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PARTICIPANT (CASE) ROLES AND LEXICAL ANALYSIS[1]

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1. Introduction

Our aim in this paper is to show how our system of Participant Roles (or PR's as we call them) has been adapted and developed from the literature on case and how it is applied to the description of a wide range of English verbs.

We will begin with a detailed discussion of each Participant Role and then move on to explain the notions of PR frame and minimal sentence. Finally, we will mention the ways in which we find PR's revealing both in the formal presentation of our results and as an essential part of our analytical procedures especially in the diagnosis of polysemy[2] and in the delineation of lexical fields.

The verbs we have examined so far fall into five main categories. These are:

movement verbs	(run, enter, wriggle)
custody verbs	(buy, obtain, return)
change state verbs	(expand, break)
contact verbs	(hit, caress)
communication verbs	(say, shout)

Because our study has considered such a broad area of the lexicon in considerable detail, we have been able to try out various possible systems of PR's on many different types of verb. At the same time we recognise that the widening of our descriptive horizons may well entail an extension and/or revision of our present system.

2. Participant Roles

2.1. The Participant Roles we will be discussing here are:

Agent, Instrument, Patient, Actor and Location

One of the most controversial issues in the literature on case concerns appropriate criteria for identifying Agents and distinguishing them from Instruments. For Wallace Chafe (1970) the possession of an internal source of energy is the defining characteristic of an Agent. He would, therefore, assign Agent to the Subjects of sentences 1 and 2:

1. The wind blew the door open
2. The rolling boulder crushed my petunias

(We follow Fillmore (1977) in using familiar examples from the literature in order to show how our analysis differs). For Talmy (1976) and others, intentionality is critical and they would thus not accept the wind and the rolling boulder as Agents. They would presumably accept the Subject of sentence 3, but not that of sentence 4 as Agents:

3. John hit Bill

=

4. John accidentally hit Bill

However, this criterion by itself is clearly unsatisfactory, as the intentionality or otherwise of John's action in sentence 3 is indeterminable. Pleines (1976) also argues convincingly against a distinction made on this basis (Starosta 1978). Another feature considered as a defining criterion for agentivity is animacy. Fillmore's original requirement (1968a) that Agents should be 'typically animate' has been modified both by Fillmore himself and by Platt (1971) who adds: 'except in the case of natural forces or mechanical devices'. This amended definition would allow as possible Agents the Subjects of sentences 5 and 6:

5. The machine pierced the paper with a spike

6. The sun warmed her with its rays

Starosta (1978) rejects the notion that animacy is the defining feature of agentivity. Instead, his own definition focusses on Agent as remote causer and Instrument as immediate cause. Any Agent in his system would require the presence ('conceptually' at least) of an immediate cause, that is, of an Instrument. Unlike Chafe then, Starosta would treat the Subject of example 2 (The rolling boulder crushed my petunias) as an Instrument. By contrast, analysts who base their definition of Instrument on the 'use-test', by which the entity in question can be said to be 'used' to perform the action, might reject the rolling boulder as Instrumental. While Agents in earlier discussions of case were assumed to be animate, Instruments are still typically assumed to be inanimate. However, as Fillmore (1968b) points out, Peter could be seen as an Instrument in one reading of sentence 7:

7. Peter broke the window

as long as he is seen as an ordinary physical object and, in the words of Starosta:

> 'possibly in a drug-induced cataleptic stupor and thus with his piloting Agent gone out to lunch' (p.493)

So far we have dealt only with transitive sentences. However, as Cruse (1973) points out, a test of agentivity such as the 'do-test' lets through the net the subjects of a number of different types of intransitive sentences too. For something to be classed as an Agent by the 'do-test' it must be possible to ask 'What did X do?' rather than 'What happened to X?' This would include the subjects of sentences such as: 'The door flies open every time the wind blows'; 'Christ died in order to save us from our sins'; 'John is standing in the middle of the room' and 'John sneezed' (Cruse 1973). We would not wish to assign agentivity to the subjects here, however. For our purposes, a better test of agentivity is whether the item in question can occur in a passive 'by' phrase such as 'The window was broken by John' or 'Mary was hit by Susan'. In his discussion of intentionality in the sentence 'John sneezed', Dillon (1977) appears to assume that the subjects of at least some intransitive sentences may be Agents, and Quirk et al (1973) class the subjects of sentences 8 and 9 as Agents:

8. The soldiers marched (home)

9. Suddenly, he jumped, in order to attract attention.

In our analysis, however, we exclude the subject of intransitive sentences from the Agent role. We agree with Starosta (1978) when he says that:

> 'the Agent has to act on something; and it must be external to the thing it acts on and somehow dissociated from it'

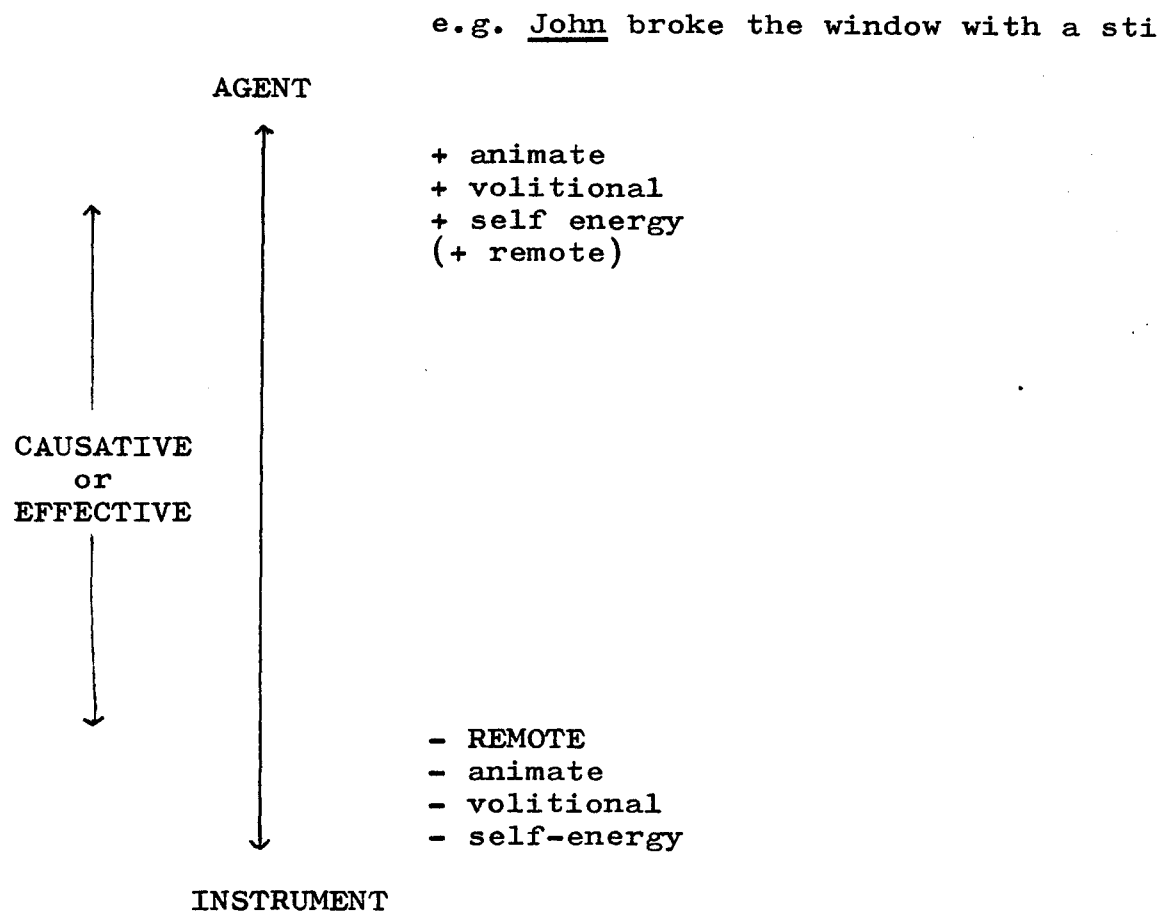
2.2. As this discussion has shown, no one criterion serves to identify the Participant Role of Agent satisfactorily, and this has led some linguists to emphasize the need for a battery of criteria. Given the non-applicability of some criteria in certain cases, it seems reasonable to suggest that there is a gradient or cline of Agentivity which has as one of its end-points the most extreme kind of Agent identified by the presence of all the features specified in Figure 1. This kind of approach is implied by Cruse (1973) and by Lyons (1977) who characterises the paradigm instance of an Agent (the end-point of the cline) in the following way:

> 'an animate entity, X, intentionally and responsibly uses its own force, or energy, to bring about an event or initiate a process'

However, we should like to go further and suggest that the other end-point is represented by Instrumentality, since the negative values of features applicable to Agents serve to define Instruments. Clines are generally recognised as characteristic of many grammatical and semantic distinctions

(as, for example, that between adjectives and adverbs), with bundles of plus and/or minus values being used to determine where on the cline any particular item belongs.

Figure 1



At one end of this cline, then, and drawing on the features proposed by Lyons and others we find paradigm Agents which are animate, and volitional (i.e. displaying the will or capacity to choose). A prototypical Agent has its own internal source of energy and may also be 'remote' in the sense that it employs an immediate cause (or Instrument). At the other end is the paradigm Instrument which is by contrast inanimate, non-volitional (i.e. not displaying the capacity to choose), is unable to act from its own energy and is necessarily the immediate cause of the action; requiring manipulation by an Agent. Both paradigm Agents and Instruments are causative or effective.

In our analysis, we are investigating individual verbs in particular senses in the light of the PR's with which they are associated. We have suggested that the difference between Agent and Instrument is in the nature of a cline.

While some verb-senses can be characterised by their association with a paradigm Agent, others will have both Agent and Instrument as potential subjects - so that both ends of the cline are represented, as well as intermediate points along it. This is illustrated by pierce in the following examples:

10. John pierced the paper with a spike

11. John pierced the paper with a machine

12. The machine pierced the paper with a spike

In sentence 10, John fulfils all the criteria for Agentivity while the spike is clearly at the Instrumental end of the cline in that it is inanimate, non-volitional, doesn't have its own energy and is manipulated by an Agent. In sentence 11, however, the machine could be seen as less Instrumental than the spike in 10 as it has its own source of energy. The machine in sentence 12 is even more like an Agent since the spike has been introduced as a more immediate causer. Our true Agent appears only as the subject of transitive sentences while a 'pure' Instrument typically occurs after 'with' as in sentence 13:

13. John caught the rabbit with a trap

Instruments which do move into subject position tend to be those which fulfil more of the semantic criteria for Agency: thus the ferret in 14 is less purely Instrumental than the trap in 13 and has moved into subject position in 15:

14. John caught the rabbit with a ferret

15. The ferret caught the rabbit

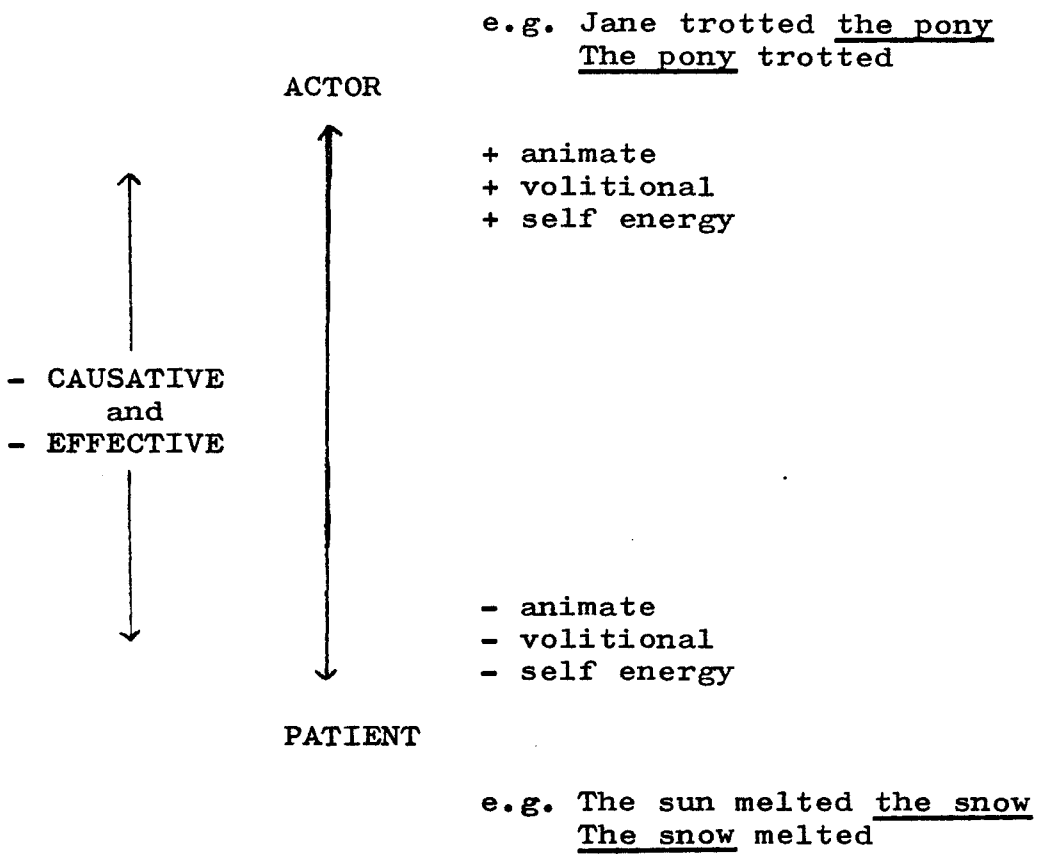
Although it is still possible to imagine the presence of an Agent in 15, if we add a 'with' clause:

16. The ferret caught the rabbit with a rope

the ferret is now clearly at the Agent end of the cline.

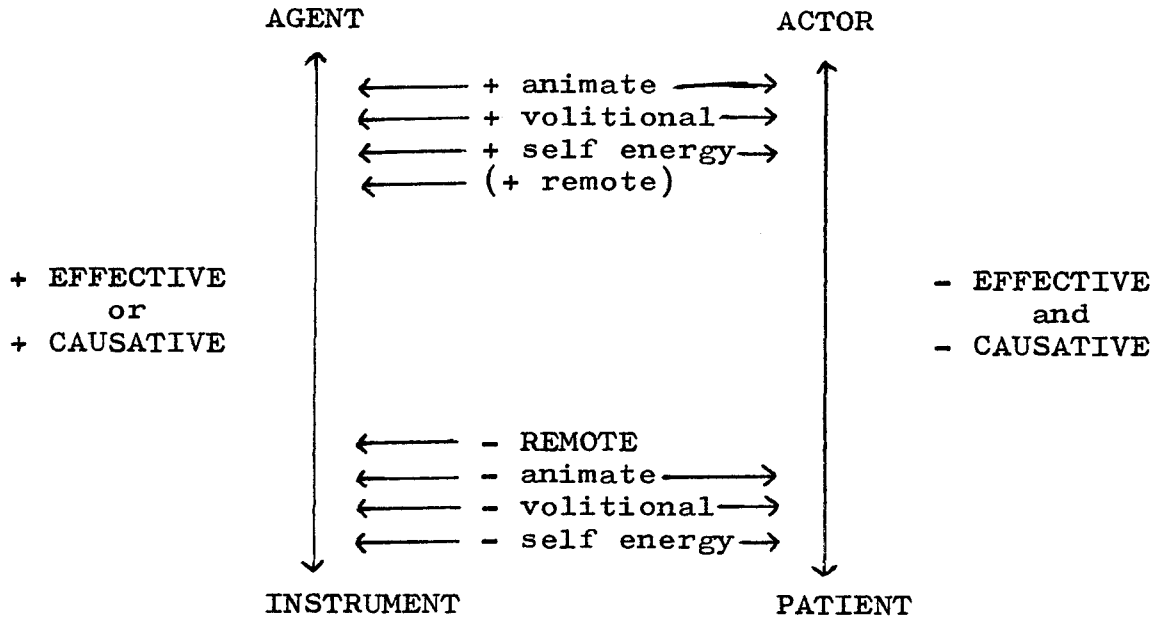
2.3. Our two major Participant Roles are Actor and Patient. We would like to suggest that these two PR's also fall at the end-points of a cline similar to the one just illustrated for Agent and Instrument:

Figure 2



The Actor-Patient gradient differs semantically from that between Agent and Instrument in that Actors and Patients are not causers, unless of their own action, and are not seen as having an effect on something else. There is also a distributional difference since Actors and Patients typically function as the objects of transitive sentences and the subjects of intransitive sentences. We can now see how the Agent-Instrument cline and the Actor-Patient cline relate to each other:

Figure 3



A key argument in favour of recognizing Actor as a separate Participant Role from Agent is that it helps us to show the systematic relationship which holds between some causative and non-causative sentences. In many cases where the same verb occurs in both a transitive and an intransitive construction, the transitive sentence will entail the corresponding intransitive sentence, provided of course that the same noun phrase occurs as object of the one and subject of the other. For example, 17b is entailed by 17a:

17a The police dispersed the crowd (Agent Actor)

17b The crowd dispersed (Actor)

Now by keeping the PR constant for the crowd, we can reflect this one way entailment relationship. It is important to note, however, that there is not always such a relationship between causative and non-causative sentences, the difference being a function of the meaning of the verb. In example 18, 18a does not entail 18b in this way:

