

PRAGMATICS AND MENTAL IMAGES

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1. Introduction

Teaching the same basic courses in linguistics year after year may gradually become a frustrating experience. The teacher also becomes increasingly aware of the possibility that the contents of the course may not have the same meaning for the students as they do to the teacher. It was this kind of situation that led the two of us to experiment with a new approach to teaching a course on pragmatics. We also wanted to find out how the students' minds worked in processing the information offered to them in the course. We would like to think that a Festschrift to Kari Sajavaara is a suitable forum for reporting on this since, as the head of the English Department, his attitude to teaching experiments was always encouraging.

The central concepts used when defining the field of pragmatics seem to be "meaning in context", "speaker meaning" and "utterance meaning", ie. meaning as created in communication situation, as opposed to "abstract meaning". For some pragmatists the emphasis is on speaker meaning (cf. Leech 1983; Levinson 1983), in which case attention focuses on the producer of the message, whereas according to others the hearer's interpretation is decisive in communication (e.g., Sperber – Wilson 1986). Yule's (1996: 3) list of four main areas of pragmatics consists of the study of speaker meaning, the study of contextual meaning, the study of how more is communicated than is said (i.e. listener's interpretation), and "the study of the expression of relative distance", which he explains by saying that "on the assumption of how close or distant the listener is, speakers determine how much needs to be said." The above definitions seem to suggest that language users, in the role of both speaker and hearer, create

a context and that there may be individual differences in the ways of doing it, which will be our main concern in what follows.

The planning of the course raised for us questions about how the information we were going to present to the students could be made more interesting and more closely linked with their experiences as users of language, both as speakers and as hearers. This led us to the question of how the scholars had arrived at the interpretations given to the phenomena discussed in the literature on pragmatics. On what basis does a pragmatist, when discussing for example place deixis say that *this* is proximal in meaning while *that* is distal? Is this analysis based on interviews of speakers or on some kind of psychological experiments? The answer seemed to be that, as far as we know, it is based on the scholars' own native speaker intuition about the meaning and function of these items and their own experiences with them. The same seemed to apply to most of the pragmatic phenomena we wanted to include in the course. This made us wonder whether it would be possible to explore how this kind of information is retrieved in the mind. We thought it would be interesting to get the students to consciously examine the way their minds work in processing the meanings and functions of pragmatic data.

The problem was how we could teach the students to "watch their minds" without turning it into a mushy, confused practice. At this point, NLP (Neuro-Linguistic Programming) seemed to offer a possible tool in the form of representational systems. This concept (O'Connor – Seymour 1990: 26-48) is used in NLP to refer to the ways in which the human mind takes advantage of the sensory systems in processing information, in memorising, retrieving or in presenting it. The primary sensory systems used seem to be visual, auditory and kinesthetic (covering bodily sensations and affective reactions), with the olfactory and gustatory systems playing minor roles.¹

Interestingly, we found some support for our idea in the literature on grammaticality judgements. For example, Levelt et al. (1977: 89) found out that informants who were asked to describe how they performed grammaticality judgement tasks explained that they tried to imagine a situation in which the phrase or sentence could be used. Alanen (1997: 68) comments on this by saying that "this seemed to indicate that informants tried to find a cognitive, preferably visual context for the sentence, i.e. somehow to use imagery."

We wanted to find out whether we could train our students to become more conscious of the mental images produced by the mind as it was working with linguistic meanings, and to analyse how far these images were connected with

¹ NLP literature seldom gives references to sources of information except when the source is another NLP writer. How the representational systems were originally arrived at in NLP is unknown at least to us, but the systems are now widely used in education, as part of learning systems (see e.g., R. Dunn – K. Dunn 1993, and Prashing 1996).

sensory presentations of the process. After some self-testing, feeling assured that working with one's mind is not impossible, we built the course on a plan which – in addition to the actual contents related to pragmatics – included presentation of information about the representational systems, practice sessions with the systems, and instruction about the use of this process in working with data. In doing this, our primary aim was to make the course contents more approachable and personally interesting to the students, and also to explore, in a very modest way, how the human mind processes verbal information.

