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A CONVERSATIONAL SKILLS APPROACH TO PERSONAL RECONSTRUCTION : LONGITUDINAL STUDIES USING THE REPERTORY GRID

FRASER REID

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REID, FRASER

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A CONVERSATIONAL SKILLS APPROACH TO PERSONAL RECONSTRUCTION : LONGITUDINAL STUDIES USING THE REPERTORY GRID

FRASER REID B.TECH.

A THESIS SUBMITTED IN FULFILMENT OF REQUIREMENTS FOR ADMISSION TO THE DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF PSYCHOLOGY, BRUNEL UNIVERSITY

September, 1976

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ABSTRACT

The aim of this research is to develop a range of procedures for enhancing conversational skills. From a review of theoretical analyses of social encounters a model of conversational process is developed to describe mechanisms by which interactants construct, maintain and revise cognitive models of their social environment. From this model, three dimensions of conversational competence are derived and a training paradigm devised incorporating the process of cognitive reflection by which functional properties of models are displayed to interactants. This paradigm provides a rationale for discrete intervention strategies to effect changes on each dimension of competence. Preliminary studies report attempts to implement the first intervention strategy in a friendship relationship and workshop group. Using the "conversational cycle" and repertory grid techniques, procedures are developed to exhibit critical interpersonal events and their relationship to modelling processes. The main studies investigate the second and third intervention strategies by developing serial repertory grid methods to exhibit the functional properties of centrality to self-cognition and stability of construction. The training paradigm is elaborated to include these properties at three levels of organisation, and a sequential Bayesian analysis is developed to determine the extent of centrality and stability of construction. The training paradigm is tested in two case-studies and evidence of increases in insight, centrality and elaboration of personal construction are found. This methodology is extended to incorporate repertory grids produced by two interactants yoked by element sample and tested in a case-study of a married couple. Evidence of increased insight and self-partner reconstruction is found, but predictions concerning increased self-partner distinctiveness are contraindicated. These findings suggest that evaluative criteria may not be coincident with subjective strategies, and alternative evaluation methodologies are proposed.

OVERVIEW

Chapter 1.1. outlines a number of theoretical approaches which give substance to a model of conversations, sketches the activities and objectives of the psychotherapist and counsellor in terms of the model, and concludes by discussing the performance characteristics of the model, firstly by abstracting three dimensions of conversational competence, and secondly by discussing the breakdown of competence.

Chapter 1.2. discusses the nature of the internal modelling conversation in greater detail, and introduces the notion that interactive procedures may substitute for the psychotherapist and counsellor. A set of procedural specifications are enumerated to simulate their activities, and three existing methodologies examined in terms of these specifications.

Chapters 2.1., 2.2., 2.3., and 2.4. report a series of pilot studies in which these methodologies were applied to a variety of ongoing conversations. The requirements of an intervention strategy capable of enhancing ongoing conversations are discussed with reference to the interdependence of internal and interpersonal modelling, and problems experienced in exteriorising internal conversations.

Chapter 3.1. focusses on procedures and assumptions involved in the repertory grid technique, and the extent to which the technique meets the design specifications of Chapter 1.2. To develop appropriate intervention strategies, a conversational training paradigm is outlined, and a model of procedural intervention constructed.

Chapter 3.2., 3.3., 3.4. and 3.5. report the development and application of an intervention strategy designed to enhance insight into modelling processes. The procedures developed are tested in a number of case-studies, and are discussed in terms of their outcomes for conversational training. Methodological problems encountered in evaluating the procedures are highlighted.

Chapters 4.1., 4.2. and 4.3. report the development and application of an intervention strategy designed to enhance interpersonal modelling within relationships. Repertory grid procedures for mediating between persons are developed and tested in a case-study of a married couple.

Chapters 5.1. and 5.2. summarise the implications of the model of conversations and the derivation of intervention strategies. Procedures developed for enhancing three aspects of conversational competence are critically examined and the need for further research indicated. Finally, the general implications of the approach are discussed with reference to psychotherapy and its evaluation.

ACKNOWLEDGEMENTS

My heartfelt thanks go to my friend and supervisor, Dr. Laurie Thomas who, by being a much-needed source of criticism and suggestion has guided me through this work, and who unfailingly supported me at moments of crisis. To Dr. Cliff McKnight, of Goldsmiths College, I am indebted for hours of fruitful discussion and for his assistance with the development of computer programmes. I should like to thank Mr. Brian Champness, of Plymouth Polytechnic, for invaluable assistance with the first chapter, and all those who participated inthe studies, to whom I hope I have given justice in the following pages.

I dedicate this work to my wife Lori, who has not only provided hours of secretarial assistance, but also has taught me what it means to be competent in the tasks of life.

CONTENTS

Where do these Voices stray,
Which lose in Woods their Way?
Erring each Step anew,
While they false Paths pursue.
Through many Windings led,
Some crookedly proceed,
Some to the Ear turn back,
Asking, which way to take.
Wandring without a Guide,
They holla from each side,
And call, and answer all
To one another's Call.

