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## **A model of conversational positioning in collaborative design dialogues**

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### **SUMMARY**

This paper presents findings from a linguistic and psycho-social analysis of nine design dialogues which sets out to investigate the interweaving of transactional and interpersonal threads in collaborative work. We sketch a model of the participants' positioning towards their own or their partner's design proposals, from association to dissociation towards the proposals, together with the conversational cues which indicate this positioning. Our aim is to integrate the role of interpersonal relationships into the study of co-operation, to stress the importance of this dimension for the quality of collective work and to reflect on its potential for integration into the design of dialogue systems.

**KEYWORDS :** argumentation, dialogue, design dialogues.

### **1. INTRODUCTION**

Communication is a vital component of any design process. Designers must communicate not only with non-designers -- clients, suppliers, manufacturers and so on -- but also with other designers. It is this inter-designer communication which is the focus of this paper. The interaction between designers has attracted relatively little attention compared with other aspects, although the recent rise of Computer Supported Cooperative Work (CSCW) has stimulated a number of studies. Perhaps the major influence in that research community has been Tang's (1990) study of small teams engaged in the task of designing a remote control handset, which captured and analysed dynamic aspects of the activity such as gesture, posture, proximity, concurrency of access and so on. Within the Design community, a major

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contribution to the understanding of the design process has been made by the various analyses of the Delft Protocols, a set of materials generated during team and individual design sessions for a bicycle carrier rack published in (Cross et al., 1996). The emphasis in most of these and similar studies (e.g. Bly, 1988; Bucciarelli, 1988, 1994; Medway, 1996; Murray, 1993; Plowman, 1996; Visser, 1993; Wood, 1992) has been on uncovering the processes and representations which emerge in design discussions.

A range of approaches have been used in this work, drawing on a number of traditions, with ethnographic field studies alongside analyses using pragmatic and psycholinguistic models. Particularly relevant here are approaches based on Austin's Speech Act Theory (Austin, 1962; Searle, 1969) and Grice's Conversational Maxims (Grice, 1975). Clark's work on the creation and negotiation of common conversational ground is also clearly of utility (Clark, 1992) as is Sperber and Wilson's Relevance Theory (Sperber and Wilson, 1986). Studies using approaches such as these have focused on aspects of design dialogues such as turn taking, shared reference, the integration of talk and gesture, the use of transient representations, the relationship of talk to drawing and conversational repair with regard to the way they contribute to the fulfilment of the design brief. We might call this a task-oriented or transactional perspective on the design process (Brown and Yule, 1983).

The perspective offered in this paper is rather different. We suggest that while it is clearly vital to study collaborative design sessions from a task-oriented viewpoint, tracing what goes on in the design process as it moves towards the goal of creating an acceptable end product, we can also learn much by considering design as a *social* practice, in which the goals of participants, whether explicit or not, will be not only the creation of a design representation but also the management of interpersonal relationships. Other studies which share this orientation are beginning to appear (e.g. Brereton et al, 1996; Cross and Clayburn Cross, 1996; McCarthy, 1998). We show how transactional aspects of interaction, i.e. in this context those which push the task along, are interwoven with interpersonal aspects, which allow participants in a design dialogue to manage their social relationship.

Interpersonal and transactional phenomena interact in powerful ways. In particular, we would suggest that interpersonal forces can act as inhibitors on the success of the design task, since the production of a successful design solution may conflict with the demands of managing the social situation: a less than wonderful design idea may be accepted in order to avoid the interpersonal unpleasantness involved in contradicting a very assertive colleague, while a good idea may be ignored if it is put forward very hesitatingly by a diffident participant.

In this paper we illustrate the interplay between these two major types of verbal interaction, the transactional and the interpersonal, from a study of a corpus of design dialogues. After describing the methodology used, we sketch a model of conversational positioning in design dialogues that relates interpersonal and

transactional processes and show how the model is manifested in the design dialogues of the corpus.