18a They rushed the woman to hospital

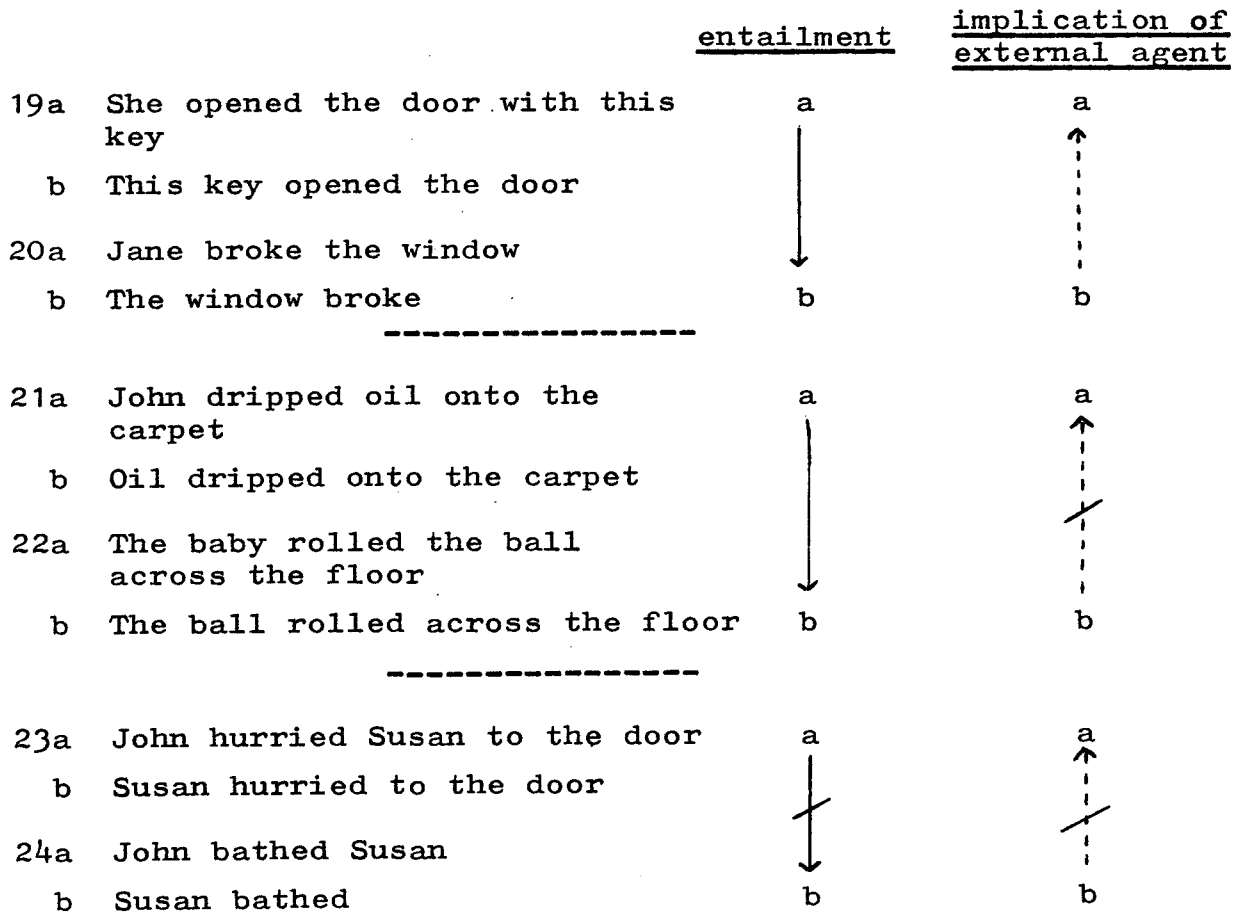
18b The woman rushed to hospital

In this case we would assign the role of Patient to the woman in the causative sentence 18a and Actor to the woman in the non-causative sentence 18b, since she can neither be seen as self-activating in 18a, nor as passively undergoing the process of being rushed in 18b.[3]

Analysts (such as Lyons 1968) who ascribe Agent to the animate, volitional, self-activating subject of intransitive sentences would presumably describe the crowd in 17b as Agent thereby failing to reflect the fact that the crowd fulfils the same role in both 17a and 17b. Starosta, on the other hand, specifies Patient as the fundamental case relation which must always be present in the syntax. He would, therefore, assign a Patient role to the crowd in 17b. The former solution is semantically unsound while the latter is intuitively unsatisfactory.

Entailment relations are not always clear cut as we can see from Figure 4, below:

Figure 4



In numbers 19 and 20, the (a) sentences respectively entail the (b) sentences, and there is also a hint of reciprocal relationship in that both 19b and 20b have a preferred reading in which some external Agent is inferred. In examples 21 and 22 the relationship is more clearly one-way since in 21b and 22b it is unclear whether the oil and the ball are moving of their own accord or not. The (a) sentences in 23 and 24 do not entail the corresponding (b) sentences. Neither is there any potential implication of an external Agent in the (b) sentences here.

2.4. We shall now briefly mention the one occasion that we do recognise Patient as appearing in subject position in a transitive sentence. We have already agreed with Pleines that the volitional/non-volitional distinction is not the most important one to use in identifying Agents. We would, therefore, assign Agent to John and Patient to Bill in sentences 25a and 25b:

25a John hit Bill (on purpose)

b John hit Bill (by accident)

We also follow Starosta in assuming that in sentences such as 26:

26 Tabby bit herself in the tail

the fact that Tabby's tail is part of Tabby does not seem important - Tabby is still the Agent of the biting, as it were.

However, the coincidence of coreferentiality and non-intention found in sentences such as 28 and 28:

27 John broke his leg

28 She pricked her finger on a thorn

call for separate PR assignments to distinguish them from the Agent and Patient assigned to sentences such as 29 where (whether on purpose or accidentally) John still does the breaking:

29 John broke Peter's leg

We would assign a Patient Patient frame to the verbs break and prick as they occur in sentences 27 and 28. Fillmore originally stipulated that a simple sentence could have associated with it no more than one instance of each case-role (1968a). There is, however, precedence for our combination of Patient Patient both in Fillmore's own treatment of the sentence 'The car broke the window with its fender' (where he assigns Instrument to the car and its fender jointly) and also in Starosta's treatment of the Location PR. Starosta assigns Location Location to the phrase 'On the beach at Waikiki' on the grounds of inclusion. Our Patient Patient frame is a similar example which shows a part-whole relationship.

2.5. We shall now look at the idea of Location in general, before outlining our own Location PR in particular. The types of Location we are constantly identifying as central to the description of verbs are characteristically realised either as subjects or objects of a verb or by prepositional phrases which function not as adjuncts but as complements.

Starosta (1978) distinguishes between 'a Locus which specifies the position of the Patient alone' and an outer Locative or Place which sets the scene for the action or state as a whole. According to him, only the constituent realising the outer Place can occur initially in an intransitive sentence. Thus; comparing sentences 30 and 31:

30 On sailboats, John gets seasick

is alright, while:

31 In Yang Ming Sham, Tom resides

is all wrong. However, as we see from the following sentence, Starosta's suggestion that only Outer Place can function initially does not hold up if we allow subject inversion. (This was pointed out to us by A. P. Cowie).

32 Into one small van went all their belongings

is perfectly acceptable. Incidentally, this also holds for stative verbs, as in example 33:

33 In a small hut, in a big wood, lived the three bears

Having amended Starosta's rule then, to discount subject inversion, we can now examine his Locus and Place more closely. To go back to sentences 30 and 31, 'On sailboats' can be paraphrased by 'When he is on sailboats' or 'While he is on sailboats', whereas we cannot say 'When he is in Yang Ming Sham, Tom resides'.

Starosta's distinction ties in neatly with Halliday's contrast between the circumstantial roles of Inner and Outer place illustrated by <u>in the wash</u> in his example sentences 34 and 35 (Halliday 1970):

34 He put all his jewels (in the wash)

35 He lost all his jewels (in the wash)

where the Location is an obligatory complement in 34 but an optional adjunct in 35. Halliday's 'Inner place' and Starosta's 'Locus' help us to select those Locations which will be candidates for inclusion in our description.

With regard to our treatment of Location, it is important to add that we see goal, source and path as subcategories of Participant Roles rather than as PR's in their own right. Source and goal are independent of, and yet interact with, our main PR system, and they more properly and more usefully remain free to be subsrcipted not only to Locations but also to other PR's.

2.6. To illustrate our use of source and goal as subcategories of the Agent role, we may look at verbs from the 'custody' area of the lexicon:

36 Dick sold a car

37 John bought a car

Sentences 36 and 37 have been analysed as [Agent (source) Patient] and [Agent (goal) Patient] respectively - where goal and source refer to the goal and source of the goods. The identity between yhe underlying scenes in buy and sell is captured by the alternation of subscripts on parallel PR's. The subjects of both verbs are volitional Agents so that while the transaction may remain the same, the perspective changes. To call the subjects Source and Goal would not capture their shared Agentivity.

At one stage we considered using Donor and Recipient in place of Source and Goal for certain change custody verbs. (Recipient has been introduced by Quirk among others). However, we feel that the most important feature of the transaction in both buy and sell is transfer of goods. It is this that links them to other verbs like swap (where, incidentally, there is no single Donor or Recipient) and to verbs like steal and acquire which involve a one way transaction only for which the terms Donor and Recipient would also be inappropriate. By using Source and Goal as subcategories of various PR's in the way discussed, we hope to convey the necessary semantic/syntactic information and to retain a balance between wide applicability and fine description.

3. PR frames and minimal sentences

3.1. In the preceding discussion we have repeatedly referred to, or at least hinted at, the relationship between PR's, (singly or in various combinations) and their syntactic functions. So, for example, in discussing causative and non-causative pairs of sentences we associated the role of Agent with the subject of the causative sentence and that of Actor or Patient with the object and subject of the causative/non-causative pair. In cases where entailment is invoked, as here, such a functional view is essential, since entailment cannot be said to hold between various combinations of PR's but only between the sentences with which they are associated.

What we therefore do is to map the combinations of PR's which are appropriate for various verb-senses, onto minimal sentences. This mapping is referred to as a PR frame. For our purposes minimal sentences are neutralised with respect to tense, aspect, mood, voice and polarity. Thus, our PR frames are based upon simple active declarative sentences. As was the case with location adjuncts, we also exclude from our minimal sentences adjuncts of time, manner and so on, as these do not serve to characterise the verbs themselves in any useful way. The notion of a minimal

sentence is important since we include in our PR frames only syntactically obligatory constituents whereas the case frame proposed by Fillmore in 1968 includes all the 'conceptually necessary arguments' which can appear in the syntax. The verb buy, for example, is seen as having four 'conceptually necessary arguments' which correspond to the 'source', 'goal', 'goods', and 'money' respectively. However, only two of these, the 'goal' and 'goods', are syntactically obligatory as is evident from the acceptability of sentence 38:

38 I bought a television

We assign more than one PR frame to verbs which appear in more than one minimal sentence (thus for example, in both causative and non-causative constructions). The verb open for example would have two frames corresponding to sentences 39 and 40:

39 John opened the door (*John opened)

40 The door opened

As already suggested the PR's are presented in the same order as the sentence elements, so that sentence 39 would be represented as Agent Patient. We do not attempt to account for stylistic permutations such as those required by topicalisation.

3.2. Our decision to restrict PR frames to the minimum number of roles required for syntactic completeness arises out of a wish to be systematic in our treatment of verbs, and to keep our frames both semantic and syntactic. It is evident, for example, in the discussion of Instruments which follows that not all of a verb's 'conceptually necessary arguments' commonly occur in its immediate syntactic context. We exclude from our PR frames then those Instruments which may function only as adjuncts and are, therefore, outside our minimal sentence, as brush is in sentence 41:

41 Clive painted the wall with a brush

We also exclude Instruments which are incorporated in the meaning of the verb (as lips are in kiss, or foot or shoe in kick). This type of Instrument rarely appears in the syntax unless qualified, as in the following example:

42 She kissed him passionately with strawberry flavoured lips then kicked him with her steel capped boots

Instruments which are denoted by the verb as in 43 and 44:

43 He headed the ball

44 He hammered the nail

and enabling Instruments such as the thread in 45:

45 She sewed the dress

or the money in 46:

46 He bought a Rolls Royce

are also excluded from our PR frame. The last three kinds of Instrument mentioned; (Incorporated Instruments, Denoted Instruments and Enabling Instruments) would, however, be identified and, if necessary, described in the semantic features assigned to each verb.

3.3. One of the problems associated with our minimal sentence is how to decide when a readily omissible sentence element is really optional (and therefore excluded from our PR frame), or when it is simply elliptical (and thus included in our frame). We are using the term 'ellipsis' rather loosely here, to cover those omissible elements which have a recoverable referent. If we consider sentences 47 and 48, for example, we see that the goal of the goods is missing in 47 whilst the source is missing in 48 (and, indeed, the money):

47 We gave a silver coffee pot

48 I've bought a horse

Whilst we would wish to include the goal of goods in the frame associated with the verb give, we would not wish to include a Participant Role representing source (or money) in the frame for buy.

Fillmore (1971) distinguishes between these two types of optionality on the grounds of definite or indefinite pronominalisation. In sentence 47 it is assumed that the hearer knows the identity of the goal, and a definite pronoun with an understood referent (such as 'to them' or 'to Mrs. Brown' or even 'to charity') would necessarily be recoverable from the context. By contrast in sentence 48, there is no necessary assumption that the hearer knows where the horse has come from (or how much it cost), we merely know that it must have come 'from somewhere' (and it cost 'a sum of money').

3.4. The question of optionality is most troublesome with respect to the Location PR. There are, however, certain classes of Location which we would certainly include in our PR frames and which we will now illustrate.

i. Firstly, we include a Location PR when a verb in one of its meanings cannot occur without a directional preposition. This is the case fo edge in sentence 49:

49 He edged along the cliff top

Incidentally, in the frame here, [Agent Location] contrasts with the frame [Agent Patient] which identifies a different sense of edge, seen in sentence 50:

50 She edged the dress with lace

ii. Location is also included when either Location source or goal or path must be recoverable from the situation but is not necessarily realised in the syntax. We would, therefore, assign Location (source) to the PR frame for sentence 51, Location (path) to the frame for sentence 52 and Location (goal) to the frame for sentence 53:

51 Lesley removed the lamp

52 Penny carried it

53 Rosie replaced it

iii. Thirdly, Location is also included when for reasons of grammatical completeness a verb requires Location source, goal or path to appear in the syntax; thus example 54 is ungrammatical without a Location (goal):

54 *She put the book

iv. By contrast, Location is assigned where one or more of the Location types (source, goal or path) is commonly realised in the syntax as in example 55, although here it would not have a subscript and the verb would merely be assigned a Location PR:

55 Oil dripped from the can/onto the floor/through the ceiling

The verb drip itself would, therefore, not be associated with any particular type of Location in this frame.

v. Drip is also illustrative of a fifth category; Locations sometimes 'front' to the subject position of sentences as in the following sentences:

56 The can dripped water

57 The sump leaked oil

58 The press oozed cider

where the subjects would all be Location (source).

In examples 59 and 60, drip functions with contrastive meaning in structurally different but related sentences:

59 The can drips water

60 Water drips from the can

(This wss pointed out to us by A. P. Cowie). The fact that 59 entails 60 but not vice versa supports the view that drip has a semantic feature /+ ALLOW/ in 59 which it lacks in 60.) We would not incidentally, recommend treating this kind of difference as a form of polysemy. While it is not as common an alternation as the causative alternation, it is nevertheless of the same kind.

vi. Our description also covers verbs which take Locative subjects, as in example 61:

61 The garden swarmed with bees

where, by contrast with drip, we are not dealing with fronting but with a separate sense of swarm that only allows a Locative in subject position. Similar verbs are bristle with and crawl with in examples 62 and 63:

62 The restaurant bristled with waiters

63 The town crawled with soldiers

vii. Finally, some verbs can carry a Locative object as in 64 and 65:

64 He sprayed the wall with paint

65 He sowed the field with corn

For a fuller discussion of the last two categories we'd like to refer you to our paper called 'Red Herrings Swarm in the Sunset'.

The PR frames in our description show most of the simple syntactic environments of the verbs in question. While they do not constitute a complete syntactic description of the verbs, they do contribute a great deal to our analysis of semantic fields.

4. Lexical analysis

We should now like to turn to the various ways in which we use PR's in the course of our analysis. These are:

a. to diagnose polysemy

b. to ascertain the membership of lexical fields

c. to formulate semantic features

d. to reflect similarities across major domains of the lexicon.

4.1. In the diagnosis of polysemy different senses of the same verb are frequently revealed by their different PR frames. The verb assemble provides us with a clear example

of two senses having different frames:

66 The headmaster assembled the pupils

67 Jane assembled the bookcase

Here we would assign Actor to the pupils and Product to the bookcase. (Although we haven't discussed Product in this paper, we know it will be needed for such verb-senses as construct, manufacture, fashion and so on).

4.2. The second way in which our PR frames may be useful is in determining the membership of lexical fields. In the general area of cutting verbs, for example, we can group verbs together according to whether they appear in the frames [Agent Location (source)] and [Instrument Location (source)] or whether they occur in the frames [Agent Patient] and [Instrument Patient]. Thus cut (off)$_c$, clip$_{1a}$, prune, trim$_a$, pare$_a$ and shave$_a$ group together partly on the grounds that they have Location (source) objects:

68 She cut/clipped/pared her nails

69 She cut/clipped/trimmed his hair

70 He cut/clipped/trimmed the hedge

While the trimmings, parings and so on do not appear in the syntax or frame, they would be described as Patient in the features.

The group lop (off), snip$_a$ (off) and amputate on the other hand, have Patient objects:

71 The surgeon amputated the limb

72 The tree surgeon lopped off a branch

Here, the body and tree would be the Location (source) but again would not appear in our frame.

4.3. Thirdly, the task of specifying semantic features is often made easier by including a reference to individual PR's. This has the further advantage of highlighting similarities and contrasts both within and across fields. For example, in our 'contact' macrofield we find two separate lexical fields which share the features /+ contact/+ physical/+ Agent animate/+ Instrument comes into sudden contact with Patient/+ Instrument: implement/. The first lexical field (containing club$_a$, cudgel, beat$_a$, baste$_2$ and bludgeon$_a$) is then distinguished by a shared semantic feature (/Instrument typically a rigid stick/) from the second field, where lash$_c$, whip$_a$, horsewhip, flog$_b$, belt$_a$, swat$_a$, strap$_a$, cane$_a$, flagellate$_a$ and birch are assigned a first common feature /Instrument typically flexible/. In order to illustrate how PR's help to draw out similarities and contrasts within a lexical field, we can look at the area of change state

verbs where, in the group containing crush$_c$, pound$_b$, pulverise$_a$, press$_e$ and mash$_a$, pulverise$_a$ has the feature /Patient reduced to powder/ while press$_e$ has /Patient reduced to liquid/ and press$_e$ and mash$_a$ are partly distinguished from each other on the grounds that while both typically refer to /Patient: food/, press$_e$ is more particularly /Patient: typically fruit/. Referring systematically to Participants also enables us to avoid over-long descriptions in the semantic specifications themselves.

4.4. Finally, PR's reflect similarities which occur across major domains of our vocabulary. As one would expect the major divisions of the lexicon such as 'custody' verbs, 'making' verbs and 'change state' verbs tend to be identified with characteristic PR frames. In the custody fields, Agent (source) and Agent (goal) are prevalent whilst Product is commonly assigned to the object of 'making' verbs, as in:

73 She constructed the motor bike

74 He made a cake

then again, in the 'cleaning' area of 'change state', the systematic alternation between Agent Location in 'She scrubbed the floor' and Agent Patient Location in 'She scrubbed the dirt off the floor' is common.

5. Conclusion

In this paper we have attempted to give a detailed description of some of our individual PR's and to outline our Participant Role scheme. We have tried to show, by drawing on examples from the work of the Lexical Research Unit, that lexical analysis of verbs cannot satisfactorily take place without a detailed consideration of their Participant Role relationships.