Richard Leigh

Part 1

Introduction

Chapter 1.1. Conversational competence.

Chapter 1.2. Modelling conversations.

Chapter 1.1.

Conversational competence

1.1.1. Conversations, interactions and relationships.

1.1.2. Social skills and social performances.

1.1.3. Symbolic interactionism and ethnomethodology.

1.1.4. The therapeutic relationship.

1.1.5. Dimensions of conversational competence.

1.1.6. The breakdown of competence.

1.1.1. Conversations, interactions and relationships.

1.1.1.1. It is often said that the person isolated from his fellow man is not a whole person, but is incomplete and unfulfilled. Equally familiar is the contention that to fully participate in the social world is to submit to the bondage of others, to be fashioned by social responsibilities. Such views are readily translated into experience - a paradox of human existence is that we all desire at different times either to be left to ourselves, or to share the company of others. We wish for the former when events have overtaken us that make the compromises necessary to sustain social relationships intolerable to bear, and the latter when our experience is so replete with, or devoid of meaning and implication that to communicate with another is to express it the better for ourselves. Experiences of this kind indicate the extent to which our lives are shaped by the presence of others, whether they be real or imaginary - the guilty rarely find refuge in isolation, or the lonely comfort in a crowd.

The purpose of the research reported in the following chapters is, in general, to explore the implications of experiences such as these for human relationships, and in particular to outline the means for enhancing human relationships by focussing on the nature of <u>conversation</u> as a fundamental social activity.

The research studies develop two themes in parallel - the elaboration of a general model of conversational process, and the construction of interactive methods capable of facilitating this process when carried out by a person or persons. It will become evident that the objectives of the latter in many ways resemble those of the psychotherapist and counsellor; consequently, discussions will frequently seek to conceptualise their professional activities. Moreover, since these activities are conversational in nature, the counsellor-client relationship may be viewed as a highly specialised conversation in which certain features of everyday conversations are potentiated.

To highlight these features and set the stage for the discussions that follow, we begin by briefly sketching the elementary components of a model of conversation.

1.1.1.2. A conversational event may be characterised by the following features:-

(a) that a partition between at least two distinct individuals be identified. Individuals may or may not correspond to persons in the orthodox sense. Dialogues between groups, between a person and a group, and most importantly, within a person, may be considered as conversations provided that as individuals such groups, persons, or parts of persons comprise independent and initially asynchronous processes.

(b) that individuals partitioned in this way are engaged in a reciprocal activity, the effect of which is to modify processes internal to each individual. This feature excludes from the definition of conversation those interactions in which participants are coupled in time, but where the actions of one do not bring about changes in the internal processes of the other.

(c) that individuals be capable of constructing internal representations of the conversation in which they are engaged, and thereby modify their own internal processes. This feature distinguishes conversation from purely mechanical interaction, and implies that conversational activity is mediated by self-awareness and self-reference.

Consider these features in connection with an encounter between two persons, A and B. As onlookers, we may observe A and B smile, greet each other, and engage in talk (Fig.1). It soon becomes evident that A and B each entertain a particular view of themselves which permits them to act in some ways but not others. In meeting for the first time A and B might view as appropriate conduct the exchange of social pleasantries, for example, rather than engaging in a fist - fight. We may introduce into the diagram the boxes A_a and B_b to denote A's and B's model of themselves. (Fig. 2). These models function as selective filters mediating intention and actions. A may feel he wants to punch B on the nose, but perceives such behaviour as inconsistent with his model of himself in that situation.

As the interaction proceeds, each participant develops a view of the other's feelings, intentions and perceptions of the encounter. That is, A constructs a view of B, and B a view of A, through which each seeks to perceive the encounter as the other might. The diagram may then be extended to incorporate the boxes A_b and B_a, A's and B's <u>model</u> of each other (Fig. 3). Although A may be irritated by B's behaviour, A might conclude that B neither intends nor is aware of his provocation of A.

A final feature of this preliminary model is that A's and B's models of themselves and each other are interdependent and specific to the encounter (Fig. 4). In conversation with C, for example, A may see himself as somebody quite different to the person he is with B, and interact with C in a way that he would not view as appropriate in his relationship with B. Moreover, A's model of himself in the context of B may be modified by his inferences concerning B's view of him. A may conclude, for example, that B is in fact deliberately provoking him, and feel justified in punching B on the nose. In redefining himself in the context of B as the victim of unwarranted provocation, A makes available a range of behaviours that he would not otherwise view as appropriate.

1.1.1.3. The form the model now takes is represented in Fig. 5, and from it a number of key concepts may be derived which will be developed in the following chapters.

