

Appendix 2 (1972)

## The Curse of the Comprehension Question: Some Alternatives

I. S. P. Nation  
English Language Institute  
Wellington, New Zealand

Comprehension questions in one form or other are one of the language teaching techniques most frequently used to train learners in reading. They can take many forms, namely pronominal questions, yes/no questions, true/false statements, multiple-choice items and blank-filling or completion exercises. This article proposes that although they may have a role to play in *practising* reading, the various forms of reading comprehension questions are unsuitable for *teaching* learners to read. In order to show this, the features of a good reading exercise are described and comprehension questions are judged according to these features. Then a variety of other reading exercises are described which are more suitable for teaching reading.

### Features of a good reading exercise

Let us look at what a good reading exercise should do.

- (1) A good reading exercise directs the learners' attention to the reading text. That is, the learners need to read the text or at least part of it in order to do the exercise. It is also important that some reading exercises require the learners to consider parts of the text in relation to their wider context, that is, other parts of the text, and information from outside the text (Carroll 1972).
- (2) A good reading exercise directs the learners' attention to features of the text that can be found in almost any text, or to strategies for dealing with any text, with the aim "to develop in the language learner the ability to comprehend texts, not to guide him to comprehension of a text" (Davies and Widdowson 1974: 172). To put it another way, when learners study a reading text, we want them to gain knowledge that will help them to understand tomorrow's reading text. We want them to understand tomorrow's reading text. We want them to learn things that apply to all texts. We want them to gain knowledge of the code and ways of dealing with the code rather than an understanding of a particular message. If a reading exercise does not focus on generalizable features of a text, it does not provide opportunity for any useful, cumulative learning to take place. This requirement is particularly important for teaching reading.

(3) A good reading exercise provides the teacher and the learners with useful information about the learners' performance on the exercise. If the learners were not successful on some parts of the exercise then they should be aware of what they have to learn in order to do the exercise successfully with another text. Also, the teacher can get guidance from the learners' performance to improve his teaching. Good exercises provide useful feedback for the teacher and the learners. Finally, if the teacher understands what an exercise is trying to teach, he can judge the value of the exercise according to what he thinks is important for teaching reading. Put simply, explicit exercises encourage the development of a theory.

(4) A good reading exercise is easy to make. A teacher has to choose texts suited to the particular needs of his learners, and if these texts do not have satisfactory exercises, the teacher must make his own. Often a teacher may want the learners to work with a textbook that is used in another discipline they are studying, and so he will have to make his own exercises. This should require a minimum of skill and time. If the preparation of language teaching materials becomes the job only of experts, then language teachers will have lost the flexibility needed for successful teaching.

So, a good reading exercise requires the learners to read the text, focuses on items or strategies that apply to any text, provides useful feedback for the learners and the teacher, and is easy to make.

Are comprehension questions good reading exercises?

The basic weakness of comprehension questions is that a simple question form can do so many things. A question can check vocabulary, sentence structure, inference, supposition, the ability to understand the question itself, and many other things. It is not always easy to decide which of these is being asked for in a particular question. Let us now evaluate comprehension questions as a type of exercise by seeing how they fit the four criteria given in the previous section.

(1) Generally, comprehension questions direct learners' attention to the reading text, although occasionally some questions are answerable from the learners' own experience without having to refer to the text. Comprehension questions in standardized tests are usually pre-tested to make sure that they cannot be answered without reading the text. Comprehension questions can be designed to make the learners consider more

than one sentence in the text in order to find the answer.

(2) Comprehension questions are local rather than general. They focus attention on the message of a particular text and although they may require the learners to use more generalizable knowledge (like the interpretation of reference words or modal verbs), this requirement is usually hidden to the learner and often to the teacher by the message-focusing effect of the question. The teacher's aim should be to help the learners develop knowledge of the language and its conventions of use (the code) so that they can successfully deal with any text (message) that they may meet. This knowledge of the code however is more difficult to gain if the learners' attention is directed not towards the code but towards the meaning or message of a particular text. The motivation to give attention to language features (the code) is different from the motivation to give attention to particular messages (George 1972: 11). Comprehension questions say to the learners "Do you understand this passage?" whereas a good reading exercise should say "Can you handle these language features which are in this passage and other passages?"