FOOTNOTES

1. This paper reports one aspect of the work of the O.U.P. Lexical Research Unit first discussed in a paper by Channell, Cowie and Jeffries presented at the LAGB Autumn meeting 1981. We would like to thank J. Channell and D. Cruse for their comments on an earlier draft of this paper. The faults remain our own.

2. For a full discussion of Polysemy, see Cowie, A.P., (this volume).

3. The validity of distinguishing between Actor and Patient has also been questioned (D.A. Cruse private correspondance), since the two PR's cannot occur together in the same sentence (unlike Agents and Instruments). Some of the justification for this distinction rests upon the nature of our work, which

is to describe the semantic/syntactic nature of lexical items using generalised rather than specific contexts. Without the separate Actor and Patient PR's, it would be difficult to show the different nature of the participants in verbs such as:

soak (Agent Patient
(Patient

and:

march (Agent Actor
(Actor

and these two groups would remain undistinguished from a third group including:

rush (Agent Patient
(Actor

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THE ENGLISH HISTORICAL THESAURUS

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After I had been using Roget's Thesaurus for some fourteen years as a research tool, it occurred to me that I was entirely out of touch with normal attitudes to such a volume. As a result of my dependence upon Roget for classifying words for the Glasgow University Historical Thesaurus of English I had come to take it for granted as a sifting tool, and I began to wonder just who uses a thesaurus and why. In a year which has seen yet another new Roget, it is particularly appropriate to consider this question. Although it is difficult as yet to envisage the audience for an historical thesaurus of English, it may be a good idea to look at some of the current reasons for using the well-established Roget format.

In order to find out something about attitudes to and assumptions about using a thesaurus I prepared a brief questionnaire and asked a random selection of King's College London students to respond to it. Two hundred and fifty questionnaires were printed and sent around a representative range of students. The college is a multifaculty one, and replies were received from students in arts, education, science and theology. The questionnaire was handed over to students, to be filled in when they might have a few free minutes, so I did not expect to get many forms back. However, fifty completed questionnaires came back from actual theaurus users, roughly half men and half women, and equipped me with a few generalisations on the uses to which a theaurus is put. The questionnaire, a single sheet of A4 paper, contained eighteen items directly concerned with thesaurus usage, five questions on dictionaries used by the subjects, and a final space on which 'any further comments you wish to make on the usefulness of a thesaurus' were solicited. A few initial items asked for details of the subjects' personal history, year of study, etc. Very obviously Randolph Quirk's 'The Image of the Dictionary' (1974) guided me in drawing up the questionnaire. In all, about seventy questionnaires were returned to me, twenty or so of them filled up by conscientious non-thesaurus users. These twenty apparently, from comments made to me, reflected a small proportion of the non-users who had received the questionnaire. In what follows, the replies of the non-users were discarded, but it would be a pity to lose altogether the response from a postgraduate chemist in the Faculty of Education: 'I have never used a thesaurus before.

I have just found out what it is. I think it will be useful for people writing up essays and thesis. I shall try to use it more often now that I am aware of its existence'.

Most of us who are interested in lexicography must at some time have had reason to look for a thesaurus. Some may even use one frequently, and the thesaurus used is probably Roget's, as like as not Dutch's revision (1962). Certainly the most usual choice of the fifty students who returned completed questionnaires was 'Roget', and the name was known also to quite a few of the non-thesaurus users who returned forms. My major discovery was, therefore, hardly very surprising; that for English speakers today the words 'Roget' and 'thesaurus' are roughly synonymous. In only three of the returned forms was 'thesaurus' used in some such wider sense as 'an organized word list'. Of the fifty actual thesaurus-users, forty-one owned their own copy of Roget's Thesaurus. It appeared that thesaurus users were often quite pround of using a thesaurus, an attitude best illustrated by a colleague's response. Could he please fill up a questionnaire too? It might, therefore, be assumed that the fifty returns represent a fairly high proportion of the thesaurus users among the two hundred and fifty undergraduate and graduate students to whom forms were given. The thesaurus users were all committed dictionary users, 64% consulting dictionaries 2/3 times a week, 30% 2/3 times a month and 6% a couple of times a year. The greatest concentration of use made of a thesaurus was in the couple of times a year bracket (40%), though here there was a curious imbalance between male and female recourse to the thesaurus. In this very small sample women tended to use their thesaurus significantly more often than men, with the greatest concentration of usage by women in the 2/3 times a month bracket but for men in the couple of times a year bracket. The approach to the thesaurus was much as I had guessed it might be, generally through the index. Three subjects perhaps had glimmerings that there might be some other method of setting about finding the words they were looking for: one knew of the overall lay-out of Roget, another occasionally consulted the summary at the front of the volume, though less often than the index, and a third somewhat inscrutably offered word-association as his approach. This last response I take to be a more sophisticated account of starting from the index. It was interesting to find that just over half the sample found themselves generally satisfied with their thesaurus, whether for essay writing, composing poems and stories, or filling in crosswords. Such were the most commonly advanced reasons for consulting a thesaurus, and over half the subjects usually found the word needed or forgotten. Roget's Thesaurus is apparently consulted principally as a collection of 'alternatives' rather than as an organised presentation of English vocabulary. Few had any idea if Americanisms or slangwords were included. Nine subjects

felt that 'rude' or 'swear' or 'naughty' words should be omitted and nine again that technical words should be omitted. One stern wish was expressed that American words should be left out altogether, another that foreign words should be left out, and a third Latinisms. Four thoughtful enthusiasts would like a more comprehensive thesaurus than Roget provides.

With their request we come closer to the title given this paper. Since 1966 I have been contributing materials to the thesaurus archive in the English Language department of Glasgow University (see Samuels 1972: 79, 180, Kay & Samuels 1975 and Collier & Kay 1981). My own part in this thesaurus project is the compilation of Old English material (see Roberts 1978). My initial task, contributing slips for the Anglo-Saxon period, was completed in 1981. Before breaking up the alphabetically ordered London files, which constituted a record of slips contributed to the Glasgow archive, a computer record was made of the Old English material with the help of Mrs. C. Brown of the King's College Computer Unit, giving an alphabetical checklist and a broad notional classification on microfiche of the preliminary listing of Anglo-Saxon vocabulary. Copies of these fiches are used by members of the research team based in Glasgow and by both colleagues and postgraduate students in London.

The Glasgow University Historical Thesaurus was inaugurated as long ago as 1965 when Professor Michael Samuels, in an address to the Philological Society, announced that his department intended to undertake a new and historical classification of the English vocabulary, using the evidence provided by the Oxford English Dictionary (OED). With the OED we are ideally equipped for dealing with the history of English vocabulary, so far as individual words are concerned, and it should yield the material for exploring the lexical system - or systems as it may very well turn out to be - of our language. When Michael Samuels (1965:40) gave the first account of what he hopes for from the historical thesaurus, he pointed out:

> Such a work would tell us how many and which words were available, to each writer in the past periods, for the expression of a given notion (or, if you prefer, which words were either wholly or partly commutable in a given context): and it would provide the basic material necessary for detecting and solving all the problems of 'semantic fields' in English, notably the connections, in each field, between semantic shift, verbal obsolescence and innovation.

In effect, the OED is being turned inside out, and the materials excerpted from it are noted on white slips and given a broad Roget classification, so that they can be filed initially according to Roget numbers.

At the outset it was felt that the OED should be supplemented, at least experimentally, by a sweep of the standard Anglo-Saxon dictionaries, but that the Old English slips made in this sweep must, because they lack the authority of the OED, be easily separable from the OED derived slips. This decision was made for the simple reason that the OED provides an incomplete record of vocabulary extant in the Anglo-Saxon period, the editors' intention being to include only those Old English words that lasted well into the Middle English period. Their choice of 1150 as the 'only natural halting-place, short of going back to the entire Old English vocabulary' is well known to all interested in the earliest history of the English language. Although at first we meant to amass new Old English materials only for the archive and our own interest, it became evident that the juxtaposition of obsolescent early English vocabulary with 'the English words now in use, or known to have been in use since the middle of the twelfth century' (OED, I.xxviii) might have a particular fascination. It would indeed be interesting to see the results of a correlation of the non-OED derived yellow slips with corresponding white slips in the archive, and that task awaits some industrious colleague in Glasgow.

When I first began to draw together the supplementary materials for the Old English period, I decided to make for my own use slips duplicating those contributed to the archive, filing them alphabetically. Over the years I have found these files more and more useful to me in day to day work, for they constitute a skeletal index to materials scattered sometimes in as many as twelve places in Bosworth and Toller (see Cameron & Healey 1979:87) as well as a record of what yellow slips are in this notionally arranged archive in Glasgow. However, this manufacturing of supplementary Old English slips was taken up not just for my personal amusement and benefit but in an attempt to estimate how far the OED needs supplementation from Old English for words continuously in use since the middle of the twelfth century. We decided that an independent preliminary Anglo-Saxon thesaurus should be attempted from the newly compiled Old English materials, both to assess the particular problems presented by these supplementary slips and to get some idea of the many problems the major compilation, the Historical Thesaurus itself,will meet. With the preliminary slipping of Old English now complete Christian Kay and I are at last engaged in sorting out and editing the Old English slips. The mammoth task of sifting through this broadly compiled material is much lightened now that we have the Toronto Old English Dictionary microfiches to consult in cases of particular difficulty. And we hope that colleagues will see the pilot study as needing to be revised and brought up to date once the Toronto Dictionary is complete.

A few years ago I was rash enough to suggest, in a lecture to the Cambridge Anglo-Saxon Society, that people might find the broad Roget classification, with all its mistakes, a useful starting-place for exploring Old English semantic

fields in some depth, rather than the proposed pilot study. Since then I have found myself under gentle pressure to regard the completed microfiche checklists as the first stage of the pilot scheme. However, the Roget classification is variable in its usefulness, and, as we have seen, few of even its devoted users know where to look for particular words without consulting the index. For example, the parts of the body are scattered widespread (Roberts 1978:60-61). The raw material is at its most useful when words can be abstracted fairly easily from the initial broad classification. Words for the concept 'fear' are, for example, tidily listed according to Roget, yielding a main list under his heading 854 Fear (208 items) and a subsidiary list under 856 Cowardice (34 items). Rather than present two plain alphabetically organized lists, the words are now roughly arranged in groups. These rough groupings have been arrived at by sorting through the items to discover which come together most closely:

anda ege egesa egnes forhtnes forhtung fyrhtnes forhto/(ge)fyrhto ondesn(es) ondrysnu oncracung oga oht gewand woruldege

acol acolmod egeful gefæred (ge)forht forhtful forhtiende forhtiendlic forhtlic forhtmod fyrht sceohmod ungehyrt ymbhygdig

'to fear/be afraid' trs/intrs forhtian (ge)fyrht(i)an murnan

'to regard with fear' onscunian

'to be/become afraid' aforhtian onforhtian scunian (ge)sweorcian

'to be affected/overcome by fear' ablycgan (ge)licgan

DEGREES OF FEAR: great fear

broga cwealmcrea folcegsa grisla gryre gryrebroga heortgryre leodgryre witebroga meduscerwen ondræding ongrisla ðeodegesa witebroga woma

'fear in the morning' morgencolla

'fear at night' nihtegesa

'fear of fire' bælegsa brynebroga gledegesa ligegesa

'fear of battle' herebroga hildegsa sperebroga wiggryre

'fear of water' flodegsa sæbroga wæterbroga wæteregesa

'fear of death' hinsiðgryre wælgryre

'fear of wilderness' westengryre

'fear of hell' hellewitebroga

'state of fearing water' wæterfyrhtnes

agælwed egesfullic forfyrht forhtferð ofdræddondrædendlic unforht

'to be greatly afraid, abhor' adræ dan agrisan a$racian beforhtian besorgian dræ dan ondræ dan onegan (ge)on$racian on$recan onsittan $racian

EXPRESSING FEAR

(ge)forht egeful

forhtlice

bifian broccian brogdettan cwacian ofscacan

'to melt with fear' toslupan

CAUSE OF FEAR

atol bregnes egesa egesfulnes egesung fæ rgryre gryre oga

'horrible event/thing/creature' blodegesa egewylm fæ r fæ rspell fæ rwundor gryregæ st gryregeatwe gryreleo$ gryremiht gryresi$

'nightmare/spectre' ælf æ lfadl æ lfsiden agesgrima unswefn wi$erbroga CR 'demon'

'causing fear' ege(s)ful egeslic forht forhtiendlic forhtlic

'causing great fear' atol atollic $reclic bifigende bifigendlic bregendlic earhwinnende egelic/ahwlic egesfullic egesig frecne gæ stlic grislic gryrefæ st gryrefah gryrelic ondegslic ondræ dendlic ondrysne ondrysnlic/ondryslic/ondrystlic ongrislic ongryrelic on$ræ c(e) on$ræ clic recen $reclic unhiere

atollice ege(s)fullice egeslice grislice

'to cause fear' afyrhtan a$racian gedrefan (ge)egesian gefyrht(i)an

'to terrify' abregan geaclian geacolmodian afæ ran (ge)bregan gebryddan fæ ran gæ stan geiergan

'to tower above in threatening manner' oferhlifian

DEGREES OF FEAR: TIMORESSNESS

unbieldo unforhtleasnes uncamprof

blea$ forhtig sceoh unbeald ungedyrstig un$riste wace

ablacian wacian

COWARDICE/PUSILLANIMITY

eargscipe ierg$(u) mindom modleast nahtnes nahtscipe swearcmodnes wacmodnes

earg earglic earmheort ellenleas hygeleas lytelhygdig lytelmod ungeheort unmodig wac wacmod

'cowardly in battle' hereblea$

'a coward' grig/gregg hereflyma hildlata

earglice nahtlice ni$lice

eargian

NERVOUSNESS/DISTRESS

cwacung modseocnes ymbhygdignes (ge)wand heortleas onswornod

asittan ateorian awandian forwandian scyn wafian wandian

Consideration of this preliminary sorting should give some idea of the editorial problems ahead. Decisions will have to be made about what further information is to be included. Will noncewords be marked out? Should poetic words be given an especial sign? So far as they can be agreed to be 'poetic', they seem often to set themselves apart even within these initial groupings, suggesting that many poetic compounds amount to little more than the joining together of two elements which are both appropriate in their particular context. The anomalous appearance of the 'metaphoric' compound meduscerwen among the words that group themselves naturally as expressing 'great fear' prompts two questions. First, why is ealuscerwen absent? Secondly, why does meduscerwen look so very different from the other words in its group? To the first of these questions there is a simple answer: a more generalized view of the value of this comparable crux had been assumed when making an archive slip for it, and it was to be found under Roget No. 731 (Adversity), a group as yet unexplored. On thinking over the possible interpretations both these words have been given, it seems best to pay more attention to their immediate contexts and argue not for metaphoric fusion but for the ironic use of each contextually. Therefore, it could be that both will eventually appear not in the 'fear' domain but as anomalous poetic words in some way connected with 'adversity' or 'suffering'.

The answer to such problems cannot be certain until the pilot study is complete and all forms are accounted for, somewhere within the analysis of vocabulary. During the process of arranging the materials there must inevitably be a shunting about both of groups of words and individual words, until the materials themselves suggest that

satisfactory arrangements have been arrived at. The preliminary sorting of words expressing FEAR should allow some idea of the nature of the editorial task that lies ahead. Even the cross-referring entry (wi$erbroga × CR 'demon') has its usefulness in reminding us that any domain under examination is not self-contained, but that closely related words may be located elsewhere in the thesaurus. But as a foretaste of how edited material may eventually appear, I shall end with a provisional account of the English words for 'shield' put together from the Glasgow archive (Kay 1979:10, and revised in 1981 by Mrs. Wotherspoon):

Old English only --: bohscyld, bord, bordhreo$a, bordrand, bordweall, bordwudu, campwudu, geolorand, gu$billa gripe, gu$bord, hea$ulind, hildebord, hilderand, lind, plegscyld, rand, randbeag, scildhreo$a, sidrand, tudenard, rybord, wigbord; OED --: shield/scield OE --, targe/targa OE + 1297 --, talevace c 1300 - c1400, pavis(e) 1390 -- now Hist., target c1400 - 1791 + 1869 Hist., scutcheon 1600, "ancile 1600 - 1674 + 1855, "pelta 1600 - 1849 Antiq., pelt 1617 - 1658, "aegis 1704 --, disk 1791, hielaman/heelaman/yeelaman 1839 -- Austral., shield-board 1872 Antiq., pavis-shield 1894 Antiq.

This article presents in a modified form the materials discussed at an informal session of the British Council English Literature Seminar in Amsterdam on the 28th of March, 1980.

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WORD ASSOCIATIONS IN A FOREIGN LANGUAGE: A report on the Birkbeck Vocabulary Project

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Research into lexicography is a relatively well-developed field of applied linguistics, as some of the papers in this volume of NLC will testify. Almost all this work deals with linguistic aspects of lexicography, however, and very little of it is concerned with a related, equally interesting, but much more elusive question: what does a learner's mental lexicon look like, and how is it different from the mental lexicon of a monolingual native speaker? As part of a preliminary skirmish into this area, my students and I at Birkbeck College have been using word association tests. So far we have produced a small number of interesting, but unsurprising findings, and a large number of methodological puzzles and problems. The main findings have already been published elsewhere, and so in this paper I shall discuss them very briefly before dealing at greater length with the problems and their implications for further research.

The basic word association game is extremely simple. It requires two players: one whose task is to call out or show single words, and a second whose task is to respond to these words with the first word that comes into his or her head. Despite its popular image as a sure-fire way of probing people's innermost secrets, the most striking thing about associations is that they are actually extremely boring and predictable. Given a word like MAN, 60 or 70 per cent of normal adult native speakers of English will reply with _woman_. BLACK produces _white_ and HARD produces _soft_ about the same proportion of times. Even relatively unpredictable stimulus words like MEMORY or MUSIC still produce a very limited range of responses. With a hundred people, you would be likely to get about 25 to 30 different responses, but most of these will occur more than twice, and only a relatively small number will be unique responses. Using bigger groups of subjects does not make very much difference to this pattern; responses tend to stabilize with groups of fifty or more, and using a group very much larger than this makes little difference to the range or pattern of responses.

