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Semantic Networks:

the Description of Linguistic Meaning in SFL

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1 Introduction

Systemic Functional Linguistics (SFL) views language as a meaning potential, but – or perhaps therefore – the greatest expenditure of energy in work within SFL has been not in the area of semantics but of lexicogrammar, which has been described by Halliday (1998) as 'the power house of language'. By describing it this way, Halliday meant that the work of 'making meaning by wording' happens at the stratum of wording, i.e. lexicogrammar; this is where, as most systemicists would say, 'the real work of language' is done. From this perspective, the focus on lexicogrammar seems logical: if you maintain that language is a meaning potential and a resource for meaning, then you have to show how language construes meaning, and how that meaning is made potentially accessible to an 'other'. SFL meets this demand by saying: patterns of wording – lexicogrammar – as expressed by patterns of sound – phonology – put a speaker's meaning in contact with an 'other'.[1] It follows that lexicogrammar has to be 'meaningful': the bias in SFL for a 'semanticky' grammar is justified. As a first step, the explanation is unimpeachable, and the privileged status of lexicogrammar appears to be firmly established. And, indeed, there are many who still believe that if you but do your lexicogrammar meticulously, semantics will follow suit.

But – and in the complex realm of the study of language, it never pays to ignore any 'buts' – SFL also maintains that the status of meaning as product has been overplayed in linguistics; that meaning is also, and importantly, a process.[2] Thus Halliday asks 'How do you mean?' (1992a) and offers deep insights into 'The act of meaning (1992b). Like Vygotsky, he postulates a systematic relation between cognition and semiotic acts (Halliday and Matthiessen 1999) which, as Malinowski points out, are necessarily embedded in social context[3]. Acts are impossible without actors, and the

[1] The word 'meaning' may be used as a superordinate or as a hyponym. However, in this chapter we use 'meaning' only as a hyponym, referring to 'meaning' construed by the use of the linguistic modality. In this sense we are differentiating between the meaning of 'yes' from the meaning of the act of nodding; what concerns us is the former, not the latter. By saying this, we are not in any sense implying that other modalities of meaning are unimportant or irrelevant.

[2] This is important if we are to account for variation and change in language.

[3] On the influence of Malinowski, see Butt and also Butt and Wegener this volume; see also Halliday and Hasan 1985.

primary actors in the process of meaning are speakers (Hasan 1995; 2004) – albeit, speakers into the making of whose unique but socialized personality, acts of meaning have played a crucial part;[4] and this is a fact which adds to the complexity of doing viable linguistics. But when all is said and done, it is, in fact, these socio-semiotically fashioned speakers who are the meaners; language as the construer of meaning acts at their behest; witness the fact that as speakers we have some sense of the meaning we mean to mean when we use language. This sense may be nebulous, and it may lie below the level of conscious awareness, but its intimation is scarcely subject to doubt; after all, as speakers, we very often know when there has occurred a mismatch between what we had meant to mean and what we have ended up meaning with our meaning-making system. It follows that the occurrence of lexicogrammatical patterns in any specific instance of language use could not be serendipitous, nor can we attribute to some lucky accident that remarkable quality of relevance to context, which is found so overwhelmingly in naturally occurring language use.

The situation appears paradoxical: the meanings we mean could not have come about without the use of the resources of language system, but the system of language is not where the act of meaning as process has its origin. Any linguistic framework that views language as a meaning potential must successfully probe this paradox, which necessarily involves reflection on the place of meaning in the design of language, and on the place of language in the designs for living a social life (Matthiessen, this volume; Butt, this volume). Then again, there also remains the fact that patterns of wording and of meaning do not have a one to one correspondence. True, the meaning-wording relation is 'solidary' as Hjelmslev (1961) would have put it: no meanings emerge without speaking – this is true both phylogenetically and ontogenetically – but at the same time, the relation between meaning and wording is 'non-conformal', that is to say, the same lexicogrammatical unit might construe different meanings in different textual and contextual environments (see below section 4, table 4 for some cases). Homonymy and synonymy, presented since Saussure as evidence of this fact, are simply the tip of the iceberg; the non-conformality between the levels of meaning and wording goes much deeper and ultimately plays an important part in the construal of such well known tropes as simile and metaphor, irony and metonymy, synecdoche, *double entendre*, and a host of others.[5] In SFL, systematic non-conformality between two orders of abstraction, such as exists between meaning and wording, justifies viewing them as two distinct strata of language which are held together by the

[4] See for example Thibault, this volume, on a closely connected issue in this domain, and also Williams on Semantic Variation, this volume.

[5] The terms may sound unfamiliar, even pedantic, but the tropes are everywhere in language use; in fact, once they get very familiar we simply think of them as 'just normal language'. Note, for example, the dead metaphors, and also a range of idiomatic expressions (see Tucker, this volume).

solidary relation of realization[6] (Halliday 1992a; Hasan 1995): realization should not be confused with simple expression, much less with correspondence to extra-linguistic reality.

It should be obvious from these remarks that the semantics of a language calls for as much attention as its lexicogrammar: in fact, meaning and wording are two sides of the same coin; the description of both is equally central to understanding 'how language works' (Halliday, McIntosh & Strevens 1964) – which has been Halliday's agenda since the beginning of his engagement with linguistics. But what actually led SFL into the exploration of semantics as a legitimate domain for description was not these theoretical considerations, *per se*; rather, like other aspects of the evolution of SFL[7], interest in semantics too arose in attempts to resolve certain problems in the course of research during the 1960's. This chapter presents one perspective on the course of this development, specifically with respect to semantic networks as a resource for the analysis of meaning.[8]

2 Language in a social perspective: pressure on the science of semantics

During the second half of the 60's Halliday was directing two projects at University College London: one concerned the teaching of English as mother tongue;[9] and a group of linguists and teachers worked together on this project. The other concerned a linguistic analysis of scientific texts, which was the brief of a small group of linguists. These projects, in turn, raised questions such as: what does it mean to learn a language? how do children learn their mother tongue in the natural course of life? what functions are they able to use their language for before they make their way into the classroom? what is the optimally successful way of teaching mother tongue in the official pedagogic context (Bernstein 1990) so that learners can use their language effectively in the living of life in society? what bases are there for the identification of register varieties? what makes for continuity in naturally occurring texts? In grappling with these and many related questions, it became obvious that to pursue these goals successfully much deeper understanding of the relations of context, meaning and wording would need to be developed. Putting it this way sounds as if a resolution was consciously and deliberately formulated prior to beginning the work; however, such relation between theory and practice is a scholarly fiction, encouraged much more by philosophers than by the scientists

[6] This also meets Hjelmslev's condition for the recognition of distinct strata. See further Matthiessen, this volume, on the relationship of *strata* and *realization*.

[7] Many chapters in this volume draw attention to SFL's problem based growth (see, in particular, Matthiessen). This mode of development has probably played an important part in establishing in SFL the principle of negotiation between theory and practice (Christie and Unsworth, this volume), as well as the more technical concept of the dialectic which holds between the system and process of language (Butt, this volume).

[8] See Matthiessen, this volume for a wider perspective.

[9] See for some details Christie and Unsworth, as well as Williams on Grammatics, this volume. A brief account of the research based on personal experience is provided by Pearce, Thornton and Mackay 1989.

themselves: in actual fact, functioning theories seldom arise this way; theories evolve by use (see Butt, this volume), just as children's language develops by use. What happened in SFL is better described by the words of the song quoted by Halliday (1961/2002: 75) *I did what I could*: the problem was there and it had to be tackled with the resources to hand at that time. As problems arose, so pressure was put on the resources essential to the work's progress. It was in a climate of meeting the needs of research that functional semantics which, up to that stage, had been a neglected field in SFL, received a kick-start.

And nothing put as much pressure on the development of semantic networks for analysing meaning as contact with the research projects concurrently being directed by Bernstein at the Sociological Research Unit (SRU). Because the social has always been central in the SFL perspective on language (see Hasan, this volume; also Williams on Semantic Variation, this volume), the UCL linguists' interest in Bernstein's work was natural. The projects at SRU concerned his concept of coding orientation. Since this seminal concept has been well discussed (Bernstein 1971, 1990, 2000; Hasan 1999, in press), we need not elaborate it here. Briefly, Bernstein was concerned with the relationship between social structure, forms of communication and consciousness from the point of view of the production and reproduction of social structure, and what the possibility of this cycle implied in the life of social agents. In Bernstein's view there exists a logical relationship between the principles of power and control, as expressed in forms of the division of labour in society which leads to an 'invidious' distribution of social resources due to unequal power relations in society; this, in turn gives rise to social classes, as an expression of these relations. At the semiotic level this socio-political structure is realized as varieties of dominating and dominated codes which regulate forms of communication between and within the social classes. Bernstein saw communication as pivotal in the formation of human consciousness:[10] communication between socially positioned participants with their specific coding orientations gives the socio-political structures a palpable reality for each social agent: it shapes their understanding of the structure of the world they live in and it becomes the ruler of their sense of the possible and impossible, the sayable and the unsayable. It is this consciousness of the social subjects, which has been formed by code-regulated forms of semiotic behaviour, that plays a crucial role in the reproduction of the principles of social structure (Hasan, in press).

Years later, Bernstein summed up his research question elegantly as: ''how does the outside become the inside and how does the inside reveal itself, and shape the outside?" (Bernstein 1990: 94). The relevance of this perspective for the structuring of pedagogy in society and for sociology of knowledge as well as for any socially oriented linguistics remains enormous, albeit largely unexplored. So far as linguists were concerned, what was needed urgently from them at this early stage of the game

[10] Bernstein never called it 'semiotic mediation', but he was concerned in the semiotic production of human mind much before Vygotsky became academically fashionable.

was some reliable methodology offering the heuristics of code varieties. It is important to add here that Bernstein's codes are essentially semiotic: they are realized not simply by semantic patterns (patterns of *linguistic meaning*) but patterns of meaning construed by *any modality whatsoever*. In this chapter our focus is primarily on the semantic aspect.

Bernstein's own conception of code was highly abstract, and its realization was understandably[11] nearer the level of semantics than of lexicogrammar, though in the interest of so-called objectivity the pressure on him was to state them in 'syntactic' terms. In those early days, Bernstein obliged by 'pulling out' certain indices such as simple/complex structure. However, even as early as the 60s he was defining his code varieties by reference to meaning, often in terms of such binomial pairs as implicit/explicit; universalistic/particularistic; context dependent/independent, (on which, more later in section 5), and so on. He insisted that the realization of code variety in acts of communication was not sporadic: the varieties could not be identified by reference to what Hasan (1973a) described as 'localized meaning'; to announce their identity, they demanded 'text wide' semantic choices. Moreover, their realization in semantic terms depended on the context in which communication occurred, with the consequence that, if context of situation was held constant, speakers oriented to distinct code varieties would be expected to produce distinctive forms of communication. What was needed from the linguist was a set of viable criteria for the recognition of code varieties: what did the distinctiveness of each variety consist in? It followed that the recognition criteria would be complex, involving at least two layers (strata) of language: the definitional status of the code varieties would be semantically specified, but the recognition criteria for these semantic specification would be based on some range of lexicogrammatical resources which realize those meanings. The challenge to the linguist was considerable, and no model of linguistics at that time was anywhere within calling distance of proving helpful, though this did not stop linguists and the so called 'liberal' educationists as well as sociolinguists from sniping at his work, often without displaying any ability to understand the nature of Bernstein's project.

