an agent (sentence 2). The stative paragraph also has three 'to be + past participle' structures, each appearing to be an agentless passive. The difference between agentless passives and statives can be seen by the contrasting examples in the two paragraphs: in the 'passive' paragraph, *first lowered* is in a context that clearly marks it as an activity. In the 'stative' paragraph, *is down and [is] locked* are both clearly descriptive in their context – the first being the 'real' adjective; the second, the participle.]

In other words, a passive always indicates an activity (despite its name) whether or not it has a stated agent to perform that activity; a stative, in contrast, always describes the state or condition of the grammatical subject of the sentence the stative verb is in. A stative, then, is simply one type of adjective–verb phrase. In 'The door is open' we have verb + adjective. In 'The door is closed' we also have verb + adjective but with the adjective a past participle.

When non-native students are faced with a stative the problem is almost invariably one of misidentification. They assume, not without a certain logic, that any form of 'to be + past participle' is a passive. (Even native speakers can have trouble sorting out the grammatical difference between the forms of 'was locked' in 'The door to the garden was locked' and 'The door to the garden was locked at night by the gardener.') The initial move of non-native students when faced with statives is to attempt to turn them into active verb phrases. Since statives appear to be agentless passives, these students resort to the 'rules' laid down for transforming agentless passive sentences into active ones and make a subject for the active verb by using 'someone' or 'something'. Thus, the stative 'When the gear is down and locked ...' becomes 'When someone locked the gear down ...' and 'The sensor is housed ...' becomes 'Someone housed the sensor ...', neither of which is the meaning intended by the stative structures.

In our work we find the assumption that 'to be + past participle' statives are agentless passives and thus can be transformed into actives most frequent in those students whose languages do not have an identifiable equivalent to the English passive. Their tendency is usually to 'overlearn' how to handle passive structures with the result that any 'to be +

A passive with an agent provides readers with the following information:

1. the grammatical subject of the sentence (the nominative form usually preceding the verb and related to it by being the receiver of the action indicated by that verb);
2. the tense (and thus usually the time) as well as the mood of the verb;
3. the agent – the performer of the action indicated by the verb and the 'true' as well as the grammatical subject of the verb when it is transformed into its active form.

Using this information, we can transform the passive sentence into an active one by the following process:

Step 1. Place the agent before the verb.

Step 2. Change the verb to its active form, keeping the tense and mood of the passive.

Step 3. Place the grammatical subject of the passive sentence after the verb, thus giving it the standard position of a direct object, which it has become.

A passive without an agent provides readers with the information given above in 1 and 2. As this type of passive has a grammatical but not a 'true' subject, one must be provided when a transformation to the active is made. If no other subject is indicated by the context, 'someone' or 'something' – whichever is the more logical – is most often used when making step 1 of the transformation process. Steps 2 and 3 are the same as when making a transformation with a passive with agent.

Statives

There are several types of stative constructions; however, only the one that looks like a passive without an agent concerns us here.

Statives provide readers with the following information:

1. a word or phrase that is both the grammatical and the 'true' subject of the verb;
2. a copulative verb (almost always a form of 'to be') that gives us the tense – and thus often the time – of the verb;
3. a word or phrase functioning as an adjective, this word or phrase having as its center a past participal form.

Although the above elements look the same as those found in an agentless passive, they function differently – as their definitions make clear. Therefore, while it is possible to transform a stative sentence into an active one, the result is neither logical nor semantically acceptable as it does not provide the information the writer intended. For example, in the stative sentence 'The sensor is housed in a support assembly', a transformation to the passive would give us 'Someone houses (or housed) the sensor in a support assembly.' This would be a statement of an activity; the writer, however, is not describing an activity but giving a physical (and therefore static) description of *the result of an activity*.

8.3 Modal use in the rhetoric of instructions

Modals, especially passive modals, are found commonly in scientific and technical discourse, especially in peer writing (the left end of the 'Spectrum', p. 6) in such phrases as 'It should be made clear that. . . .', 'It can be assumed that. . . .', etc. Our concern here, however, is not with this kind of semi-jargon but with the modal forms that shift from their 'standard' meanings when used in instructions and related discourse. As a rule, we find this meaning shift with the modal 'should' and less commonly with 'can' and 'may'. By 'meaning shift' here I mean that the commonly taught meanings for 'should' – and sometimes 'can' and 'may' – do not fit the context of the discourse (nor the intent of the writer).