It is customary to claim that word association responses generally fall into two main classes called _syntagamtic_ associations and _paradigmatic_ associations. These terms have much the same meaning as they do in Saussure. Syntagmatic associations are responses which form an obvious sequential link with the stimulus word. Given DOG, for example, _bark_, _spotted_, _naughty_, or _bite_ would generally be classified as syntagmatic responses. Responses which are from the same grammatical form class as the stimulus word are classed as paradigmatic. Thus, given DOG, _cat_,

wolf or animal would all be classified as paradigmatic responses. Personally, I have always found that this distinction is very difficult to work in practice, especially when you cannot refer back to the testee for elucidation, but this difficulty is not generally commented on in the literature. The distinction is important because it is generally held that most normal native speaking adults have a tendency to produce paradigmatic responses in preference to syntagmatic ones. Children, on the other hand, tend to prefer syntagmatic responses, at least until they reach the age of seven or so. Children also tend to produce large numbers of 'clang associates' - i.e. responses which are clearly related to certain phonological features of the stimulus word, but bear no obvious semantic relationship to it. Rhyming responses, assonance, responses with the same initial sounds as the stimulus, or a similar prominent consonant cluster are common types of clang associate.

The word associations produced by non-native speakers differ fairly systematically from those produced by native speakers. Surprisingly, learners' responses tend to be more varied and less homogeneous than the responses of a comparable group of native speakers. This is an odd finding because learners must have a smaller, more limited vocabulary than native speakers, and this might lead one to expect a more limited range of possible responses. Learner responses are not generally restricted to a subset of the more common responses made by native speakers, however. On the contrary, learners consistently produce responses which never appear among those made by native speakers, and in extreme cases, it is possible to find instances of stimulus words for which the list of native speaker and learner responses share practically no words in common. The reasons for this are not wholly clear, but one contributory factor is the fact that learners have a tendency to produce clang associations like young children. A second contributory factor is that learners very frequently misunderstand a stimulus word, mistaking it for a word that has a vague phonological resemblance to the stimulus. This clearly leads to maverick responses, but these cannot be dismissed out of hand. The frequency of the phenomenon suggests that actually identifying foreign language words reliably is a major problem for many learners, and this seems to be the case even when the words are simple, and when the learners themselves claim to know them.

Some examples of learner responses of this type are shown in table one, along with a set of plausible interpretations.

Table One

Associations to French Stimulus words which seem to be based on misinterpretations of some sort.

STIMULUS	RESPONSE	SOURCE OF CONFUSION
béton	animal	bête
béton	stupide	bête
béton	conducteur	bâton
béton	orchestre	bâton
béton	téléphoner	jeton
béton	Normandie	breton
fendre	permettre	défendre
naguère	eau	nager
caque	poulet	cackle(?)
caque	rigoler	cackle
caque	gateaux	cake
semelle	dessert	semolina(?)
semelle	odeur	smell
traire	essayer	try
cruche	important	crucial
émail	lettre	mail
émail	chevalier	mail
dru	dessiner	drew
toupie	argent	2p(?)
toupie	cheveux	toupé
risible	lavable	rinsable(?)
risible	incre	rinsable(?)
jeter	hurler	hurl
mou	vache	!!!
etc...		

This sort of data, taken together with the fact that learner responses tend to be relatively unhomogeneous anyway, suggests that the semantic links between words in the learner's mental lexicon are fairly tenuous ones, easily overridden by phonological similarities, in a way that is very uncharacteristic of native speakers.

So much, then, for the basic findings. What about further research based on these foundations? The word association test is so simple to use, and produces such a wealth of data with a minimum of effort, that one would expect to find a large amount of research using this paradigm. Surprisingly, this is not the case. A number of studies do exist, (see Meara 1981 for a survey of this work), but they all seem to cover much the same ground, producing little in the way of new findings, and rarely even trying to break new ground. There are no theoretical models which account satisfactorily for word association behaviour in a second language, and consequently almost all the work published so far (including my own study (Meara 1978), alas) has been content merely to describe the sorts of responses that learners produce, together with a minimal statistical analysis.

It seems to me now that one of the prime reasons for this lack of development is that far too little consideration has been given to what words should be used as stimuli. Some of the published work makes use of idiosyncratic lists from which it is difficult to make generalizations. An extreme case of this is Ruke-Dravina (1971) who used only four stimulus words in her study of Finnish-Swedish bilinguals. Generally, where idiosyncratic lists of stimuli are used there is no discussion of why these words were chosen, or why they might be considered especially worthy of note. This is unfortunate because it means that discrepant results can always be 'explained away' in terms of the stimuli used, and there is no incentive to incorporate these discrepancies into a coherent overall framework. The alternative to idiosyncratic lists is to use one of the many standard lists of stimuli - generally the Kent-Rosanoff list. This list of words was first used by Kent and Rosanoff in 1910 as the basis for a study of the word associations made by mentally ill subjects. Since then, it has been widely used in word association research, both in English and - in translation - in a range of other major languages. The list consists of 100 relatively frequent words, all of which produce fairly stable response patterns in normal native-speaker adults. The extensive use of this list means that a very large number of sets of association 'norms' are available: i.e. collections of responses based on large groups of similar subjects, (cf. for example, Postman & Keppel (1970)). In theory, this ought to make it possible to do useful and illuminating comparisons between the responses of learners and native speakers, and, indeed, a number of studies have attempted to do this.

Unfortunately, the Kent-Rosanoff list is not a particularly useful one for research on second language learners. The most important reason for this is that the high frequency words used tend to produce very similar responses in both the TL and the NL. Adjectives, for instance, tend to produce their polar opposites, so one finds BLACK white; NOIR blanc; MOU dur; SOFT hard. This makes it difficult to decide whether a native-speaker-like response is a genuinely direct response, or whether it is produced via translation into the mother tongue and back again. The same argument applies in the case of nouns which are marked for sex: these tend to produce the opposite sex form as a response; so, KING queen; ROI reine; and BOY girl; GARÇON fille. As far as English and French are concerned, about 60% of the items in the Kent-Rosanoff list are of this sort. I do not know the figures for any other pair of languages, but it seems probable that most European languages at least are likely to fall in the same general range. This means that the list as a whole is not a very sensitive tool when it is used with non-native speakers: fewer than half the words are really effective items.

A second problem with the Kent-Rosanoff list is again one that derives from its one apparent advantage: the use of frequent words. Almost all the words in the list lie in the highest frequency band - in the French version, for instance, only four words do not appear in either the first or second steps of the Français Fondamental. This means that all the words tested are among the first words that a learner acquires in his second language - often at a stage where learning new words is an unfamiliar and strange experience. This has two drawbacks. Firstly, we know very little about how second language vocabulary is acquired, but it seems a reasonable supposition that the early stages of learning a language might produce acquisition patterns that differ quite radically from what goes on when more advanced, fairly fluent speakers learn words. It is possible that the resulting word association behaviour with basic L2 words might be quite different from what happens with more 'advanced' vocabulary, and it might be quite wrong to generalize on the basis of what happens with a hundred highly frequent words learned in peculiar circumstances. Secondly, the use of the Kent-Rosanoff list has had the effect of concentrating attention on a small number of words which form the hard core of the learners' L2 vocabulary, and this has distracted attention away from what is potentially a much more interesting problem: what is happening at the periphery of a learner's vocabulary - how new words are acquired and integrated into the existing word stock.

The third problem with the Kent-Rosanoff list is that the apparent bonus of being able to compare learners' responses with the published norms for native speakers turns out on closer inspection to be of doubtful value. In Meara (1978) I suggested that it was reasonable to expect learners to aim towards producing native-like responses on a word

association test, for the simple reason that one wants learners to behave like native speakers in all types of language behaviour. Several people have pointed out to me, however, that this argument is not a good one. Teaching a language aims to produce people who are bilingual, not mere replicas of monolingual speakers. It would, therefore, be more appropriate to compare the associations of learners with those of successful bilingual speakers, and not with native speakers. Unfortunately, of course, the necessary background work needed to make such comparisons has not yet been carried out.

These three reasons, and particularly the first two, seem to me to be strong arguments for abandoning the use of the Kent-Rosanoff list with non-native speakers. It would be nice to be able to suggest a concrete alternative at this stage, but this is obviously very difficult to do. What would count as an appropriate set of stimuli depends very much on what questions you are trying to answer. Perhaps the general point to be made is that experimenters do need to think about their choice of words more carefully. Tried and trusted tools which work for L1 situations are rarely wholly appropriate for L2 situations, and word association research is clearly one of these cases.

The problem of what words to use as stimuli in word association research with non-native speakers is one that requires thought, but not a topic that raises any really important questions. Now that we have got it out of the way, we can pass on to three topics which seem to me to be of rather more interest, both theoretical and practical. These are the stability of learners' associations, what happens to new words as they are acquired, and on a slightly different tack, what we can deduce from obvious errors in word association tests about the way words are stored and handled by learners.

The stability of learners' responses in word association tasks is an important methodological question that has not been generally considered in the literature. We know that native speakers' associations are relatively stable: subjects tend to give the same responses to stimulus words if they are tested twice, and individual stability is even more marked if we consider the responses of whole groups of subjects. This means that one can be reasonably confident that a single test is a reliable tool to use with native speakers, and that it is unlikely that a second test would produce wildly different response patterns. It is much less clear that this assumption can safely be made about learners, however. Learners' vocabularies are by definition in a state of flux, and not fixed; learners often tend to give idiosyncratic responses; the indications are that semantic links between words in the learner's mental

lexicon are somewhat tenuous - all these considerations would lead one to suspect that learners' responses could be considerably less stable than the response patterns of native speakers. If this turned out to be so, it would severly reduce the value of one-off studies of learners, and it would be impossible to ascribe to studies of learners the same sort of status we usually ascribe to one-off studies of native speakers. It would also mean that considerable caution would be needed in the interpretation of studies such as that of Randall (1981). Randall attempted to relate changes in association responses to measurable changes in the proficiency of a group of EFL learners. However, if learners' responses are generally unstable, then there is no way of deciding whether observed changes are really permanent ones, and thus represent real progress, or whether they are just part of the random flux of the whole system.

We have carried out two studies on stability so far, with a third study planned. These studies show rather mixed results. Morrison (1981) looked at Finnish-English bilingual children and found that they were equally stable, or rather equally unstable, in both languages. This is not very surprising, however, since children tend to be fairly unstable anyway. Hughes (1981), in a bigger and better controlled study of several groups of ESL learners found that responses on the whole were very unstable, but the general level of stability differed considerably from group to group and from word to word. There were, however, no obvious reasons for these discrepancies, and all we can say at the moment is that it seems safest to assume that learners' responses are not at all stable. This is obviously an unsatisfactory state of affairs, as it effectively inhibits any other research in this area. It is equally obvious, however, that learners' responses are not totally unstable, and our immediate aim is to work out what conditions lead to reasonably stable patterns and what are the causes of the instability.

The second question that has interested us is what happens to new words which are acquired by learners, and how do they become integrated into the learners' mental lexicon? It is often implicitly assumed that learning vocabulary is an immediate all-or-nothing affair - when words are studied, they are either acquired or not. This is a position which seems inherently implausible to me. Most learners have the experience of knowing that they know a word, but being quite unable to say what it means, even though looking the word up in the dictionary produces an instant 'of course!' reaction. This experience, and others like it, suggest that learning vocabulary is not just a question of pairing L2 stimuli and L1 meanings often enough for them to be 'learned'. Some sort of complex absorption processes are likely to be involved, which allow words which have just been met to gradually find their proper place in the learner's L2 lexicon.

Perhaps it would be possible to tap this process by recording the associations made to new words and observing how these associations change over a period of time?

So far we have carried out one experiment on these lines (see Beck 1981 for details). A group of English speaking students learning French at 'A' level were given a list of forty French words that they were unlikely to know, and asked to produce chains of responses to each one. Not surprisingly this produced few responses overall, a large number of clang-type responses and only a handful of native-speaker-like responses. Subsequently twenty of the words were introduced into the students' class-work in a non-obtrusive fashion, and two further tests were given over a twelve week period. The results of the first re-test showed that there was no real change in the responses to the words that had not been used in class teaching. They still produced a low level of total responses, lots of clang associations and few native-speaker-like responses. In contrast, the taught words changed markedly, producing a greater number of total responses, fewer clang associates, and a greater proportion of native-like responses. The second re-test again showed no change in the untaught words. The taught words showed a slight decline in the total number of responses they evoked, but an increase in the proportion of native-like responses.

This data clearly confirms the view that learning vocabulary is not an instantaneous process. Changes were still taking place twelve weeks after the initial presentation of the taught words. Indeed, given that the total number of responses was far short of what one would expect of a fluent speaker, and given that the number of native-like responses was less than 20% of the total, it seems plausible to suggest that the integration of these words was far from complete, and that these changes are likely to continue for quite long periods of time. The questions to be asked at this stage, then, are: how long does this stabilizing period last? is it the same for all words and for all learners? what environmental factors reduce or extend it? It should be possible to get answers, at least, of a preliminary sort, to all these questions by means of word association tests, and further work along these lines is projected.

The third question which is currently interesting us concerns the large proportion of responses made by learners which are clearly ascribable to errors - either errors in the identification of the stimulus word or error in the choice of a response. These errors bear some resemblance to the sorts of errors native speakers of English make when they produce malapropisms. The errors listed in table one, for example, show that certain features of the target tend to be preserved - initial consonants and salient consonant clusters seem to be fairly robust, while vowels and medial syllables seem to be particularly vulnerable, and these are the same features that crop up consistently in work on errors in English as an L1. This suggests that the mechanisms which underlie vocabulary errors in an L2 might be closely

to the sources of errors of vocabulary in an L1. Given that such errors typically occur with infrequent words, and that L2 words are by definition relatively infrequent items in the learner's total word stock, this is perhaps not very surprising. Nevertheless, it does suggest that the traditional emphasis on L2 as a self-contained, independent system may be an unhelpful one, at least as far as vocabulary is concerned, and that a lot might be gained if we began to consider the learner's total vocabulary, in all the languages he knows, as an integrated whole, and not just as a set of small discrete components.

Conclusion

This paper has discussed some of the findings and some of the interesting problems that have arisen out of our work on word-associations - itself part of a wider project on Vocabulary Acquisition in a Second Language. Vocabulary Acquisition is generally considered to be a topic of little inherent interest and of slight theoretical importance, and even on the practical level it is very often ignored or treated in a cavalier fashion. I hope that this paper will help to convince sceptics that these attitudes are unjustified, and that vocabulary acquisition is not just an interesting area to work on, but potentially quite an exciting one too. Any reformed sceptics who would like to collaborate on work of this sort are warmly invited to contact me at Birkbeck College.

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A NOTE ON CORE VOCABULARY

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1. Introduction

This short paper comprises no more than a few observations on the notion of core vocabulary. It is very much an intuitive notion even if its general validity has been commented on quite widely. But little work has been undertaken to provide any systematic or principled criteria for the definition of core and non-core lexical items. This note suggests some bases from which more detailed definition and examination might proceed.

2. Why is there core vocabulary?

There are several general reasons why some vocabulary items should be more 'core' or basic than others to the expression of meaning. One is that, as with all levels of language, there needs to be a complementary distinction between marked and unmarked features. Without this the resource of expressive meaning becomes restricted; and in English, in fact, expressive meaning might be said to be conveyed more predominantly at the level of lexis than at other levels (with the possible exception of intonation). Degrees of expressivity would be impossible to perceive unless there were some neutral norm or unmarked set of features against which deviation can be measured by both addresser and addressee. Another reason, apparently universal to all languages, is that languages require resources of simplified yet clearly comprehensible communication (Blum & Levenston, 1978). Core vocabulary might facilitate such a process and can figure significantly in the words employed for such everyday communicative tasks as talking to children and foreigners, for summarizing, (see Stubbs, 1982)-who also supplies a methodology for defining core vocabulary-, explaining things in a non-technical manner, communicating in a neutral and uncommitted way. ('Neutral' words can, of course, be used expressively but it would be necessary to signal that this is the case). A third reason is that in several respects core vocabulary will play a part in the first stages of language acquisition, at both first and second language levels. Without a first rung, climbing the ladder to linguistic competence might be too arduous a process. There are other reasons, of course, some corresponding to basic psycho-linguistic/perceptual categories of our relation to the world (see Lyons, 1977: 305-11 and also section 3.6) but to explore these in detail would be beyond the scope of this paper.

3.0. How do we define it?

In this section I offer some criteria by which core vocabulary might be identified. Some of the points have been tested empirically (though the nature and scope of the tests is at this stage limited) but the larger proportion of points made are offered more in the nature of a hypothesis or of observations which might be subsequently submitted to more rigorous examination.

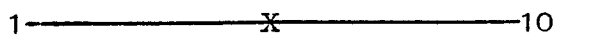
3.1. Collocational Span

I would hypothesise that core items are characterised by a wide collocational span, partnering a borad range of other items within different contexts. Core items collocate frequently (i.e. weakly) with many adjacent partners. For example, 'fat' might be claimed to be a core word. That is, we can have fat man, fat woman, fat belly, fat baby, fat chicken, fat salary, fat wad of notes, fat book. 'Obese', which only collocates with man, woman and belly, would by this definition be non-core.

Concordances and text-processing undertaken by computers can give access to data for collocational frequency which had previously been open only to more intuitive or speculative measurement. For some interesting word lists and frequency charts of single words see Ogden, (1968); Thorndike & Large (1944); Kuchera & Francis (1967); West (1953). See also the more recent Cambridge English Lexicon (Hindmarsh, 1980), although this has been compiled by a not necessarily reliable combination of 'intuition' and 'extensive experience'.

3.2. Core Vocabulary as Neutral

I have claimed that core vocabulary would need to be more neutral or unmarked than other items in a related lexical set and that such 'core' vocabulary is only rarely used to communicate affective meaning. It usually carries a few associations from a context of use or situation in which it might be employed. The associations of words and our subjective responses to them are, as I have argued elsewhere (Carter, 1981), best measured by informant tests. In this the empirical methods for scalar analysis of meaning developed by Osgood and his associates (Osgood, 1957) provide an appropriate starting point for measurement of core and non-core items. In Carter, (1981), I undertook a case-study of words for 'thin' in English asking informants to rate 'thin' and a range of words from a related set along a scale for evaluation, a scale for formality and a scale for intensity. In general the scales ran from two poles: informal v. formal; good v bad; strong v. weak. For example, the formality cline ran from 1-10 as follows:



Informal Formal

and informants were asked to use the full scale to rate words for their degree of inherent formality. The words included: thin, skinny, weedy, undersized, emaciated, slim, scraggy. Scraggy was averaged out at 2-3; emaciated at 9. Thin came out at point five. That is, in the middle or most neutral part of the scale. It did likewise on the scales of intensity and evaluation. A further series of informant tests on a set of words including mean, thrifty, tight, stingy, parsimonious, economic, ungenerous marked 'ungenerous' as the item converging most regularly towards the middle point of the scales. It is possible to work in this way towards the definition and collection of a core lexicon. Generally, the core words will be those central to the scales used. (Although see again Carter, 1981, for caution in the selection of informants and the presentation of 'scalar' tests to them). See Appendix I for examples.