3 Semantic networks of the 1970's

SFL had some advantages: first, thanks to Firth and Malinowski, its conception of language had always been social. And secondly, it defined language not as a meaningless mental appendage but a meaning potential. True, it had no evolved schema for semantic description, but its grammar was not a meaning free formalism; rather, it was seen as a powerful resource for meaning, and, by this stage in its evolution, the principle of paradigmatic description with a system network representation had become well established. Halliday (1969) remains a classic, demonstrating the nature of the system

[11] We say 'understandably' because speakers' intuitions about language are much more meaning based than structure based.

network, including the concept of 'selection expression', of 'realization' in syntagmatic structure, thus making explicit the relation between grammatical systems and grammatical structures. "English system networks" was based on a course given about 1964 at Indiana University, while a mimeo of "The English verbal group" was in circulation in 1966-67 (first published as Halliday 1976a and 1976b, respectively). Halliday (1973a) was based on a paper read in 1970 to a conference in Boston on The Construction of Complex Grammars. Linguists working on the SRU projects were well aware of these developments.[12]

There was a particular reason for their interest in system networks: Bernstein's formulation of the properties of communication lent itself readily to being described in terms of 'meaning as choice in social context', an expression by then made popular by Halliday. Thus, for example, the SRU interview data from the regulative context[13] (Turner 1973; Cook-Gumperz 1973) was often discussed as the range of 'meanings that could possibly be meant in the regulative context'. It was not surprising that researchers began to use the theoretical resource of system networks for the representation of their coding grid for the analysis of the data they were struggling to describe. A lead might have been provided by work being done at this time on cohesion.

3.1 Semantic network: initial tries

The initial work on linguistic devices which construe continuity in text was carried out by Hasan (1968a, 1968b) as part of her work on the English as Mother Tongue project[14]. The cohesive devices Hasan described were identified by their lexicogrammatical status as pronoun, ellipsis and so on. They were singled out because they had the potential for construing continuity under certain conditions; the conditions for continuity construal had a semantic basis. Cohesion was thus a phenomenon that presented the joint work of wording and meaning, though this is not to say that these intricacies were entirely clear.[15] The work on cohesion proved considerably significant, since endophora and exophora were relevant to the realization of 'explicit' and 'implicit' meanings respectively. The material on cohesion was read widely in SRU in its manuscript form. The first use of what would today be most

[12] Some, like Bernie Mohan and Hasan, had done their doctoral research with him; all attended Halliday's lectures at UCL, and there were of course research seminars at UCL, many attended by Bernstein himself. The networks of the 70s are really based on the on-going work of the 60s.

[13] See also Bernstein 1971 for the four critical contexts for socialization.

[14] Work on cohesion had already begun in the 1961. Under Halliday's supervision Colin Bowley researched the relation between cohesion and paragraph in Edinburgh; see also Halliday 1964 (presented to a 1962 conference). Hasan 1968a and 1968b, the former published, the latter in manuscript form, were later incorporated selectively into *Cohesion in English* (Halliday and Hasan 1976).

[15] Years later, this inability to spell it out clearly caused a good deal of confusion especially among readers who read to be confused.

probably regarded a semantic network came from Hasan's manuscript for Part II of Cohesion in Spoken and Written English (1968b) cited and reproduced in Turner and Mohan (1970: 26). This network had occurred in 'a chapter on clausal ellipsis' in Part II,[16] and is presented here as figure 1. Turner and Mohan do not identify this system as an instance of 'semantic network'; however, their discussion shows that they treated it as a 'classification' of meaning. By this time SFL was making a systematic distinction between the terms 'declarative' and 'statement', the former viewed as a category of lexicogrammar, the latter, as its meaning. Which is not to say, however, that there was no slippage between meaning and wording by researchers at UCL, an observation also applicable to those working at the SRU: for example, on the same page 26 in Turner and Mohan, there occurs a category labeled 'Question *clause*' (our emphasis).

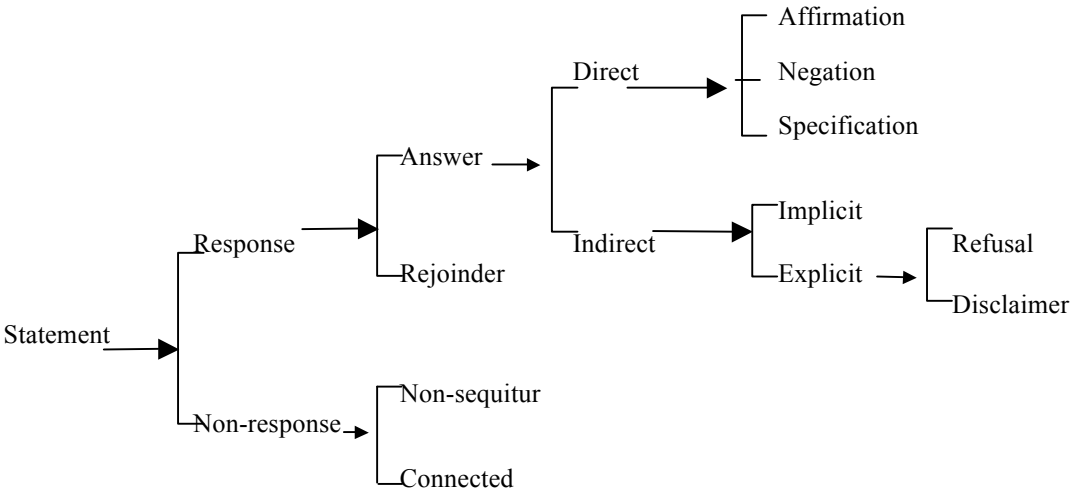


Figure 1: Options in statement: (Hasan 1968b) reported in Turner & Mohan 1970: 26

Terms in this network of options in 'statement' certainly represent a range of meaning choices; the entry condition for them is the semantic category 'statement' and realization of the various options in the system will relate it to terms in the system network of mood as well as other categories of lexicogrammar capable of establishing certain cohesive relations. In building this network Hasan (1968b) would have provided examples of each option, some of which are included in Cohesion in English (Halliday and Hasan 1976). Unlike the kind of system network which was to be developed in the following four years or so under the specific label of 'semantic system network', the system network in figure 1 is not specific to any one particular context of situation. Up to a certain degree of delicacy, it represents a meaning resource relevant wherever there exists the possibility of a dialogic

[16] The information in what is called here figure 1 was adapted in *Cohesion in English* (1976: 207) as a taxonomy of Types of Rejoinder.

turn. In this way, Hasan foreshadowed her orientation to language exhaustive semantic networks (see section 4).

1973 saw the publication of two semantic networks[17], one by Halliday and one by Turner: both were designed to describe meanings accessible within a specific social context. We discuss Turner first, since it is more a try than a 'complete' semantic network meeting all the attributes that viable semantic networks in the SFL framework are required to have. Figure 2 is from Turner (1973) and it is designed to represent some options for threat in the context of maternal control.

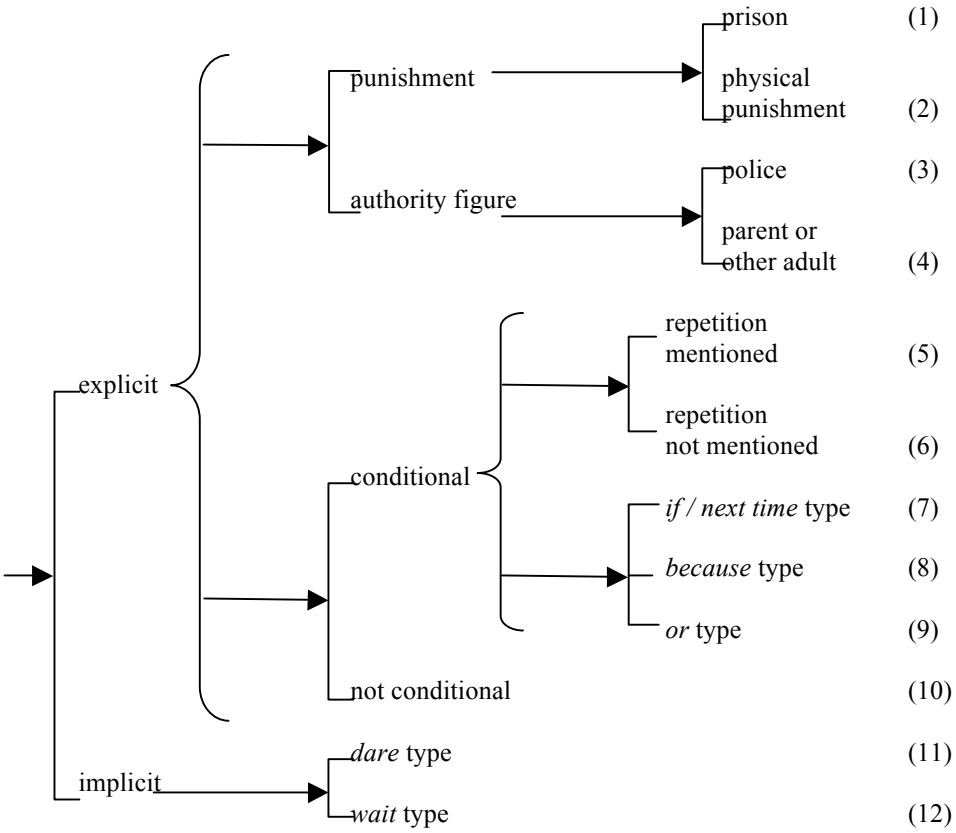


Figure 2: Options in threat: A fragment from Turner 1973: 155

Turner was aware of the theoretical requirements stated by Halliday for the construction of valid semantic networks: this is evident from his detailed acknowledgement of inspiration from Halliday's thinking in this area (Turner 1973:143-144). However, the networks Turner constructed were designed with an eye to the specific requirements of his research data. Thus what they were able to describe was not so much 'the range of alternatives' in meaning pertinent to any given significant

[17] For notational conventions used in system networks see Halliday (1973a: 47), Hasan (1989; 1996).

situation type, but rather those alternatives which seemed to have been included in the coding manual[18] of the SRU, or which were called forth by the data in hand. It is thus not a representation of (even a fragment of) the meaning potential accessible to the speakers of English: it simply represents the potential recognized by the SRU coding manual and/or necessitated by the classification of the data found in the interview transcripts as analysed by the researcher. Nor is it very easy to gather how far the realization of Turner's semantic options was 'grammatically' explicit; although his commentary (see page 154) is modeled very closely on Halliday (1973b), giving full details of the properties of a clause that might realize some semantic choice in the system under focus, no option by option lexicogrammatical realization statements accompany his networks. Further, the semantic options often appear to be 'conceived of' from below (i.e. seen from lexicogrammar). Thus, in figure 2 some options are identified by reference to a lexical item, for example '*dare* type' and '*wait* type' (emphasis ours).