## **2. METHODOLOGY**

### **2.1. THE CORPUS**

We analysed nine telephone sessions, each of approximately half an hour, in which a pair of participants attempted to complete a design task. This set-up allowed us to concentrate on verbal interactions without the additional factor of non-verbal or graphical representations. The students' dialogues were recorded and participants were also interviewed individually after the sessions. The task was a language-based one: to design a slogan for a familiar object such as an umbrella, cotton-wool buds, earplugs or paper clips. The participants were first year students of a technical degree in Communication and Advertising who were in their first weeks of their course. The language they used was French.

### **2.2 ANALYSIS OF THE DESIGN DIALOGUES**

The analysis of the dialogues was in two stages. In the first, two coders worked independently to identify the functional units of the dialogues, which we shall call "moves". By "move" we mean the functional identity of the utterance in the conversation, or more informally, what the utterance can be "taken as" (Levinson, 1992). The approach used here is essentially that identified in the Speech Act tradition (Austin, 1962; Searle, 1969), i.e. to interpret an utterance as being designed to carry out a function in the world. These units may be more or less conventional: for instance, an utterance such as "What about "tranquil"?" in the context of a conversation about slogan design would be taken as a "proposal", the response "tranquil sounds like sleeping pills" a negative evaluation, and the utterance "peaceful is another idea" a counter-proposal.

This first analysis showed that, not unexpectedly, design discussions contain a variety of distinct types of conversational move. However, two types of move in particular are central to the dialogues and are common to all participants. These are, on the one hand, the *proposing* of design ideas or solutions and on the other, the *evaluation* of these proposals. This is to be expected, since most design theorists would agree that a "propose and evaluate" cycle of some kind, framed in these terms or in similar pairs such as "synthesise and analyse" or "generate and test" is at the heart of any co-operative design process (Cross, 1984; Lawson, 1980; Visser, 1993).

In the second stage, the two coders again carried out separate analyses, which were later synthesised, into the ways in which the participants used semantic content, linguistic cues and paralinguistic resources (laughter, pronounced silences and so on) to modalise these utterances. This orientation was chosen because a very striking aspect of many utterances in the dialogues was the way in which participants used a wide range of verbal means to position or align themselves with

regard to their own proposals and those of their partner <sup>2</sup>. For instance, they might put forward an idea of their own only to immediately rebut it; or they might respond to the other participant's idea with great enthusiasm, sometimes greater than that shown by the idea's originator. In the rest of the paper we concentrate on this aspect, presenting the range of distancing and association processes and suggesting an explanation for them.

### 3. RESULTS: CONVERSATIONAL POSITIONING

A proposal can be advanced with a greater or lesser degree of commitment, with the speaker either **associating** themselves with a proposal or **distancing** themselves from it. We can think of these degrees of commitment from a proposer as existing along a scale from strong enthusiasm, which could be expressed, for instance, as "Hey, I've just had a brilliant idea" to distaste and disowning, perhaps expressed as "Well, I have an idea but actually I don't think much of it."<sup>3</sup> There are therefore two extreme possibilities to consider, with a range of intermediary positionings possible. Ignoring these less extreme cases for the sake of simplicity, we call utterances towards the enthusiastic end of the scale Self-Associating utterances (SA) and those which indicate disapproval Self-Distancing utterances (SD). A parallel scale of evaluations of these proposals from the other participant runs from enthusiastic welcome - "That's a great idea of yours" to rejection - "I've never heard anything so stupid". This gives us a further pair of extreme positions. We call the former Other-Associating utterances (OA) and the latter Other-Distancing utterances (OD).

