NEW WRITING COURSES AT QUEEN'S

The previous academic year at Queen's University, Kingston saw the successful introduction of two new courses in technical writing mainly for engineering and science students.

A first-year course entitled "Prose Structures in Everyday English Use" follows the text of a book shortly to be available by the instructor, Dr. Michael P. Jordan. The course enables students to study the structures and styles of many forms of English use including news reporting, professional writing, and both serious and entertaining articles. Although this course provides a sound basis for the students to improve their own writing abilities, the main aim is to develop in the student an articulable awareness of the structures and linguistic signalling of English texts.

A second-year course in "Basic Communication", also given by Professor Jordan, is a series of formal lectures on the basic elements of efficient writing which, he explains, need little detailed explanation and even less intellectual thought. The topics dealt with are thus the generalities and folklore of technical communication which can be taught at little expense, and learned quickly by the students. Such subjects are: planning and outlining, definition, general communication concepts, word use, punctuation, grammatical errors, illustrations, conciseness and concepts of style. Students on this course are achieving a level of understanding of these concepts comparable to students who have taken a course costing 15 times as much.

Michael Jordan also established the principal course at Queen's several years ago, "Effective Technical Writing", which teaches the more advanced concepts explained in his research publications. The essence of the following article was presented at the Applied Linguistics Research Working Group Spring Colloquium at York University last April.

* * * * * * *

CO-ASSOCIATIVE COHESION IN ENGLISH TEXTS
A PROGRESS REPORT ON RESEARCH INTO THE SYSTEMS OF LEXICAL COHESION IN EVERYDAY ENGLISH USE

Michael P. Jordan
Queen's University

BACKGROUND AND AIMS

"The moment two sentences are placed together as members of the same paragraph, they enter into a semantic relation with each other whether we like it or not." (Winter 1978, P69/90)

This statement can be seen as the philosophical starting point of detailed research into "clause relations", which studies the many relations that exist between clauses and sentences. Winter's major work in clause relations (1978) not only discusses the more obvious relations conveyed by sentence adjuncts and subordinators, but also explains in detail relations dealing with compatibility and comparison. Of relevance to this paper is his analysis of comparative denial (what is true of X is not true of Y) and comparative affirmation (what is true of X is also true of Y) as major features of the matching relation. This paper will show the compatibility of this analysis with more recent work dealing with inter-clause connection created by lexical repetition and related devices.

Another branch of study centered around Winter's work (1976) is known as "information structures" or "prose structures". This study deals with the types of high-priority information found in texts, typical patterns for such information, and the linguistic signals that indicate the types of information and show transition between them. Although this work has received considerable attention (e.g. Hoey 1979, 1981, and 1983; Fries 1982, and Jordan 1980, 1981a, 1981b, 1982b and 1983), much more analysis needs to be done. The introduction of old or obvious solutions to a problem into a text is a communicative need that is shown to fit the general pattern of continuity described in this paper.

Systematic study of lexical cohesion between clauses and sentences of a text has received little detailed attention until quite recently. Halliday and Hasan's (1976) chapter on lexical cohesion and particularly their sections on collocation and general concepts of lexical cohesion provide a useful starting point. Their categories of "reiteration" have since been expanded and placed within a larger nominal cohesive system of continuity (Jordan 1982c), and the relevance of lexical cohesion between clauses and sentences has been connected with theme (Jordan 1982d), it often being impossible or stylistically undesirable to reiterate a previous topic as theme of the following clause. Of special importance to us here are Halliday and Hasan's discussion of hyponyms and antonyms as lexically cohesive devices, and also work by Christophersen (1939), Hawkins (1978) and Jordan (1981) to define and explain intra-clause lexical connection created by lexical items "associated" with lexical items previously included in the text. This paper further elaborates on the types of association possible between lexical items in different clauses, and will thus show some compatibility of the systems of lexical cohesion both with clause relations and with information structures.