Instead of realization statements in terms of lexicogrammatical systemic choices, Turner provides examples illustrating the various categories of threat that could be described using his networks. In figure 2, numbers in parentheses in the right hand column identify each final option along a systemic path. A list of examples shows which of these attributes are found in which examples (1973: 155). In table 1, we present one Turner example of each category of threat that can be described in terms of one or more of the options in his semantic network (figure 2).

EXAMPLE	SEMANTIC OPTIONS
I'll get you in prison	1,10
I am going to give you a smack	2, 10
I'll tell the police	3, 10
I'm going to tell your mum	4, 10
If you do that once more, I'll punch you	2, 5, 7
If you do that once more, I'm going to tell the police	3, 5, 7
If you do that again, I'll go and tell your mum	4, 5, 7
If you don't go, I'll call the police	3, 6, 7
Don't do it again, 'cos you'll go in prison	1, 5, 8
Don't come back, because I'll give you a spank	2, 5, 8
Never do that again, or you'll get smacked	2, 5, 9
Go on, go on, or I'll get a stick and whack you	2, 6, 9
You come back or I'll tell a policeman	3, 6, 9
You pay for this, boys, or I take you to the police	3, 6, 9
You mustn't do that or else he'll go and tell their mother	4, 6, 9
You dare play football here again	11
Don't you dare break that window again	11
You wait	12

Table 1: Examples of threat described by Turner's system in figure 2

[18] For an example see Bernstein (2000:143). The coding manuals were subject to on-going revisions as further details regarding the range of possibilities in some given context became 'visible' either through discussion or through examination of the data.

3.2 Theorizing semantic system networks

By the time, Turner's semantic network was being tried at SRU, SFL had taken certain crucial steps to position semantic analysis into its theoretical framework. These are listed below:

- situation type defined by systematic relation to context of culture;
- context of culture conceptualized as 'behaviour potential';
- linguistic act of meaning seen as one way of realizing (part of) behaviour potential – meaning as doing;
- options in semantic networks representing some part of semantic potential realizationally related to lexicogrammatical systems.

Each of these issues is discussed in some detail in Halliday (1973b, 1973c). Like Turner, Halliday too chooses to work with the range of meanings accessible to speakers in the context of maternal control; using this context type, he demonstrates how one might go about building a semantic system network, and what the essential attributes for its validity are. These are presented below in brief:

- the semantic network 'is a' hypothesis about meanings accessible to speakers in some specific context type, and the form of the network represents how those meanings are related to one another;
- the semantic network is *the 'input' to the lexicogrammar*: in other words, its options are realized lexicogrammatically;
- the *input to the semantic network* is some sociologically significant and specific context

The language of description for semantics was thus developing apace, but this is not to say that all relations were crystal clear.[19] The final version of Halliday's semantic network for 'both threat and warning' is reproduced here as figure 3.

[19] See Fawcett 1980 for some complaint; but the solution Fawcett offers a decade later is not palatable.

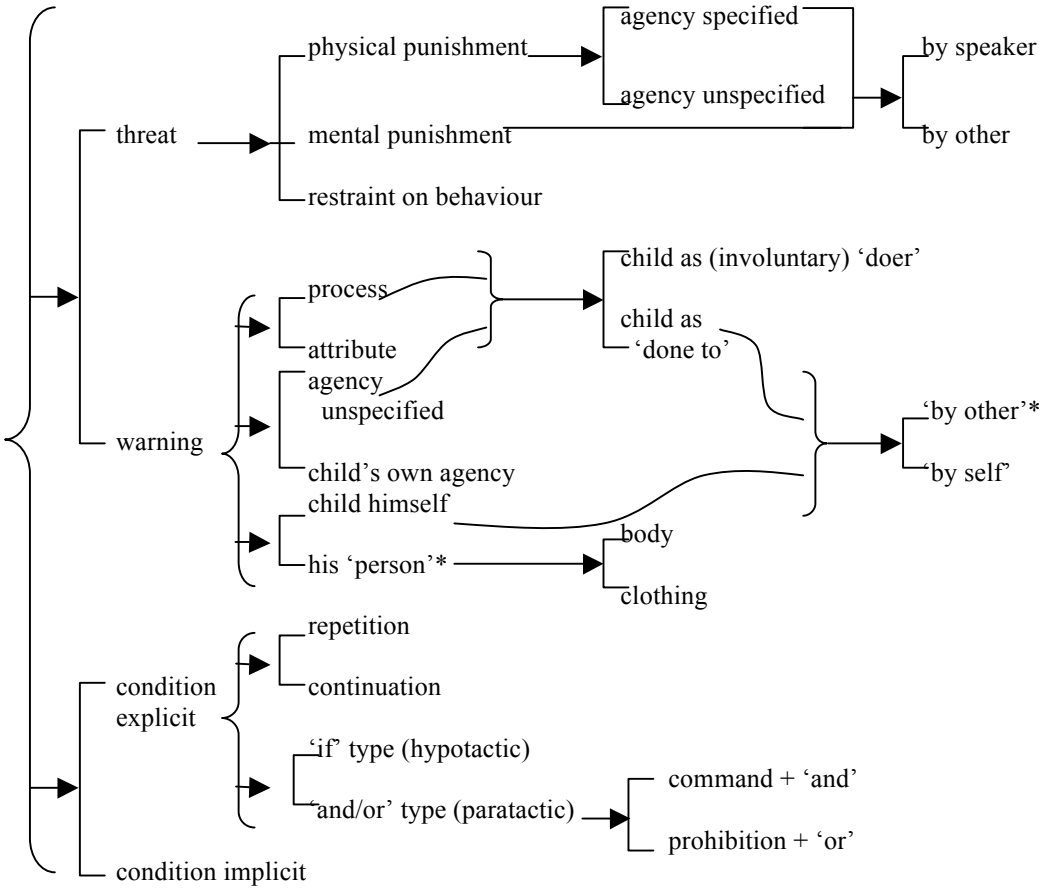


Figure 3: Options in warning & threat: a fragment from Halliday 1973b: 89

A subset of Halliday's realization statements are shown in table 2.

SEMANTIC OPTION	LEXICOGRAMMATICAL REALIZATION
Threat	clause: declarative
physical punishment	clause: action: voluntary (*do* type); effective (two-participants): Goal = you; future tense; positive; verb from Roget ' 972 (or 972, 276)
agency specified	voice: active
agency unspecified	voice: passive
by speaker	Actor/Attribuand = *I*
by other	Actor/Attribuand = *Daddy*, etc.
mental punishment	clause: relational: attributive: Attribute = adjective from Roget ' 900
restraint on behaviour	clause: action: modulation: necessity; Actor = *you*
Warning	clause: declarative
Process	clause: action: superventie (*happen* type)
Attribute	clause: relational: attributive: mutative; Attribute = adjective from Roget ' 653, 655, 688 etc.
agency unspecified	clause: non-resultative: Affected (Actor, Goal or Attribuand) = *you/yourself* or some form of '*your* person'
Child as 'doer'	voice: active; verb of involuntary action; Actor = *you*
Child as 'done to'	voice: non-active; verb of voluntary action, from Roget '659, 688 etc.

Table 2: Realization of some semantic options shown in Halliday 1973b: 90

In this table, Halliday provides illustrations of 'selection expression' (see for example page 77) as well as detailed recognition criteria for the options that make up his semantic network (1973b: 90-91), typically stated in terms of lexicogrammatical systemic choices; when realization calls for more delicate properties, a lexical domain is cited by reference to Roget's Thesaurus.

Table 2 thus highlights the realizational relation between the strata of meaning and wording. This specific outcome of work on semantic networks – the ability to show how lexicogrammar construes meaning – was particularly relevant to the formation of the metafunctional hypothesis (Halliday 1970). In fact, Halliday closes his chapter with a discussion of how the patterns formed in the calibration of context, meaning and wording reveal the functional basis of the internal organization of language (see Butt & Wegener, this volume). The concept of metafunctions evolved slowly and painstakingly, with twists and turns – from 'function' via 'macro-function', to 'metafunctions'; from being the property of the semantic stratum alone (Halliday 1970, 1977), visible only *as reflex* at the lexicogrammatical stratum, to being viewed as a resonating principle which creates a solidary relation across the three upper strata of linguistics: context, meaning and wording. SFL is certainly not instantaneous like the revelation of a divine truth; it is a hard won theory, whose concepts have been tested out by trial in practice.[20]

Since Halliday's realizations are provided typically option by option, we produce below some of the possible selection expressions (SE) with clausal examples. Note that in all these cases, the selection expression may be 'read' as a semantic specification of the meaning of the clause from the point of view of its interpersonal function. For lack of space, we exemplify only those selection expressions whose initial option is [threat]:

selection expression (SE)	***example***
1 threat: physical punishment: agency specified: by speaker	*I will smack you*
2 threat: physical punishment: agency specified : by other	*Mum will give you a good thrashing*
2 threat: mental punishment: agency specified: by speaker	*I will be angry with you*
4 threat: mental punishment: agency specified: by other	*Mum will be angry with you*
5 threat: physical punishment: agency unspecified	*you are going to be smacked*
6 threat: restraint on behaviour	*I will not let you watch Sesame Street. You won't be allowed any icecream.*

Table 3: Some semantic SEs with instantiation (based on Halliday 1973b)

[20] The process is documented in several of the chapters in this volume such as Butt, Hasan, and also Matthiessen.

Before leaving this section, note that Halliday 1973 argued in favour of 'context specific' semantic networks; indeed, his own and also Turner's networks, which follow his lead closely, are constructed with particular context type in view. We shall have a few comments on the significance of this requirement in the following sections.

4 Semantic networks in the 1980s

The semantic system networks of the 80s share one feature in common: unlike Halliday's and Turner's semantic networks, they are not 'context specific', in the sense of describing the meanings at risk in some specific culturally significant context. In a way, this particular attribute of semantic systems might have arisen accidentally due to the starting point for both Halliday and for Turner, who followed Halliday's lead: they wished to describe the meanings accessible to a speaker engaged in control, which from the point of view of field places it within one of the four sociologically significant contexts, recognized by Bernstein as (Hasan 1973a: 259):

- the regulative context
- the instructional
- the imaginative
- the interpersonal

Halliday's and Turner's deliberations to create a language of description for semantics began with the need to describe meanings relevant to the first of these contexts. Halliday (1973b) discusses two networks each in a different domain: one, the (partial) semantics of one move in the card game of 'pontoon' (page 81), and the other, the semantics of (a set of) greetings (page 83). In comparing these networks with the semantic networks pertaining to regulative context, it may have appeared reasonable to suggest that the somewhat 'heavy' machinery of semantic networks is worthy of deployment only if the context for those meanings is socially significant. Against this, one can bring several arguments in favour of semantic networks that take (some category of) the language itself as their point of departure (see Hasan 1996 for some discussion) and which in their reach are at least ideally designed to be language exhaustive, just as the lexicogrammatical networks are. This is not the place to develop arguments for or against 'context specific' semantic networks: suffice it to say (i) that more hangs on meaning description than just the meanings in some specific context; but (ii) that, whatever the arguments in favour of contextually open, language exhaustive, semantic networks, there will definitely be occasions, when, at least for practical reasons, the context specific network would be favoured tactically[21]. What is important for our account here is that the two SF linguists who did

[21] For example, it may be necessary to model the meanings relevant to some specific context for some computational goal (see O'Donnell & Bateman, this volume).

embark on some work on semantic networks chose to 'free' them from the requirement of being context specific.