The following short extract gives a flavour of the recorded dialogues and illustrates the four possibilities, with conversational turns numbered and positioning annotated in the English version:

#### Example 1

- 1 A: "petit mais efficace, le bruit vous agace, emportez vos boules quiès," ça va pas (SD)
- 2 B: Ben c'est bien, avec le rime et tout mais c'est heu:: (OD)
- 3 A: c'est long hein, c'est lourd (SD)
- 4 B: c'est long... (OD)
- 5 A: Heu:: "la seule solution" heu::/ non j'sais pas pourquoi je veux à tout prix mettre "la seule solution" (SA)
- 6 B: (rires) (OD) enfin c'est vrai que c'est pas bête (OA) mais ça fait un peu lourd et ça va pas (OD) heu:: le mot "solution" heu:: correspond pas... (OD)

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<sup>2</sup> The notion discussed here has much in common with Goffman's influential work on "footing" (Goffman, 1981; Levinson, 1988), i.e. the speaker or hearer's alignment to the utterance (See also Gavruseva, 1995).

<sup>3</sup> Linde (1988) discusses a similar phenomenon which, following Labov and Fanshel (1977) she refers to as "mitigation", i.e. those linguistic devices which serve to make an utterance less direct, more polite, and less likely to cause offence. Linde analysed the conversations in a police helicopter between the pilot, who has responsibility for aviation decisions, and the flight officer, a police officer with responsibility for operational issues. Requests which impinged in some way into the other's area of responsibility, such as the flight officer suggesting a change in altitude, tended to be highly mitigated.

### English translation:

- 1 A: "small but effective, noise is getting on your nerves, take some earplugs with you,"  
that's no good (SD)
- 2 B: well it's OK, with the rhyme and everything, (OA) but it's , er :: (OD)
- 3 A: it's long, eh, it's heavy (SD)
- 4 B: it's long... (OD)
- 5 A: er :: "the only solution," er er ::/ no, I don't know, I really want to put "the only  
solution"(SA)
- 6 B: (laughter) (OD) well it's true it's not bad, (OA) but it's a bit heavy (OD) and it's not  
quite right :: (OD) the word "solution" er :: doesn't fit in... (OD)

Here A makes a proposal, but distances herself from it immediately (that's no good). In Turn 2, B reacts to mitigate the harshness of A's self-evaluation (well, it's OK) but ultimately seems to agree, though she doesn't actually utter a critical evaluation, leaving the "but" to do the work for her. Here the structure is therefore a relatively strong SD by A followed by a mild OA by B and a mild OD by B.

The sequence continues in Turn 3 with another SD (it's long, it's heavy) echoed by B in another OD. This is followed in Turn 5 by A's repetition of the proposal of "the only solution" which she presents in a strong self-associating utterance, indicating her attachment to the phrase (I really want to put "the only solution"). There is some mitigation of the SA in the preceding "I don't know" and in the subsequent laughter, in which B joins. B's verbal contribution in Turn 6 is a mild OA (well, it's true, it's not bad) followed by a rapid sequence of three critical OD's (it's a bit heavy; it's not quite right; ... doesn't fit in).

Speakers may show their alignment to the proposal by explicitly stated value judgements, as above with A's "That's no good" in Turn 1. However, the recorded dialogues reveal a very wide range of verbal and non-verbal means, many not at all explicit, which bring about the same effects. We describe some of these in the next section.

### 3.1 CATEGORIES OF ASSOCIATION AND DISTANCE

#### *Self-associating Utterances*

A number of different mechanisms were used to suggest that speakers were associating themselves with an idea or proposal. Some of these are described below.

We found a number of cases in which the *content* of the utterance strongly suggests the association of the speaker with their own proposal. For instance, the speaker may explain the good points of a proposal:

#### Example 2

A "les Boule-Quies bon dodo" (rises d'A et B)

B pourquoi pas?  
A ça fait, ça fait assez rire, 'fin c'est le but principal j'y pense

A "Boule-Quies (trademark of ear plugs), sleep tight" (laughter from A and B)

B why not?  
A it's quite funny, I think that's supposed to be the point

Or the speaker may defend their reasoning explicitly:

A Oui non mais c'est pour ça je veux dire tout/ vu que toutes les publicités exagèrent j'y pense pas que ce soit trop exagéré/'fin si bien sûr mais heu:: tout le monde joue là-dessus donc heu:: pourquoi pas nous?