Because comprehension questions can do so many jobs, it is not always clear which job they are doing and thus it is difficult to get useful feedback. John Munby (1968) tried to solve this problem by using very carefully constructed multiple-choice comprehension questions.

By setting carefully constructed distractors, we can train [the learners] to reason their way through the linguistic and intellectual problems posed by the text. (p. xxii)

... in comprehension training we want [the learner] to recognize the areas of comprehension error (through the distractors) so that he learns to respond more accurately and more maturely to what he reads. (p. xiii)

One of the most important steps in Munby's technique was discussion between the teacher and learners in order to eliminate the distractors.

The value of Munby's technique is that through the discussion it becomes clear to the learners that they have made errors in comprehension and that these errors, as long as their causes are clearly identified, can be avoided by mastering recurrent language features. There

are three important weaknesses in the technique. Firstly such comprehension questions are difficult to make. (This point will be developed further in 4 below.) Secondly, such questions are clearly inefficient in terms of opportunity for *learning* the significance of a particular language feature. For example, there will probably be only one or two distractors at the most for one text which focus attention on conjunction relationships, and so the learners will have few opportunities to master them. Thirdly, from the learners' point of view, the most important information that he will gain from making an error is that he made the wrong choice and his interest will be in discovering what the right answer is rather than in discovering what he should do to avoid a similar error in the future. Thus comprehension questions which could give valuable feedback to the learner will not do so, because there will always be the more immediate attraction of getting the right answer for that particular item.

- (4) A glance at the excellent comprehension question in John Munby's book (1968) is enough to make a teacher realize how difficult it is to make good comprehension questions. It takes considerable skill, time, and effort to make a good comprehension question. Thus most teachers who wish to use such exercises will be forced to rely on often unsuitable published material.

So, comprehension questions are poor exercises for *teaching* reading because they focus attention on particular messages rather than on the code; they do not provide clear and useful feedback for the teacher or learners, and good questions are not easy to make.

#### Exercises for teaching reading

Let us now look at alternatives to comprehension questions. The following exercises can be divided into two main groups: those that help learners to comprehend individual sentences which are a part of a text, and those that help comprehension of larger units of the text. This division is not always a clear one and some exercises could justifiably be put in either group.

#### Exercises in comprehending sentences:

These exercises can also be divided into two groups: those that draw attention to the structure of a sentence and those that deal with vocabulary. The structure exercises have two aims, to complete an incomplete sentence (*Ellipsis, comparison*), and to simplify a complicated sentence (*And, but, or, Noun groups, What does what?, Simplifying sentences*). The vocabulary exercises check that certain words are interpreted correctly (*Reference and*

*substitution, lexical cohesion*) and teach a strategy for inferring the meanings of words from the context (*Part of speech, Words in context*). Although these exercises focus attention on a particular sentence or part of a sentence, most of them require the learner to refer to other sentences in the text in order to do the exercises.

#### Ellipsis:

Ellipsis occurs when something which is structurally necessary is left unsaid (Halliday and Hasan 1976: chapter 4). What is left unsaid is usually recoverable from a previous part of the passage. Ellipsis is more common in dialogue than in other forms of prose but it does occur in some written texts, as in the following example.

At one time part of Britain's surface was the ocean floor, at another a burning desert of rock . . . (Arthur Bryant. 1954. *Makers of the Realm*. London: Collins).

The exercise on ellipsis helps learners make sense of elliptical sentences by giving them practice in recovering the missing parts. The easiest type of exercise locates the part of the sentence where there is ellipsis. Note the following example from the Arthur Bryant text cited in the previous paragraph.

*At another what?*

*In the next exercises, A refers to The Solar System, and B refers to Contact Lenses, both found in Appendix 1.*

- A (line 7)                    *nearest what?*  
 B (line 14)                 *two what?*  
 B (line 38)                 *portion of what?*  
 B (line 48)                 *have what?*

The exercise can also take the form of a question.