In what we might call 'general English' oriented grammars, the consensus seems to be that 'should' and 'ought to' have a meaning close to 'must' – in the sense of obligation – but with less force, less insistence that something be done (or not be done).[1] Only a few of the books on scientific English comment on these modals and then to a very limited degree – perhaps because they seldom deal directly with the discourse of occupational English.[2] Two books, however, do point out that in certain instances 'should' has the force of 'must': in their work on scientific and technical English for non-native speakers, Huckin and Olsen use graphics to show the relationship of 'must' and 'should' in respect to degrees of obligation and of probability.[3] Leech and Svartvik, although not specifically concerned with the English of science and technology, briefly discuss the meaning of 'should' (and 'ought to') in commands and instructions: 'Strictly, these leave the decision about what to do in the hands of the hearer. But in practice, as the examples show, they are often tactful ways of giving commands or instructions.'[4]

It is in this sense that we find the most common use of 'should' in the rhetoric of instructions, usually when the reader is being warned to do or not to do something. Example 8.4, from an instructional manual on welding, shows both 'should' and 'may' used in the sense of 'must' in the paragraphs under the heading 'Weld backing'. In contrast, the paragraph labeled 'Edge preparation' has 'must' rather than 'should' with the meaning of 'must' and it also uses 'may' in its more standard use. The three modals in this paragraph of the example – 'must', 'may', and 'can' – are also passives. Thus we have three passive modals, illustrating a typical structure found in indirect instructions in occupational English discourse. The 'non-standard' uses of 'should' and 'may' as well as the passive modals are shown by italics.

EXAMPLE 8.3 NON-STANDARD USES OF *SHOULD* AND *MAY* AND PASSIVE MODALS IN A SET OF INDIRECT INSTRUCTIONS

Weld backing

Steel weld backing *should be* sufficiently thick so that the molten metal will not burn through the backing. In most cases the steel weld backing is fused and remains part of the weldment.

One of the best possible nonfusible weld backings is copper. Copper *should be* of a sufficient mass or liquid cooled so as to readily dissipate the heat. For steel thicknesses other than gage material, a relief groove *may be* necessary. The depth of this relief groove *may be* as little as 0.02" or as much as 1/8" or more.

Edge preparation

Particularly for heavier weld sections the edges of the metal *must be prepared* for submerged arc welding. Various methods *may be employed* in preparing the edges for welding. . . . Metal cutting or grooving *can* also *be accomplished* by the carbon-arc method.

[Source: *Submerged Arc Welding: Processes and Applications* (Hobart Technical Center, n.d.), n.p.]

['Should' clearly means 'must' in the first sentence under the heading 'Weld backing'. The writer is saying in effect, 'If the steel weld backing is not sufficiently thick, the molten metal will burn through the backing.' The second example is much the same: 'If the copper is not of sufficient mass or liquid cooled it will not readily dissipate the heat; therefore it *must* be of a sufficient mass. . . . .' 'May', is usually a bit more difficult to read as 'must' here. However, a close examination shows that it is not a matter of choice on the part of the welder to make a relief groove should the steel have a thickness other than gage. If so, the groove *must be* made; the only choice is one of the depth of that groove. (This information came from a welding instructor.)]

In our experience non-native students tend to transfer their reading techniques developed for 'general English' to reading EST discourse without realizing that adjustments are often necessary. As a result, they read 'should' with the meaning found most commonly in ESL/EFL grammars and so assume that a choice is possible. The student who brought the welding example was puzzled because he had learned to weld and felt that the text was misleading by suggesting that the welder had a choice of procedures. Although he had learned to read instruction manuals (before entering university) he had not learned the differences between 'general English' and EST discourse. This problem is discussed further in chapter 10, where a suggestion for treating it in the classroom is given.

8.4 Problems with the definite article[5]

In addition to the trouble that virtually all non-native learners have with both English articles, EST discourse presents two additional problems with the definite article. The first is inconsistency in the use of the article in the rhetoric of instructions, especially with those sets of instructions found in technical manuals and related material. The second we have called the 'specialized use' of the definite article. This use is found in the rhetoric of description, most often when the functioning of a piece of machinery is being described.

Example 8.4 illustrates the inconsistent use of the definite article in a set of instructions. The writer had twenty-six opportunities to use the definite article as a native speaker would expect it to be used. He did use it 'correctly' in five instances, but ignored it altogether in the remaining twenty-one. This is not an isolated example, as a random look at sets of instructions will show. (See, for instance, example 7.14, p. 100, which includes the inconsistent use of the definite article among its many sins.) In the example below, the five definite articles used are shown in italics; the position of each 'missing' article is shown by the symbol ◇.