The first sessions in which we practised awareness of mental processing must have seemed strange to the students. They were told, for example, to think of some object and then to become conscious of how the thoughts were represented in their minds. We emphasized the fact that there were no "good" or "correct" responses as such, that what we wished them to do was to develop confidence in their own reactions.

The whole process, "looking into one's own mind" and reporting to the teachers what one saw, heard or felt must have seemed very confusing to begin with. Gradually, however, the students started telling us about their responses. For concrete words, the representation was for example a picture of the object alone or in context. For abstract words, the representations could be pictures, colours or shapes. It was less frequent that the students offered sounds or kinesthetic sensations, although we encouraged them to consider all responses equally valid.

We also experimented with the mental representation of the time span. We discussed the concept of time and that the human mind needs to keep separate events that occur at different times. The students worked out how their minds processed time: the majority seemed to have a time span extending from somewhere on their left to somewhere on their right, though the exact shapes of the spans varied a lot. There were also students whose time spans extended from behind and "through them" directly forward, and a few whose time spans even went backwards. The students were also asked to draw pictures of their time spans and to discuss their ways of processing time in groups.

After the initial practice sessions we started working with the actual contents of the course, i.e. pragmatic phenomena. The selection of the phenomena to practice with was made on the basis of which of them could most easily and naturally be worked with by using our approach. These pragmatic topics were linked with homework based on the use of the representational systems, to be discussed in class. We collected the data acquired in this way (each student working at home) and made summaries of what seemed to us the most interesting phenomena. The two most promising ones were those of *deixis* and *modality*. The following discussion is based on these data.

2. Deixis

Deixis is a pragmatic phenomenon *par excellence* as it “concerns the ways in which languages encode or grammaticalize features of the context of utterance or speech event, and thus also concerns ways in which the interpretation of utterances depends on the analysis of the context of utterance” (Levinson 1983: 54). It can also be said that with deictic expressions the speaker locates persons, objects, events in relation to his/her “here and now” (cf. Lyons 1977). We experimented with two types of deixis, those of place and time, using the traditional deictic categories of demonstrative pronouns, demonstrative adverbs and tenses.

2.1. Place deixis

Lyons (1995: 310-311), when discussing what he calls “primary” and “secondary” deixis claims that “among the several uses of the demonstratives that can be analyzed in terms of the notion of secondary deixis, there is a particular use of ‘that’ versus ‘this’ which is recognizably expressive, and whose expressivity can be identified as that of emotional or attitudinal dissociation (or distancing). For example, if speakers are holding something in the hand they will normally use ‘this’, rather than ‘that’, to refer to it ... If they say ‘What’s that?’ in such circumstances, their use of ‘that’ will be indicative of their dislike or aversion: they will be distancing themselves emotionally or attitudinally from whatever they are referring to.” Lyons goes on to say that this type of secondary deixis is very close to subjective modality. Furthermore, Yule (1996: 13) actually suggests that the truly pragmatic basis of spatial deixis may actually be psychological distance, that “physically close objects will tend to be treated by the speaker as psychologically close”. Correspondingly, physically distant objects will generally be treated as psychologically distant (for example, *that man over there*). However, Yule (1996: 13) adds that “a speaker may also wish to mark something that is physically close (for example, a perfume being sniffed by the speaker) as psychologically distant ‘I don’t like that’. In this analysis, a word like ‘that’ does not have a fixed (i.e. semantic) meaning; instead, it is ‘invested’ with meaning in a context by a speaker.” These views found in the literature on pragmatics seemed to us to suggest that deixis was a suitable object for our experimentation.