What is missing from this sentence? Rewrite the sentence as a complete sentence.

B (lines 48-9)            *They probably have but were not aware that lenses were being worn.*

#### Comparison:

Halliday and Hasan (1976) include much of comparison under reference. Words used in comparison include *same, similar, identical, equal, different, other, additional, else, likewise, so, more, fewer, less, adjectives or adverbs +er*. Often comparison occurs between sentences and this exercise helps the learner understand the passage by helping him to see what is being compared.

The exercise can take this form.

- A. (line 4)                    *others. Other than what?*  
 A. (line 6)                    *farther than what?*  
 B. (line 43)                    *smaller, thinner, and lighter than what?*

Or, in another form the comparison word with its line number is written on the blackboard. The learners briefly write the two items that are compared.

A. (line 12) *much more remote*

The answer is

*Mars and Venus much more remote than the moon*

Comparison is also included in another exercise involving conjunction relationships.

And, but, or:

Often when *and*, *but*, or *or* occur there are two parts of the sentence that are parallel to each other and these parts may relate to some common part of the sentence. So, in the sentence *The Earth is a planet just under 8,000 miles in diameter, moving round the Sun at a distance of 93,000,000 miles, and completing one circuit in 365½ days* (A, 1.1-3), *moving round the Sun at a distance of 93,000,000 miles, and completing one circuit in 365½ days* are parallel. They are both stem+ing items acting as a part of a noun group. They both relate to the common part *The Earth is a planet just under 8,000 miles in diameter*. So, the sentence can be rewritten as two separate sentences, *The Earth is a planet just under 8,000 miles in diameter, moving round the Sun at a distance of 93,000,000 miles* and *The Earth is a planet just under 8,000 miles in diameter completing one circuit in 365½ days*. Where the items joined by *and*, *but*, or *or* are short, it is not worth rewriting the sentence when answering the exercise. Instead, the parallel parts can be underlined and numbered.

If learners find the exercise difficult it can be broken into the following steps.

- (1) Find *and but or or*.
- (2) Look at what follows.
- (3) Find a similar part of speech in front of *and but or or*.
- (4) Decide what part of the sentence (if any) the parallel items relate to.
- (5) Rewrite the sentence so that each sentence contains the common part plus one of the parallel parts.

This exercise is one step in simplifying complicated sentences. The teacher writes the line numbers of sentences containing *and*, *but*, or *or* on the blackboard.

- A. (line 7-10)  
A. (line 17-20)

Or the line numbers of *and*, *but* or *or* are put on the blackboard.

- A. (line 8) *and*  
A. (line 19) *and*  
A. (line 31) *and*

#### Noun groups:

Noun groups containing items following the headword of the group add considerably to the complexity of a sentence. This exercise teaches the learners to isolate these parts and thus makes it easier to see the overall plan of the sentence. The learners number the items following the headword simply to make themselves conscious of the forms these items can take and thus they will recognize them more readily when they occur. This exercise is one step in simplifying sentences. It is also useful for understanding reference words because once the noun referred to has been found, it is necessary to find the limits of that noun group.

The teacher chooses the headwords of noun groups from the passage and writes the list of words with line numbers on the blackboard.

- A. (line 1) *planet*  
A. (line 4) *points*  
A. (line 10) *planets*  
A. (line 12) *satellite*  
A. (line 20) *stars*  
B. (line 2) *lenses*  
B. (line 16) *lens*

The learners find these words in the passage, circle them, and draw a bracket, (, at the beginning of the noun group and another bracket,) at the end. If the noun group contains words which come after the headword, the learners show what form these following words take by writing a number according to the list given below. Here are seven items that may occur after the headword with examples.