TOWARDS AN INTEGRATED THEORY OF COHESION

Some progress has already been made in integrating the cohesion of clause relations with that created by lexical, pronominal and grammatical techniques. Most of the ways that educated users of the language adopt to "re-enter" co-referentially a topic already introduced into the text (e.g. substitution, synonymy, full and partial repetition, naming, and generic nouns) have been identified; and the "re-entry" devices within the sentence have been identified as ellipsis, listing, and the use of relative, non-finite and verbless clauses (including apposition). These technqiues provide connection within and between clauses by virtue of the same topic being involved in two or more statements in the text. The relations that exist between the clauses (which are often in addition to those created by lexical cohesion) are part of a clause relational study, and an introductory analysis has been made (Jordan 1978) of short extracts of text which exhibit both types of cohesion simultaneously. This work has been expanded slightly in Jordan 1982d.

The major point of similarity between the system of lexical and related cohesion patterns on the one hand, and relations between clauses on the other is that of "re-entry" of part of the text back into the text. For the lexical branch of cohesion, a noun or nominal group is re-entered into the text to allow the speaker/writer to add something about that topic, or about something associated with it. For clause relations, a clause (or sentence or paragraph) is re-entered into the clause so that more can be said or written about it. As an example, pronominal *this* usually has at least a clause as its referent or antecedent, and thus it re-enters that clause into the text for elaboration.

The previous sentence is an example of the occurrence of both types of coherence working together to provide cohesion between the topics of discussion of a text and the clauses of the text. Here, in simplified form, is its structure:

pronominal *this* ⟶ usually has at least a clause as its referent or antecedent

↳ and thus

↳ it re-enters that referent into the text for elaboration
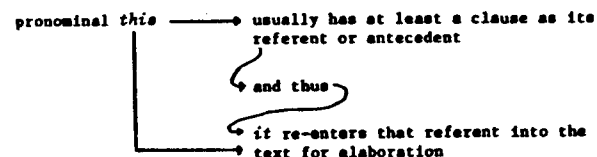
Cohesion in this sentence is achieved not just through the use of the substitute *it* to show extension of the domain (Hudson 1968) of the topic, but also by *thus* which re-enters the first clause to create a "CAUSE-EFFECT" relation between the two clauses. (Reiteration by non-thematic *its referent or antecedent* and *that referent* are further nominal re-entries, but we will not be considering such complications here.) The sentence we are studying also re-enters the preceding sentence, giving an example; this is more clearly seen by the expansion "As an example of this", where *this* would refer to and thus re-enter the previous sentence to create a relation of "EXAMPLE" between the two sentences. It seems highly probable that the notion of any coherent stretch of text being re-entered into text will provide a powerful mechanism for integrating our understanding of these two branches of cohesion.

Integrating well established concepts of information structure with these two branches of cohesion is much more difficult, but perhaps not insoluble. The clause relation of "EVALUATION" fits perfectly with clause relations as evaluative information answers questions about a

previous part of the text, but the boundaries between "Situation" and "Problem" and between "Problem" and "Solution" are not so easily resolved; at present perhaps we have to regard them as special cases of clause relations, but that is a far from satisfactory explanation. A particularly difficult aspect of information structure to integrate with other concepts of cohesion has been the introduction of competitive or old solutions into the text as these are not reiterations or re-entries of something previously mentioned in the text. The difficulty is explained by comparing synonyms and antonyms as cohesive devices in a text. A synonym enters the previously included lexical item co-referentially, whereas an antonym enters something that is opposite or complementary to that item. What is more significant is that synonyms provide a means of continuing the discussion about a given topic, whereas antonyms introduce something new (but related to the topic) in order to provide some comparison between the previous and newly introduced topics.
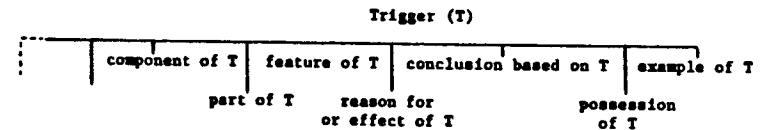
The detailed work on lexical cohesion and other re-entry techniques has so far dealt with the means by which a topic in the text or something associated with it is included again in the text, and the explanations provided have excluded the entering of antonyms, old solutions and co-hyponyms as these are not means of re-entering the given topic into the text. The explanation now needs to be expanded to accept these techniques as a separate branch of lexical cohesion, and this will be achieved in the following section of this paper. The next three sections deal with the implications of this extension in the use of co-hyponyms with comparison in everyday English use, and there follows a discussion of how co-hyponymy enables us to explain more fully some aspects of information structure. The final section examines implications of this work and directions for further research.