4.1 Fawcett: paradigmatic semantics and syntagmatic syntax

Fawcett (1980) might be credited with being the next extensive semantic network to appear. However, it needs to be pointed out that Fawcett's SFL is somewhat different from Halliday's SFL: Fawcett, himself, describes his variety of SFL as a different dialect from Halliday's, but it is not simply a matter of dialect: dialectal variation makes little or no difference to meaning. Fawcett's 'dialect of linguistics', unlike true dialects, differs from Halliday's in what 'language' means to these two linguists, i.e., in their 'ideas about language' itself. Again this chapter cannot develop these points any further. These comments are made here because, if we understand Fawcett correctly, then from his point of view, every single network he has ever presented is a 'hypothesis about meaning', which is tantamount to claiming that every network Fawcett has presented is a semantic network; and here is how.

In Fawcett's theory of syntax, meaning and wording strata – or components, as he prefers to call them – appear to be distinct, among other things, also by how each of the two components are internally organized: the semantic level is paradigmatically organized, the syntactic, syntagmatically (see Fawcett 2000: 36, figure 4); the former has system networks; the latter syntagmatic structures. It follows that each and every network in his 'dialect' is a semantic network. It is important also to state here that many of the networks that are called semantic by Fawcett would be seen by practitioners of Halliday's SFL as simply versions of their own lexicogrammatical networks. This gives Fawcett's 'semantic networks' a significantly different status since in his SFL there are no other kinds of networks. The difference between the two models raises some uncertainties. For one thing it is not very clear how and if the notion of context (of culture/situation) fits into his theoretical model (search, for example, Fawcett 2000 for the relation between meaning and culture; also see his figure 6 in Fawcett 1980: 56). This removes the cultural base for meaning as postulated in Halliday's SFL; instead for Fawcett, this base is replaced by cognition, or an individual's belief system, which becomes the primary term in the game of human existence. Semantics in these two models is not the same thing; and mind in Fawcett's model is not made semiotically.

Be that as it may, what Fawcett calls semantic networks **have to be** extensive. The purpose for which they are created is different from that of Halliday's or Turner's: in theory at least they are supposed to be representing, up to a certain degree of delicacy, the meaning stratum/component of language *per se* as seen by Fawcett, so they cannot be anything other than extensive. They are realized by syntagmatic structures; in their realization there can be no systemic features – a fact which follows logically from the model Fawcett offers for his variety of systemic linguistics. Fawcett (1980)

provides several examples of 'semantic networks' and their realizations: see for example, figure 16 (Fawcett 1980:103), a system network of 'illocutionary force' and figure 18 (p 118) offering its realization.

4.2 Hasan: language exhaustive semantic networks

Fragments of Hasan's semantic network began to appear in publications in the late 80s, (see Hasan 1988), but the networks have a longer history and have been in circulation among colleagues at least since 1983. Hasan's interest in describing meaning dates back to her doctoral dissertation and to her work on texture and structure of text; the popularity of speech act analysis was a further stimulus. Her interest in Bernstein's code theory was kept alive, particularly due to the unconsidered repetition of Labov's critique which had itself arisen from a complete lack of understanding of Bernstein's position, and Labov's own somewhat limited views about linguistic meaning (Hasan 1992a). Hasan's first network (1980 unpublished) was prepared for a pilot project, whose goal was to investigate ways of meaning in everyday talk, harking back to Bernstein's coding orientation. The data subjected to the analysis of meaning was naturally occurring dialogues between four mother-child dyads in the environments of their daily life.[22] It was the networks for this pilot project that Hasan developed extensively in early 1983 for work on a major sociolinguistic project, called *The role of everyday talk in establishing ways of learning*. Fragments of this network have appeared in Hasan (1989, 1992a, 1992b); they have been discussed in greater detail by Cloran (1994) and Williams (1995).

Although Hasan's research project is deeply concerned with Bernstein's code theory, the questions which it asked were different. For example, the 1960s code research at SRU asked: what distinctive meanings are found in the utterances produced by speakers from distinct social locations? Hasan's project asked: do speakers' ways of meaning in everyday life identify them into distinct groups? If so, which group belongs to which social location along what social parameter? The difference, though subtle, is important. One thing it required was access to the entire meaning potential of English (up to some degree of delicacy[23]), since the specific contexts of everyday living are extensive. Naturally, the focus had to be not on a context specific semantic network, but on a

[22] This was itself based on lectures on the courses offered by Hasan on Semantics and on Language and the Child. The pilot project was funded by Macquarie University and the major project by Australian Research Council and Macquarie University (1983-1987). The final form of the network employed in the research project benefited from feedback supplied by Cloran who used it for the analysis of the research data. Hasan has extended the work, as in her research on invitations, offers and promises.

[23] It seems unnecessary to add this caveat: we know of no grammar of any language that is complete; it goes without saying that any description whatsoever of language can always be developed further. Work on language exhaustive semantic networks began in SFL only 25 years ago. There is no reason to expect that any description provided by any semantic network is any more viable or detailed than the grammar SF linguists wrote in the late 70s.

language-exhaustive one, or contextually open, as it was later called (Hasan 1996). This has affected the design of Hasan's semantic network in ways which we point to briefly:

- because it is seen as part of language description, the systems at this level must meet (*mutatis mutandis*) the demands at the other intermediate stratum, namely that of lexicogrammar;
- the point of origin for the network must be a recognized unit at the stratum of semantics; at this stage Hasan recognized two such units: (i) 'text' (cf Halliday & Hasan 1976) and (ii) 'message'; the latter was based on (Hasan 1973b mimeo). This semantic unit acts as the point of origin for the 1983 networks: with a few specifiable exceptions (see Cloran 1994), this semantic unit is lexicogrammatically realized as the unit 'clause';
- since the semantic network is language exhaustive, and since it pertains to a stratum which is crucially implicated in the metafunctional resonance in language, the stratum was expected to be metafunctionally organized; the four metafunctions recognized are: (i) AMPLIFICATION realized as forms of expansion, (ii) ROLE ALLOCATION,[24] realized as mood and modality; (iii) CLASSIFICATION, realized as transitivity; and (iv) CONTINUATION, realized by textural devices;
- ideally the meaning of any message was expected to be exhaustively describable in such a network system; in practice, the networks needs to be extended a great deal in delicacy to be able to account for all meanings within a message;
- options of the semantic system are realized as lexicogrammar: the realization of the less delicate, primary terms from the semantic network is stateable in terms of options in lexicogrammatical systems;[25] however. move in delicacy takes the realization steadily toward 'delicate grammar', eventually reaching the point of lexis.

A fragment of Hasan (1983) taken from the system of ROLE ALLOCATION is presented in figure 4.

[24] With hindsight Hasan (forthcoming) refers to this as the semantic system of STANCE.

[25] Thus providing a more economical presentation than in Fawcett's realizational statements eg see (Fawcett 1980: 118, figure 18).

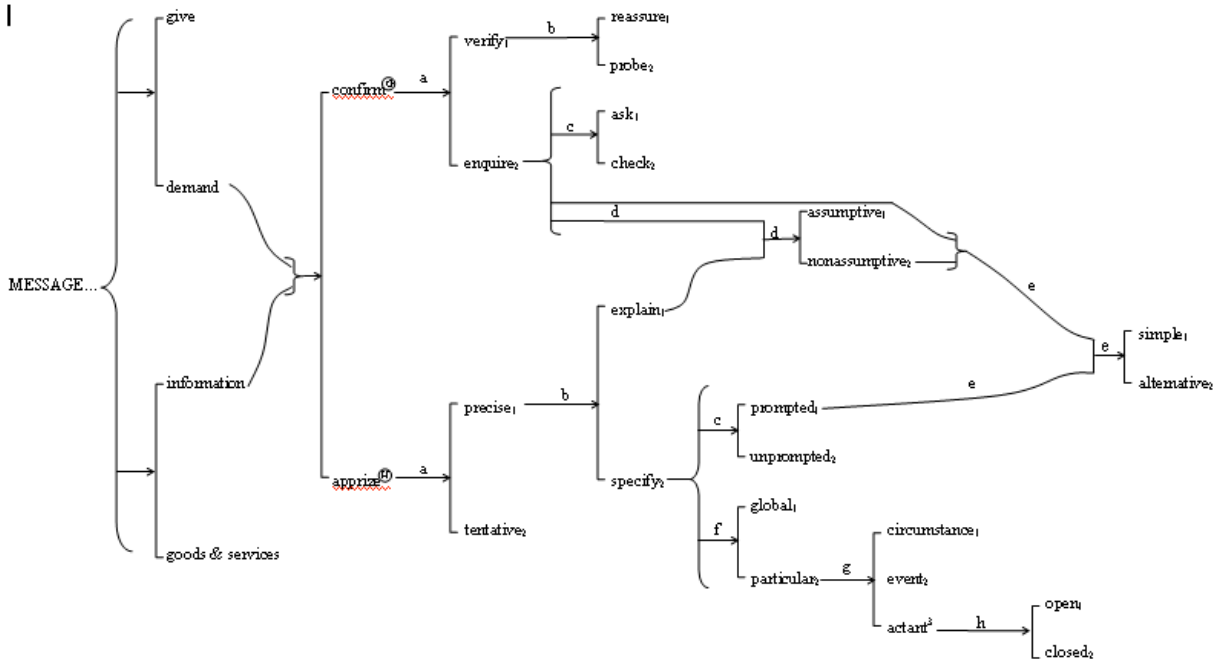


Figure 4: Semantic options in asking questions (Hasan 1983)

In SFL literature, (some part of) the realization of a systemic option is typically displayed below that option. In Hasan's semantic networks, this convention has not been followed, since this practice is possible only under certain conditions: (i) the realization must be brief, and (ii) there is no more than one possible realization. The latter is typically the case where a network has not been pushed very far in delicacy. This is certainly true of Hasan's semantic networks, as pointed out below with reference to the option [alternative] in Table 4. Instead, as figure 4 shows, we developed a system which would identify each individual option in the network by labeling the individual systems and numbering its options. Thus in figure 4 the primary options [confirm] and [apprise] are labeled G and H; and each successive system is then labeled a, b, c … while the terms in each system are numbered 1, 2… . This allows us to identify the option [reassure] by the 'address' G:a1:b1, [assumptive] as G:a2:d1; and so on. Table 4 shows the realization of all options which ultimately depend on [message … confirm].