An added interest in experimenting with demonstrative pronouns and adverbs in particular was the fact that Finnish students sometimes have difficulties in using the English demonstratives correctly. For example, when writing in English they occasionally use *that/those* to refer to something mentioned in the immediately preceding sentence. This may be due to the fact that Finnish has

a more complex system of demonstrative pronouns and adverbs than English does. Finnish has both in the pronouns and the adverbs a tripartite division while English has a bipartite one. This fact may well be a source of the difficulties Finnish students sometimes have in using these items correctly in English. Even greater are the difficulties that one has in trying to explain differences between the corresponding Finnish items to a foreigner learning Finnish. We therefore decided to experiment with the Finnish expressions of place deixis. Unfortunately, we were not systematic enough in our experiment and did not carry out a similar test with the English expressions, which would have allowed us to contrast the demonstratives in the two languages. The Finnish system of demonstrative pronouns consists of *tämä* (‘this’), *tuo* (‘that’), *se* (‘that’/‘it’). The last mentioned member of the set (*se*) is sometimes considered a personal pronoun referring to inanimate objects (although used in colloquial speech to refer to human beings as well), sometimes included in demonstrative pronouns. As a demonstrative, *se* is used in the place deictic function and is distal rather than proximal, but it is difficult to place it according to the principle of proximity. It has been suggested that *se* refers to something that is further away from the speaker than *tuo*. Penttilä (1963: 510) is of the opinion that *tuo* refers to persons and things that can be pointed at, whereas *se* refers to something that could but need not be pointed at because attention is already directed to the object in one way or another. According to Larjavaara (1986: 51), the Finnish demonstrative pronouns can be described in terms of semantic features as follows: *tämä* (‘this’) is /+close reference, +speaker centred/, *tuo* (‘that’) is /-close reference, +speaker centred/, and *se* (‘that’, ‘it’) is /-close reference, -speaker centred/.

The students were shown (on a transparency) simple sentences in which the above mentioned Finnish demonstratives occurred: *Ota tämä kirja* (‘take this book’), *Ota tuo kirja* (‘take that book’), *Ota se kirja* (‘take that/the book’) and asked to write down their reactions to them, i.e. how they reacted to the sentences, what images they created in their minds. As could be expected, they reacted to the distance vs. closeness of the item. There was at least one student whose reaction was that *tämä* is closer to the speaker, *tuo* within the same distance from both the speaker and the hearer and the speaker was pointing to the book, and *se* meant “closer to hearer”, but also “not present”, “not visible”. Some respondents also described the expressions with colours: the sentence with *tämä* was seen as “red”, “orange” or “yellow”, but also as “blue and good”. The sentence with *tuo* was “black”, “brown”, “dark” or “grey-green”; *se* was described only once with a colour, as “blue”. Other features attached to the sentences seemed to be related to the speaker’s way of speaking or tone of voice: the sentence with *tämä* showed irritation or was a strict command, whereas the sentence with *tuo* was interpreted as “indifferent” and the sentence with *se* as “impatient”.

In the area of deictic adverbs of place, the Finnish system is even more complex: it consists of two sets of three adverbs, related in form and meaning to the three demonstrative pronouns described above: *tässä* ('this' + inessive) – *tuossa* ('that' + inessive) – *siinä* ('that/it' + inessive) and *täällä* ('this' + adessive) – *tuolla* ('that' + adessive) – *siellä* ('that/it' + adessive). The difference between the two sets is that the first one seems to comprise a smaller, more restricted area than the latter, which refers to a more extended area. However, the differences among the members of both sets seem to cause similar difficulties of interpretation and analysis in terms of the proximal – distal dimension as do the pronouns.

Judging by the reactions of the students, the difference between the two sets is clearly one of the size of the area within which an object/person is "placed", i.e. *tässä*, *tuossa*, *siinä* imply a "smaller" area, closer to the interlocutors than *täällä*, *tuolla*, *siellä*. For example, *tässä* got reactions (the sentence given was *Kirja on tässä* ('the book is here')) like "touched by the speaker", "close to me", "open in front of the speaker", "speaker takes it out of her bag", whereas *täällä* was interpreted as "close to speaker", "where we are", "speaker shouting to another room", but also "the place is vague", "a librarian walks to the shelf". Otherwise, the difference between the three members within each set seemed very similar to those between the three pronouns: *tässä* and *täällä* were interpreted as being in the same location as the speaker, *tuossa* and *tuolla* somewhere out of reach for the speaker; *siinä* was close to hearer rather than the speaker, *siellä* was either close to the hearer or in a totally different, faraway place.