ASSOCIATED RE-ENTRY EXPANDED

The early work of Hawkins (1978) and Jordan (1978) demonstrated the existence and use of associated nominals (newly introduced nominals associated in some way with a previously introduced nominal). Later developments (Jordan 1981, 1982c) established several types of association: e.g. whole-part, cause-effect and other logical associations,

and intangible features or characteristics. More detailed study of lexical cohesion in non-thematic positions (Jordan 1982a) provides some introductory analysis of chains of associations including hyponyms, co-hyponyms, hyponyms of hyponyms, etc. It is now necessary to distinguish clearly between three major types of association: hyponymic, superordinate, and co-hyponymic.

The work on associated nominals has so far concentrated on hyponymic association, in which cohesion is created by a new nominal group which is a hyponym of the original nominal group (or "trigger"). Because of the inherent compatibility of the "re-entry" systems of clause relations and lexical cohesion, it should be clear that the trigger does not have to be a nominal group, but can be a clause, a sentence, a paragraph, or indeed any coherent stretch of discourse. In hyponymic association, the new nominal can be one of many types of hyponym as shown by:

Trigger (T)

	component of T	feature of T	conclusion based on T	example of T
	part of T	reason for or effect of T		possession of T

Here is an example of an untriggered associated nominal (i.e. there is no mention of the trigger in the new nominal):

> 1 This program is tough, because thighs are hard to reduce, particularly for women. But in just one month, you can have thinner, firmer thighs . . .
>
> The *benefits* will go beyond trim thighs. (Reader's Digest, Canada, Jan 83, P43)
> --
> In this example, *The benefits* means "The benefits of the program", but the trigger is not necessary because its meaning in the new nominal is so obvious.

It should be clear from this discussion that I am treating the concept of hyponymy in a very wide sense, to indicate any type of dependency of one nominal on a previously mentioned trigger and not as a purely semantic relationship between lexical items out of linguistic context.

Superordinate association is opposite to hyponymic association but, following Lyons (1968, P455), I prefer not to use "hyperonymic" because of its lack of acoustical distinction with "hyponymic". In superordinate

association, the new nominal is more general in meaning to the trigger, and the topic of discussion goes from the particular to the general, which includes all of a set. Although instances of superordinate association do occur, partial superordinate associations are much more common. In this, only some of a set are included, either by specific counting of the number involved or by general incomplete plurality of a singular trigger by *many*, *several*, *a few*, *most*, etc. Less obviously, partial superordinate associates occur when a sub-set is identified having specified qualities or uses, as in:

> 2 An electron oscillator is a system in which an electron vibrates
> with a certain frequency designated ω_0 . . . The electron
> oscillators we are using to represent an atom are designed so
> that their frequencies ω_0 correspond to transitions from the
> ground state to higher states. (Scientific American, Sep 68,
> P14 of "Lasers and Light")

The trigger in this example is introduced as a generic singular, but what becomes the theme of the second sentence is a special group rather than a specific oscillator or all oscillators; it is thus a partial superordinate.

Partial superordinate association also occurs with the use of *such*, *like* and *of this type* to indicate some generalisation of the trigger to a complete sub-set defined as being all items like or of the same type as the trigger. Context is vital in understanding some partial superordinate associations. For example, *three of T* would be a partitive hyponymic association for a plural T, but a partial superordinate association for a singular T. As with all associations, the new nominal has no definite meaning without reference to the trigger.