- (1) a preposition + a noun (their own special *points*<sup>1</sup> of interest)
- (2) *who, that, which* etc. + (the only two *planets*<sup>2</sup> which do not appear overwhelmingly hostile)
- (3) stem + ing ('a *planets*<sup>3</sup> . . . completing one circuit in 365½ days)
- (4) stem + ed (a contact *lens*<sup>4</sup> manufactured to a preconceived formula)
- (5) to + stem (the first contact *lenses*<sup>5</sup> to enjoy wide use amongst the general public)
- (6) a noun in apposition (our one natural *satellite*<sup>6</sup>, the moon)
- (7) an adjective ('The *stars*<sup>7</sup> visible at night-time)

#### What does what?:

This exercise makes the learners look for the noun-verb relationships that are often not obvious from the word order

of a passage. In many ways it is a type of reference exercise. The learners need to ask themselves the questions "What does what?" "What is what?" in order to see these relationships. The exercise becomes more difficult if the subject or object of a verb is separated from the verb by a clause, or if the verb is acting as a noun or adjective.

The teacher chooses verbs, or words related to verbs, from the passage and writes the list of words with line numbers on the blackboard. The learners find these words in the passage and write the subjects and objects (if any) of the words according to the passage. All the verbs should be written as active verbs. The exercise usually takes this form.

- A. (line 3) ... *complete* ...  
 A. (line 8) ... *approach* ...  
 A. (line 19) ... *need* ...  
 B. (line 2) ... *use* ...

Note the following features of the exercise. With *need* in line 19(A) the learners must think of the active subject itself, which involves going back to *our* in line 12(A) or *we* in line 5. In some cases the learners may have to fill in the active subject from their own knowledge. *Use* in line 2(B) is a noun in the passage but it still has underlying verbal relationships. The answers are:

The Earth	completes	one circuit
Mars	approaches	the Earth
we	need	telescopes
The general public	use	contact lenses

When guessing words from context this exercise focuses attention on the immediate grammar of the word to be guessed. When the word to be guessed is an adjective, for example *truncated*, the learners should ask themselves "What is truncated?"

#### Simplifying sentences:

By combining exercises that have been practised before, reference words, *and*, *but*, *or*, *noun groups* and *what does what*, learners can simplify sentences that seem to be too complicated for them to understand. The strategy has four steps.

- Step 1 Find the reference words in the difficult sentence and find what they refer to.  
 Step 2 Rewrite the sentence as two or more sentences by removing *and*, *but*, or *or*.  
 Step 3 Find the nouns and remove the items following the nouns which are a part of each noun group.  
 Step 4 Do the *what does what* exercise with the verbs to make sure their subjects and objects are known.

The learners should eventually memorize the steps of this strategy so they can apply it whenever they meet a difficult sentence.

If the sentence in A lines 7-10 was simplified according to these steps, the result would be

(Mars  
*Of course, the nearest are (and*  
*Venus*

#### Reference words and substitutes:

Reference words include words like *he*, *his*, *him*, *this*, *that*, *these*, *those*, *it*, *its*, and *which*. Substitutes consist of *so*, *one(s)*, *the same* and *not*. For the purposes of this reading exercise it is not necessary to distinguish between reference and substitution although Halliday and Hasan (1976: Chapters 2 and 3) have shown that there are important differences between them. This exercise helps learners recognize some of the signals that show that a sentence is related to something that has been mentioned elsewhere in the text.

Each reference word or substitute has its own grammar and when learners have difficulty interpreting these words in a context, this grammar should be used as the basis for preparation before the exercise and discussion when marking. *Their* for example can only refer to plural nouns or two or more related singular nouns. *This* can refer to singular nouns, to a phrase, a clause, or a group of clauses or sentences. *He* usually refers to a singular, male person.

The exercise can take this form. The teacher writes the reference word on the blackboard with its line number next to it.

- A. *It* (line 3)  
 A. *they* (line 12)  
 A. *which* (line 21)

The learners copy their answer from the text and give the line number of their answer. The learners can check their answers by making sure the grammar of their answer agrees with the grammar of the reference word and by substituting the words referred to for the reference word to see that the sentence containing the reference word makes sense. The exercise on noun groups is a useful help for this exercise because often the reference word refers to a noun plus the other items in the noun group.

#### Lexical cohesion:

Halliday and Hasan (1976:278) distinguish five types of reiteration, namely repetition, synonyms, near synonyms, superordinates, and general words. These are all used to refer to exactly the same item in the passage. Thus in a passage about Thomas Telford, he is referred to as *Tom*, *their son*, *the baby*, *the boy*, *Thomas*. Obviously it is important for the reader to realize that a change in the noun used does not necessarily mean a change in

subject. As we shall see later lexical cohesion is useful in determining the main idea of a paragraph.