The reactions expressed in colours were very few but associated *tässä/täällä* with warm colours, *tuossa/tuolla* with cold colours. There were also some associations with the speaker's tone: *siinä* was experienced as said with an impatient, angry tone (perhaps suggesting something like "can't you see the book, it is close to you"). *Kirja on täällä* was an expression of surprise, *Kirja on tässä* was experienced as "open and contact-searching".

It is quite clear that in all the cases with place deixis the students had imagined a context with a speaker and a hearer and related the object mentioned to the participants in terms of closeness or distance, which was to be expected. The colours they associated with the expressions were warm colours with the closer objects and colder with the more distant ones. Interestingly, however, they also associated emotions like anger, surprise or impatience with the expressions, which seem to be based on auditive images.

2.2. Time deixis

Under this heading we experimented with tense (and aspect) using three sentences: *I have a problem*, *I had a problem*, and *I have had a problem*. The reactions to the first one were that the problem was "long-lasting", "constant",

"eternal", which is in keeping with the fact that the verb was in the present tense form. The problem was also felt to be heavy and serious, causing anxiety and a great need to solve it. The colours associated with it were all dark, grey or even black. One respondent experienced it as "a big block in my arms".

The second sentence *I had a problem* caused above all the feeling of the problem being behind and "gone", apparently due to the past tense, although in one case it was "still present but seen as small and dark". The colours were light and bright, green and blue, yellow and orange, but also red in one case; the feelings were those of relief, pleasure, satisfaction. Some saw a smiling face and heard laughter, one student had a very detailed picture of a person with arms open, wearing a white shirt, and a lot of open space round her/him.

The third alternative *I have had a problem* was most frequently experienced as referring to a long-lasting problem like alcoholism, burn-out state, a psychiatric problem, or a financial problem, which, however, was over now and the person did not need help anymore. However, it also suggested that the problem was not totally over yet. One interesting reaction was that the sentence was said by a person who wanted to emphasize how wonderful everything is at present.

The "strong" images caused by these sentences may have been to a great extent due to the word *problem* and the reactions that it awoke in the testees. However, there were also some differences that must have been caused by the tense and aspect differences: in the case of the first sentence the problem was seen as long-lasting and eternal, in the second one as behind and gone, apparently due to the difference between present and past tense. The third sentence also caused the reaction that the problem was not clearly in the past yet and one reaction of emphasis on the present happiness, which support the view that the present perfect suggests current relevance (e.g., Huddleston 1984: 160), as is clearly seen in the reaction of one student "distant but still related to present".

2.3. Time and place deixis combined

A few combinations of time and place deictic reference were also given to the students. These brought out more contrasts, which were even clearer than those reported on above. These reactions are reported below in Table 1, classified into three major categories. The first one, purely sensory images, consists of visual, auditory and kinesthetic types (there were no olfactory or gustatory ones). The second main class consists of elements relating to the speech event, mainly participants and setting. The third class consists of interpretative and associative elements, such as illocutions associated with the imaginary speech event, references to emotions and feelings, or memories.

We do not attempt to describe the responses in each category in quantitative terms here, since this was not our concern. We are interested here in the range

	I have a problem	I have this problem	I had a problem	I had this problem	I had that problem
VISUAL					
colour	black; grey; dark colours, darkness	white; pale colours; sterile colours	(still) dark; brighter; green blue; red; pale colours; yellow; orange; visually clear	grey	pink; not so dark
size	bigger; big (block)	—	small	small	—
AUDITIVE	"I have to solve it"	"embarrassing to explain but I will explain"; "it has to be solved"	"thank God it's over"; easier to say than "I have a problem"	"it's over, I can talk about it"	sounds strange
KINESTHETIC	deep sigh; arms pressed to sides; shoulders down; hands reaching out to hearer; problem in front; a big block in my arms; uphill; rainy; physical distress; heavy	hands moving; holding big block in my hand	arms open; problem behind me; chin up; lighter; problem further back	smiling	problem in front on the right
SPEECH EVENT	addressee (with pale blue shirt)	talks to another person; maybe a friend; open discussion; intimate context; boss's office	speaker, with smiling face; open field with flowers; open space	social event wine barcounter smile	addressee familiar; stands close; sharing with a friend; impersonal situation