The various types of superordinate association deserve a great deal more attention, but they are not the main point of this present paper which centres around co-hyponymic associations.

CO-HYPONYMIC ASSOCIATIONS

Clearly both *chair* and *table* have a mutual co-hyponymic relationship, but in actual use we can also recognise that co-hyponyms are associated hyponymic nominals related to the trigger (*furniture* here) as the superordinate term:

> 3 Spur gear cable drive belts are designed to operate with
> "commercial" grooved spur gears 14½° or 20° pressure angle
> and because of the single major cable feature will twist and
> turn as desired. *Jacket and extended drive pins* are made of
> polyurethane for maximum wear conditions. *Cable* is multiple
> stranded stainless steel for tensile strength and flexibility.
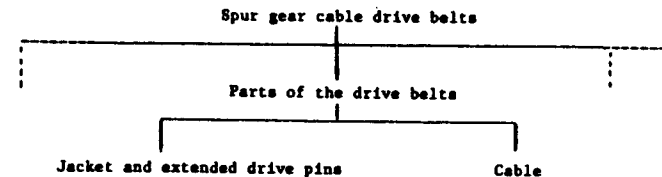> (Design Engineering, Dec 75, P48)

The trigger is the topic of description *Spur gear cable drive belts*, and there are two untriggered hyponymic associated nominals *Jacket and extended drive pins* and *Cable* which are thus co-hyponyms. In these associations the trigger is linguistically recoverable as *Jacket and extended drive pins used in the belts* and *Cable included in the belts*.

Example 3 includes two associated nominals which are closely co-hyponymic as they are both physical components of the trigger. Although all associated nominals of a given trigger must be co-hyponymic to some degree, they are not always as closely related as in Example 3. If we think of the co-hyponyms in Example 3 as being "siblings", the ones in Example 4 should be regarded as "cousins":
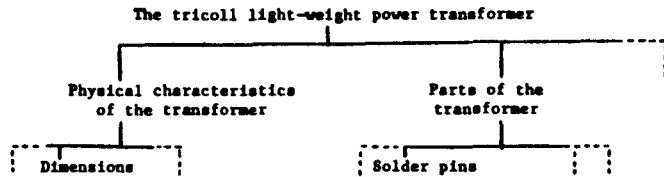
> 4 The Tricoll light-weight power transformer for printed circuit
> mounting on .1 standard grid has power ratings from 3.5 VA to
> 20 VA . . . *Dimensions* are 1.9" x 1.5" x .59" for the 3.5 VA
> type, 3" x 2.3" x .1" for the 20 VA type. *Solder pins* are gold
> plated. (Canadian Electronics Engineering, Apr 74, P62)

The trigger is *The Tricoll light-weight power transformer* etc. and the two co-hyponymic associates are *Dimensions* and *Solder pins*, for which the associations have linguistically recoverable triggers by *Dimensions of the transformer* and *Solder pins on the transformer*. The co-hyponyms are not directly connected, however, as the dimensions form one part of the physical characteristics of the transformer, whereas the solder pins are components of the transformer.

In Example 3 both associated nominals can be seen to be associates of the implicit associated nominal "Parts of the drive belts".


```
                  Spur gear cable drive belts
       ---------------------|----------------------
       :                    |                      :        :
       :            Parts of the drive belts       :        :
                  ┌─────────┴──────────┐
       Jacket and extended drive pins          Cable
```

In this description, no details are given of the co-hyponyms for "Parts of the drive belts" such as "Physical characteristics of the drive belts", "Patent applicability for the drive belts", etc., and thus the information given is closely related. In contrast, the information in Example 4 is less closely related because the co-hyponyms are hyponymic associated nominals from different branches of association from the main topic of description:

```
                    The tricoll light-weight power transformer
         ┌───────────────────────────┬─────────────────────────┐
         │                           │                          ┊
Physical characteristics        Parts of the                   ┊
   of the transformer            transformer
    ┌────┴────┐              ┌────────┴────────┐          ┌─────┐
    ┊ Dimensions ┊          ┊ Solder pins ┊    ┊          ┊     ┊
    └─────────┘              └─────────────┘    └──────────┘
```

Further complications occur when a superordinate term is classified
in mutually exclusive ways. If, for example, a group of people is
classified first by sex, then by age group, and finally by education,
there will be nominal groups such as "Those between 18 and 25" and
"Those with a university degree", and such nominals will only be seen
to be connected as overlapping co-hyponyms of the main superordinate
term.