EXAMPLE 8.4 INCONSISTENT USE OF THE DEFINITE ARTICLE IN A SET OF INSTRUCTIONS

Rubber plug method of tubeless tire repair

1. Remove ◇ puncturing object if still in *the* tire (◇ Tire is not dismounted from *the* rim.)
2. Fill ◇ tire with air to 30 psi. Dip ◇ probe into ◇ cement, insert it into ◇ injury and work up and down to lubricate ◇ injury.
3. Grasp each end of ◇ patch. Stretch and roll center of ◇ patch into ◇ eye of ◇ needle. Remove ◇ protective covering from both sides of *the* patch, being careful not to touch ◇ raw rubber.
4. Dip ◇ perma strip into ◇ cement, making sure that all surfaces are coated.
5. Insert ◇ patch slowly and steadily into ◇ injury, up to ◇ handle. Then turn ◇ needle ¼ turn and remove.
6. Without stretching *the* patch, cut it 1/8" from *the* tread.
7. Inflate to ◇ proper pressure. ◇ Tire is now ready for service.

[Source: Bricker, *Automobile Guide*, p. 467.]

A native reader of EST discourse has little trouble in supplying the missing articles when they are needed to clarify the text. Non-native readers, however, do not have this same 'feel' for the article and so cannot bring to the reading the ability of the native reader. When faced with inconsistencies such as those illustrated above, they tend to apply their 'rote-learned' rules. Arbitrary violation of these rules creates special problems for non-

native learners when they attempt to grasp the total meaning of a piece of discourse, especially the dense discourse so common in EST writing.

The same difficulty occurs when the problem is one of 'specialized use' of the definite article. This specialized use is found in the rhetoric of description in all types of EST discourse, including that of example 8.5, which is from an (unidentified) elementary text. When we analyze the example we can see that the writer has applied a special set of 'article rules' that are contrary to the expectations of non-native speakers; that is, to the 'rules' they have learned.

EXAMPLE 8.5 SPECIALIZED USE OF THE DEFINITE ARTICLE

> *The* gas turbine engine fires continuously. The engine draws air through *the* diffuser and into *the* compressor, raising its temperature. The high pressure air passes into *the* combustion chamber, where it is mixed with a fuel and produces an intense flame. The gas from the combustion chamber is directed through the turbine, where the pressure of the gas decreases and its velocity increases. The turbine drives the compressor. The gas increases in speed as it passes through the exhaust nozzle before it is finally expelled from the turbine. A net force results from the change in momentum of the gases between *the inlet* and *the* exhaust. If a gas turbine is intended to drive an automobile, it must be designed so that as much energy as possible is absorbed by the turbine and transferred to *the* drive shaft.
>
> [Source: Furnished by a student from a textbook used in technical schools; precise source unknown.]

[In sentence 1 the definite article is used in a defining (generalizing) statement although standard usage requires either the plural of the noun with no preceding article ('Gas turbine engines fire continuously') or the indefinite article with a singular noun (representing generalization from a single instance: 'A gas turbine engine fires continuously'). In sentences 2 and 3, the first mention in this text of the nouns 'diffuser', 'compressor', and 'combustion chamber' is indicated by the use of the definite rather than the indefinite article as most 'rules' require. This same use of the definite article to mark first mention of a noun is found also in sentences 6 and 7 with the nouns 'exhaust nozzle', 'inlet', and 'exhaust'.

Insofar as we were able to determine by talking to native post-graduate engineering students, to their instructors, and to professional engineers, they were not concerned whether the article indicated first or later mention of the noun. They all took the use of the definite article in sentences 2,3,6 and 7 to indicate that the machinery being described contained *only one* of whatever part was being marked by that article.

In contrast, a brief exercise given to a group of native-speaker candidates for MA degrees in teaching English as a second/foreign language (none of whom had a science background) gave quite different results. The exercise consisted of the above text with all articles replaced by blanks which were to be filled in with either the definite or indefinite article (not with a demonstrative). Of the twenty-four who did the exercise, twenty-two put the indefinite article in the blanks before the nouns in question; the remaining two put both the definite and indefinite articles in each problem blank. It occurred to only a few who did the exercise that the definite article might mark the part being described as 'one of a kind'.]