3.3. Core Vocabulary, Syntax and Definitions

Syntactic criteria can also be used to distinguish which items might be more 'core'. Again informants can be employed to test the adequacy of hypotheses. In a recent test involving over a hundred undergraduate English Studies students I hoped to demonstrate that non-core vocabulary items are generally defined with reference to the core of the related set whereas the reverse does not apply. That is, core vocabulary items can not easily be defined with reference to non-core items. For example, as one of five separate tests informants were asked to define all the words from the following lexical set. They were told that, if they so wished, they could use the same words more than once. The words were: grin, smile, grimace, beam, smirk.

The tendency with about 80% of the informants and approximately 60% of all the words was for the words to be defined as:

smile + adverb or adverbial phrase

'Smile', itself, however, was only rarely defined using any of the other words on the list. Instead, smile was usually defined with reference to its component semantic features (e.g. a facial movement involving particularly a lateral movement of lips and mouth). Similar results were obtained using the following items (core word underlined) - see also Appendix I:

perambulate, stroll, saunter, walk, hike, march.

podgy, corpulent, stout, fat, overweight, plump, obese.

weedy, emaciated, undersized, lean, thin, slim, slender.

abode, house, domicile, residence, dwelling.

A general syntactic definition for a non-core word might be:

noun	= adjective	+ core noun
verb	= core verb	+ adverb
adjective	= core adjective	+ adverb

For further discussion along these lines see Dixon (1971) on 'nuclear' + 'non-nuclear' verbs.

3.4. Superordinates

It is sometimes the case that superordinates (or 'hyperonyms') are core vocabulary items or, to put it in less black and white terms, items with relative degrees of 'coreness'. For discussion and definition of hyponymy, hyperonymy and superordinates see Lyons (1977:291ff.). Briefly, a hyponym is a kind of asymetrical synonym. Tulip and rose are hyponyms and are linked by their common inclusion under a superordinate flower, in whose class they can be grouped. Car, lorry, coach, bicycle, motor-scooter might similarly be linked under the superordinate vehicle. The following diagram may illustrate the relationship:

BUILDING
factory
hospital
HOUSE cottage, bungalow, villa, mansion
museum
school
theatre

Here 'house' is a hyponym of building but also serves as a superordinate of another set of hyponyms. Definitions of 'core' using such criteria may be problematic in that degrees of 'coreness' are established according to different kinds of classificatory procedures. When such hierarchies of core vocabulary come into play then - as will be obvious - it is not easy to proceed using only intrinsically linguistic definitional criteria. (See Cruse, 1975 and review by Hudson, 1980:93-4).

3.5. Antonymy

It is simply noted here that in the case of some but by no means all lexical items those which are intuitively felt to be core words can often easily be found an antonym. For example, to use examples defined as 'core' using other criteria: thin ⟷ fat; walk ⟷ run; laugh ⟷ cry; cold ⟷ hot, it is much more difficult to find antonyms for definite non-core items like 'corpulent', 'parsimonious', 'emaciated', 'obese'. It should be noted, though, that it is difficult to locate antonyms for superordinate items. For further discussion along more anthropological-socio linguistic lines see Hale, (1971).

3.6. The Cognitive Basis of Core Vocabulary

There are two main strands that attempt to argue for a cognitive basis for core vocabulary. One relies on the validity of facts about the conceptual organization of the universe which are carried through into the structural organization of the vocabulary. For example, although along their different axes big/little: long/short: wide/narrow may be equally 'core' according to the kind of criteria outlined above, or, at least, according to some combination of such criteria, big, long and wide are more perceptually salient. That is, they are more 'central' words in that they indicate more of the dimension being measured. Thus we ask:

How big was it?	(not:	how little was it?	*)
Was it very long?	(not:	how short was it?	*)
Was it this wide?	(not:	was it this narrow?	*)

'Big', 'long' and 'wide' are the more unmarked or 'core' terms. Their opposites can be employed (the prohibitive asterisk is not entirely accurate) but, if they are, then they are marked as a result and some particular aspect of the dimension receives a communicative focus. (And as in the case of 'How good is it?'(+): 'How bad is it?'(-), often with a pejorative presupposition). It must be recognised here, however, that this definition of 'core' is relative only to the relation of the two words to each other. With reference to their own lexical sets non-core items here such as 'little' or 'narrow' may be more 'core'. This whole area suggests many interesting directions for further research.

Another feature related to this strand of conceptual organization is the reflection in the vocabulary of the social formation of the world specific to a particular culture. This whole question of the ideological construction of the lexicon merits a separate paper rather than relegation to what is almost the status of a sub-category here. However, the basic point is that words such as 'democratic', 'liberal', 'communist', 'party', 'president', 'boss', 'secretary' etc. will either be a 'core' word or will carry distinct ideological-evaluative associations according to the particular society in which such words are used. The sociolinguistic 'core' to a vocabulary is an area requiring urgent investigation, particularly by and for lexicographers working on language dictionaries for international use. Together with the other 'ideological' facts such as that in sex-related semantic categories the male feature is usually the 'normal' or unmarked core (e.g. lion:linoness; dog:bitch; the former is in each case the non-specific or generic word while the female the marked or unusual or specific item) this whole socio-cultural sphere is arguably as central to concept formation in vocabulary as other supposedly more central aspects of cognition in the creation

of meaning. Much useful impetus to this kind of sociolinguistic-lexical work might be given by research into pidgins and creoles (see Schuman, 1974).

The second main strand in discussion of a cognitive basis for core vocabulary is that of the division between conceptual and associative meaning. Leech (1974:ch.2) argues, for example, that all associative meanings (including 'stylistic', 'affective', 'collocative', etc.) are no more than peripheral to conceptual meaning. And defining conceptual meaning, which is stable where other kinds of meaning are unstable and relative, should be the main task of an intrinsically linguistic semantics. This leads to attempts to design a theoretical or conceptual dictionary (as opposed to a practical dictionary) (see Leech, 1974:ch.10) which accounts in full for a native speaker's semantic competence with a word, his knowledge of the rules for forming new derivations from it, its syntactic and morphological relations and so on. By this definition the 'core' of a word is its conceptual meaning, the linguistic-semantic framework it creates; the definition is purely language-internal and takes no account of use, frequency, associations or other such 'unstable' and 'subjective criteria'. (For a related view of the 'lexicon' see Smith & Wilson, 1979:52-59).

Although Leech sees the definition of 'core' or conceptual meaning as sometimes going beyond such componential analysis to include, where relevant, logical and pragmatic relations of meaning, componential analysis represents for many semanticists the principal means of defining the meaning of a word. (For a representative argument with particular reference to dictionary making, see Nida, 1975). My own view is that componential analysis can be a restrictive approach which leaves whole areas of the meanings of words unaccounted for. Necessarily, though, much depends on the particular theory of 'meaning' adopted. From the point of view that the meaning of a word is the socilinguistic framework of its use, componential analysis or definitions of conceptual meaning are limited. For a criticism of componential and semantic feature analysis with particular reference to lexicography see Apresyan et al (1969); Bolinger (1965); Bar Hillel (1967).

3.7. Making Definitions

The definition and subsequent isolation of core vocabulary depends, it will be clear, on a number of factors whose relative prominence depends in turn on the particular view of lexical meaning adopted. I do want to claim, though, that any definition of core vocabulary cannot exclude reference to criteria outlined in this section (i.e. especially 3.1-5). Clearly, there will be core words which do not meet some of the above definitional criteria but it seems probable that the more 'core' the lexical item concerned

the more of the above criteria it will be able to meet. I hope to be able to report on the results of more extensive testing in a subsequent monograph (Carter, forthcoming) but, until then, much of this paper must remain largely speculative and hypothetical.

4. Some Problems with the Definition of Core and Non-Core Words

It seems almost in the nature of lexis to resist too great a degree of systematisation. A degree of fuzzy indeterminateness may always be a necessary element in the expression of meaning (cf. Bolinger, 1965; Lakoff, 1973). The definition of relative degrees of 'coreness' in vocabulary is no neat and tidy process either. In this section some of the main problems are discussed so that the 'pedagogical implications' briefly outlined in section 5 can be explored with a clear awareness of the limitations.

(i) Some of the main problems are with those words which have a wide collocational range and with those which (sometimes as a result of their range) enter several semantically distinct lexical sets. For example, in one respect tight is a core word. That is, in relation to an antonym 'loose' and a lexical set including such items as 'slack', 'wobbly', 'firm', etc. A different but along certain axes interconnected set of relations occurs where a perceptual dimension is directly involved. For example, a 'tight fit' is the unmarked collocation in the question

> How tight a fit is it?

The question 'how loose a fit is it?' is not normally selected unless the relations expressed in the utterance need to be especially marked. But, there are other associative, non-core meanings for the word, too. For example, 'tight' operates along the scale for which 'ungenerous' might be the core word; as well as along a scale including items such as 'inebriated', 'drunk', etc. In fact, the wider the collocational range, the greater the problems in the selection of the set to which the word can be core. It is generally recognised that items such as 'put' or 'thing' or general purpose verbs such as 'do' or 'make' are especially problematical in this respect. We must conclude, though, that 'core' words are characterised by a greater frequency of use. Dixon (who uses the term 'nuclear' and 'non-nuclear') would agree though with one significant qualification:

> Nuclear words tend to have greater frequency than non-nuclear items. This is not to say that the least nuclear verb is more frequent than the most common non-nuclear one; rather that in almost every case a certain nuclear word will have greater frequency than non-nuclear words that are related to it... (1971:441)

(ii) In a related way to the point made about scales and axes in (i), it must be acknowledged that in the use of scales or clines of any kind the marking of lexical items must be relative to the scales being used. Different degrees of 'coreness' may emerge with different scales.

(iii) Another problem also surfaces in the case of the operation of lexical items in narrow or specialist fields of discourse. Here again what is a core vocabulary item to one domain may be a non-core item in another. But the more specialist the domain, the less frequent will be the incidence of associative, or 'expressive' or non-core vocabulary. Here, core vocabulary will often be core because they are the only items from the particular lexical field which can be used. For example, most of the specialist vocabulary of astronomy or car maintenance or bread making will be core to that specialist field.

(iv) Dixon (1971) raises a further problem that his 'nuclear' (core) - 'non-nuclear' (non-core) distinction may be most effective in relation to verbs. He does not elaborate but it is pointed out (1971:443) that:

> the nuclear/non-nuclear distinction is not, generally, very useful in the semantic description of adjectives.

Much depends on the class of adjectives being used (see Quirk et al, 1972:925) as well as an intuitive but intested notion that collocability relations involving adjectives may be weaker than with other parts of speech and the fact that many adjectives are intrinsically gradable and so on. But Dixon's notion that 'coreness' may be relative to the syntactic class of items concerned is a possibility which requires urgent investigation.

(v) Finally, as at 3.7 it must be pointed out that no single criterion can be taken to produce definitively a core vocabulary item. Rather some combination can help define the strength of the 'coreness' but it will also, to some extent, be affected by the purposes for which a definition of a core lexis is sought. For example, a practical foreign learner's dictionary will probably give less weight to a cognitive/conceptual basis of core vocabulary and more to what it can reveal of the associative dimensions to word meaning.

5. Pedagogic Implications of Defining Core Vocabulary

It will be obvious that more precise definition of core vocabulary can facilitate learning in a number of areas of second and foreign language acquisition and teaching. For example: a more progressive and developmental approach to vocabulary teaching; increased systematicity in the learning and teaching of lexico-syntactic relations; the

construction of more precise entries for foreign language dictionaries; greater precision in the definition of lexico-associative effects - something which could be of considerable value in literary and linguistic stylistics; the design, writing and 'translation' a simplified readers.

There is not space to explore these practical applications in detail in a 'note' of this kind. Much of this short paper has been of a speculative character but it is hoped that some of the tests and some of the hypotheses made may lay a basis for further and wider investigation. The aims are quite grand; the system is so far very modest though I do hope to report results of more extensive tests in a forthcoming monograph (Carter, forthcoming). It is claimed, however, that some of the criteria for definition outlined above, however unformed and speculative at this stage, will need to be taken account of in any future research in this area.

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APPENDIX I

The following are sample tests as described at 3.2 and 3.3 above.

Example I: To test for syntactic criteria in core vocabulary

Instructions:

Write short definitions of the following words. You can choose to vary the words used in your definition, if you wish, or you are free to use the same words more than once. Please try not to use more than 4-5 words for each definition.

A. Perambulate, amble, stroll, walk, saunter, hike, march

Typical definition for A:

perambulate - to go from place to place
amble - to walk casually, relaxedly
stroll - to walk in a leisurely fashion
walk - a bodily movement of the legs used to propel you

saunter - to walk with a swagger
hike - to go on foot over a long distance
march - to walk in a military way, with a measured pace

B. Grin, smile, grimace, beam, smirk

grin - to smile broadly and in a friendly way
smile - a happy facial expression produced by widening the lips
grimace - to contort your face wryly
beam - to smile radiantly
smirk - a self-satisfied smile

Example 2: Scalar analysis of 'thin' and related lexical set

Instructions:

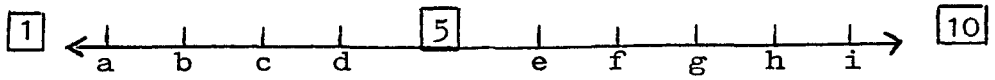
Below you will find two scales and a list of words. Scale 'A' is a formality scale. You are asked to rate the words along the scale from 1-10. 1 = very informal: 10 = very formal. Scale 'B' is an evaluation scale. In this case you are asked to rate the words according to whether you think the qualities denoted by the words are good or bad. At one end of the scale is a + for good or positive; at the other end is a - for bad or negative. Here are the words:

slender, scraggy, weedy, thin, lean, emaciated, skinny, undersized, slim

Results

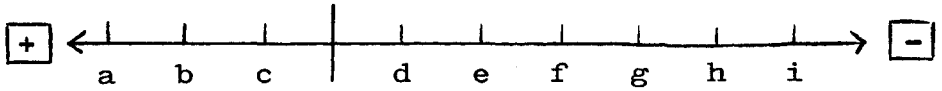
Statistical averages for scales A and B rate the words as follows. (Results are averaged to 0.5%, though it is impossible to represent this with precision in diagrams of this nature).

Scale A



a = scraggy; b = weedy; c = skinny; d = thin; e = lean; f = slim; g = slender; h = undersized; i = emaciated

Scale B



a = slim; b = slender; c = lean; d = thin; e = undersized; f = emaciated; g = weedy; h = skinny; i = scraggy

For both tests approximately 115 students of English Language and Literature were used as informants.

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POLYSEMY AND THE STRUCTURE OF LEXICAL FIELDS

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1. Introduction

1.1. The aim of this paper is threefold.[1] First, I wish to examine some of the descriptive and theoretical problems associated with polysemy. I shall put forward the view that polysemous words can differ very considerably according to the degrees of relatedness and difference which their meanings display, and that homonymy (total distinctness of the meanings of identical forms) is properly seen as the end-point of a continuum. In the second major section of this paper I shall illustrate various points, or bands, along that continuum. Then finally I wish to consider the implications of this view both for the analysis of lexical fields and, more widely, for our understanding of the nature of structural relations within the lexicon.

Any linguist wishing to investigate semantic similarities and differences between members of a set of lexical items - let us say the verbs boil, steam and simmer - has initially to deal with two related problems of identification. First, he has to decide whether each of the chosen lexemes has the same meaning or different meanings in a number of given contexts. Consider the following example sentences from Nida (1975:135):

1a The water is boiling
b The vegetables are boiling
c The kettle is boiling

Do these sentences represent different senses of the verb boil, or the same sense? Then in all cases where it is decided that the meanings differ the analyst must ask whether they are nonetheless related, or totally distinct. In other words at a second stage he must identify polysemy or homonymy.

These questions have to be faced as the first stage in any corpus-based analysis of semantically related words. A lexical field description, however, poses particular risks and challenges, as on the one hand there is the possibility that a single meaning will be wrongly assigned to two or more fields, while on the other there is the chance that distinct senses of a lexeme may be mistakenly conflated. Accuracy in determining how many meanings one is confronted with in a given case, and how if at all they are related

to each other, is clearly crucial. For this reason it is important to consider which operational tests are suitable for establishing particular contrasts or relationships. Some of these tests we can now go on to consider.

1.2. For a test of meaning identity we return to the examples quoted earlier, in relation to which Nida argues that 'in these various contexts of boil...the action referred to is essentially the same', afterwards going on to explain the differences in terms of the ways in which the action is related to the various entities which participate in the action (1975:136). Referring to the discussion of participant roles (PR's) by Jeffries and Willis which appears elsewhere in this issue, we can say that for a given single meaning of boil the same set of PR's is involved throughout, but that they can be given various syntactic realizations. Thus 'location' is realized as subject - the kettle - in 1c, but could appear as a final 'locative' adjunct in 1a and possibly 1b:

1a(i) The water is boiling in the kettle

1b(i) ?The vegetables are boiling in the kettle

The PR test appears to work well enough as a means of diagnosing meaning difference. But can it be used to establish polysemy? And is it then equally effective in all cases? The test can clearly help in the diagnosis of multiple meaning, as is also shown by Jeffries & Willis. In the sentences:

2a Mary assembled the crew

2b Mary assembled the bookcase

assemble is shown to have two senses by virtue of the assignment of 'actor' to the crew and 'product' - object of result, to use the more traditional term - to the bookcase. However, PR's are not an adequate measure of the distinction between polysemy and homonymy. They are a test of the separation of two meanings - as in the example just considered - but they do not serve to tell us whether those meanings are nonetheless related, or absolutely distinct.

The point I am making with reference to participant roles applies equally to the unsupported use of any other criterion. It is, however, a feature of several current discussions of polysemy that selected criteria are applied singly, rather than in combination, usually with inconclusive results. Palmer (1976), for example, makes use of sense relations (specifically of synonymy and antonymy) suggesting that, when polysemous, a word has 'a variety of synonyms, each corresponding to one of its meanings' (1976:70). However, it might equally well be claimed that contrastive synonyms are indicative of homonymy. In fact in a later reference to derivation Palmer seems uncertain as to whether the criterion serves to establish polysemy or homonymy. Such uncertainty is understandable if it is the case that no single criterion is an effective measure of the difference.

This brings me to the core of my argument. On the one hand it is essential to employ more than one test when attempting to identify cases of polysemy or homonymy: one's conclusions may otherwise be wide of the mark. On the other hand it is clear, once an appropriate range of tests is employed, that our view of polysemy must be revised: this must now be seen as a continuum characterized by various degrees of meaning relatedness and meaning difference.