CO-HYPONYMY AND COMPARATIVE DENIAL

If we treat co-hyponymy in a wide sense, co-hyponymic association does
not have to occur in such natural sets as we have just seen. It can
occur whenever two or more topics are used as a basis for comparison –
for similarities (comparative affirmation) and/or differences (compara-
tive denial). The common saying that apples cannot be compared with
oranges does not always apply in natural language. Obviously a more
meaningful comparison is achievable when comparing oranges with
tangerines rather than with apples, but the higher superordinate *fruit*
forms a valid basis for some comparison between apples and oranges.
Even oddly different topics such as tennis and motherhood can become
co-hyponymic when they form part of a comparative denial:

> 5 A couple of years ago it was tennis. Now it seems a lot of
> women are reaching for motherhood, before it's too late.
> (Good Health, Jun/Jul 81, P16)
> ───
> The comparative denial involves time, with the signals *A couple of
> years ago* and *Now*. The activities for young women (the superordinate
> concept) are identified as *tennis* and *motherhood*, and we see that
> what is true for tennis is not true for motherhood – and that this
> has changed with time.

Comparative denial is even more clearly marked in the following example:

> 6 When my mother turned 40 she went downtown and bought a mauve-
> colored crepe dress, a pair of sensible shoes and a nice little
> hat. With a veil. That was the way things were done in those
> days – your generation defined your clothes and your clothes
> defined your generation. There was scant room for eccentricity.
>
> Now, new definitions exist. The woman – or man – who turns 40
> these days is likely to be buying just another pair of jeans and
> a pair of cowboy boots. (The Financial Post Magazine, 30 Apr 81,
> P3)
> ───
> With the cataphoric *That*, the clause containing it and *Now* indicate
> the change: what was true then is no longer true. The superordinate
> concept is *definitions* (for dress convention), and the two opposite
> conventions are co-hyponyms. The comparative denial of the defini-
> tions as well as time is more marked in this example because of the
> predicting statements and their fulfillment.

The two previous examples were opening statements from semi-formal
articles in the entertainment/informative genre. Comparative denial
is a common opening for such writing, and it is often signalled by
But or *However* as sentence starters early in the text as denial is one
of the conventional "surprises" signalled in this way. Here is an
illustration:

> 7 Most sperm cells are packed with mitochondria which maintain a
> high level of metabolism to supply energy for sperm movement.
> But in snail sperm cells, there are no conventional mitochondria.
> (New Scientist, 23 Oct 75, P197)
> ───
> The co-hyponyms are *Most sperm cells* and *snail sperm cells*, which are
> both partial sub-sets of all sperm cells. The comparative denial is
> apparent from the *But* and the *no* in the second sentence: what is true
> for most sperm cells is not true for snail sperm cells.

Difference is often the key in relations involving co-hyponymic
association, and a variety of techniques can be observed to communi-
cate this. Here is just one example.

> 8 Unlike its precursor Pisa, Montreal's Leaning Tower of Taillibert
> is tilting closer to folly than to fame. (Macleans, 16 Jun 80,
> P24)
> ───
> This is another article start, this time with the difference between
> the two co-hyponyms being signalled by *Unlike*. The association
> between the co-hyponyms is accomplished with the premodifying posses-
> sive triggering *its precursor*.

CO-HYPONYMS AND SET DETAILING

Although comparison is an important motivation for co-hyponymic associ-
ation, another is the need to introduce two or more members of a super-
ordinate set of topics or things to enable each to be described in turn.
In the following example, there are two sets of co-hyponymic families
within a complex "Problem-Solution" framework.