A yes no but I just mean that every / given that all ads exaggerate I don't think it's too exaggerated, well OK, it is, but everyone does it er :: so why not us?

Other argumentation-oriented mechanisms involve the speaker explaining the idea in different terms or extending the idea by describing new aspects.

Elsewhere the speaker's enthusiasm for the idea is expressed in a general liveliness of intonation and enunciation:

Example 3

A. Tu sais, un truc?  
A Hey, you know what?  
(followed by a proposal)

or:

Example 4

A mmm, mmm, regarde, je v/ je v/ excuse-moi mais je viens, j'y viens d'avoir un truc  
A mmm, mmm, hang on, I've, I've, sorry I've just thought of something

Or, less explicitly, in a certain combativity in the sequential dynamics of the conversation as the speaker attempts to make sure their idea is not ignored, misunderstood or forgotten, as in the following examples:

Example 5

A comme je disais tout à l'heure, Bonhomme Trombone  
A as I was saying before, Mister Paperclip

or:

Example 6

Aouais mais sinon tu as compris ce que j'essayais de dire avant?

B heu :: ouais ouais j'crois

Aa la télé tu sais quoi, il... on lui parle un langage

Ayeah but otherwise did you get what I was trying to say before?

B err, yeah, yeah, I think so

Aon the TV you know what, he... they speak to him in this language

Although we have not carried out a quantitative analysis, it is clear that there are only a small number of these relatively strong positive self associating moves. If we consider only the task-oriented aspect of the dialogues, this is difficult to explain. If optimal task completion is the overriding goal, the aim should be to find the best available solution and participants who think they have such a solution would logically be expected to express it straightforwardly. In terms of interpersonal relations, however, there are good reasons for mitigating one's enthusiasm. If a speaker shows strong enthusiasm for their own idea, they run two risks.

The first of these is that they may find their views are challenged, resulting in loss of face as it becomes clear that their high opinion of their own idea is not shared by the dialogue partner. In other words, to use the terminology of Politeness Theory (Brown and Levinson, 1987) there may be an attack on the "positive face" of the speaker.

The second risk is that of appearing to impose on the other participant an obligation to echo one's own enthusiasm, which the dialogue partner may not be inclined to do. The partner's choice here is to go along with the speaker's suggestion, even if their suggestion is a bad one which will not serve in solving the design task, or risk upsetting the social equilibrium by challenging the speaker's positive self assessment. This is an unpleasant situation which in Brown and Levinson's terms would count as an attack on the "negative face" of the dialogue partner, by imposing a course of action on him/her. Thus, adopting a strongly self-associative stance is a risky strategy in interpersonal terms.

So strong is this risk that very occasionally, a dialogue is brought almost to a point of breakdown by a participant who clings grimly to their proposal. One such passage is worth quoting at length, along with our interpretation of it. B has just expressed doubts about a proposed solution from A:

#### Example 7a

- |   |   |  |
|---|---|--|
| 1 | A | ouais en fait faut que tu m'en proposes un autre quoi parce que moi bon ben/   |
| 2 | B | pour essayer de comparer pour voir/  |
| 3 | A | parce que moi si tu veux moi le mien c'est moi qui l'écris donc je vois le visuel tout de suite quoi mais vu que :: c'est pas :: c'est pas toi qui l'as dit j'suis pas sure que tu vois vraiment ce que :: moi je voudrais que tu/ |
| 4 | B | si si parce que moi je vois très bien l'image derrière ce qu'on disait tout à l'heure là/  |