I have suggested that relatively little attention is paid in recent discussions of polysemy to the need for a spread of relevant criteria (Nida 1975 being a notable exception). To find a number of related studies in which cases of polysemy or homonymy are identified on the basis of several relevant dimensions one must go back to earlier work, and in particular to that of lexicologists working in the 1950s and 1960s within a Saussurean structuralist framework (Godel 1948, Benveniste 1954, Frei 1961, Dubois 1962). The general orientation is captured by Dubois' remark (1962:43) that, 'l'unité lexicale est un élément défini par un réseau d'oppositions pertinentes'. In this spirit, Benveniste can argue that the two verbs voler ('fly') and voler ('steal') are quite distinct on the grounds

(a) That they are members of different semantic classes: marcher, courir, nager, ramper, on the one hand, dérober, soustraire on the other;

(b) that they contrast syntactically- voler ('fly') being intransitive, voler ('steal') transitive;

(c) that they have different derivational series - vol, voler, s'envoler, survoler being only part of the set proposed for one lexeme, vol and voleur being the only possible derivatives of the other.

As far as I am aware, however, the structuralist literature fails to recognize that polysemous items vary according to how closely or distantly their meanings are related and that showing degrees of relatedness is one important purpose served by using a combination of criteria - the other, of course, being the resolution of borderline issues. It will be noticed, for example, that the Benveniste examples are ones which few French speakers would have difficulty in identifying as homonyms, and the same is true of examples chosen by Godel (louer = 'rent/let', louer = 'praise') and Frei (police = 'police', police = 'insurance policy'). In contrast, our work on the analysis of polysemy has revealed degrees of meaning-relatedness ranging from near-identity to near-homonymy. These I shall now illustrate and discuss with reference to the battery of tests devised by Lesley Jeffries (1981).

2. The description of polysemy

Turning now to the formal and semantic criteria used in the description of polysemy, two general points can be made at the outset. The first is that there seems to be no good reason to give special weighting to any one criterion among several selected. This is not a view that all would share.

In explaining the analytical procedures on which the organization of entries is based in the Dictionnaire du Français Contemporain, for example, Dubois (1981) lays particular stress on derivational properties; so that when two senses associated with a given form (say fumer) have different sets of derivatives they are regarded as functional homonyms and assigned to different numbered entries. Thus fumer ('smoke meat') largely on the ground that the first yields fumeur, fumeuse, fumerie, etc., and the second fumage, fumé. Now clearly this is an interesting analytical approach; however, it cannot carry all the weight which is placed upon it. Not all items which on independent grounds one would wish to regard as homonyms have derivatives. This is the case with furet ('a small carnivorous animal') and furet ('a parlour game'). Moreover, as is the case with assemble in English and assembler in French, quite distinct derivatives may be attached to senses which, for independent reasons, one may wish to regard as related. The nouns assemblage and assemblée, for instance, are associated with arguably related meanings of assembler. If, however, one gives special weighting to derivation those senses will be drawn unnaturally apart. It is of some interest, incidentally, that in both the cases I have quoted from the Dictionnaire du Français Contemporain the derivational condition is relaxed, furet being allowed to appear as two entries and assembler as one.

My other general point relates to syntactic criteria. It is certain that some distinctions - such as the contrast between transitive and intransitive functions of the verb, as those terms are commonly understood - are too gross to be of much diagnostic value. Consider the usefulness of this contrast in the light of the following sentences from a paper by Georgia Green (1969):

3a I should ask them to go

b I should ask when to go

c I should ask them when to go

In terms of the presence or absence of an object pronoun, the first and third sentences are closer to each other than either is to the second. However, while them is optionally insertable in 3b and optionally deletable in 3c - the two sentences being possible variants for a given sense of ask - the pronoun them cannot be deleted from the first sentence - with I should ask them to go becoming I should ask to go - without a radical change in meaning. Of course, the semantic contrast involved can be captured in a grammatical description; the point is that this must do more than take account of the presence or absence of an object in surface structure.

A syntactic relationship which is regularly made use of is the one which corresponds to the widespread relationship of causativity, since this is frequently diagnostic of polysemy. This relationship holds between sentences such as

4a The new production toured (through) the north of England

4b The company toured the new production through the north of England

However, there is no causative sentence corresponding to the following non-causative:

5a The family toured (through) the south of France
- compare
5b *Father toured the family through the south of France
- and the difference indicates a shift in the sense of tour.

2.1. What I now wish to do is to look at some examples showing different degrees of relatedness or separation of meaning. I shall begin by returning to tour, as some aspects of the distribution of the verb in its various senses have a wider relevance. Derivation has already been referred to as a criterion in the work of Dubois (1962, 1981). Of the following senses of tour it will be seen that only 6a (consider also tour-operator, package-tour) has more than one or two complex or compound forms, the zero-derived noun tour being common to all senses:

6	tour	a (holidays)	tour, tourist, tourism
		b (inspection)	tour
		c (artistic)	tour
		d (sporting)	tour, tourist

Fine contrasts within similarity also appear when one considers paraphrases of the verb which make use of the noun:

7a	go on / do	a tour of Austria
b	go on / make	a tour of the factory
c	go on / be on	tour
d	go on / be on	the 1982 tour of India

It will be noticed, for example, that the indefinite article is not normal before tour in an artistic or sporting sense (7c, d) when the noun is used as the object of a verb or preposition. Thus, We are doing/going on a tour of Scotland would not be used (in our speech) of the Royal Ballet or a cricket team.

The senses of tour represent near-identity of meaning: only slight differences in derivation and in the lexical distribution of the zero-derived noun mark them off. The causative/non-causative alternation, while distinguishing the artistic sense of tour, as already shown, fails to discriminate between the others. However, these contrasts illustrate well the processes by which 'shifts of application' (Ullmann 1962) become specialized senses.

2.2. The verb crease used respectively of temporarily spoilt materials and of facial expression also illustrates close relatedness of meaning, though with reference to different criteria.

In a number of publications, Lehrer (1969, 1974, 1978) examines in relation to various kinds of domains - cooking and wine-tasting are favourite examples - the hypothesis that:

> 'If there is a set of words that have semantic relationships in a semantic field (where such relationships are described in terms of synonymy, antonymy, hyponymy, etc...), and if one or more items pattern in another semantic field, then the other items in the first field are available for extension to the second semantic field. Perceived similarity is not necessary' (Lehrer 1978:96)

Two of the examples quoted in her 1969 paper are fry and grill, both of which can be used with reference to torture or physical discomfort:

8 You'll fry if you lie out on the beach

9 The suspect was grilled by the police

Our analysis provides much evidence of extensions of this kind. With regard to crease, for example, several co-hyponyms of the verb in the first of the senses already referred to ('spoil temporarily') also pattern in the domain of facial expression or contortion as the following sets indicate:

10 crease$_a$: crumple$_a$, wrinkle$_a$, crinkle$_a$, pucker$_a$, screw up$_a$ (and: crush$_b$, ruck up)

crease$_b$: crumple$_b$, wrinkle$_b$, crinkle$_b$, pucker$_b$, screw up$_c$ (and: purse)

Now what I also wish to suggest is that such parallel extension is a measure of the closeness both of the corresponding individual senses of the fields themselves. Support is given to this view by the fact that - as here -

perceived similarity is involved and thus metaphorical extension. I shall return to this point later. A further indication of semantic closeness is the possible alternation between non-causative and causative patterns for several of the verbs undergoing parallel development. Compare, for instance:

11a(i) He creased the table-cloth
(ii) The table-cloth creased

b(i) A frown creased his forehead
(ii) His forehead creased

12a(i) She puckered the seam
(ii) The seam puckered

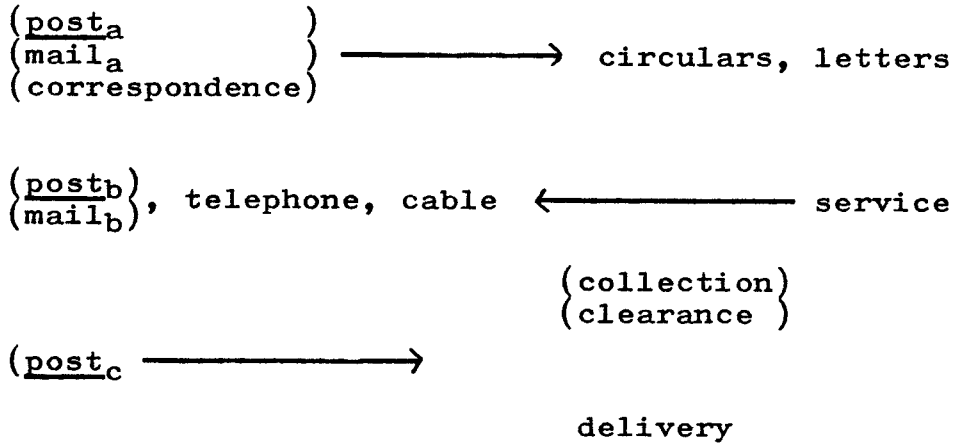
b(i) She puckered her lips
(ii) Her lips puckered

However, there is an important mark of difference between crease$_a$ and b, and between their respective fields. In the case of spoiling or marring of material the selection restrictions upon the choice of an object for crease can be stated as semantic features denoting general properties ('inanimate', 'two-dimensional', etc.). When the sense of crease is 'alter one's expression in a particular way', on the other hand, the choice is extremely narrow and must be spelt out as individual collocates of the verb: cheeks, forehead, eyes. The same is true of all other members of the 'facial expressions' field - one wrinkles one's nose but not one's eyes, as it were - so that collocational restriction is an important measure of the coherence of the field as a whole as well as of polysemy in individual cases.

2.3. I have chosen the noun post as an example of a marked degree of separation between senses that are nonetheless related, for two reasons. First, post provides an opportunity to discuss homonymy and polysemy together. The spoken forms /po st/, /po sts/ realize at least four distinct noun lexemes of which two are treated diagramtically below as post$_1$ and post$_2$. They happen to have slightly different lines of derivation from the same Latin verb; and they are quite distinct by virtue of the meaning relations (synonyms, complementaries, and so on) associated with their various sub-senses. I shall look at part of the polysemous spread of each homonym - three senses in each case.

This brings me to my second point. The degrees of meaning separation represented by the senses of $post_1$ and $post_2$ respectively are noticeably different, those of $post_1$ being more widely separated from each other. I shall begin there.

Figure 1 - $Post_1$



From the diagram it will perhaps be clear that we are dealing with meanings that can be glossed as (a) 'correspondence', (b) 'postal service' and (c) 'delivery or collection of letters'. In the first sense, (a), post has as its synonyms mail (in both British and American English) and correspondence, each of these being a possible superordinate of circulars, letters, and so on. There is no overlap between this series and the next, where the hyponymous pattern is reversed - post and mail (with telephone and cable) now being co-hyponyms of service. This can be demonstrated as follows:

13a What service did you send the message by?

b By post (cable, telephone)

This semantic sub-class is in turn distinguished from collection, delivery, clearance, where collection and delivery represent an opposition which is neutralized in $post_c$. Thus in the usage of many speakers the sentence

14 The next post is at 11 o'clock

is ambiguous.

Contrasts in meaning relations are supported by differences of grammatical sub-classification. So while $post_a$ is non-count or count:

15 There's some post/a large post on your desk

$post_b$ is only non-count (though excluding quantifiers):

16 Send it by post/through the post

and $\underline{post}_c$ is only count:

17 There's a post at 10 a.m./there are two posts a day

In these various respects the sense division of $\underline{post}_1$ contrast sharply with those of $\underline{post}_2$.

Figure 2 - $\underline{Post}_2$

$\underline{post}_a$	position, outpost, station
$\underline{post}_b$	appointment, job, position
$\underline{post}_c$	station, outpost

From the figure it can be seen that $\underline{post}_2$ in each of the senses (a), (b) and (c) forms part of a set of co-hyponyms and that certain of those associated with sense (a) (e.g. position, station) recur in the sets appropriate to sense (b) and sense (c). In this respect the meaning relations of $\underline{post}_2$ in its various senses are more like those of crease than those of $\underline{post}_1$.

3. Polysemy and the organization of lexical fields

Moving now to the final part of my paper I should like to consider some of the implications of the previous discussion for lexical field analysis. Moreover, it seems that certain of the theoretical conclusions reached have consequences for one's general understanding of structural relations within the lexicon (of sense relations as the term is used by Lyons), and I should like to start by considering those.

The central issue raised by our analysis of polysemy concerns the nature of the categories between which sense or meaning relations (hyponymy, converseness, complementarity, and so on) are seen as holding in the structure of the lexicon. For Lyons (1968, 1977) these entities are lexemes (lexical items), and sense cannot be conceived of as arising independently of the network of relations of dependency and contrast which a lexeme contracts with other lexemes. A lexeme, in other words, has the meaning it has solely by virtue of the relations into which it enters with other lexemes. As Lyons is careful to stress in the earlier work 'these relations are to be defined as holding between lexical items and not between independently-determined senses' (1968:443; and cf. 1977:270 et seq.). However, evidence of the kind we have been considering suggests that the relations of hyponymy, converseness and so on which a lexeme enters into vary with the meaning-divisions of that lexeme, those meaning-divisions being established on independent formal grounds. We saw in the case of $\underline{post}_1$,

for example, that separate though related meanings which could be distinguished on the basis of grammatical sub-classification could be correlated with distinct semantic series - collection, clearance and delivery in the case of $post_{1c}$ - and that those in turn displayed relations of hyponymy, synonymy, and so on.

One way out of the difficulty would be to argue that the sub-senses represented as $post_1$ (a), (b) and (c) are homonymous lexemes; but in fact their relatedness as part of the knowledge of native speakers can be demonstrated by the application of lexical rules of the kind proposed by Leech (1974:217) to account for metonymy, of which the sense development of $post_1$ is an illustration. We can show this development in terms of the meaning of $post_{1a}$ (i.e. 'correspondence') as follows:

18a The post is terribly slow in England
(where post = 'conveyance of $post_a$')

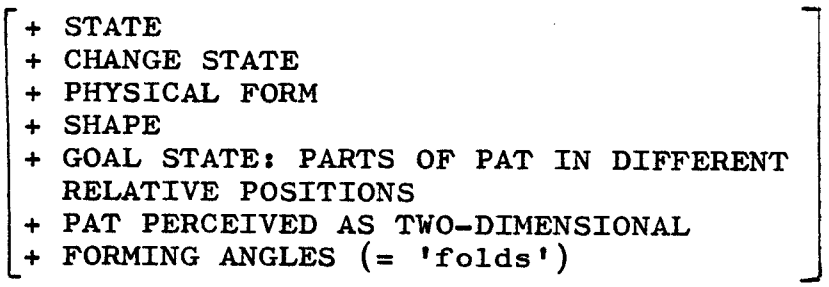
b You can just catch the last post
(where post = 'collection of $post_a$')

In fact, in this case as in many similar cases we must recognize polysemy (though of a kind which approaches homonymy) and accept that relations of dependency and contrast commonly hold between the meaning-divisions of lexemes and not between lexemes as such. The identity of a lexeme such as $post_1$ is thus a matter of its own internal semantic breakdown, and of the meaningful relations established by its sense-divisions, rather than of its external contrastiveness with other lexemes.

3.1. I should like finally to turn to the lexical field analysis being carried on in the O.U.P. Lexical Research Unit at Leeds and to discuss how polysemy is reflected both in the internal organization of micro-fields and in the way such micro-fields are juxtaposed and explicitly related by means of various descriptive conventions. As Jeffries & Willis indicate in their paper, we are chiefly concerned with verbs denoting spatial movement, change of state, change of custody, contact and communication. A micro-field typically consists of a set of from five to ten co-hyponyms whose semantic specification is indicated in a matrix with reference to features or components. In the micro-field containing the lexeme-senses $crease_a$, $crumple_a$ for example, and concerned with temporary spoiling of material, the features of which the matrix itself indicates the +/- values include: 'folds': parallel/not parallel; 'folds': large/small.

At the head of every micro-field, but external to it, appears a set of so-called 'input features'. These are a hierarchically ordered set whose exact composition indicates the position of a micro-field relative to others in the macro-field. For $crease_a$, $crumple_a$ the input features are as follows:

Figure 3



crease$_a$	crease$_b$
crumple$_a$	crumple$_b$
wrinkle$_a$	wrinkle$_b$
crinkle$_a$	crinkle$_b$
pucker$_a$	pucker$_b$
screw up$_a$	screw up$_c$
crush$_b$	purse
ruck up	

It has already been shown that where several members of a set of lexemes appear in two (or more) semantically distinct but related series, a limited extension of meaning is usually involved. These parallel developments can sometimes be reflected in the macro-field organization by juxtaposing the micro-fields in which the sets occur. This can be shown by referring again to the above diagram. As can be seen, the relatedness of the two sets of verb-meanings (crease$_a$, etc., crease$_b$, etc.) is displayed by deriving both from the same set of 'input' features.

A further value of this general approach is that cases of parallel development often involve metaphorical extension as well, so that the possibility is present of treating in a systematic way a highly productive source of multiple meaning (Ullmann 1962, Nida 1975, Lyons 1977). We can discuss an approach which we are now considering in the Lexical Research Unit, with particular reference to the verbs snare, hook, as used in

19 She's trying to snare/hook a husband

Such examples are on the face of it absurd, and can only be made sensible by applying an appropriate rule of transfer (Leech 1974:216), such that the sense of snare (or hook) is interpreted as 'act in a way that is similar to securing a wild animal or fish'. The basis, or ground, of the similarity can be formulated, in terms of a componential analysis, as features common to the literal and figurative senses. These will include '+ agent gains', '+ actively', '+ agent = captor', '+ patient unaware'. Contrastive

features are the measure of the difference between the senses and will include a reference to the agent's purpose, thus: 'purpose: to kill or keep captive'; 'purpose: to secure for one's own gain'. Returning to the earlier account of the general organization of the description it is clear that the shared features in such cases will appear as input features (as illustrated above), while contrastive features will appear initially in the juxtaposed microfields.

Not all cases of multiple meaning can be handled in the ways I have described. One reason has to do with the level of generality or inclusiveness of certain semantic contrasts in the macro-field. At an early stage in our discussions, when the problem of figurative extension first arose, we considered the possibility of accounting for the stative and dynamic senses of such verbs as soar, rise and climb in juxtaposed fields. However, the need to account for very many stative verbs which had no corresponding dynamic senses led to the setting up of a major sub-grouping of stative verbs and to the abandonment of the earlier proposal.

The chief obstacle, however, to the large-scale treatment of polysemy in adjacent matrices is that there appear to be relatively few cases in which several members of a semantic class of verbs pattern in one or more additional fields. A much more usual phenomenon, as we have seen, is where some members of a semantic class of which a word in meaning (a) is a member also pattern with that word in meanings (b) or (c). Such a case is post$_2$, where station and outpost are variously distributed in the three series (a), (b) and (c). In addition, each class will typically contain items which are confined to that class (including, in the case of post$_2$, several items not touched on in my earlier, rather limited, analysis). In treating such series, there can be no argument for drawing their respective micro-fields close together.