This exercise can be done in two ways.

- (1) What does *phenomena* (B. line 33) in the passage refer to?
- (2) What different words are used on the passage to refer to *weaving* (B. line 27)?

#### Part of speech:

The teacher chooses words from the passage and writes them with their line numbers on the blackboard. The learners find each word in the passage and indicate whether it is a noun, a verb, an adjective, or an adverb by writing n., v., adj., or adv. after it. The words chosen for this exercise are usually forms that can function as different parts of speech in different contexts.

Being able to recognize the part of speech of a word in a given context has three values. First, when trying to guess the meaning of a word from the context, knowing the part of speech of the word will ensure that the meaning guessed is the same part of speech. Second, it makes looking up the word in a dictionary much easier because the meanings of words are usually classified according to the part of speech of the word. Third, if a learner finds a sentence difficult to interpret it might be because he is attributing the wrong meaning or function to one or more of the words in the sentence. By checking the part of speech of the words he may be able to correctly interpret the sentence.

#### Guessing meanings in context:

By combining exercises that the learners have practised before, *part of speech*, *what does what*, and *conjunction*, it is possible to infer the meanings of most new words from their context. The strategy has five steps.

- Step 1 Decide what part of speech the word is in the passage.
- Step 2 Do the *What does what?* exercise with the word. If it is an adjective, for example *remote*, ask "What is *remote*?" If it is an adverb, for example *cosmically*, ask "What does *what* or *what* is *what cosmically*?"
- Step 3 See if the word is involved in any conjunction relationship.
- Step 4 Guess the meaning of the word.
- Step 5 Check your guess by seeing that it is the same part of speech as the word in the passage, by checking for any prefixes, roots, or suffixes that will confirm your guess is correct or that might cause you to guess again, and by substituting your guess for the word in the passage to see that it makes sense.

When learners have a vocabulary of 2,000 words or more they can be taught to guess the meanings of most of the new words in the text. This is the most important of all vocabulary learning techniques and is a useful prerequisite to using a monolingual dictionary. In order to find the appropriate meaning in a dictionary the learner must have some idea of what the new word means so that he can choose between the various meanings given in the dictionary.

#### Exercises in comprehending texts:

There are two exercises in this section, *Conjunction* and *Finding the main idea*. *Conjunction* sometimes applies only within a sentence but often it involves two or more sentences.

#### Conjunction:

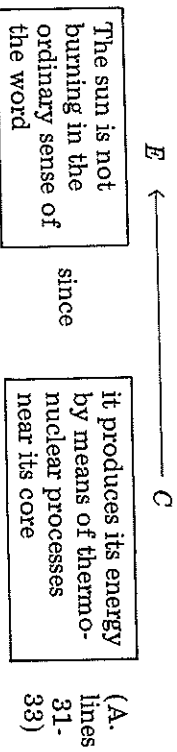
Signals of conjunction like *and*, *namely*, *but*, *in spite of* this relate sentences or parts of sentences to each other. Generally speaking, they specify "the way in which what is to follow is systematically connected to what has gone before" (Halliday and Hasan 1976:227). The attached list of types of conjunction is complete enough for teaching reading.

Being aware of conjunction relationships has four valuable effects.

- (1) It helps the learners to see how ideas on a passage are related to each other and to determine the effect of a statement on other parts of the text.
- (2) It helps in finding the meanings of words in context. If, for example, an unknown word occurs in the effect clause of a cause-effect relationship then it is possible to find the meaning of that word because the cause is inferable from the effect.
- (3) It is important in finding the main idea in a paragraph. Effects are usually more important than causes. The second item in a contrast is more important than the first.
- (4) It helps in learning new connectives. For example, *moreover* signals the inclusion relationship. Knowing this simplifies learning the meaning of *moreover*.