9 Steam drives out oil

New methods of extracting more oil from conventional wells by the "steam drive" process are to be investigated by US companies under contracts just let by the American Department of Energy. Injecting steam into oil reservoirs to increase production has so far been limited to wells less than 2500 ft ($\div$ 760 m) deep because for greater depths the losses through the drill pipe become so great that the steam's effectiveness is reduced. The solution to the problem may be to generate the steam at the bottom of the well, and the DoE has now let three research contracts to investigate methods of doing this.

Foster Miller are to design a system that burns diesel fuel mixed with air to generate steam by direct contact with water. Both the steam and the combustion gases could be injected into the reservoir, avoiding problems of atmospheric pollution due to the combustion.

The Rocketdyne Division of Rockwell International are working on a similar idea in which the steam is generated in "down-hole" heat exchangers, rather than by direct contact, and the exhaust gases are vented to atmosphere. This avoids the possibility of "plugging" the reservoir with particles generated during combustion of the fuel. Another Rockwell proposal which is being studied is to use an electric heater at the bottom of the well to produce steam.

The DoE plans to select the technique with the best potential for field testing in 1980.

Meanwhile, under another DoE contract, the General Crude Oil Company is investigating another method of recovering additional oil from underground reservoirs. The company is to test an in-situ combustion process that burns part of the oil in a reservoir to heat the remaining oil. The reduced viscosity enables the combustion gases to drive the previously unrecoverable oil to a producing well.

Although it has been used successfully in the past, in-situ combustion is expensive compared with other methods. It is, however, more efficient than steam driving and can be applied to a wide range of crude oils. Moreover, it supplies its own fuel, requiring only the addition of air and water.

(Chartered Mechanical Engineer, Dec 78, P25)

Paragraphs 2, 3 and 4 provide details of four projects of work aimed at overcoming the specified problem in a certain way: the use of steam to drive out oil. The prediction and the explanation of the meaning of the total set of contracts is given at the end of the first paragraph, and Paragraph 5 tells us of the comparison which will be made later.

The sixth paragraph introduces another method of driving oil to the surface. This in-situ method is not steam driving, and thus it can be seen as a co-hyponym of the entire family of steam drive methods.

The similarity and difference between the first two steam drive methods are signalled by *similar* and *rather than*, and there are two uses of *another* to signal co-hyponymy.

The information structure of this example is explained in detail in Jordan 1980.

Comparative affirmation is clear in the following example, with two clear signals of *like*:

10 Two polysulfone plates form a pressure vessel directing flow over the surface of the membrane. Each plate is indexed by a gasket and held in position by clamps. Plates are stacked, with seven plates to a system.

These smaller plates, *like* the larger commercial lopor systems, do the full range of separations from soluble macromolecular retention to suspended colloidal particle retention. *Like* their larger counterparts, they play an ever widening role in the field of pollution. (Materials Engineering, Apr 81, P18)

The topic of discussion is *Two polysulfone plates* and these are affirmed as being similar to the larger plates in respect of two separate features, *like* being used to indicate the similarity on both occasions.

In practice co-hyponymy often involves comparative affirmation *and* comparative denial, as co-hyponyms have some aspects in common and some different. This was shown in Paragraph 3 of Example 9 and is further illustrated by:

11 Mindel A-650 engineering resin is ideally suited for use in food service trays for hospitals and institutional feeding systems. Other applications are in plumbing components, batteries, and recreation and sports equipment. Its properties are similar to those of Arylon T, formerly marketed by Uniroyal, but with a substantial improvement in resin uniformity. (Materials Engineering, Apr 81, P19)

The topic of description is *Mindel A-650 engineering resin*, and this is re-entered as themes of the next two sentences by the untriggered associated nominal *Other applications* (of the resin) and the associated nominal *Its properties* with possessive triggering. The final sentence introduces its co-hyponym *Arylon T* in the form of its associate *those* (properties) *of Arylon T*, which is immediately re-entered in the following non-finite clause. The comparative affirmation is signalled by *similar*, and comparative denial by *substantial improvement*, with the *but* mediating between the two types of information.