Table 1: Place and time deixis

	I have a problem	I have this problem	I had a problem	I had this problem	I had that problem
Interpretation & associations					
illocutions	explanation or apology; trying to find help; something that can be talked about	—	—	—	—
emotions	serious; distressed; grim; anxiety; desperate	embarrassed; painful; willingness (to say something)	relief; confidence; pleasure; satisfaction; grateful	indifference; feeling of victory	shame; embarrassment; not willing to talk; no anxiety; old; has been a long time; not important; concrete; shared; more secrecy (than in other cases); solution not necessary
attributes, qualities, states of affairs	cannot focus; time now or eternal; related to homework	hearer may be a friend; problem easier to solve (than with <i>a problem</i>); a concrete problem; problem like a mathematical equation; not very serious; <i>this</i> makes it milder; more precise (than <i>a problem</i>)	it is gone; everything is clear; problem easier (than with <i>have</i>)	—	—

Table 1: Place and time deixis (cont.)

of responses and their accessibility, i.e. in examining the possibility of accessing individual ways of mentally processed pragmatic information. Therefore the examples in each category below are chosen to represent the whole range of the students' responses.

3. Modality

The other major concept that we experimented with was modality, which we first explained by using the division into epistemic and deontic types and attempted to show that both may, as Lyons (1995) claims, be either objective or subjective. Thus, a sentence like *He may not come* can have both epistemic and deontic reading and both can be either objective or subjective. If the sentence has an objective deontic interpretation, its propositional content will be (according to Lyons 1995: 330) 'It is not permitted that he come.' If its meaning is interpreted epistemically, it can be described as 'Relative to what is known, it is possible that he will not come.'

However, as Lyons (1995: 330) points out, both in the case of a deontic interpretation and an epistemic one, the modality can also be subjective, rather than objective as in the above examples. This means that speakers when uttering these sentences may be expressing their own beliefs, attitudes or their own will, "rather than reporting, as neutral observers, the existence of this or that state of affairs". According to Lyons (1995: 330), the latter is much more common than the former interpretation in everyday language, and "objective modality, in particular, is very rare". Therefore, with epistemic reading, the sentence *He may not come* means something like 'I think it possible that he will not come.'

In our experiment we gave the students sentences in which only either deontic or epistemic reading was likely, even without a context. Thus, for deontic modality, we gave the sentence pairs *You must stay at home tonight / You must not go out tonight* and *You may go out tonight / You need not stay at home tonight*. For epistemic modality, we gave three sentences, out of which the first one was the non-modalized *He is a good doctor*, the other two the epistemically modalized *He must be a good doctor* and *He may be a good doctor*.

3.1. Epistemic modality

Of the two sets of sentences, the latter i.e. the epistemic ones gave more intriguing results. The first one, the non-modalized *He is a good doctor* was considered as expressing the greatest certainty as compared with the two other sentences. This is a bit surprising as the sentence with *must* could be expected to have this role. The sentence *He must be a good doctor* was described as "evaluative" and "not as certain as the previous one", "not certain but hopeful", although also as "showing firm belief". One student described the speaker as

"a desperate person". The third sentence *He may be a good doctor* was described as "positive in tone", but "distant" and "doubtful" or "politely doubtful". One student described it as expressing "polite doubt" and thought that the sentence could continue with "but a young one", other students thought that it referred to an old doctor who could still be good. Yet another student said that the sentence could mean something like "really a quack but good with people".

The reactions related to visual representations were for the first sentence (*He is a good doctor*) that the picture was clear, white, but also round, soft and reddish. The second sentence was seen as sharp and dark, or heavy and square; the third sentence was said to be grey, shapeless and unsettled.