Exercises on conjunction may draw attention to the signals of conjunction which include conjunctions *so*, *because*, *while*; adverbs *firstly*, *however*, *alternatively*; verbs *cause*, *follow*, *emphatically*; preposition groups and other forms. However many sentences which are in a conjunction relationship are not signalled at all. Thus it is the relationship between the two clauses which is most important and which should be given most attention. Here are three types of conjunction exercise in increasing order of difficulty. (See Appendix 2 for a list of conjunction relationships.)

- (1) *However* (A. line 11) signals a contrast relationship. What is contrasted with what?
- (2) Find the following words in the passage. Say what relationship each one signals and find the two related parts.  
*However* (A. line 11)  
*All the same* (A. line 23)  
*since* (A. line 32)
- (3) What relationship occurs in these lines, lines 10-14? What is the signal? What are the two parts?  
 Clarke (forthcoming) uses boxes and abbreviations to isolate and describe the relationships:



#### Finding the main idea:

Often teaching cannot agree on what is the main idea in a paragraph or passage, so it is obviously going to be difficult to teach how to find it. Nevertheless, there are several useful steps that learners can go through to help them find the main idea or to check that the idea they have chosen is the main idea. But first, a word of warning is necessary. Many paragraphs or passages do not have a main idea, and if there is one it might not be explicitly stated in a particular sentence. The following steps however assume that the main idea is explicitly stated.

- (1) The main idea most often occurs at the beginning or end of a paragraph rather than in the middle. The usual exception to this is the first paragraph of a text. The position of the main idea in other paragraphs in the text may help in locating the main idea in a particular paragraph. So, the first step in locating the main idea is to look carefully at the sentences at the beginning and end of a paragraph.
- (2) The main idea will be a fairly general statement. You should be able to ask lots of questions about it. The general vocabulary contained in the main idea may be related to less general words in the rest of the paragraph.
- (3) Conjunction relationships like contrast, cause-effect, summary, exemplification etc. have an effect on the main idea. The larger the parts of the paragraph involved in a conjunction relationship, the greater the effect will be. So, a contrast between the last sentence of a paragraph and the rest of the paragraph will have a greater effect in determining the main idea than a contrast between two clauses of a

sentence. In a contrast relationship, the second idea in the contrast will be more important than the first. In a cause-effect relationship the effect is more likely to be the important part. In an exemplification relationship, the examples will be related to a more general statement which could be the main idea.

- (4) The information in the main idea should cover most of the ideas in the rest of the paragraph, so it is useful to check to see what quantity of the passage is related to the main idea. But, if the passage involves a contrast then the second part of the contrast even though it relates to only a small part of the passage may contain the main idea. Also, the main idea needs to be distinguished from 'mainly about.'

The form of this exercise is simply, "Find the main idea in paragraph 4" or "in lines 38-56." The discussion which follows is the most important part of the exercise and will usually deal with the four points mentioned above.

#### Handling the exercises:

All the exercises described here have one important feature in common. They do not require specially constructed or adapted texts. They can be applied to any texts that the teacher has or to texts that the learners use in their study of other subjects. Moreover the exercises do not require a large amount of preparation. The exercises can be quickly written up on the blackboard and the learners can use some type of coding system to mark them on their texts, underlining for reference words, a box around a word for part of speech, and so on.

Each exercise is like a test, but it should be clear to the learners what feature they are looking at and the significance of this feature for reading. Each exercise can be broken down into steps or requires certain types of knowledge which can be specified. Thus, when learners make an error, or before they do the exercise, the teacher or the learners in groups can go through the knowledge needed to do the exercise. The learners should memorize the steps for inferring meanings from context, simplifying sentences, and finding the main idea, and if necessary learn the grammar of the more difficult reference words and the ways of checking.

#### The role of teaching exercises:

How do the exercises described in this article fit into a reading course? Throughout this article a distinction has been made between exercises that teach and exercises that give practice. Exercises that teach are used in the belief that through such teaching, learning will be faster and more sure. Such exercises

have an obvious value where time is short or where learners have not succeeded in learning to read well by other methods. But these exercises are not a substitute for practice. It is very important that learners should have the opportunity to read plenty of material that does not contain too many unknown or difficult items. This material provides the learners with experience in reading and allows them to apply what they have learned in other parts of the reading course.