4. Conclusion

In this paper I have argued that the relationship between polysemy and homonymy is one of degree - identity and unrelatedness of meaning being the end-points of a continuum. I have illustrated various degrees of closeness and difference between the senses of polysemous words, and in doing so hope to have shown that meaning-relations such as hyponymy and complementarity commonly hold between lexemes in their various distinguishable senses, and not between lexemes as such. This view, which is incidentally implicit in the use by Palmer (1976) and others of sense relations as a test of the polysemy of lexical items, has, I believe, important implications for our understanding of structural relations in the lexicon.

FOOTNOTES

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ON LEXICAL AMBIGUITY

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The word position may be used to refer, among other things, to 'bodily posture', as in 1 below, or 'location in space', as in 2:

1 Don't you find that position rather uncomfortable?

2 Is this a good position from which to watch the fireworks?

Does this mean that position is ambiguous with respect to these two readings, or are they simply contextually conditioned variants, like the 'male' and 'female' readings of cousin in 3 and 4?

3 His cousin is pregnant

4 My cousin is the father

The purpose of this paper is to try to clarify the notion of lexical ambiguity, and discuss possible diagnostic criteria.

Many cases of ambiguity are intuitively so clear that there is scarcely any need for diagnostic tests. Most native speakers of English (all?) will accept without question that bank, for instance, has (at least) two distinct meanings ('place for money'; 'side of river'); equally, there would no doubt be general hostility to a suggestion that red, say, had as many meanings as there are perceptually distinguishable shades of red. Other cases are not so clear. In assessing candidate diagnostic criteria for ambiguity, the first requirement will, of course, be congruence with native-speaker intuition in all clear cases.

There are two basic types of criteria for ambiguity, which I shall term the 'direct' and 'indirect' type. The former focus directly on the item in question, and concern its behaviour in various sorts of context; the second type, which I shall maintain are in general less satisfactory, hinge on whether the distinct interpretations of a word (without which there is no prima facie case for ambiguity) contract different relations, grammatical or semantic, with other words, usually in the same language, but occasionally in other languages. I would like to deal first with the indirect criteria.

Indirect criteria can be used in two ways. Either one can take the existence of distinct relations for two different readings as confirmation of ambiguity, or one can use the fact that the same relations hold for two readings as an index of univocality. It usually happens that one of these strategies (but not invariably the same one) gives better results than the other. The following are the principal indirect criteria.

I. If two interpretations of a word have different (i.e. non-synonymous) translation equivalents in some language, then they represent different senses, and the word is ambiguous.

This test gives intuitively correct results in a great many cases:

(Eng.) bank - (Fr.) rive; banque

(Fr.) punaise - (Eng.) drawing-pin; bed-bug

However, counterexamples are probably just as numerous, and little, if any, reliance can be placed on it:

(Eng.) uncle (paternal) - (Turkish) amca
(maternal) - dayi

(Fr.) regarder (la télévision) - (Eng.) watch
(le tableau) - look at

The alternative form of this test is to say that if two interpretations have the same translation equivalent in some language, then ambiguity can be excluded. This, too, falls in with clear intuition in a great many cases:

(Eng.) uncle (paternal) - (Fr.) oncle
(maternal) - oncle

(Fr.) regarder (la télévision) - (Turkish) bakmak
(le tableau) - bakmak

This version of the test is probably more reliable than the other, but counter-examples are still too easy to find, and both versions are rightly rejected by the majority of linguists (cf. Lyons (1977:404)):

(Eng.) tongue (organ) - (Fr.) langue
(language) - langue

(Eng.) air (gas) - (Fr.) air
(melody) - air

II. If two readings of a word have distinct synonyms or near-synonyms in a language, then the word is ambiguous.

The following are among the intuitively correct diagnoses of this test:

mould - pattern/mildew

match - contest/lucifer

It does not, however, distinguish these from cases like child, which must be interpreted as 'boy' in 5 and 'girl' in 6:

5 This child has come to show us her new dress

6 The child is hoping to emulate his father

Finding counter-examples to the alternative form of the test is much harder, but not totally impossible:

crawl (move close to the ground) - creep
(behave abjectly) - creep

III. If two readings of a word have non-synonymous opposites, then the word is ambiguous.

Correct diagnoses include the following:

light - dark/heavy

dry - wet/sweet

Once again, counter-examples can be found:

tall - low (buildings)/short (people)

thin - thick (tree-trunk)/fat (person)

The alternative version can also be readily countered:

old (former) - new
(advanced in age) - new (for objects)

thin (cane) - thick
(soup) - thick

IV. If two readings of a word have different hyponyms then the word is ambiguous.

Tumblers is hyponymous to glasses in 7, but not in 8; bifocals is hyponymous in 8, but not in 7:

7 Timothy drank several glasses of lime squash

8 He wears glasses

Glasses is thus correctly shown by this test to be ambiguous. The test is vulnerable, however, to the same sort of counter-example as test II: aunt is hyponymous to relations in 9 but not in 10; uncle, in 10 but not in 9:

9 One of my relations is pregnant

10 One of my relations is a eunuch

Intuitively, relation is not ambiguous with respect to sex, merely unspecified. The alternative form of the test, using common hyponyms as an index of univocality, is, following the pattern of the other criteria so far discussed, the more reliable, and counter-examples are quite hard to come by. A possible instance is provided by animal, which besides its literal sense, has an extended sense 'brutish man', and pig, which in its literal sense is hyponymous to the literal sense of animal, and in its extended sense could be said to denote a somewhat more specific mode of brutishness.

V. If two interpretations of a word have distinct derivational or compounding possibilities, then the word is ambiguous.

This test is different in that it is the version which is positive for ambiguity which is the more reliable:

act (in play) - actor
(do deed) - action, active

race (contest) - racehorse
(breed) - racial, racy

The alternative form is of little value:

light (opposite dark) - lighten
(opposite heavy) - lighten

This is not at all surprising. There is a limited inventory of affixes in any language, and it is entirely to be expected that they may be called upon to play multiple roles.

These indirect tests have a cumulative value: the more indices of ambiguity or univocality that can be amassed, the more likely a particular diagnosis is to be correct. But there is an irreducible element of uncertainty in any particular instance. The most one can say is that there is a tendency, of greater or lesser strength, for the features enumerated above to be correlated with vocality status. A perhaps more fundamental shortcoming of this approach to the question of multiple meaning is that it does not go to the heart of the matter: it does not tell us what ambiguity really is. For this, we must turn to the direct criteria.

It is worth asking what we would expect of a word that had two or more distinct senses. We would surely expect each sense to have, as it were, an independent life in the language, responding in its own peculiar way, sometimes incompatibly with other senses, to various contextual conditions. The following illustrate the sorts of ways in which such independence might manifest itself.

A. If a word has two distinct senses, each one ought to respond independently to semantic processes such as negation and quantification. We would not, on the other hand, expect such independence of variant contextual specifications of a general term.

Consider sentences 11 and 12:

11 They reached the bank in time

12 It was a child who opened the door

The meaning of each of these sentences (with certain reservations which will not be discussed here) can be represented as a disjunction of two possible interpretations: 'The reached the money-bank' OR 'They reached the river-bank'; 'It was a boy' OR 'It was a girl'. But when they are negated, a difference appears:

13 They didn't reach the bank in time

14 It wasn't a child who came to the door

While the meaning of 13 can still be represented as a disjunction: 'They didn't reach the river-bank in time' OR 'They didn't reach the money-bank in time', this is not true of 14, whose meaning must be represented as a conjunction of the two possibilities: 'It wasn't a boy' AND 'It wasn't a girl'. The negation test for ambiguity is one of those suggested in Kempson and Cormack (1981). Even two such closely-related readings as 'member of canine species' and 'male of canine species' for <u>dog</u> can be shown by this test to be distinct:

15 It's not a dog - it's a wolf
- it's a bitch

Notice that the second reading actually contradicts the first, since a bitch is a dog, in the general sense. This is what is meant by independent behaviour of the senses. A similar result is obtainable with the universal quantifier <u>all</u>: 16 can refer to river-banks or money-banks; 17 can refer to male canines or canines in general; but 18 has only one interpretation, i.e. 'all boys AND all girls':

16 All banks are to be fortified

17 All dogs must be put down

18 All children must be vaccinated

Conditionals and interrogatives can also be used to diagnose ambiguity. Thus 19 has only one interpretation, while 20 has two:

19 If it's a child, let me know

20 If he has bought another dog, the children will be disappointed

Likewise, 21 is a univocal question, whereas 22 is ambiguous:

21 Is it a child?

22 Is it a dog?

These tests clearly show child to be a general term, thus contradicting the result of the 'different synonym' test. Similarly, in the case of langue, the present test contradicts the 'same translation equivalent' test, as 23 has two readings:

23 Ce n'est pas sa langue qui m'intéresse

The citation above of animal as a counter-example to the 'same hyponym' test is supported by 24, which also has two readings:

24 Mary, did the animal bite you?

If Mary had just had an encounter with a sex-maniac walking his dog (the latter having behaved with propriety) she might be uncertain whether to answer 'Yes' or 'No'.

B. For a sentence containing an ambiguous word, there should, in principle, exist situations in which the sentence can be used to express two distinct statements, which are referentially identical except for differences consequent on the choice of sense of the ambiguous word, and which have opposite truth values.

This rather cumbersome formulation is necessary for precision. Both Lyons (1977:404) and Kempson (1977:128-9) deny (wrongly, in my opinion) that a successful criterion for ambiguity can be constructed along these lines. Consider 25:

25 Charles has changed his position

Suppose Charles is an official delegate at a conference convened to discuss Britain's membership of the EEC. Among the possible readings of 25 are (i) 'Charles has changed his opinion concerning EEC membership' and (ii) 'Charles has decided to sit somewhere else in the conference hall'. At a particular time, one of these might be true and the other false, so that someone hearing 25 could truthfully retort either 'That's true' or 'That's false', according to which reading he understood. Contrast this with 26:

26A There's a horse in the field

B (i) That's true - it's the black stallion
(ii)*That's false - it's the black stallion

B's second alternative reply is impossible in any conceivable situation, as there is no sex-specific sense of horse which would enable A's sentence to be understood as a false statement.

C. A normal utterance utilises only one of the readings of an ambiguous word; the applicability of a general term, however, must be maximised, even if the result is anomalous.

Anyone hearing an utterance of 27 will assume that all the entities in the situation referrable to as 'children' were, in fact, girls. The applicability of children is maximised, but there happened to be no boys present to refer to. Sentence 28, however, is anomalous (or simply false) because it purports to state a truth not bound to specific situations, and maximising the scope of children under these conditions necessarily includes boys:

27 The children wore red dresses

28 Children usually wear dresses

29 is also deviant:

29 ?The children wore red dresses, and the boys, blue suits

One might have expected this to be normal, since the context makes it unambiguously clear how children is to be interpreted. However, the second conjunct reveals that boys are also present in the situation, and because of the rule of maximisation, must be included in the reference of children, even though the result is anomalous. Note, however, that an explicit restriction of scope is permissible:

30 The children wearing dresses sat on one side of the hall, and the boys sat on the other

Now let us see what happens with ambiguous words:

31 I'll take the dog - you look after the bitch

32 I prefer a bank to the side of a river for depositing my money

33 He's still sitting in the same place, but he's adopted a more comfortable position

In each of these sentences, an ambiguous word has a sense, which, if it were obligatorily brought into play, would lead to anomaly. Yet the sentences are all normal. This is because we are permitted to ignore irrelevant readings of ambiguous words.

D. Certain grammatical processes require identity of sense between certain elements involved in the process. This requirement is not met by distinct readings of an ambiguous word; it is met, however, by different contextually forced specifications of a general sense.

One such grammatical process is verb-phrase anaphora (fully discussed in Zwicky & Sadock (1975) and Kempson (1977:ch.8)). Consider 34 and 35:

34 We have adopted a child; so have our neighbours

35 Mary's wearing a light coat; so is Sue

In 34, it is perfectly possible for the two children to be of different sexes; this is the so-called 'crossed interpretation' which confirms that child is not ambiguous, but general with regard to sex. In 35, however, each conjunct must have the same reading of light - either both girls have light-coloured coats, or they both have light-weight coats. The impossibility of crossed interpretations under these circumstances is characteristic of ambiguous words.

Both Zwicky & Sadock, and Kempson, in the discussions cited above, argue that cases of ambiguity where one sense is hyponymous to the other (as with the two readings of dog) cannot be diagnosed by this test (known as the 'identity test'). For example, in 36, Tom's dog might well be male and Harry's female:

36 Tom bought a dog; so did Harry

Does this not conflict with the claim that dog is ambiguous? No, because in contexts like these, the two senses cannot be separated: if the specific sense is applicable, so is the general sense, and dogs of either sex can be referred to by the general sense. To show up the ambiguity of dog using this form of the identity test, it is necessary to use contexts where the applicability of the specific sense does not entail the applicability of the general sense, as in 37:

37 John wants to know if the animal in that cage is a dog; so does Bill

The crossed interpretation is not possible here; that is to say, 37 cannot be used to describe a situation in which John knows that the animal is an alsatian, but is unsure of its sex, and Bill knows that it is female, but thinks it might be a wolf.

The identity test also exists in another version, which is of particular significance because for certain types of ambiguity it is apparently the only 'direct' diagnostic test. This is the so-called 'pun-test'. Two readings are isolated in biassing contexts and then placed in a structure that calls for identity between them. If the result is normal, the two readings can be regarded as contextual specifications of a single general meaning. A truly ambiguous word yields an unmistakable pun (although not necessarily a funny one):

38 ?John and his driving licence expired last Thursday

39 ?He swallowed my story along with the drink I offered him

In 38, the contexts John... and his driving licence... select different readings of expire, and the attempt to conjoin them results in zeugma, showing expire to be ambiguous. In a similar way, ...my story and ...the drink in 39 select different readings of swallow. However, although in 40 ...can become pregnant and ...can father children select different readings of humans, they co-ordinate quite happily, which demonstrates that humans is univocal, at least with regard to sex:

40 Humans can become pregnant at X years of age, and can father children at Y

Dog passes this test for ambiguity, too, if sufficient care is taken to choose suitable contexts:

41 Dogs can become pregnant at X months

42 Dogs mature later than bitches

43 ?Dogs can become pregnant at X months and mature later than bitches

41 and 42 are in themselves quite normal; but they select different senses of dog, and conjoining them leads to zeugma. 44 is also zeugmatic:

44 ?John bought a dog because he doesn't like bitches; so did Bill - a labrador bitch, in fact

The pun-test can be used to test readings which are contextually conditioned, and hence cannot appear as alternatives in the same context. The contrast between 45 and 46 is revealing:

45 ?Her walking-sticks are unusually thin; so are her soups

46 She is as thin as a walking-stick

The interesting point about these sentences is that 45 is zeugmatic, although the opposite of thin for both soup and walking-sticks is thick; 46, on the other hand, although hyperbolic, is not zeugmatic, even though the opposite of thin for people is fat and for sticks is thick. That is

to say, whether opposites are the same or different for a pair of readings is a poor guide to whether they will co-ordinate compatibly. Similarly, although the opposite of old for people is young and for cars, new, the two readings of old seem, by this test, to be 'the same':

47 He drives a car which is five years older than he is

There are, of course, two distinct senses of old, as the non-contradictory nature of 48 attests; they both have the same opposite, namely, new:

48 His old car was new, but his new one is old

Direct criteria for ambiguity are superior to indirect criteria in a number of respects: they are not so subject to vagaries of the lexicon; a positive result can be taken as definitive; they do not contradict one another. Also, they are all direct pointers to the fundamental nature of ambiguity. Ambiguity is the possession of two or more sets of semantic properties which cannot, without loss of normality, be simultaneously brought into play in a single utterance. Ambiguous readings are mutually exclusive in use: both speaker and hearer must make a choice on each occasion of use. All the direct tests trade on this one basic fact; indeed, one could say that they are merely variants of one and the same test.

I shall label the type of ambiguity diagnosed by the direct criteria 'semantic ambiguity'. The topic of this paper is 'lexical ambiguity'. It would be nice if the two could be equated for lexical items. There are indications, however, that they should be kept distinct. (Kempson & Cormack (1981) make a distinction between 'logical ambiguity' and 'linguistic ambiguity', which, if I understand it correctly, is not a million miles in spirit from the distinction I wish to make).

There are numerous cases of apparent semantic ambiguity that one would intuitively hesitate to describe as lexical ambiguity. I shall discuss three representative examples. The first is book. The two readings I shall refer to are 'physical object' as in 49 and 50:

49 This book just fell on my head

50 The trunk was full of old books

and 'text', as in 51 and 52:

51 Nigel's latest book is way over my head

52 She's writing a book about lizards

This seems to be a genuine ambiguity, which passes all the tests. For instance, 53, a negative, has both readings:

53 That's not the book I thought it was

There are situations in which 54 can be truthfully answered in contradictory ways according to which reading is selected:

54 Is this an adequate description of the book?

Both 55 and 56 seem relatively normal, and would be interpreted with different senses of book, thus proving that we are not dealing with a case of generality (cf. ?Never mind the boys, what do you think of the children?):

55 Never mind the story and so forth, what do you think of the book itself?

56 Never mind the cover design, printing and binding and so on, what do you think of the book itself?

Finally, 57 and 58 look suspiciously like failures of the identity test:

57 ?I constructed a book out of scrap paper then sat down and wrote it

58 ?John destroyed the book, then re-read it

If this is not genuine ambiguity, then all the criteria will have to be re-examined. I am convinced, however, that it is ambiguity. The second example is the numeral ten (any numeral will do). In 59, ten can mean either 'exactly ten' or 'at least ten' (among other possibilities):

59 I have ten pounds

The two readings are preserved under negation:

60 I don't have ten pounds - (i) I have eight pounds
(ii) I have fifteen pounds

61, directed at someone who has £15 in his wallet, can be truthfully answered 'Yes' (if it is a question of the addressee being able to afford something), or 'No' (if there is a prize at the party for anyone with exactly £10 in his wallet):

61 Do you have ten pounds in your wallet?

Zeugmatic contexts are hard to devise, but 62 may be one:

62 ?Arthur came out with £12, but since he has spent £4, he now has £8. So has Harry, who has not yet broken into his £10 note

If the now in 62 were changed to still, the sentence would not be zeugmatic; but now forces the reading 'exactly £8', which is not applicable to Henry's monetary state. (See also Cormack (1981) for a discussion of ambiguity in numerals).