Non-native readers also try to apply the rules – sometimes with unsatisfactory results, both for reader and writer (not to mention the teacher!). A typical reaction from non-native readers is seen in this remark from a postgraduate student studying electrical engineering: 'I learned the use of articles by remembering the rules. When I read, if the rules do not fit, I ignore the articles. Sometimes that makes more sense to me.' Unfortunately, this way of 'reading' articles appears to hold for many non-native students. While some native readers can bring to their reading information that the writer presupposes they already possess, non-native readers have no such reservoir to draw from. As a result, they either by-pass the problem by ignoring the article altogether or they spend time fruitlessly trying to reconcile an unfamiliar article use with the 'rules' they have so carefully learned. In either case they fail to get the total meaning of the discourse.

8.5 Non-temporal use of tense

By non-temporal use of tense we mean that the writers of a piece of discourse do not use time as the major factor governing their choice of verb tenses. While time is, to some degree, a factor in writers' choices of verb forms, it is not always the primary factor, as we can see from the examples in sub-sections 8.5.1, 8.5.2 and 8.5.3 below. The most frequently used illustration of tense and time not always being in agreement is that of the so-called 'present indicative', which, with most verbs, can indicate almost any other time except 'time now'. This is not the same as the phenomenon described here: for example, using the present tense to represent future action is not a choice dependent on rhetorical factors, while the uses we refer to by 'non-temporal' do include the idea of tense choice being dependent on just such factors.

Three areas where the non-temporal use of tense occurs regularly in written EST discourse are 1. when writers describe apparatus, 2. when they make text references to a visual aid, and 3. when they refer to

previously published research (including their own) which is related to the subject of their discourse. This last is that 'rhetoric of background information' mentioned in section 8.1 above.

8.5.1 Description of apparatus

Examples of tense choice based primarily on non-temporal factors are easily found in EST discourse. Examples 7.1 and 7.2 in the preceding chapter illustrate tense choice being dependent on a factor other than time: 'The canal bottom sampler', example 7.1, is described in the past tense, while 'The Peterson dredge', example 7.2, is described in the present tense. Yet both of these pieces of apparatus were developed at about the same time, both had much the same function, and both were written about 'after the fact'. That is, their writers were describing something made and used in the past. Why, then, did the writer of 'The canal bottom sampler' choose the past tense and the writer of 'The Peterson dredge' choose the present tense for their discourse? The answer, fortunately, is a simple one: 'The canal bottom sampler' was used for only a short time and then abandoned as a failure; 'The Peterson dredge', in contrast, was a success and was used up to the time it was written about (and may still be in use).

Based on texts of these types, we can come up with a major criterion for determining tense choice in the rhetoric of description: if the object being described is still functioning as a useful device at the time someone writes about it, the writer will use the present tense. If, on the other hand, the object being described is no longer in use, then the writer will use the past tense. From the two brief but representative texts in example 8.6 below we can state a second criterion for determining tense choice in terms of the temporary or permanent nature of whatever is being described.

EXAMPLE 8.6 NON-TEMPORAL USE OF TENSE IN THE RHETORIC OF DESCRIPTION

Temporary apparatus

The test section was constructed of a pure copper cylinder 2 ft long, 6 in in id. and 6.25 in in od. Both ends of the cylinder were closed with removable Pyrex glass end plates $\frac{1}{4}$ in thick. A fluid port was located at each end of the cylinder.

Permanent apparatus

The measurements were made in the sidewall of the one foot wind tunnel. The tunnel is a blowdown-to-atmosphere facility operating over the mach number range 0.2 to 3.5. Mach number in the tunnel is generated by fixed nozzle blocks at supersonic speeds.

[Sources: University of Washington (Seattle), College of Engineering Research Reports (n.d., n.p.).]

[Both excerpts can be used successfully with advanced elementary students. The first is from a report on an experiment that used the described piece of apparatus and then broke it apart so that the components could be used for a different experiment at a later date. Since it was a temporary device, the writer describes it in the past tense. The second description, the wind tunnel, is of a piece of apparatus considered to be permanent and so is described in the present tense. (If this tunnel is replaced or torn down, descriptions of it then will be in the past tense.)]

8.5.2 Visual aids

When writers discuss visual aids used in their discourse, the act of gathering the data for the illustration and the designing of the visual have already taken place. Thus, as in the case of description, the activities connected with the visual are, in the writer's mind, in the past. As a result, readers are told about gathering the data and designing the visual in the *past* tense. However, when writers discuss the visual itself and its relationship to the subject at hand, they choose the present tense.