For reasons stated earlier I see value, in some part of the reading course, in focusing attention on items of language without too much concern for the particular message of a passage. By doing this learners can more readily acquire knowledge and strategies that will be valuable in their other reading.

#### References

- Carroll, J. B. 1972. Defining language comprehension: some speculations. *Language comprehension and the acquisition of knowledge*, ed. by Roy O. Freedle and J.B. Carroll, 1-30. Washington, D. C.: V. H. Winston & Sons.
- Clarke, D. F. 1980. *Reading course*. London: Heinemann. Forthcoming.
- Davis, Alan and Widdowson, H. G. 1974. *Reading and writing*. The Edinburgh course in applied linguistics. Vol. 3. Techniques in applied linguistics, ed. by J. P. B. Allen and S. Pit. Corder, 155-201. London: Oxford University Press.
- George, H. V. 1972. *Common errors in language learning*. Rowley, Mass.: Newbury House.
- Halliday, M.A.K. and Hasan, R. 1976. *Cohesion in English*. London: Longman.
- Munby, John. 1968. *Read and think*. London: Longman.
- Widdowson, Henry G. 1976. The authenticity of language data. On TESOL 76, ed. by John F. Fanselow and Ruth Crymes, 261-270. Washington, D. C.: TESOL.
- \_\_\_\_\_. 1978. *Teaching language as communication*. London: Oxford University Press.

#### A. THE SOLAR SYSTEM

##### Appendix 1

15 The Earth is a planet just under 8,000 miles in diameter, moving round the Sun at a distance of 93,000,000 miles, and completing one circuit in 365¼ days. It is not the only planet; either others are known, all with their own special points of interest. Mercury and Venus are closer to the Sun than we are; Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto are farther away. Of course, the nearest to us are Mars, which may approach the Earth to within 35,000,000 miles, and Venus, which has a minimum distance from us of only about 24,000,000 miles. Mars and Venus are also the only two planets which do not appear to be overwhelmingly hostile. However, they are much more remote than our one natural satellite, the Moon, which moves round the Earth at a mean distance of less than a quarter of a million miles.

20 The Sun itself is a star. It is by no means distinguished, and modern astronomers class it as a 'Yellow Dwarf'; it seems splendid to us only because it is relatively so near. We know of stars which are at least a million times more luminous than the Sun, and yet are so far away that telescopes are needed to see them at all. The stars visible at night-time are immensely distant, which is why they appear only as tiny points of light. Many of them may well have planet-systems of their own.

25 All the same, we must not be contemptuous of the Sun. It may not be a celestial searchlight, but neither is it a glowworm: it is normal in every way, and cosmically it is far more important than our own insignificant world. Its diameter is 864,000 miles so that it could contain more than a million globes the size of the Earth; even at its surface, the temperature is around 6,000°C (11,000°F), and in the solar 'power-house', deep inside, the temperature must rise to well over ten million degrees. The Sun is gaseous, and is not burning in the ordinary sense of the word, since it produces its energy by means of thermonuclear processes near its core.

30 The essential difference between a star and a planet is that a star is a sun in its own right, whereas a planet shines only because it reflects the rays of our own particular Sun. If we could observe from the surface of another world — Mars, for instance — the Earth too would appear in the guise of a starlike object, and a telescope would be needed to show even large features such as the Pacific Ocean and the Eurasian landmass.



## B. CONTACT LENSES

(The writer describes the development of spectacles, and says that towards the end of the nineteenth century a number of attempts were made to produce lenses which fitted directly on the eyeball. In 1889 a young medical student made the first successful *contact lenses*, as this kind of spectacles is called.)

5 A few years later, the firm of Zeiss produced the first contact lenses to enjoy wide use among the general public. These were circular in shape and of two parts: an outer saucer-like rim which rested directly on the relatively insensitive part of the eye — the sclera — and an inner arched portion which fitted over the cornea. This was filled with a so-called neutral or buffer solution to which the eye did not react. They could not, however, be fitted very accurately and only about one patient in four was able to tolerate them for more than a few hours.