The Table shows that, as predicted by Halliday (1973b), most often the realization of semantic options calls for 'pre-selection', though conflation too plays an important role. The preselction of systemic options from lexicogrammar *entails* the entire range of realizational relations[26] which underlie the resulting syntagmatic structure (see table 4 last column). As for Halliday so here, too, examples can be presented only for some SE *as a whole*. Table 5 presents the selection expressions whose entry condition is G [confirm] in figure 4.

[26] See Hasan 1996: 111, for types of realization relations.

	semantic option	Lexicogrammatical realization	
		systemic realization	**structural realization**
G	Confirm	Indicative	S≅F
a1	Verify	declarative:tagged	S^F …. F^S
a2	Enquire		
b1	Reassure	declarative:tagged:reversed	S^Fneg … Fpos^S ….S^Fpos … Fneg^S
b2	Probe	declarative:tagged:constant	S^Fneg … Fneg^S…. S^Fpos … Fpos^S
c1	Ask	Interrogative:polar	F^S^Pred …
c2	Check	declarative:untagged/Tone2	S^F^Pred …/Tone2
d1	Assumptive	polarity negative	Fneg^S^Pred… S^Fneg^Pred…/Tone2
d2	Nonassumptive	polarity positive	Fpos^S^Pred … S^Fpos^Pred … /Tone2
e1	Simple	clause simplex	(as shown above)
e2	Alternative	cl complex: paratactic extension: alternation *or* 1 interrogative 2 elliptical: Pred ellipsis 1 declarative 2 elliptical: Pred ellipsis	1^2 F^S^Pred … *or*^S^(ellipsis) S^F^Pred … or^S^(ellipsis)

Table 4: Realization of options from system network G in Figure 4

selection expression	*example*
1: … confirm:verify:reassure	*i) I was home by myself, wasn't I, mum?*
	ii) hey, you haven't said your prayers for a long time, have you?
2: … confirm:verify:probe	*i) you love daddy, do you?*
	ii) you don't like sugar, don't you?
3: … confirm: enquire: ask: assumptive	*didn't you see me?*
4: … confirm: ask: nonassumptive: simple	*did you put those clothes away?*
5: … confirm: ask: nonassumptive: alternative	*i) did Max do this drawing or you?*
	ii) is this a possum or a cat?
	iii) do you want milk now or later?
6: … confirm: enquire: check: assumptive	*you aren't going to sing?*
7: … confirm: enquire: check: non-assumptive: simple	*you are leaving?*
8: … confirm: enquire: check: non-assumptive: alternative	*i) Rebecca did the drawing or you?*
	ii) you want the crayon or the pen?
	iii) you want milk now or later?

Table 5: Semantic SEs of network G and their instantiations

In table 5, wherever two or more possible instantiations of the same SE are provided, as in 1, 2, 5 and 8, there exists at least a theoretical possibility of further, more delicate distinctions in meaning. This is interesting since it implies that the network is indicative of at least some of the avenues of its own development.

Hasan's semantic network was used for the analysis of over 20,000 messages from data collected for her project, and the analysis showed a robust pattern of variation at the semantic level correlating primarily with speakers' social location, but also with the children's sex (Hasan 1989, 1992a, 1992b; see also Williams on Semantic Variation, this volume), and less markedly with mother's interest/ involvement in life outside their home. The results thus showed, on the one hand, how lexicogrammar construes meaning, and, on the other hand, it was to corroborate further the SFL view of context as a semiotic construct (see section 5) by showing how meanings construe the distinctive attributes of some context.

5 Semantic networks in the 1990s

Hasan's semantic network was used for research projects other than those for which it was specifically designed, such as Maley and Fahey (1991) Williams (1995; 1999; 2001); Hall (2004). Williams study of joint book-reading at home and also in schools provided deep insights into what he called 'intra-cultural variation': mothers and children from two distinct social locations displayed significantly different ways of meaning in this context (see volume 1 of Williams 1995). A more recent use of the 1983 semantic networks has been for the analysis of material on a collaborative project (see section 6). In all these cases, researchers have found that while much of the description in these networks is able to stand, they needed to introduce some more delicate systems. Williams, for example, found it necessary to introduce systems building in semantic choices specific to turn-taking in talk distributed through the joint book-reading, and in responses to initial replies to questions, *inter alia*. However, the fact that the relatively primary options remain 'intact' indicates that the description is 'headed in the right direction'. As we pointed out in the last section, at this stage, Hasan, contra Fawcett,[27] worked with two ranks at the level of semantics, and her semantic network is offered as a description at the rank of 'message'. This, however, does not mean that the work of semantic description even at the rank of message is done, any more than the work of lexicogrammar is done when the grammar of clause is substantially in place. The network was successful in investigating 'fashions of meaning' (with apologies to Whorf), capturing attributes of speakers' ways of meaning over different contexts. But it was not easy to see if, and how, the meanings at the rank of message played any role in the ecology of text, as would be expected, if message is a constituent of text. It was at this point that a major development in the description of SFL semantics occurred in the postulate of an intermediate unit by Cloran, which she called the 'rhetorical unit' (Cloran 1994).

5.1 Rhetorical units

[27] Fawcett 1975, cited Turner 1987: 65, suggests that what is represented in a semantic network is a rankless semantics.

The original impetus in research on the 'rhetorical unit' (henceforth RU) was to determine the extent to which messages in discourse are (de)-contextualised. The term 'de-contextualized' may be traced back to the debates on Bernstein's codes, who, among other attributes for distinguishing code varieties, also used differences in the relation of speakers' language to the context of situation in which the speaking occurred. The terms he used were 'context dependent or contextualised' as opposed to 'context independent or de-contextualized'. The latter term, 'de-contextualised' or 'dis-embedded,' took off in the literature on learning and literacy: it has since been considered to be a *sine qua non* of the language of knowledge, even a necessity for knowledge production, (see, for example Donaldson 1978, 1993; also Kappagoda, this volume). When language in use is maximally de-contextualized, the majority of its relevant meanings are linguistically coded. This, in turn, means that so far as the readers/listeners are concerned, such language becomes relatively independent of the (displaced) context of its use; the readers/listeners can reconstitute the relevant context from the language of the text without appeal to any extra-textual sources. As can be appreciated, the degree of (de-)contextualization is, variable, as Hasan (1985a) had argued: discourse is seldom entirely context dependent – in the sense of being dependent on its material base – or entirely (de-)contextualized, i.e. totally construed by the resources of language, thus being tied to the text's symbolic base (Cloran 1994, 1999). This formulation suggests a continuum, a point to which we will return below. The pressing problem was to specify the defining properties of the various degrees of (de-)contextualization, which logically presupposes an understanding of the basis on which points on the continuum might be recognized?

Cloran's research showed that the concept of RU helped determine the nature and degree of (de-)contextualization. So what is an RU, and why does it do this? As an intermediate unit between text and message, it follows that an RU itself would be constituted by one or more message(s), and that it would enter into the structuring of text (for some details of which, see Cloran *et al*, this volume). This raises two questions: how is an RU to be identified as an instance of (some variety of) an RU, and on what principle are the messages of a text grouped together into this or that RU. The principle that answers these questions is also the principle which links the RU to a particular component of context of situation. We first present this principle of identification and then show how it relates to the analysis of context of situation within which interaction occurs. Briefly, the principle for the identification of RUs is based on the configuration of two semantic features of messages: (i) the 'central entity' (CE) (see 5.1.1) and (ii) 'event orientation' (EO) (see 5.1.2). Each of these semantic features – CE and EO – has potentially a large range of values. The combination of the different values of these two semantic features – central entity and event orientation – identifies different classes of RU (see section 5.2). Here we discuss only a limited range of these values by reference to the networks, which detail these semantic options.

5.1.1 Central entity

Central entity 'is a' component of a message; it is realized, typically, as Thing in that nominal group which has the function of Subject in the clause, realizing the message under focus, for example *mother* in *my mother went back to Queensland*. From the point of view of RU analysis, the crucial issue is the identity of the entity: is the entity identified by reference to the immediate situation e.g., *I* in *I want to leave now*? If not, does it refer to some generalized, class-exhaustive category such as *children* in *children usually like to play*? If not, how is it identified? In short, we are concerned with the semantic options open to an entity in these respects. These options are represented systemically in the entity network in Figure 5.

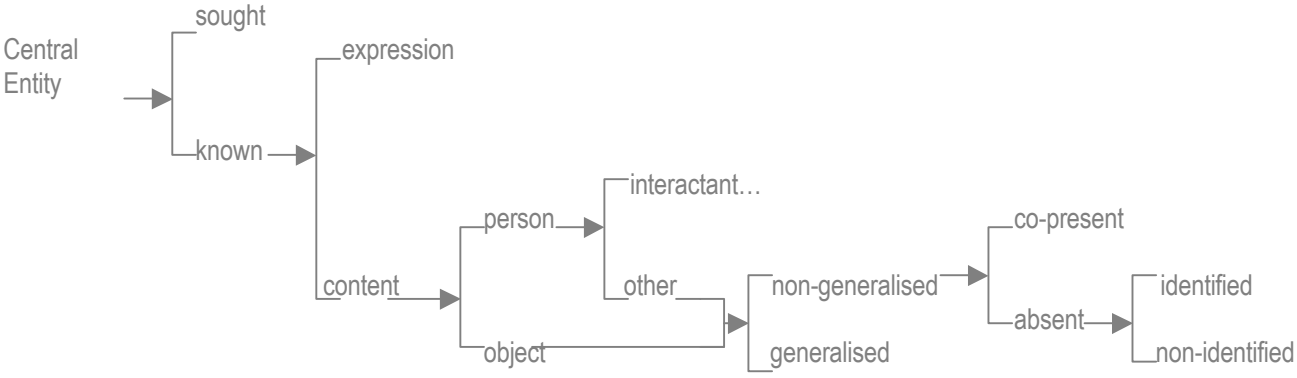


Figure 5: **some semantic options underlying CE system**

The options in the primary system are [known] v. [sought]: an entity must select either one or the other of these options. The latter option is, predictably, realised by a WH- item typically in thematic position in the clause realising the message, e.g. *who* in ***Who*** *is coming*. The option [known] acts as the entry point into the choice between [content] or [expressions]. The latter, as the label suggests, refers to something made of language e.g. *comment* in *your* ***comment*** *amazes me*; while the former, [content], refers to some thing, whether person or object. The option [content] is the entry condition to a system which describes the entity as either [person] or [object]. The feature [person], is the entry condition for the system which distinguishes [person] as [interactant] or some [other] person. The system to which the option [person] gives access resembles Halliday and Hasan's (1976:44) system of personal reference. Thus the term [interactant] is conceptually equivalent to their term "speech role".