- |   |   |  |
|---|---|--|
| 1 | A | well yeah you'll have to think of another one for me because I really/   |
| 2 | B | to try to compare to see/  |
| 3 | A | because if you like, mine, I'm the one who wrote it so I can see the visuals<br>straight away, right, but seeing as :: it wasn't :: it wasn't you who said it<br>I'm not sure if you really see what :: I'd like you to/ |
| 4 | B | no no really I can see the picture behind what we were saying a moment<br>ago/   |

A is not *explicitly* associating herself with her idea (expressed in a preceding sequence), but by renouncing in Turn 1 the search for further solutions she is implicitly doing so, while also imposing on B the obligation to search for new (and better) ideas. A's doubting of B's comprehension in Turn 3, where she suggests that B doesn't really understand what A is proposing, is another very strong self associating mechanism, with its suggestion that nobody who really understood the idea would be against it. B is still fighting back in Turn 4, insisting that she does understand the proposal (and suggesting by implication that she still doesn't like it very much).

Similar exchanges ensue, and then the following passage:

#### Example 7b

- |   |   |  |
|---|---|--|
| 5 | A | Ouais c'est comme tu veux .../   |
| 6 | B | non mais c'est une bonne idée je voulais juste essayer de trouver.../  |
| 7 | A | [ah ouais ben bien sûr moi c'est pour toi mai heu ::] (loudly) je peux<br>encore te laisser du temps si tu veux (very long pause)/ |
| 8 | B | là j'essaie de trouver un truc sur l'hygiène mais heu :: (very long<br>pause)/   |
| 5 | A | well it's as you like.../  |
| 6 | B | no it's a good idea I just wanted to try to find .../  |
| 7 | A | [oh yeah sure right it's up to you but er ::] (loudly) I can let you<br>have more time if you like (very long pause)/              |
| 8 | B | I'm trying to find something with hygiene in it but er :: (very long<br>pause)/]   |

This passage is striking for the threats to B's negative face from A, who seems to be trying to make the situation uncomfortable for B. A begins in Turn 5 by apparently agreeing to let her own idea go. For B to agree to this would be a threat to A's positive face so she assures A that her idea really is a good one, but still allows herself a mild demurral (Turn 6). A's first reaction in Turn 7 is slightly garbled. She then raises her voice and continues in her insistence that B should come up with an alternative solution, strongly suggesting her own adherence to her original proposal. A's silence during the long pause counts as another manifestation of her refusal to countenance generating any new ideas herself, leaving B rather desperately trying to generate an alternative proposal in Turn 8.

We could wonder here about the effect of this type of exchange on the design outcome. Was B prevented from generating alternatives by A's hostile attitude, which blocked her creativity?

## *Self-distancing Utterances*

Much more frequent than self-associating utterances were those in which participants distanced themselves from their own suggestions. The following extract from one of the dialogues shows some of the possibilities:

### Example 8

- A: je te dis un truc, tu me diras si tu es d'accord - dit-elle en riant - heu :: avec... attends, qu'est-ce que je voulais dire/ Avec vos mains sur les oreilles votre vie n'était pas pratique (rires) maintenant avec les boules qu'è heu :: votre heu :: ouais, 'fin, ouais
- A: I'll tell you this idea and you tell me if you agree - she said, laughingly er :: with, hang on, what was I going to say? with your hands over your ears, life was tricky (laughter) now with ear plugs, er :: your er :: yeah, well, yeah...

Here we see the speaker hedging before she sets out the proposal, by acknowledging that her partner may disagree. Her ironic self-quoting ("she said laughingly") suggests her distance from her proposal and this is reinforced by self-deprecating laughter, by pretending to forget her idea and by allowing the expression of the proposal to trail away, as if she herself had lost enthusiasm for it.

Other signs of distancing are seen when speakers immediately repudiate their proposal, explicitly or via paralinguistic signs ("pff" "bof").