CO-HYPONYMS AND INFORMATION STRUCTURES

The identification of co-hyponyms has already helped to explain the information structures of Example 9. In that example, two sets of evaluations were seen to be connected by co-associative nominals, and other applications can readily be understood. For example, "agreement" is comparative affirmation of two or more evaluations of a topic, and "disagreement" is comparative denial of different evaluations of a topic. In addition, many problems arising from a given situation can also be recognised as co-hyponyms.

The most difficult aspect of information to explain in terms of a coherence pattern involving successive re-entry of a topic of description has been the instance where an "old" or previous solution to a problem is introduced and its deficiencies discussed as a basis for then introducing the "new" solution, which does not have these deficiencies. This is the whole basis for the concept of improvement, a subject discussed briefly in Jordan 1980 and dealt with in more detail in Jordan 1983. The information pattern is typically found in advertising, as shown in the following advertising extract.

> 12 Zinc stronger than iron? That's what Danair discovered when they started looking for another material to replace the Class 30 iron for the cap of this air hammer. [Illustration provided.] Iron just couldn't do the job; air vents broke frequently and porosity caused machining problems. They finally turned to a zinc foundry alloy . . . The zinc alloy eliminates breakage and porosity; machining is faster (zinc foundry alloys routinely machine 3 to 5 times faster than cast iron); and, as a bonus, Danair gets a superior finish on the part. (Materials Engineering, Apr 81, P54)

> _____

> Although zinc alloy is being compared with an elemental metal (iron) in this example, they are co-hyponyms for the simple reason that they are being compared – an element can be validly compared with an alloy just as oranges can be validly compared with apples. The iron is introduced as the old solution which had deficiencies of *couldn't do the job* as the assessment, and *air vents broke frequently* and *porosity* as the specific basis for the assessment (concepts of evaluation discussed in Jordan 1983); these are identified as *problems* in *machining*.

> The new solution (zinc foundry alloy) is then selected and is evaluated positively in that it *eliminates* the problems with the old solution. Further comparisons are made between the co-hyponyms, with signals of *faster* (twice) and *superior* predominating.

Denial is well known as a powerful signal implying that other things (co-hyponyms) do what is being denied of the topic of discussion. This is used effectively on the following example, where the comparison of effectiveness of the new solution with previous models is implicit in the first paragraph and is not made overt until the final paragraph.

> 13 It doesn't smash, crush, or shatter the shell. It doesn't flip little fragments into the potato salad, down into the carpet, or leave them in the nut meats where they can break a tooth.

> "Reed's Rocket Nutcracker" model 800 is based on a new patented principle. Five ribs on the coned ends of the anvil and the plunger produce a "sunburst" effect on both ends of the nut and through the length of the shell. The shell is neatly slivered into separate segments.

> The anvil and plunger are cold-formed from wire in one pass by Elco Industries. *Previous models* had screw-machined anvils and plungers. (Materials Engineering, Apr. 81, P138)

> _____

> The first paragraph provides three denials of what the cataphoric topic of description does *not* do, the clear implication being that that is what earlier nutcrackers do. This is implicit comparative denial, with the co-hyponyms also being implicit. The second paragraph provides details of the new model and how it works, and the final paragraph mentions its *anvil and plunger* as an untriggered hyponymic associate. The final sentence introduces *Previous models*

(a co-hyponym of the new model) in order to provide information of difference between the old and the new. Again comparative denial is involved: what is true for the anvils and plungers of the new models is not true for the anvils and plungers of previous models.

REVIEW AND PREVIEW

Although several systems of lexical cohesion have been identified, their uses in combination need detailed analyses, and related systems of implicit connection and perhaps allusion remain to be analysed. The whole area of lexical cohesion is an important study in its own right, which has many possibilities for practical application. More significantly, however, the integration of lexical cohesion with other branches of discourse study is now promising to help in the development of a more general theoretical approach which describes and explains many elements of cohesion and continuity in contemporary English use.