The final example is door, and its two readings 'aperture' and 'filler', as in 63 and 64, respectively:

63 We came in through the other door

64 They took the door off its hinges

These are shown to be distinct by the zeugmatic nature of 65:

65 ?We took the door off its hinges, then went through it

There are two principal reasons for doubting that the ambiguities of the preceding paragraph should be counted as lexical ambiguities. The first is that they frequently do not appear when one would expect them to. In 66, for instance, the it of the second clause requires a different reading of book from the one selected in the first clause, yet the sentence is perfectly normal:

66 I memorised the main points of the book, then burnt it

Sentences of this type led Bierwisch (in a paper read at the LAGB Spring Meeting, 1980) to claim that book (among other words) was not ambiguous in this way.

Taking a similar line, Nunberg (1979) cites 67 as proof that window (a parallel example to door) is not ambiguous between 'aperture' and 'filler':

67 The window was broken so often that it had to be boarded up

What was broken was the filler, and what was boarded up was the aperture, so 67 ought to be odd. But it is not. 68 ought also to be odd, because the first occurrence of sixty clearly means 'at most sixty', while the second occurrence (introduced via anaphora) means 'at least sixty'. Yet again, there is no oddness:

68 To get into the athletics club you have to be able to run 400m in 60 seconds, which is how long you have to be able to hold your breath to join the sub-aqua club

It is true that the reading 'exactly sixty' will fit both cases, but this reading does not seem to be necessary.

Precisely what is going on here is not entirely clear. There seems to be a kind of 'global' sense of words like book and door, over and above the specific senses, which is able to encompass all the variant readings. Thus, what is broken and boarded up in 67 is the same global window; what is memorised and burnt in 66 is the same global book. What is involved in 68 is perhaps a kind

of 'relaxed' sense which can be glossed as 'any notion based on sixty'. Under certain conditions, however, the global sense is not able to resolve anomalies which would be predicted from the specific senses. The problem is to give a general account of these conditions; at present I know of no such account. There are some possible leads. The anomaly of 65 perhaps has something to do with the notion of 'taking off, removing', which, when applied to a part of something, normally implies (or perhaps conversationally implicates) that the same does not apply to the whole: if 69 is uttered, 70 will normally be understood:

69 John removed the leg of the table

70 John did not remove the whole table

It may be this semantic peculiarity of the predication which excludes the global sense of door in 65. Another possible condition under which the global sense is blocked is when a change is signalled from one sense of a word to another: thereafter, anaphoric reference appears to be limited to the last sense employed. This is what happens in 62. The global sense of door in 71 allows the two specific senses to operate simultaneously:

71 I've been thinking about the door; so has John. I want it painted green, and John wants the wheelchair to be able to get through

But in 72, John and I both have to be thinking of the door-panel:

72 I'm not thinking of the doorway now, I'm thinking of the door; so is John

The second reason for doubting that book, door and the numerals are lexically ambiguous is that all items whose meanings fall within a given conceptual area exhibit the same, or a closely similar range of readings. This state of affairs is totally unknown amongst intuitively clear ambiguous words. Thus the ambiguity which has been demonstrated in book occurs also in tome, volume, novel, biography, letter, thesis, etc.; and the ambiguity of door recurs in window, sky-light, port-hole, etc.; and the ambiguity of ten is found in all numerals - and not only in numerals:

73 Is the water warm? Yes, in fact it's hot
No, it's hot

The alternation of readings is shared by synonyms, hyponyms, and co-hyponyms; it makes no apparent difference whether a word is common, rare, or even newly-minted, as long as its meaning is in the right area. It seems highly likely, therefore, that these alternative readings are generated by very general semantic rules, presumably from some basic

sense (cf. Nunberg (1979)). We may think of the meaning of one of these words as being made up of a 'cluster' of 'micro-senses'. It appears that contextual selection of an appropriate micro-sense has more in common with the normal selection of a sense of an ambiguous item than it does with contextual restriction of a general term.

In Kempson (1980) it is claimed that the ambiguity of dog is predictable by general rule. However, the contrast between the dog type of ambiguity and the book type is marked. The rule Kempson proposes concerns cases where a general term is dichotomously subdivided, but only one of the divisions is lexically expressed. Under such conditions, the general term moves in, as it were, to fill the gap, and assumes a specific sense, in direct opposition to the sense which is lexically expressed. Thus, besides dog (dog v bitch), we have, among others, duck (duck v drake), and rectangle (rectangle v square). However, unlike the ambiguity of book, that of dog is not shared by synonyms or near-synonyms: for instance, the jocular noun canine does not have it, nor do cur or doggy. This may seem trivial. But suppose one were to invent a new numeral crant, with the meaning 'twenty-nine', it would have the same range of senses as ten. Or what about a caniary (a collection of hymns to the Dog Star)? Surely, this would manifest the 'physical object'/'text' ambiguity? On the other hand, naming a new animal a boogle, and dubbing the female a banga would not automatically entitle us to use boogle in the sense of 'male boogle'. The fact that Kempson's rule is not fully predictive also shows up in that the predicted specific sense of 'adult dog', in opposition to puppy, appears to be only feebly developed, if at all. I find 74 and 75 both odd:

74 ?I like all dogs, but I hate puppies

75 ?Is that a dog? No, it's a puppy

It seems more likely, therefore, that Kempson's rule represents only a tendency for a certain semantic development to occur. Items which satisfy the conditions for the rule to apply must still be individually tested to see if the development has indeed taken place. Furthermore, when the specific sense does develop, it behaves like a fully independent meaning, and its response to ambiguity tests is completely predictable.

Equating semantic and lexical ambiguity raises problems of a different sort in cases like 76 and 77:

76 ?John likes blondes and marshmallows

77 ?I spend all my time reading novels and thermometers

Let us look at 76 in detail (similar examples are discussed in Lyons (1977:407-9)). The relatively more normal 78 indicates that we are dealing with a true case of zeugma, and not just pragmatic oddness:

78 John likes blondes; he also likes marshmallows

Furthermore, the fact that the nearly-synonymous 79 and 80 are not zeugmatic at all shows that we are dealing with a genuine property of <u>like</u> (Lyons takes the opposite view):

79 John is crazy about blondes and marshmallows

80 Blondes and marshmallows both give John pleasure

The conclusion that <u>like</u> is ambiguous is supported by 81 (Zag and Zog are intelligent but anthropophagous beings on an alien planet):

81 Zag: Did you like the astronaut?

Zog: If you mean in the way that John likes blondes, the answer is 'No'; but if you mean in the way the John likes marshmallows, the answer is 'Yes'

Where, then, is the problem? The problem is that there appears to be a continuum of meaning, stretching from <u>like</u> (blondes) to <u>like</u> (marshmallows), such that readings which are close together can be co-ordinated without zeugma, but if they are sufficiently far apart, they are incompatible. If this picture is correct, it does not make sense to ask how many senses of <u>like</u> there are: there is just a seamless fabric of meaning-potential. Consider 82: none of the pairings produce zeugma, yet the end items are incompatible:

82 John likes blondes and racehorses
- racehorses and fast cars
- fast cars and elegant clothes
- elegant clothes and expensive after-shave
- expensive after-shave and vintage port
- vintage port and marshmallows

<u>Read</u> seems to cover a similar spectrum of meaning:

83 Mary spends her time reading
- novels and D.I.Y. books
- D.I.Y. books and catalogues
- catalogues and trade lists
- trade lists and duty rosters
- duty rosters and time-tables
- time-tables and calendars
- calendars and clocks
- clocks and thermometers

The situation bears comparison with the evolutionary biologists' notion of a 'ring-species': population A interbreeds with neighbouring population B, B with C, C with D, and so on, round the world, until population X is reached, whose territory adjoins that of the original A. But A and X do not interbreed - they are apparently distinct species. At what point do they become different species, and how many species are there? Instead of trying to answer these questions, biologists speak of the whole complex as a new kind of entity - the ring-species. Perhaps semanticists, too, should recognise a new kind of complex semantic entity: the meaning of a word such as _like_ could be described as a 'sense-spectrum'.

Assuming that there is some substance in the notions of sense-cluster and sense-spectrum, how is lexical ambiguity to be characterised? To count as paradigmatic lexical ambiguity (i.e. ambiguity within a constant syntactic frame), two readings of a word, must, it seems, (a) satisfy the direct criteria, (b) not be micro-senses from the same sense-cluster, and (c) not be connected by a sense-spectrum.

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LEXICOGRAPHY: An Annotated Minimum Bibliography

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It is gratifying to note the increasing linguistic interest in lexicography as a practical activity and a theoretical concern. This list of thirty basic references is intended as a first guide to the literature. I is an eclectic and highly personal but, hopefully, generally useful selection of some enduring and some recent writings on dictionary-making in English, excluding titles of dictionaries themselves.

I

1 The best brief introduction to the field is to be found in:

READ, Allen W. (1977) 'Dictionary', Encyclopaedia Britannica, vol. 5, 713-722

2 A more comprehensive and advanced survey, from the (European) linguistic point of view, is:

QUEMADA, Bernard (1972) 'Lexicology and lexicography' Current Trends in Linguistics ed. by T.A. Sebeok, et al. The Hague: Mouton, vol. 9, 395-475

Introductory articles on lexicographical topics are scattered over a wide range of technical and popular periodicals. The only one exclusively devoted to lexicography is the journal of the Dictionary Society of North America, itself one of the very few professional associations in the world. From its first issue I select:

3 STEIN, Gabriele (1979) 'The best of British and American lexicography', Dictionaries 1, 1-23. The title of this survey article is reminiscent of a still eminently readable classic:

4 HULBERT, James R. (1955/68) Dictionaries: British and American (The Language Library) London:Deutsch

While training facilities are on the whole still very limited, the beginner is dependent on textbooks. One of the few that has made an impact for over a decade is:

5 ZGUSTA, Ladislav (1971) Manual of Lexicography. The Hage: Mouton

I am preparing a collaborative volume, entitled Lexicography: Principles and Practice, with contributions from 20 authorities in the field, to be published in the series Applied Language Studies, (Academic Press) in time for the Exeter International

Conference on Lexicography in 1983. Incidentally, conference proceedings can be a useful indicator of topics, trends and personalities; a list of major meetings and papers since 1960 is provided in:

6 HARTMANN, Reinhard (1982) 'Contacts and conferences in Lexicography' (Lexinotes IV) ALLC Bulletin, forthcoming

The British Association for Applied Linguistics has sponsored a lexicography seminar and the publication of most of the papers presented there in book form. Michael Stubbs' criticism, in his recent NLC review, viz. that the book 'misses several opportunities for advancing lexicographic theory', would only be justified if this had been its main aim:

HARTMANN, Reinhard, ed. (1979) Dictionaries and their Users Papers from the 1978 BAAL Seminar on Lexicography (Exeter Linguistic Studies vol.4) Exeter: University

One important trend that has emerged recently is the notion of the dictionary user. One sub-class of user is the (EFL) learner. To have drawn attention to the dictionary's role in vocabulary comprehension and acquisition, and thus the need for an 'applied linguistic' approach, was the particular merit of 'Ash' Hornby, whose work is acknowledged in a fascinating Festschrift:

8 STREVENS, Peter, ed. (1978) In Honour of A. S. Hornby, Oxford: Oxford University Press

Commemorative collections help us to take stock and to assess the contribution of individual pioneers in a way that bibliographies cannot. There is a place for such check-lists, but they tend to date quickly. For that reason I shall not list one, but rather refer you to the bibliographies in the items above and below, as well as the regular section on vocabulary studies in the annual Linguistic Bibliography.

There is still a need for a full history of lexicography, sketched briefly in items (1) and (4) above. Two partial accounts may be of interest, one critical and one biographical:

9 WELLS, Ronald A. (1973) Dictionaries and the Authoritarian Tradition, The Hague: Mouton

10 MURRAY, K.M. Elisabeth (1977) Caught in the Web of Words. James A.H. Murray and the Oxford English Dictionary, New Haven/London: Yale University Press

II

You have now completed the first stage of your initiation into dictionary-making. The next ten items deal with the subject of typology, or how to classify the many different kinds of dictionaries you might encounter, e.g. on the shelves of a big public library. One scholar among many who has addressed himself to dictionary typology is the comparative-historical linguist Yakov Malkiel, who uses a distinctive feature approach:

11 MALKIEL, Yakov (1976) Etymological Dictionaries: A Tentative Typology. Chicago: University of Chicago Press

The historical dimension of a language's vocabulary is of great cultural, intellectual and even national interest; therefore it is not surprising that most of the major (and some of the minor) world languages have been subjected to a diachronic lexical analysis. Nevertheless, the large academic 'historical' dictionary is not as old as the descriptive 'usage' dictionary, and both are often preceded by the bilingual 'translation' dictionary.

12 GOVE, Philip B., ed. (1967) The Role of the Dictionary, Indianapolis: Bobbs-Merrill

13 CRESSWELL, Thomas J. (1975) Usage in Dictionaries and Dictionaries of Usage (Publication of the American Dialect Society) University of Alabama Press

14 AL-KASIMI, Ali M. (1977) Linguistics and Bilingual Dictionaries, Leidan: Brill

Al-Kasimi has advanced the typology of dictionaries by distinguishing several purpose-specific parameters, e.g. language directionality, user needs, degree of mechanisation, historicity, and coverage. These must be combined to characterise a particular dictionary as monolingual/bilingual, production/comprehension oriented, general/specialised etc. The following three pairs of items deal with aspects of the 'regional', the 'technical', and the 'pedagogical' types.

15 McDAVID, Raven I. & DUCKERT, Audrey R., eds. (1973) Lexicography in English (Annals of the New York Academy of Sciences vol.211) New York: NYAS

16 SCHOLLER, Harold & REIDY, John, eds. (1973) Lexicography and Dialect Geography: Festgabe for Hans Kurath, Wiesbaden: Steiner

17 BUTLER, Christopher S. & HARTMANN, Reinhard, eds. (1976/79) A Reader on Language Variety (Exeter Linguistic Studies, vol.1) Exeter: University

18 FELBER, Helmut (1979) 'Theory of terminology, terminology work and terminology documentation: interaction and world-wide development Fachsprache 1, 1-2, 20-32

19 HORNBY, Albert S. (1965) 'Some problems of lexicography' English Language Teaching 19, 104-110

20 COWIE, Anthony P. ed.(1981) Lexicography and Its Pedagogic Applications (special issue of) Applied Linguistics 2, 203-296

III

We now progress to the last and most specialised stage of this bibliographical introduction. Having mastered the principles and sampled various types of lexicographical compilation, you are now ready to follow up some references to detailed points of methodology. The training programme starts with a course on field-work, then moves on through the linguistic-semiotic levels to problems of labelling and automation.

What kind of field is lexicography? Simple dichotomies like science/art, practice/theory, or vocation/commercialism are not appropriate to the complexities and possible specialisations, but most lexicographers will need a modicum of discretion in their gathering of data, their market research, and their techniques of presentation. The available textbooks do not, however, give sufficient guidance on these matters, and the newcomer will need to consult some of the following sources (which were not necessarily written with the lexicographer in mind) when the above works fail him/her.

On field-work methods, especially for 'minor' languages:

21 ROBINSON, Dow F. (1969) Manual for Bilingual Dictionaries. vol.1. Santa Ana California: Summer Institute of Linguistics. Also items (5), (16), (20) above.

On vocabulary acquisition:

22 MEARA, Paul (1980) 'Vocabulary acquisition: A neglected aspect of language learning' (survey article) Language Teaching and Linguistic Abstracts 13, 221-246. Also (8) above.

On the semiotic perspective in lexicography:

23 DOROSZEWSKI, Witold (1973) Elements of Lexicology and Semiotics. The Hague: Mouton. Also (7) above.

On phonetic transcription:

24 SECRIST, Robert H. (1978) 'Whither pronunciation? Past, present, and future practices in English dictionaries' Methodological Problems in Monolingual and Bilingual Lexicography (Studies in Lexicography vol.2.1) New York: Bantam Books, 44-57. Also (5), (7), (8), (14), (20) above.

On grammatical coding:

25 ALLERTON, David (1980) Essentials of Grammatical Theory. London: Routledge. Also (4), (5), (8), (14), (20) above.

On meaning discrimination:

26 LEECH, Geoffrey (1974/81) Semantics. Penguin Books. Also (2), (4), (5), (7), (14) above.

On pragmatic and textual analysis:

27 WERLICH, Egon (1976) A Text Grammar of English. Heidelberg: Quelle & Meyer. Also (7), (17) above.

On stylistic labelling:

28 CASSIDY, Frederic G. (1972) 'Toward more objective labelling in dictionaries' Studies in Honor of A.H. Marckwardt, ed. by J.E. Alatis. Washington D.C.: TESOL, 49-56. Also (4), (5), (13), (14), (20) above.

On word frequencies:

29 HOFLAND, Knut & JOHANSSON Stig (1981) Word Frequencies in British and American English. Bergen: The Norwegian Computing Centre for the Humanities. Also (2), (8), (15), (17) above.

On computer methods:

30 HOCKEY, Susan (1980) A Guide to Computer Applications in the Humanities. London: Duckworth. Also (2), (7), (15), (16) above.

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Contributions to NLC and correspondence about contributions should be addressed to:

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Style Sheet:

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4. References should be cited in the text thus: Sommerstein (1975), Trudgill (ed., 1978:21), and the details listed at the end of the paper in this form:

SOMMERSTEIN, A.H. (1975) The margins of morphophonemics, Journal of Linguistics, 11, 2:249-60

TRUDGILL, P., ed., (1978) Sociolinguistic Patterns in British English, London: Arnold

Note that article titles are not underlined, journal titles are given in full, and pages of articles are given. Book titles are underlined, and both place of publication and publisher are given.

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NLC 10.1. June 1981. Special issue on Text and Discourse. Includes: Powell (on speech act theory); Carston (on irony and parody); Berry (on exchange structure); Nash (on narrative).

All other back issues, from 1971, are still available, including:

NLC 9.2. December 1980. Special issue on Syntax and Semantics. Wales (on the pronoun 'one'); Killingley (on Cantonese); Stubbs & Berry (on English verbal groups); Durkin (on English prepositions).

NLC 9.1. June 1980. Includes: Cheshire (on non-standard teaching English); Pountain (on teaching Spanish); Walker (on Frisia).

NLC 8.2. December 1979. Includes J. Coates (on computational linguistics); Connolly (on language change); Foster (on child language).

NLC 8.1. June 1979. Includes: Berry (on discourse); Carter (on discourse and poetry); Corbett (on adjective movement); Willis (on speech pathology).

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NLC 6.2. October 1977. Special issue on Child Language.

NLC 6.1. May 1977. Special issue on Stylistics.

NLC 5.2. October 1976. Includes a four-articles debate between Radford and Pullum on the verb-auxiliary distinction in English.