Speakers may immediately agree with the other if they offer a criticism, or they may even extend and build on the other's critical remarks, as in the following sequence which follows a suggestion by B:

### Example 9

- A: ben en fait heu ::: ouais, ouais mais faudrait un truc vachement court quoi  
B: ouais  
A: parce que si ça fait/  
B: parce que ça coûte/ ça coûte assez cher quand même
- 1 A: well actually er ::: yeah yeah but we need something really short  
2 B: yeah  
3 A: because if it gets/  
4 B: because it costs/ it still costs quite a lot]

Here B goes along with A's objection to the length of the suggested slogan (Turn 1) and in Turn 4 elaborates on the reasons why A's objection is justified, a strong SD move.

In a similar example, the participants are discussing a suggestion from B including the word "hygiene":

### Example 10

- A: ou alors "votre bien-être" plutôt... parce que "hygiène" ça a un côté/  
 B: ça fait péjoratif un peu  
 A: ouais voilà ["votre hygiène" ça fait un peu::]  
 B: [*Mais vous vous lavez pas les oreilles*] vous êtes sales quoi
- 1 A: or maybe "your well-being" instead ... because "hygiene" is a bit/  
 2 B: sounds a bit pejorative  
 3 A: yeah right ["your hygiene" is a bit ...]  
 4 B: [*"You don't clean your ears"*] You're really dirty]

Here B extends A's criticism to the point of making jokes against his idea.

Another interesting move which seems to have a self-distancing effect is to utter a proposal in a way which gives the impression that one is simply quoting an idea authored by someone else. Two examples from the same dialogue illustrate this move. In the first, the speaker associates herself with the proposal:

Example 11

- A: un slogan tout simple comme ça, "un coton tige vous change la vie"  
 A: a really simple slogan like "a cotton wool bud can change your life"

In the second, she utters the slogan with no introduction, as if simply quoting someone else's idea:

Example 12

- A: "N'oubliez pas le coton tige est toujours là"  
 A: "Don't forget, your cotton wool buds are always there"

### *Other-associating utterances*

There are many examples of speakers giving enthusiastic support for the other participant's ideas. They may build on the proposal, finish off the partner's proposal, re-express it to show understanding, justify it with a rationale or simply state that they admired it, that it was imaginative, that they would never have thought of it themselves and so on. The following is a typical example of this sort of support:

Example 13

- A: "Votre bien-être"  
 B: "Votre bien"/ ouais "votre bien-être" c'est bien tu vois ça donne une notion de légèreté tout ça

- A: "Your well-being"  
 B: "Your well"/yeah "your well-being" that's good you know it gives an idea of lightness and all that

### *Other-distancing utterances*

However, intonation is an important factor here. It is possible to utter apparently enthusiastic opinions in a tone which actually expresses scepticism. A common mechanism is to give a two stage response, initially expressing apparent support for another's idea which immediately gives way to a distancing. This can be done quite "lightly", as in the following, which occurs in the context of B wanting to consider the design brief before moving to the creation of the slogan itself.

#### Example 14

- A: ... faire un slogan quoi  
 B: ouais, après
- 1 A: ... make up a slogan, right  
 2 B: yeah, afterwards

When, in Turn 1, A suggests they make up the slogan, B accordingly follows up her *apparent* agreement (yeah) with her own idea of the order in which things should be done (afterwards).

Offering alternatives is another lightweight mechanism for moving between positive and negative evaluations of the other participant's ideas:

#### Example 15

- B: un slogan je sais pas faut un/  
 A: faut une phrase heu:: une phrase heu:: choc heu::  
 B: Ou avec des rimes qu'on retienne plus facilement
- 1 B: a slogan I don't know, we need a/  
 2 A: we need a phrase er :: a "shock" phrase ::  
 3 B: or with rhymes that people can remember more easily

Here B doesn't explicitly reject A's idea of a "shock" phrase but simply moves effortlessly past it in Turn 3 with his own alternative, introduced by " or ".