The systemic choice between the options [non-generalised] vs. [generalised] is has two alternate entry conditions: the choice is available to any thing that has the feature [other] or the feature [object]. The realisation of the feature [generalised] is somewhat complex due to the fact that there are available a variety of ways in which the feature may be construed. Table 6 sets out the features that must underlie any nominal group capable of realizing an entity with the features [… person: other: generalized].

a)	[non-specific; plural], e.g. ***pilots*** *fly aeroplanes*, or
b)	[non-specific; anaphoric; plural] whose interpretative source is a nominal group of the kind in a), e.g. ***They*** *fly aeroplanes*, where *they* refers to *pilots*; or
c)	[specific:generic; singular], e.g. *the captain*; or
d)	[specific:anaphoric; singular] whose interpretative source is a nominal group of the kind in c), e.g. ***He****'s in charge of everybody, the captain*, where *he* refers to *the captain* as specified in c).

Table 6: Realisations of entity with options [… person: other: generalized]

As indicated by realizations b) and d) in Table 6, when a CE is realized by an endophorically referring expression it is analysed in terms of its ultimate referent, i.e. the entity that functions as the interpretative source of the referring expression (Hasan, 1985a). Entities which have the feature [non-generalised] may be [co-present] in the immediate situation or [absent]; if the latter, they may be further described as [identified] or [non-identified]. The nominal group realizations of these features is shown in Table 7:

[**co-present**]	i)	a nominal group pre-modified by a demonstrative - *this, that, the* etc. realising the element Deictic and referring exophorically; or
	ii)	pronominal reference whose interpretative source is a) the nominal group in i) or b) the situation
[**absent:identified**]	i)	a nominal group having a demonstrative realising the element Deictic and referring endophorically;
	ii)	a nominal group having a demonstrative realising the element Deictic and referring homophorically (the entity in question being unique in the cultural context of family - e.g. *the baby* - or the neighbourhood - e.g. *the library*.)
[**absent: non-identified**]	i)	a nominal group pre-modified by a non-specific determiner realising Deictic, e.g. *a, some (sm)* etc. or
	ii)	ii) pronominals whose interpretative source is i).

Table 7: Realisations of three semantic features of Central Entity

5.1.2 Event Orientation

Event orientation of a message refers to the time, probability/necessity or indeed the reality of an event in relation to the moment of speaking and it is realized in the lexicogrammar typically (though not exclusively) by the Finite verbal operator (see section 5.1.2). The primary distinction relevant to RU discussion is whether events are located in time or are timeless (i.e. habitual), e.g. *The skin* ***keeps*** *the mandarin seeds safe*. The relevant distinction for events located in time concerns the reality of the event – *realis* or *irrealis* (Lyons 1977:796). *Realis* events are described in terms of the direction and distance of

the event from the moment of speaking – concurrent with, or prior to, that time (e.g. *I am eating a mandarin* versus *I ate a mandarin*). *Irrealis* events are distinguished in terms of whether the event is imagined or projected to occur. A projected event may simply be forecast and such forecast may or may not be hypothesized to occur given certain conditions (e.g. *You'll hurt your back (if you fall)).* An imagined event, by contrast, refers to the kind of event that may possibly happen under certain conditions. The latter feature is thus realized by a clause complex in which the Finite element in the primary clause is a modal of possibility and there exists either implicitly or explicitly a secondary conditional clause (*If you fall you might hurt your back*). The primary options in the system of event orientation are shown in figure 6:

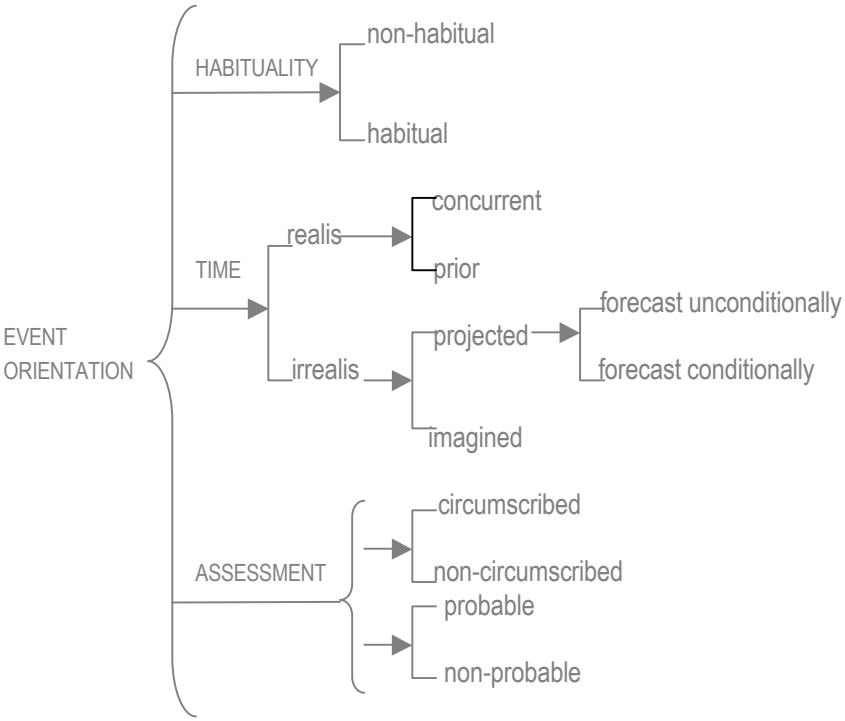
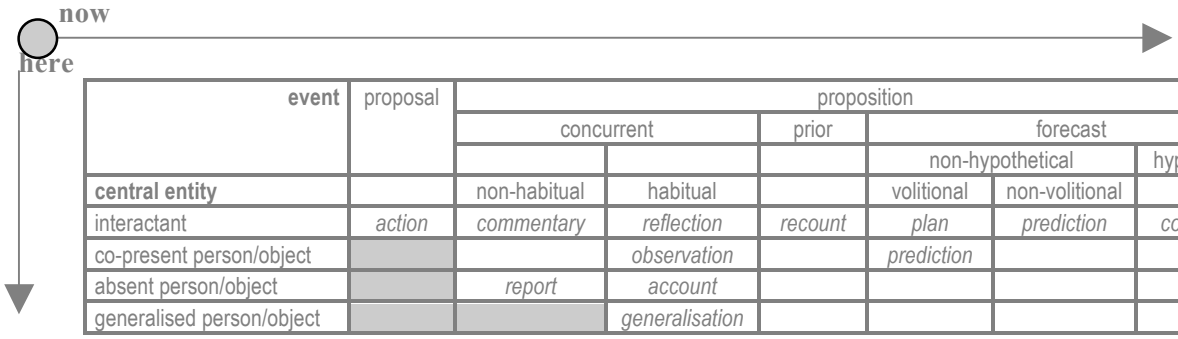


Figure 6: primary options in the system of EVENT ORIENTATION

For lack of space, we cannot specify here the lexicogrammatical realisations of these options (see Cloran 1994:193 ff for discussion). However, note that the lexicogrammatical realization of time categories in particular is not limited to tense selection. Indeed the realization of some of the semantic options such as [prior] goes beyond the first auxiliary of the verbal group, often involving reference to more than one element of its structure; furthermore, an Adjunct may over-ride the information within the verbal group, as in *We are working* ***next week****.* In the last example, the temporal reference of the event is realized by the adjunct *next week*. In the absence of this adjunct the event's temporal reference would obviously be [concurrent] rather than [forecast]; the presence of the adjunct, due to its semantics, over-rides the default semantics of the tense selection.

5.2 Rhetorical units and context

The semantic systems pertaining to CE and EO, although not presented in detail, clearly indicate that a range of distinct SEs would distinguish the individual categories of both, one from another. The distinction between the different classes of RU is based on the specific values of CE **and** of EO; in other words, it is not just the value of either CE or EO that is sufficient to classify an RU; rather, it is their specific combination that is critical (for details see, Cloran 1994). Table 8 provides a summary account of the various classes of RU by reference to the CE **and** EO choices.



event	proposal	proposition					
		concurrent		prior	forecast		
					non-hypothetical		hypothetical
central entity		non-habitual	habitual		volitional	non-volitional	
interactant	*action*	*commentary*	*reflection*	*recount*	*plan*	*prediction*	*conjecture*
co-present person/object			*observation*		*prediction*		
absent person/object		*report*	*account*				
generalised person/object			*generalisation*				

Key:
= deictic centre (interactants' here-and-now)
= direction away from deictic centre from: most near to most remote
= not applicable, e.g. i) proposal does not combine with an entity other than an interactant; ii) non-habitual concurrent time does not combine with generalised person/object

Table 8: Values of CE and EO in the identification of classes of RU

The classification of the RUs is based on options which locate the central entity and the event orientation in relation to the interactants' here-and-now. In fact, the various classes of RU can be ranged along a continuum from **most near** to the interactant-here-and-now to **most remote** from this deictic centre. For example, the RUs called ***action*** and ***commentary*** involve:

1 central entities which are located within the *here* of the interaction – the material situational setting, i.e. the interactants themselves or some co-present person or object;

2 events which are taking place within the *now* of the interaction, i.e. at the moment of speaking or will occur immediately as a consequence of the message.

The RU called ***observation*** is construed by an entity of the kind in 1 (i.e. it is located within the *here* of the interaction) but the temporal orientation of the event is timeless, so we move away from the *now* of the interaction. ***Report*** has an event orientation of the kind in 2 but the central entity is absent from the interactant *here*. Both vectors are remote from the interactant here-and-now in an ***account*** and a ***generalization***, while in a ***plan*** or ***prediction*** the CE is or may be an interactant but the EO is remote from the *now* of the interaction as also is that in a ***recount*** and a ***conjecture***. There are number of gaps in Table 7 where other possible distinctions could be made to identify further RU classes (see for illustration, Cloran *et al*, this volume where a short written text is analysed in terms of its RU classes).

We suggested above that the analysis of discourse in terms of RU can help us provide a sound linguistic basis for determining the extent to which a discourse (fragment) is (de-)contextualised. This is not surprising because the classes of RU being semantic in nature are realizationally related to lexicogrammar on the one hand and to context on the other. What is relevant, in particular, is the linguistic construal of that component of the context of situation known as the 'mode of discourse', which refers to the role of language in the social process. Hasan (1985a) has conceptualized mode as a cline. Now, if with Hasan (1985a), the role of language is treated as a continuum[28], then at one extreme of this 'cline', language would be **ancillary** to the task in hand and at the other extreme, language would actually **constitute** the entire social activity (see, however, Bowcher, this volume). It follows then that closest to the ancillary end of this continuum would be those RUs where (i) the CE refers to the interactants themselves, and (ii) the events referred to are occurring concurrently with the moment of speaking or will occur immediately as a consequence of the message (as in the RU ***action***). This way of thinking about the RU classes permits us to postulate them as the relevant categories in the realization of the role of language in the social process. Figure 7 shows the relationship between the RU classes and this contextual variable:

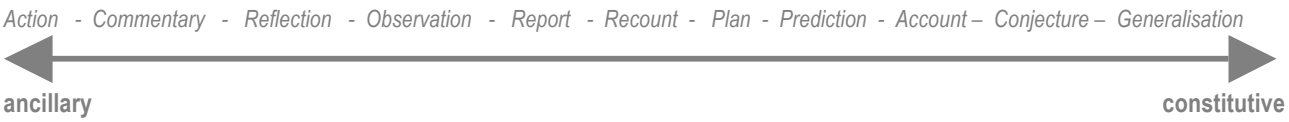


Figure 7: RUs as realization of the role of language in the social process

In figure 7, ***action*** and ***commentary*** are most ancillary: note that they involve: (i) as CE those entities that are *here* in the speech situation, i.e. the interactants themselves or other co-present persons or objects; and (ii) events that are taking place in the *now* of the speech situation or will take place as a result of the act of speaking. By contrast, ***reflection*** and ***observation*** have the same CEs, i.e. those *here* in the speech situation, but the events are not only *now* but *always*. It is this value of the event which moves these classes along the continuum somewhat. The other classes represented as intermediate – ***report, recount, plan, prediction*** – may involve a *here* or a *now* value of either the central entity (***recount, plan, prediction***) or the event orientation (***report***). Finally the classes represented as most constitutive involve events that are entirely imaginary (***conjecture***) or timeless with CEs that are situationally absent or generalized entities (***account*** and ***generalization***). In figure 8,

[28] See however Hasan 1999, who has departed from this tradition, suggesting that the role of language is really another name for verbal action in the social process, and thus it is an aspect of field (see, Bowcher, this volume). We shall not be concerned here with the questions this change raises, since it has little or no consequence so far as the notion of 'de-contextualization' is concerned.

the role of language in the social process is represented as a system network in which the various classes of RU realising some of the options in this contextual system are shown in brackets.