10 For years experimentation continued without success. Then in 1932 came the first major advance. A prominent Hungarian physician, Dr. Joseph Dallos, investigating impressions which he had made of living human eyes, discovered that no two were identical. From this he concluded that it was impossible accurately to fit an eye with a contact lens manufactured to a preconceived formula. Instead, it should be fitted with a lens which duplicates exactly its own surface contour. He therefore devised a method which enabled this to be done.

20 Shortly afterwards contact lenses made from plastic were introduced in the USA. Such lenses were still filled with artificial buffer solution; and it was found that unless this fluid was changed after the lenses had been worn for a few hours, the majority of wearers experienced a slight mistiness of vision sometimes accompanied by the appearance of faint coloured haloes seen around lights. This phenomenon was known as *veiling*. Many different solutions and changes in lens construction were tried in an attempt to mitigate this veiling. Eventually it was found that a lens, the design of which incorporated a tiny hole or holes at the edge of the inner or corneal portion and permitted a small bubble of air to intrude between the contact lens and the cornea, delayed the onset of veiling, and in some cases eliminated the phenomena entirely. But it was not until the introduction of the corneal lenses in 1948 by an American optometrist named Kevin M. Tuohy that the problem was entirely overcome.

40 These lenses, which were entirely different from any other contact lenses designed before, consisted of an arched portion without a scleral rim. They were thin and light, and no larger than about half the size of a sixpence. They fitted over the cornea only and floated gently on a thin film of tear fluid in direct contact with its centre. During the last decade even smaller, thinner and lighter kinds of corneal contact lenses have been evolved.

45 When in wear contact lenses are completely invisible. This is maintained regardless of the kind or degree of visual error being corrected. People often remark that they have never seen a person wearing contact lenses. They probably have but were not aware that lenses were being worn. Even at close range it is extremely difficult to detect their presence. The eyes look quite natural and have no glassy appearance as might possibly be expected.

(From *Eye Health* by Colin Fryer)

(These passages were taken from *A higher course of English study* by Ronald Mackin and David Carver, 1968, London: Oxford University Press.)

## Appendix 2

## A Basic List of Conjunction Relationships

- |    |   |   |
|----|---|---|
| 1  | Inclusion<br>and, furthermore, in addition,<br>besides, also                                | A and B should<br>be considered<br>together.  |
| 2  | Exclusion<br>or, nor, alternatively, instead,<br>else, rather than                          | A and B re-<br>present alter-<br>natives.   |
| 3  | Explanation<br>in other words, that is to say,<br>I mean, namely                            | B restates<br>or names A.   |
| 4  | Exemplifica-<br>tion<br>for example, such as, thus,<br>for instance                         | B is an<br>example of A.  |
| 5  | Contrast<br>but, although, despite, yet,<br>however, still, on the other<br>hand            | B is contrary<br>to the expect-<br>ation raised<br>by A.                              |
| 6  | Cause-Effect<br>because, since, as a result,<br>thus, so that, in order to,<br>consequently | A is the cause<br>or reason for B.  |
| 7  | Condition<br>if, provided that, supposing<br>that, as long as, unless,<br>otherwise         | (a type of<br>cause-effect re-<br>lationship)<br>Possibly A; if<br>so, then B.        |
| 8  | Time<br>when, before, after, subse-<br>quently, while, then                                 | A and B<br>actually oc-<br>curred with<br>this time or<br>sequence rela-<br>tionship. |
| 9  | Arrangement<br>firstly, finally, in the first<br>place                                      | A and B are<br>arranged in this<br>sequence by<br>the writer.                         |
| 10 | Summary/<br>Conclusion<br>to sum up, in short, in a word,<br>to put it briefly              | B summarizes<br>A.  |
| 11 | Classification<br>comprises, consists of, can be<br>classified as, can be divided<br>into   | B and C etc.<br>are sub-classes<br>of A.  |

## 12 Comparison

-er than, more \_\_\_\_\_ than,  
similarly, likewise, differently,  
equally

A and B are  
similar or dif-  
ferent in some  
way.