One explanation for this tense shift is the writers continue to think of their work in gathering and using the data for the visual as finished and thus to be written about in the past tense, while in telling the reader when to look at the visual (and sometimes where to find it) and in discussing its relationship to the topic at hand, they shift their point of view from themselves to their readers and so relate their discussion to 'now' – to the moment when the reader is reading this particular piece of discourse. If this explanation is a valid one, then there is clearly a strong temporal factor in the writers' choice of tense; however, it has been argued that the dominant factor here is a non-temporal one: the shift in point of view by writers from themselves to their readers. This shift is illustrated in example 8.7.

EXAMPLE 8.7 TENSE CHOICES IN TEXT ACCOMPANYING A VISUAL

The results which are shown in Table V were achieved by developing a new computer program. These results indicate that it is no longer necessary to budget at the 7 per cent rate for repairs.

[Source: submitted by a student; precise source unknown.]

[Although brief, the above example illustrates the shift in tense accompanying a shift in point of view. The first sentence has a present tense verb when referring readers to the visual (not shown here) and then shifts to the past tense when telling how the data for the visual were obtained. In the second sentence, the writer returns to the present tense in telling readers the importance (to their reading) of the visual to the subject matter of the discourse. This example is

suitable for students at intermediate levels and above. Although the subject matter and vocabulary are not too difficult for advanced elementary groups, in our experience this area of EST rhetoric is best reserved for students who have reached intermediate level.]

8.5.3 Reference to previous research[6]

This area of tense choice occurs almost exclusively in the types of discourse that require reporting on earlier, related work done by the writer and, more frequently, by others working in the same field. Discourse of this nature is found almost exclusively at the left end of our 'Spectrum', p. 6, in reports of research done in universities and by government and private research and development groups.

From our research we are able to draw the following conclusions: if writers use the past tense in reporting research done previously by themselves or by others then that research is of secondary importance to the current work being reported on. If, on the other hand, the writer uses the present perfect or the present tense, then the research is of more direct and primary importance to the writer's current work. Also, the present tense is often chosen when a discussion follows the initial citing of a reference to their own or the others' research and/or when important generalizations are being expressed. Example 8.8 illustrates the three tenses functioning as noted above.

EXAMPLE 8.8 TENSE SHIFTS IN THE RHETORIC OF BACKGROUND INFORMATION

> **Among the many statistical studies of data from the IGY [International Geophysical Year] are some analyses by Davis (1962) of the distributions and motions of auroras in Alaska during the last sunspot maximum. . . . From these studies Davis deduced that auroral display was essentially a fixed pattern. . . . In contrast to the statistical methods used by Davis are the detailed studies by Akosofu and collaborators (1961–1964) of individual auroral displays . . . they conclude that there is a basic stable system of auroral arcs. . . . The smallest disturbance is represented by the formation of rays which Akosofu has shown to be waves or folds in a thin sheet of aurora. . . . On the other hand Elvey (1957) has observed the formation of rayed arcs. . . .**
>
> [Source: 'Aural Phenomena, Experiments and Theory', *First Lockheed Research Symposium on Space Science* (Stanford University Press; Oxford University Press, 1965), p. 95.]

[We have the past tense 'deduced' in relation to the year, 1962, the present tense 'conclude' and the present perfect 'has shown to be' with the span of years 1961–1964, and the present perfect again with

the earliest date given, 1957. According to our conclusions given above, the work of Davis is less directly related to the research being reported on than is the work of Akosofu and his colleagues, and neither is it as important as the work of Elvey, reported some years previously. The use of the present tense ('conclude') with the initial citing of the work of Akosofu and others is followed in the text by a lengthy discussion only part of which is given in the example.]

8.5.4 Application

For the majority of non-native learners working in science or technology or learning to be technicians (at whatever level) it is important that they be made aware of the tense choice factors in the description of apparatus and in the text discussions of visuals, as the phenomenon occurs frequently in both these areas. On the other hand, while we have used material like that in example 8.8 with intermediate-level students, we find it best reserved for advanced students (usually postgraduates) who must read (and must possibly write) discourse of that nature.

The rhetorical–grammatical relationships illustrated and discussed in this chapter are taken up again in chapter 10, with suggestions for handling these topics in the classroom, including a sample individualized assignment relating to the grammatical problems we have found to be most troublesome to the non-native reader of EST discourse. Preceding this, in chapter 9 the two major lexical problems facing the non-native EST student are discussed and exemplified: the problems of sub-technical vocabulary and noun compounds.