Some participants felt able to express openly their negative evaluation of their partner's ideas, as in Turns 2 and 6, by explaining in which respect they violate the design constraints. For instance, in this example there is a length constraint invoked:

#### Example 16

- A: "Utilisez"  
 B: non mais c'est [trop long]

- A: [c'est mieux]  
 B: "portez" /  
 A: non pas "portez", "utilisez"  
 B: Ouais mais:: "utilisez", ça fait trop long,
- 1 A: "Utilise"  
 2 B: no but [that's too long]  
 3 A: [it's better]  
 4 B: wear/  
 5 A: not "wear", "utilise"  
 6 B: yeah, but "utilise", that sounds too long

However the participants also found many different ways of withholding a positive evaluation of the other's contribution without openly expressing criticism. These include:

- saying nothing
- continuing one's own thought or sentence
- laughing
- acknowledging that one has heard the other's opinion with a token utterance such as "mmm" but offering nothing more
- offering grudging approval ("I suppose that's not too bad")
- diverting the discussion with a competing proposal or a new activity.

### 3.2 SEQUENCING IN CONVERSATIONAL POSITIONING

We have seen how people may, during a design discussion, express a greater or lesser degree of distance towards their own proposals. One interesting question at this point is how this initial positioning might influence the subsequent reaction of the interlocutor.

It seems that the default sequencing pattern corresponds to the following "rules":

- 1) SA is followed by default by OA
- 2) SD is followed by default by OD

We would explain these tendencies by appealing to two general principles of social interaction. The first of these is the *Principle of Face Saving* (see above) which describes the social strategies which we employ to avoid the personal risks of being deprecated or dominated. This needs to be complemented by the *Principle of Least Effort*, described by Clark (1997, p.224) in the following terms: "All things being equal, agents try to minimise their effort in doing what they intend to do". Sperber & Wilson (1986) also take into consideration a notion of cognitive effort to define relevance: for them, the less cognitive effort a listener will need in order to interpret an utterance, the more it is relevant. (This is in addition to the principle that the greater the effects on their beliefs, the greater its relevance).

Rule 1 (SA is followed by default by OA) means that when a participant strongly associates with their proposal, for instance by being very assertive and putting

forward numerous arguments, the interlocutor will tend to react by agreeing with the positive assessment. In this context, the principle of least effort dictates that the reactive statement will be an other-associating utterance, so, for instance, the default follow-on to a move such as "I have a good idea" will be something like "I like your idea". The cognitive effort of formulating a contradictory reply would make this the easy option. In addition, the reacting dialogue partner would risk offending their colleague by not agreeing with their very positive evaluation (face saving). However, a very strong OA in this situation might restrict the evaluator's subsequent freedom of action, so a *mild* expression of association with the other's proposal might be safer than a strong one.

Rule 2 (SD is followed by default by OD) means that, when a participant is very distant with his own proposal, for instance by critiquing it immediately, the interlocutor will tend to react by being other-distant, not trying to find positive aspects of the proposal because of the cognitive effort it would require in conceptualising and formulating an opposing view (principle of least effort). However, in this case too strong a distancing move will be seen as a threat to the proposer's positive face ("Yes, your idea is really dreadful") and therefore a mild OD is called for. These sorts of principles can be seen at work over longer sequences, for instance in the following series of moves, beginning with A's suggestion for a slogan:

#### Example 17

- A: Si on mettait "Ecoutez le bruit de la vie"  
 B: "Ecoutez le bruit de la vie" c'est pas mal hein,  
 A: Ouais ben j'sais pas je/ ouais ça peut être "écouter le bruit de la vie" mais il y a/ il y a quelque chose d'un peu:: universel là-dedans tu sais carrément heu::  
 B: ça fait trop:: trop vague  
 A: Oh ouais ça fait mystique même hein
- 1 A: what about "Listen to the sound of life" (SA)  
 2 B: "Listen to the sound of life" that's not bad eh (OA)  
 3 A: yeah but I don't know I/yeah maybe "Listen to the sound of life" but there's something a bit :: universal about it, you know really... (SD)  
 4 B: it's a bit too:: too vague (OD)  
 5 A: yeah maybe even too mystical eh (SD)

More complex sequences are also frequently found. For instance a critical remark from one participant often seems to provoke an answering negative evaluation, even from a participant who before that moment had been supportive, as if the requirement of maintaining harmony had been weakened by the uttering of a criticism.