Most of the above reactions seem to be based on some kind of auditory representations in spite of the fact that the students only saw the sentences in writing, i.e. did not hear them. They must have imagined a possible speaker and "heard" his/her voice.

3.2. Deontic modality

The sentence *You must stay at home tonight* was in most cases interpreted as something that a parent would say to a child, but also as a wife saying it to her husband. The speaker's voice was described as being angry, emphatic, quarrelsome, strict, with no room for misunderstanding. But also, at least by one respondent as expressing warmth or begging. The negative way of expressing it, *You must not go out tonight*, was thought of as implying safety and protection, but also threat and danger. It was also considered less strict than the first sentence, it was more of an advice than an order.

In terms of colours and visual images, the first one (*You must stay at home tonight*) was seen as dark, heavy and described as having sharp edges or hard colours and sharp triangles; the figures motionless, close to each other. The latter one (*You must not go out*) was also black, with edges, but the speakers were inside and the threat outside. One student had the image of *must* as "a big stone that falls on the floor". These strong reactions seem to reflect the interpretation of *must* as expressing compulsion or obligation (cf. Greenbaum – Quirk 1990).

The other pair was *You may go out tonight* and *You need not stay at home tonight*. Most respondents imagined the context for both sentences to be a family scene, in which a parent was talking to a teenager. The parent's attitude in the former was said to be forgiving, showing good-will or trust toward the addressee. The latter sentence on the other hand was described as "more indifferent" or as "giving permission after a few nights at home as a punishment", a relief to the addressee but suggesting uncertainty and low self-esteem. One student group mentioned that this sentence could also be used in a context in which "it would still be nice if the son or daughter would not go out but stayed

	You must go	You must not go	You may go	You need not stay
VISUAL	dark; orange; light; hard colours; unmoving visual images; gloomy; seeing oneself; starry sky; dark room	black; dark; unmoving visual images at a greater distance than with <i>must</i>	pale; perhaps red; yellow	yellow; red; darker than <i>may</i>
AUDITIVE	<i>home</i> and <i>tonight</i> emphatic; music playing; emphatic voice; voices	<i>go out</i> emphatic; "I need not go" (<i>sic</i>)	"Is this true?"	loud voice; father's (?) voice; "Well, then, what is my function here?"; "Am I not wanted?"
KINESTHETIC	movement; warmth; closeness; grounded; angular; sharp corners; wagging of fingers	steep, fresh, cool air; cannot touch; cold	may go out; feel the air; soft; round; movement	(willing) to move; faster movement (than with <i>may</i>)
SPEECH EVENT	girls and mother; hearer leaving; spoken to son; parents and teenager; woman to husband; mother	said before the event referred to; mother to son; open door; school room; wall opposite; outdoors	mother to teenager; father to daughter; grandmother; parents; sunshine	to mother; speaker an older person; guests in the house

Table 2: Modal auxiliaries

Interpretation & associations	You must go	You must not go	You may go	You need not stay
illocutions	begging; quarrelling; no response; order; disapproval	threat; advice; order	forgiving; permission; showing trust; talking down	permission to go if one feels like it; concession; middle of argument; permission (after punishment); showing more trust than <i>may</i> ; encouragement
emotions	angry; anxiety; disappointment	milder emotions than with <i>must</i> ; irritation; anxiety; relief	irritation; surprise; good-will	uncertainty; relief; friendly; more indifferent than <i>may</i> ; willingness
associated qualities, states of affair; memories	have to; stern; absolute; oppressive; very strict; no misunderstanding; old unpleasant memories	protection; safety; threat; sensation of danger; the girl might have important reasons for going out; ill-boding; bad experiences in school's gym-class	choice; trust; mildness; passive; prisoner in one's own room; frightened pupil; less strict parent (than with <i>must not</i>); cloister for nuns; overprotective; someone you have to obey; old memories and irritation	liberty; giving way; no tasks at home; low self-esteem; alternative; bad conscience; more neutral than <i>may</i> ; boring guests at home; old stuff that has not been dealt with