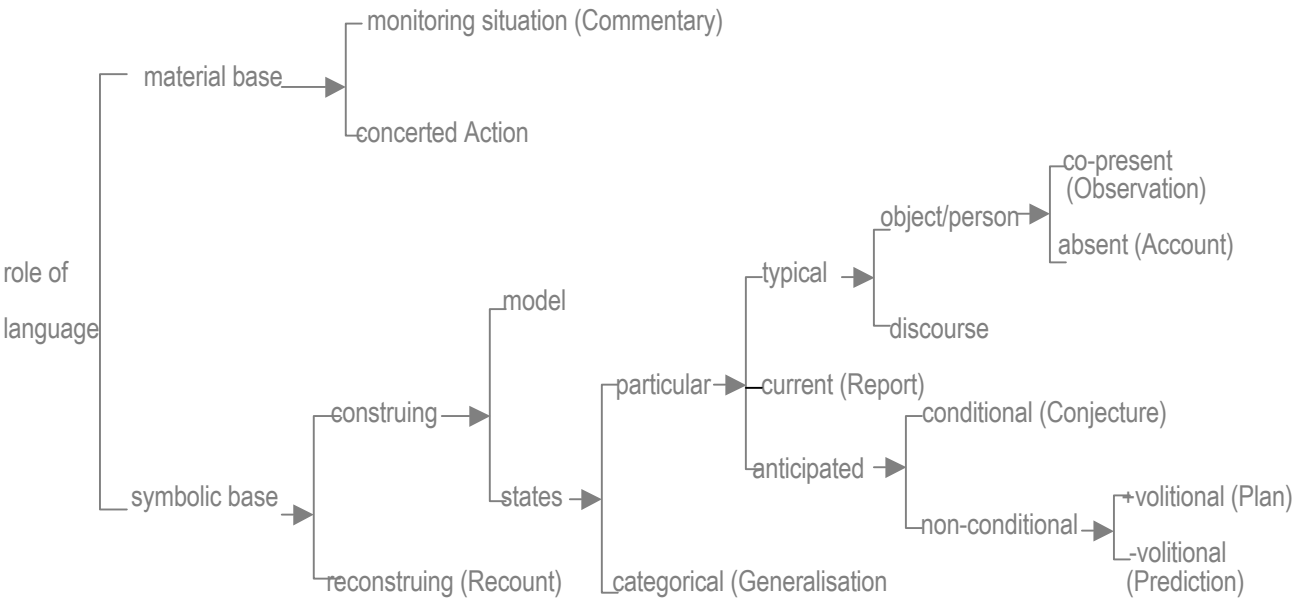


Figure 8: options in the role of language in the social process

The account of RU presented here demonstrates in a concrete way the hypothesis of SFL that there is a realizational dialectic between the three higher strata which the SFL model recognizes: context, semantics and lexicogrammar. We have shown that choices at the level of semantics are the construers of a specific element of the context of situation, upholding the SFL position according to which context is a semiotic not a material phenomenon; and at the same time we have shown the role of lexicogrammar in the construal of the meanings that matter to RU classification, thus demonstrating that wording makes meaning, and the relation between them is not arbitrary. Elsewhere (see Cloran *et al*) we have also shown how RU analysis can provide a linguistically sound basis for the segmentation of some instance of discourse. This appears to be of particular interest both in what Hasan (1999) calls 'textual integration', and the analysis for macro connectivity in discourse in the Rhetorical Structure Theory.

6 Pulling it together: semantic network in multistratal analysis of discourse

Recent decades have seen the development of interest on several fronts. Here we are particularly interested in 'multistratal analysis', because it has implications for paradigmatic semantic description. SFL theory recognizes four strata – context, semantics, lexicogrammar and phonology, with the implication that these are the four orders of abstraction which would together allow a full description of an act of meaning by language. A multistratal analysis 'tests' the description at one stratum against the description on the others: are the descriptions capable of being calibrated or do they 'pull' in

different directions, thus suggesting that at some point the description requires to be examined critically? In fact, it is simply Halliday's trinocular perspective writ large, testing for validity of description in a wider environment than when one is describing some unit at just one specific stratum.

Such a multistratal project, called The Melodies of Human Speech: Profiling Intonation for Automated Telephone Systems, began in 2002. The context under investigation is a type of service encounter, based on a dataset consisting of 95 instances of customers ordering pizza by telephone from a major pizza provender.[29] It aims to describe patterns of features across the four strata of context, semantics, lexicogrammar and phonology, as a basis on which to map multistratal relations. The multiple foci of this project include both testing and elaborating current semantic network descriptions. For the purposes of displaying the analytical role of semantic networks in the project, consider the following feature of the data: of the exchanges in the corpus which result in the purchase of goods, 71.5% involve the operator making an offer of a 'special deal' to the customer, such as *Would you like to try our new hot deal of three large pizzas takeaway from only $18.95*?[30]

To those familiar with the ordering of takeaway pizza by phone, it might seems natural enough that an offer in this context has the form just cited. But offers come in many kinds, and what can be offered, by whom, and in what way, is a function of the specificities of a given social context. Behind the naturalized form of any offer lies the co-selection of a range of semantic features, which are both activated by the features of the social context in which such a form is found, and also help construe that context (Hasan 1995, 1999; Halliday and Hasan 1985). By exploring the semantic analysis of the offer *Would you like to try our new hot deal of three large pizzas takeaway from only $18.95*, it will be possible to test the descriptive power of Hasan's semantic networks, as well as to draw attention to some of the challenges the analysis of this new context makes on her semantic description.

According to Hasan (1996: 114) "the constraints on the privilege of using certain meanings rather than others would always be contextual". We begin by considering the form of the offer in relation to the features of the context relevant to it. Space at our disposal does not permit a detailed description of the parameters of context (as found in, say, Halliday and Hasan, 1985; Hasan, 1995, 1999; Butt, 2003. See, however, Matthiessen, Lukin, Butt, Cleirigh & Nesbitt, forthcoming): perhaps some informal observations will help set the scene.

- In general terms the **field** of the interaction may be described as that of a commercial transaction for the domestic purchase of prepared fast food. The goal is, typically, met within the confines of the exchange. The circumscribed nature of what can go on – there is only a

[29] The project is a collaboration between Macquarie University, the University of Technology, Sydney, and NSW Adult Migrant Education System (AMES). It began in collaboration with Syrinx, which explains its title. It has been funded by the Australian Research Council, in conjunction with NSW AMES.

[30] Of course, there are other types of special offers as well, but we will ignore them for the moment.

limited range of goods which can be purchased – makes for a highly routinized structure to the relevant exchanges.

- In relation to **tenor**, the interaction is one between customer and server. The customer initiates the exchange by calling the company, and the business is transacted via a centralized call centre, which records the order in a computer database, and sends it onto the branch which will produce the goods. The interactants are not known to each other, i.e. social distance is maximal, and prevailing business ideologies would suggest an unequal relationship between the interactants, with the customer being the one whose needs are to be satisfied in the exchange.
- In relation to **mode**, the medium is spoken and dialogic, and channel is oral.

Figure 9 presents Hasan's semantic network for offers (1985b)[31], where the terms in bold indicate the pathway through the network, i.e., the bold options constitute the SE which our example offer instantiates. Beginning with the more general options in the network, an offer is a message having the features [giving] of [goods-&-services] which are of a [benevolent] nature. The action is one which is oriented to the [addressee]. These are features of any offer, since as Hasan (1985b: 21) maintains

> … the conventional understanding of the term offer in English is precisely that the message points to the giving of goods-&-services to some addressee which could be viewed positively by her.

The system labeled **c** in the network in figure 9 provides the specification of offers as either [initiating] or [responsive], while **d** system consists of the terms [conclusive] or [non-conclusive]. Offers with the former option co-occur with the actual provision of the goods or service, while those with the option [non-conclusive] foreshadow the giving of goods or services – what Hasan refers to as a 'pre-offer'. It is interesting to note that while instances of offer with either the option [initiating] or [responsive] appear in the data, the default selection from system **d** appears to be [non-conclusive], which makes sense in view of a dimension of the relevant context: the exchanges in our data are transacted by phone, which ensures that the actual exchange of goods and money is deferred, thus they cannot be [conclusive]. Under the conditions of a face-to-face transaction to purchase takeaway pizza, it would be much more likely that offers of the [conclusive] type would occur.

Moving to the systems **g** and **h** of the network, the sample offer instantiates the features [non-suggestive] and [non-assertive]. Where the option [suggestive] is selected:

[31] Hasan 1985b is a further development of a fragment of Hasan 1983; it has circulated widely in mimeograph form but Hasan has never published it. She has, however, continued work on this aspect, producing a network which describes, invitation, offers and promises.

… the speaker and the addressee are presented as one indivisible unit: the notion of any conflict of mutual interest is, as if, non-existent. The foreshadowed event is cast in the light of a cooperative activity, equally favoured by both. (Hasan 1985b:27).

Offers of this type include *Let's have a drink*, *Shall we have some tea*, *We'll wash your hands*, etc. Offers selecting the feature [suggestive] are typically addressed to someone who is intimate, or who is someone who needs to be given care such as a child, or some one who needs to be humoured. In the context of the purchase of takeaway pizza, it is not surprising that there are no instances of offers with the feature [suggestive].

The option [assertive] in system **h** is lexicogrammatically realized by a clause with the feature declarative; thus offers such as *We'll wash your hands* have the options [assertive; suggestive], while *I'll wash your hands* has the options [assertive; non-suggestive]. According to Hasan, [assertive] offers may be characterized as:

… simply [those which] assert that a giving of goods/services is impending, or unfolding; unless the addressee does something definite to prevent this event, it will occur… (ibid: 30).