The types of relations that exist between clauses need detailed analysis, but it now seems likely that the general approach to an explanation of clause relations is compatible with that for lexical cohesion. Winter's work in clause relations can now be seen to have significant points of contact with the description of lexical cohesive techniques, and combinations of clausal and nominal intra-clause connecting devices now deserve serious attention.

Much of the work in information structures can now also be related to the system of description of lexical cohesion. It is known that many predictable types of information occur together frequently in texts, and that one important relation – that of EVALUATION – readily fits into a generalized description of textual continuity. As future work in information structures develops, its points of contact with detailed descriptions of clause relations and lexical cohesion seem likely to increase and thus add to our general understanding of textual cohesion.

Whether an integrated theoretical explanatory framework for text will ever be fully compatible with a theory of grammar remains to be seen. Our knowledge of both aspects of language is still such that any pronouncements regarding an eventual overall "grammar" for clauses, nominals, sentences and text would, I feel, be premature.

REFERENCES

Christophersen, P., "The Articles: A Study of their Theory and Use in English", Copenhagen, 1939.

Fries, P.H., "How Does a Story Mean What It Does?", Systemic Conference, 1982; to appear in "Systemic Perspectives in Discourse" (Ablex), 1983.

Halliday, M.A.K., and Hasan, R., "Cohesion in English", Longman, 1976.

Hawkins, J.A., "Definiteness and Indefiniteness", Croom-Helm, 1978.

Hoey, M.P., "Signalling in Discourse", Discourse Analysis Monograph No. 6, University of Birmingham, England, 1979.

Hoey, M.P., "Discourse-Centred Linguistics - A Way Forward?", 8th LACUS Forum, 1981.

Hoey, M.P., "On the Surface of Discourse", to appear, George Allen and Unwin, 1983.

Hudson, R.A., in "Sentence and Clause in Scientific English", OSTI Programme, University of London, 1968.

Jordan, M.P., "The Principal Semantics of the Nominals *This* and *That* in Contemporary English Use", Ph.D. Thesis, CNAA-Hatfield/ Birmingham, University Microfilms 78-70, 031, 1978.

Jordan, M.P., "Short Texts to Explain Problem-Solution Structures - and Vice Versa", Instructional Science, Vol. 9, P221-252, 1980; Award of Merit, Society of Technical Communication; best research article NCTE.

Jordan, M.P., "Structure, Meaning and Information Signals of Some Very Short Texts", 8th LACUS Forum, 1981a.

Jordan, M.P., "Information Structures in Technical Writing", 28th International Technical Communication Conference, 1981b.

Jordan, M.P., "Some Associated Nominals in Technical Writing", Journal of Technical Writing and Communication, Vol. 11(3), 1981c.

Jordan, M.P., "Fundamentals of Technical Description", PROC, 29th International Technical Communications Conference, 1982a.

Jordan, M.P., "Structured Information in Functional Writing", Teaching English in the Two Year College, Fall 1982b.

Jordan, M.P., "Non-Thematic Re-entry", 9th International Systemic Conference, 1982b; to appear in "Systemic Perspectives in Discourse" (Ablex), 1983.

Jordan, M.P., "The Thread of Continuity in Functional Writing", Journal of Business Communication, Vol. , 1982d; Award of Excellence, Society for Technical Communication.

Jordan, M.P., "Prose Structures in Everyday English Use", to appear, George Allen and Unwin, 1983.

Lyons, J., "Introduction to Theoretical Linguistics", Cambridge University Press, 1968.

Winter, E.O., Fundamentals of Information Structure, Hatfield Polytechnic, Hertfordshire, England, mimeographed, 1976.

Winter, E.O., Replacement as a Function of Repetition: A Study of some of its Principal Features in the Clause Relations of Contemporary English, Ph.D. Thesis, University of London, England, Ref 1295, University Microfilms 77-70, 036, 1974.