Table 2: Modal auxiliaries (cont.)

at home after all", which indicates that *need not* expresses a reluctantly given permission. An exceptionally interesting context for this sentence was that it was said "to a mother who sits every night at home and needs encouragement to get out once in a while". The speaker's voice was heard as soft and mild in the first one, less interested and more neutral in the latter. Visually the difference between these sentences was that the former was described as "light" or even "red" in colour and "soft" and "round" in shape. The latter sentence in its turn was described as "a little darker" or "yellow" and even "red" in colour. Its shape was also less soft and round. Table 2 below gives the results of this experiment with modality in more detail.

4. Discussion and conclusion

Our experiment made it clear that the students had, in connection of each of the sentences tested, a need to imagine a context, with a speaker and a hearer, sometimes with very concrete images of their relationship and the physical features of the situation. It was also clear that they created these contexts on the basis of their personal experiences and "life histories", which explains such details in their reactions as "an angry parent saying it to a child" or the hearer being "a mother who sits every night at home and needs encouragement to get out once in a while".

The sensory reactions attested show a great deal of variation both in terms of the representational system used – in the data there are visual, auditive and kinesthetic reactions – and in the properties of these reactions – there are a great number of colours, voices, bodily sensations, and emotions. Similarly, the qualities, thoughts, and states of affairs associated with the imaginary speech events vary a lot. However, among all these reactions, similarities, even a kind of logic, may be detected. For instance, the examples with the word *problem* show a range of responses where qualities such as heaviness or darkness, related to colours, sensations or emotions, are systematically associated with *I have a problem*, while qualities of lightness, easiness are associated especially with *I had a problem*. The other expressions fall somewhere between these two extremes. In the same way, in the examples using modal verbs, heaviness and darkness are related to *must* – and to some extent to *must not* – while *need not* is generally felt to be less oppressive.

Naturally, the verbal contexts for the verbs in each case restrict or guide the response. The difference in the tense (*have a problem* vs. *had a problem*) might give rise to different reactions altogether if the complement of the verb *have* were a more neutral or positive noun phrase. It is also possible that, if the modals had not been embedded in directives, i.e. if we had given examples like *I must go* and *I need not stay*, the students might have created different contexts for them, with different reactions. The directives and, in particular,

the word *home* used in them seem to have invited contexts in which the speaker has a kind of institutionalised right to invade the hearer's world, and this was reacted to by our testees.

Thus, at the same time as the use of different modal verbs in the sentences otherwise identical shows the kind of effect those single verbs have, we also see that the sentences chosen – whether directives or representatives – form semantic wholes. They have a potential to create in the mind of the testee certain kinds of speech events with interpretations of the illocutions and emotional reactions (not necessarily in this order). It also seems that this "schema" for a word or phrase is not a haphazard collection of visual, auditive etc. reactions. Some students produced colours and sizes consistently whereas others produced detailed speech events. Their meaning schemata may be somehow related to their learning styles. Furthermore, the particularly strong and idiosyncratic schemata are often associated with strong emotions, which may suggest that they are based on the testees' own experiences.

Our data may also have implications for the complex meaning negotiation that goes on in discourse, where the negotiation taking place between speakers can be assumed to lead each participant to choose the most relevant meanings from their individual schemata. Speakers with highly idiosyncratic schemata may find meaning negotiation less successful than speakers who have open schemata with alternatives. This also supports the view that foreign language learners benefit from learning verbal items, not only in context, but in many and varying contexts with both verbal and non-verbal features, which prevents the development of rigid and idiosyncratic contextual schemata and supports individual ways of learning.

As to the students – after all it was with them in mind that we started the experiment – their feedback was quite positive and emphasized the importance of working in a way which helped them to link abstract notions with their own experience. We also felt that the discussion in class flowed more easily when it could start with something that everybody had tried out. However, the students hardly had such interesting food for thought as we did in the form of the baffling data they produced.

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