These default sequences are of the same type as has been proposed by Conversation Analysis (Sacks et al, 1978) with the notion of adjacency pairs where a type of move tends to be followed by another type (such as a question followed by a response) and this creates expectations to which participants in

social interactions orient their behaviour. Our model is of the same type but deals with the *modalisation* of the moves (what we called positioning); it is predictive in this respect.

Of course these tendencies might be changed by the context of the collective work; in our study, participants had roughly equal status with each other, but if, for instance, the status of the participants or their expertise in the domain were not equal, these default tendencies might be transformed.

#### **4. CONCLUSIONS AND DISCUSSION**

The study exposed a great deal of complex interaction between task-oriented and interpersonal strands of the design dialogues. One trend is towards safeguarding the interpersonal at the possible expense of the task. Some participants in our dialogues did not seem to express themselves freely but paid great attention to maintaining the appearance of interpersonal harmony. There are two processes at work in this overall pursuit of politeness. On the one hand, each participant is protecting the other's positive face (by not criticising the other's contributions). On the other hand, each participant protects the other's negative face (by not imposing their own contribution and thereby reducing the other's freedom of action). However face-saving is not found in every dialogue and some participants are particularly unskilful (or uncaring) in their promotion of their own ideas at the expense of the face of their partner.

More needs to be done to discover how representative these findings are. For instance, we hypothesise that the individual's need to feel personally satisfied in workplace negotiations of this kind differs markedly between cultures, be they national or professional. The neophyte status of the participants may also have had an impact: it would be interesting to see the extent to which dialogues involving professional designers might compare in terms of co-operative style and we are currently studying a group of professional architects in the UK with this in mind.

Although our focus of interest is the design process, it is likely that similar phenomena will be at work in any discussion which involves negotiation. The range of situations to which this type of analysis may be applied is therefore very wide, encompassing high level decision making in commercial, political and military contexts to more humble examples such as doctor-patient interviews during which diagnoses and treatments are negotiated (Strong, 1979). We hope this will enable us to work towards a characterisation of co-operative style of design dialogues, that is the socio-cognitive dynamics which will make co-operation more or less productive in terms of personal relations and design quality and efficiency. The application of such a characterisation might be useful in several contexts such as design education, the design of cooperative design tools and in Natural Language dialogue systems.

We suggest that the various types of modalising behaviour we have described above, motivated by a desire for interpersonal harmony or for personal influence, have an effect on the successful completion of the design task. We

described above, in Example 7, how a partner who associates strongly with her proposal seems to block the initiative and creativity of the other partner and how the co-operative dynamics is therefore restricted by such a positioning. When a participant is very assertive about having their own idea accepted, other participants will find it socially uncomfortable to propose alternatives. In a situation like this, the generation of solutions will be satisfying only if the assertive person is very creative<sup>4</sup>, making it a case of individual rather than collective design. Similarly, when one of the partner is very "self-distancing", even if their proposal is potentially valuable, the other participant will tend not pay it close attention due to the sequencing tendency described above.

Because of these conversational positionings, all ideas are not taken into account the same way and their relevance and quality are not always considered appropriately. Participants may pay scant attention to each other's ideas and may be reluctant to make their own contributions, attenuating the advantages of the collaborative work situation which reside precisely in the multiplicity of ideas, views and arguments it engenders.

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<sup>4</sup> see Dialogue 7 described in Cahour & Pemberton 1998 for a case in point



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