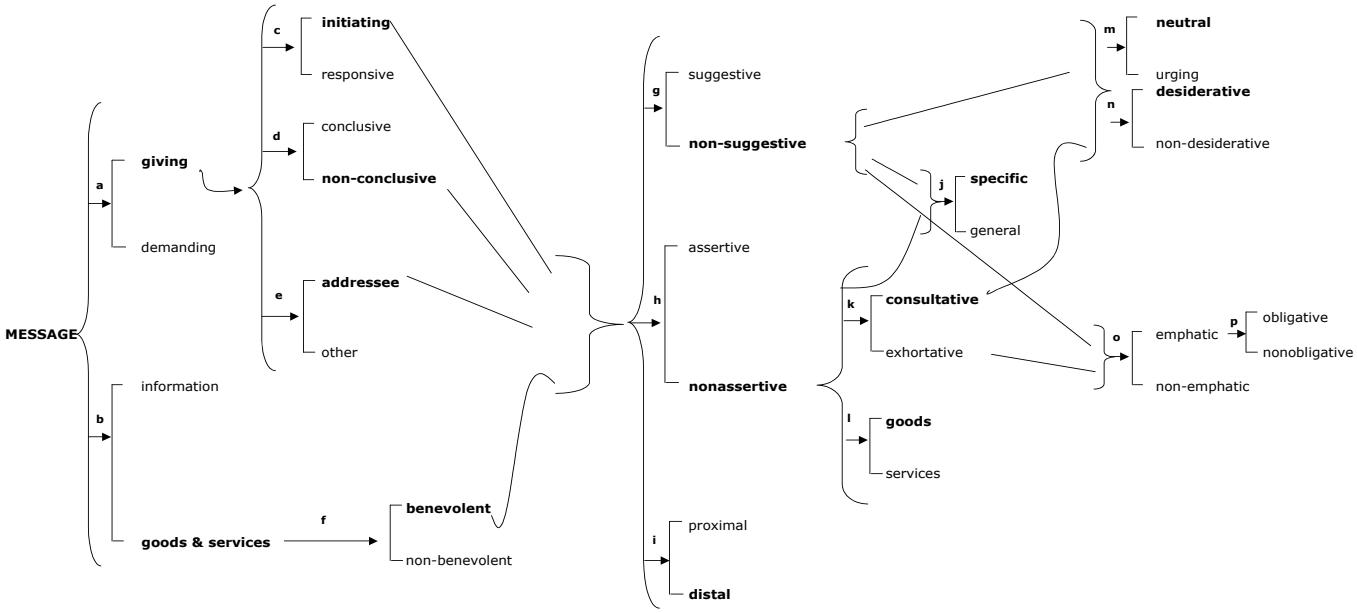


Figure 9: Semantic options in making offers (Hasan 1985b)

A social relationship in which there was either intimacy or an institutional hierarchy would be the basis upon which an [assertive] offer would have its legitimacy. The context of the purchase of takeaway pizza is characterized neither by such intimacy nor by an institutional power relationship. In fact, in the project's data set as a whole, there are no examples of offers with the feature [assertive], which is in keeping with the predictions of the semantic description. Our example offer *Would you like to try our new hot deal of three large pizzas takeaway from only $18.95?* is [non-assertive], and the latter option i.e., [non-assertive], is the entry condition for a further choice between [consultative] or

[exhortative], and concurrently between [goods] or [services]; at this stage of the interaction, our example offer selects the option [goods] for obvious reasons. The option [consultative] is realized by an interrogative clause as in *would you like a drink*, whereas [exhortative] is realized either as an imperative, or as a declarative with high modulation, examples would be: *have a drink, do have a drink, you must have drink,* which all have the feature [exhortative]. As Hasan notes, the option of [exhortative] "provides a wide range of possibilities of "exercising pressure" and, as such "would be selected more often where there exists non-maximal social distance between the interactants" (Hasan, 1985b: 43).

In this project's corpus of service encounters, there is not a single instance of an [exhortative] offer. As we noted before, maximal social distance obtains between the participants in this exchange. It is interesting to ask why the [exhortative] offer is not selected in this environment? Certainly, if we were to examine advertisements, we would find plenty of [exhortative] offers in the 'hard sell' variety. However, the situation in the pizza order is different. Unlike an advertisement, it is initiated by the customer; perhaps the choice of [consultative] over [exhortative] in this context is a function of the fact that the exchange is initiated by the customer. Further, it is the customer whose stated needs have to be satisfied. Advertisements manufacture needs; orders specify needs that customers are already aware of and wish to satisfy. In these circumstances, an [exhortative] offer would be quite 'inappropriate'. With too much pressure to buy something else, the customer could decide to do business with other companies who have on offer precisely what the customers need.

The choice of the option [specific] rather than [general] from system **j** is again supported by the context. With the former option, the offer is made to a specific person, not to a general collective as in *Would anybody like to try…;* the contextual rationale for this is so obvious, it need not be spelt out. The two remaining options in our example offer are [desiderative], where the offer is expressed in terms of the desire of addressee, and [neutral] rather than [urging]. An urging offer would urge the recipient; but in the context of this exchange, this would be tantamount to a marked attempt to change the customer's order. The choice of the [desiderative] is politic: it leaves the discretion with the customer, while still bringing to their attention the tempting possibility of 'having a bargain'. The selection expression for the example offer can now be stated. First, though, in terms of the network represented in figure 9, underlying every instance of the category offer are the options [giving: addressee; goods/services: benevolent]: every offer must have these features, though they may vary in other respects. Following are the remaining semantic options in the SE, that is instantiated by the example offer *Would you like to try our new hot deal of three large pizzas takeaway from only $18.95*: [initiating; non-conclusive; non-suggestive: non-assertive: consultative: neutral; desiderative; specific; goods; distal].

This SE describes the example offer primarily in terms of its ROLE ALLOCATION (see section 4.2 above). Due to lack of space, we cannot present the details of the realization of the total set of options (however see Hasan 1985b). In principle, this would follow the mode as exemplified in tables 4 and 5. There are of course meanings of this message that are not exhausted by this part of the semantic description; for these we need to analyse it from the perspective of the remaining three semantic networks of CLASSIFICATION, CONTINUATION and AMPLIFICATION.

Hasan's network has provided the basis on which to make sense of the kinds of offers which turn up in the data for this project; it explains why certain features are not selected. It can do this because it is a descriptive tool which articulates Halliday's 'trinocular' principle: i.e. it considers its object of study from above i.e. context, from below i.e., lexicogrammar, and from round about, i.e. from the point of view of other systems at the stratum of semantics. The semantic description is 'motivated' by contextual features, which they construe. At the same time, they are realizationally related to the lexicogrammatical and phonological features. And finally, they are described in relation to each other: how each articulates some feature of the semantic potential with respect to some environment under description (Hasan, 1996: 110).

The current project seeks not only to apply but also to extend Hasan's networks. To do this, the project is analysing the data set from the perspectives of all four strata: context, semantics, lexicogrammar and phonology. Through the application and extension of database tools (Wu, 2000), the project seeks to extend our potential to calibrate findings from the analysis across stratal boundaries. In relation to the description of offers, for instance, it is possible to signal that the offer – in particular, the 'special' offer – is a site of greater phonological variation than at any other point in the exchanges. The example offer explored above has the following phonological features: //2 *Would you /like to /try our /new /hot /**deal** of//2 three large **pizz**as//2 takeaway from only eighteen ninety-**five**?//.*[32] Looking across the data set, the special offer can be realized by either 1, 2, or 3 tone groups, and it appears that many combinations of tone selections are possible, including: as a single tone group, tone 1, 2, 4, 5 or 13; as 2 tone groups, tones (i) 3^2, (ii) 4^4, (iii) 3^5, (iv) 3^4, (v) 2^3, etc; as three tones groups, (i) tones 2^2^4, (ii) 2^3^1, (iii) 3^4^5, (iv) 3^3^1, (v) 1^1^4, etc. Since the selection of tone groups has a bearing on the meanings being encoded, the question that we would like[33] to explore is: what difference does the variation in the selection of Tone group make to the

[32] Conventions for the notation of phonological analysis presented here are: double forward slash indicates boundary of tone groups, the number at the beginning of each tone group encodes the tone contour, bold indicates the tonic syllable. See also Greaves, this volume, who provides details of Halliday's intonation system.

[33]As we write this, the project has run out of funding. We hope it will still be possible to pursue the questions we raise here.

meaning? Such variations in meaning should most probably be built into the semantic network of options in making offers, thus enriching the description of meaning potential.

7 Concluding remarks

Paradigmatic semantic description has moved a long distance from the initial networks of the 1960s, and 1970s. But there are exciting challenges ahead. We close this chapter with some of the most obvious:

- Describing the details of text structure and of texture; various ways of achieving con/textual integration (cf Hasan 1999); their significance for (i) contextual 'permeability', and (ii) possibly for inter-textuality.
- Checking the systems in the four sets of semantic networks – i.e., role allocation, amplification, classification and continuation – in order (i) to eliminate any possible contradictions, or (ii) duplications, which are liable to remain unchecked with very large descriptions. In these respects, the context-specific semantic network gains because it is small enough to be managed either manually or with simple mechanical help. Large scale networks such as Hasan, especially combined with Cloran's RU and seen in relation to such modifications as other researchers have suggested will possibly require powerful software for computing the range of SEs it generates.
- Exploring in greater detail the fourth putative rank, mentioned in Cloran (1994) namely 'message component'. At the same time, just as the RU is a 'conjunction' of messages, so also message is a 'conjunction' of components. What is the nature and extent of these components: if Thing and its descriptors such as number, quality etc constitute one single message component, then do we need to recognize, some unit – call it here tentatively – the semantic unit 'root'? Perhaps it is at this semantic rank that the traditional sense relations may be described; certainly the question is worth raising whether or not the sense relations of synonymy, antonymy, hyponymy and meronymy which have traditionally been seen as pertaining to 'lexical' relations, are in fact also applicable to larger semantic units?
- A point closely related to the previous is whether a meeting point is to be found somewhere in our description of semantics between the grammarian's dream of lexis as delicate grammar and the description of what we have just tentatively referred to as the root unit?
- The semantic basis of 'phraseological expressions' (see Tucker, this volume) is another intriguing issue. Can the language of description for the semantic level throw some light on it? Are phraseological expressions entirely arbitrary? Are they in some way beholden to the semantics of the lexical items that go into their making? After all it is interesting that one may *grind to a halt* but not be *pulverized to a stop*, that one may *leave a mark* on history, but not

deposit a trace, someone may *dog your footsteps* but not *puppy your track*, though they may *hound you*. How much does the last situation have to do with the semantics of *dog, puppy* and *hound*?

- We began by stipulating that 'meaning' as used here stands for 'meaning construed by wording'; but much of multimodal analysis draws attention to analogous 'meaning' construed by other modalities, particularly drawing attention to the co-operation of modalities in construing the meanings of what we might call a 'social semiotic event'. Is there a case for semantic descriptions to extend beyond meaning by wording so as to include meaning by any semiotic means? What possible changes would such an extension make to the architecture of SFL?

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