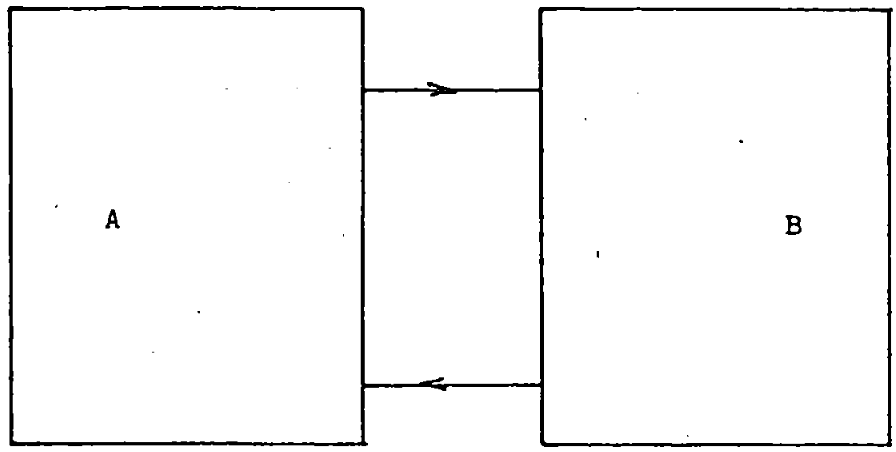
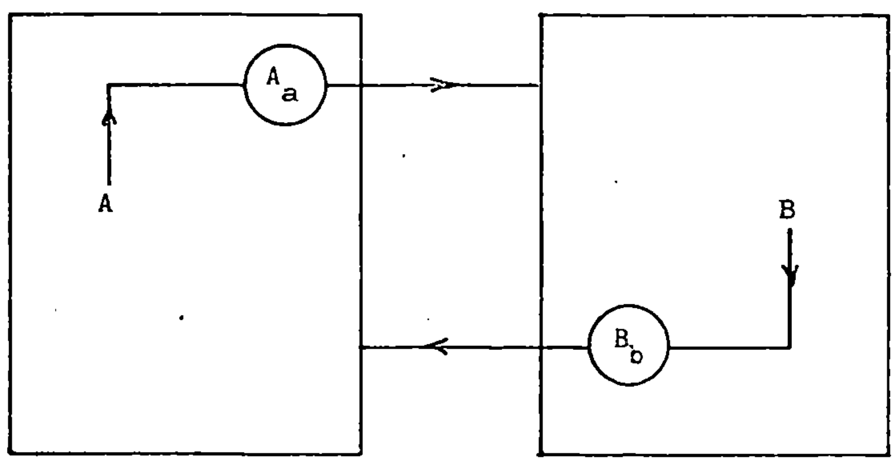


Figure 1.



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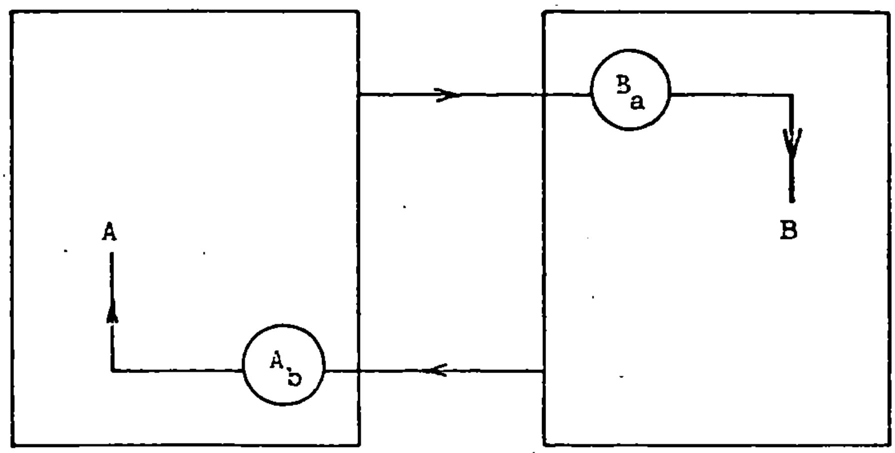

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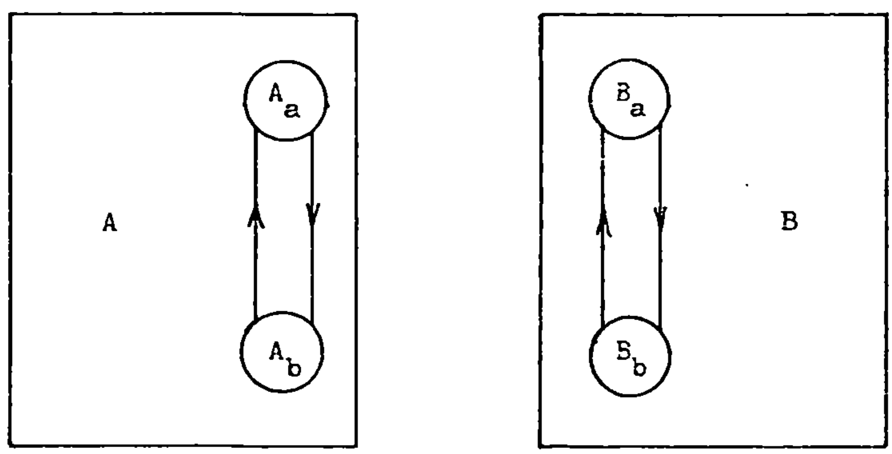

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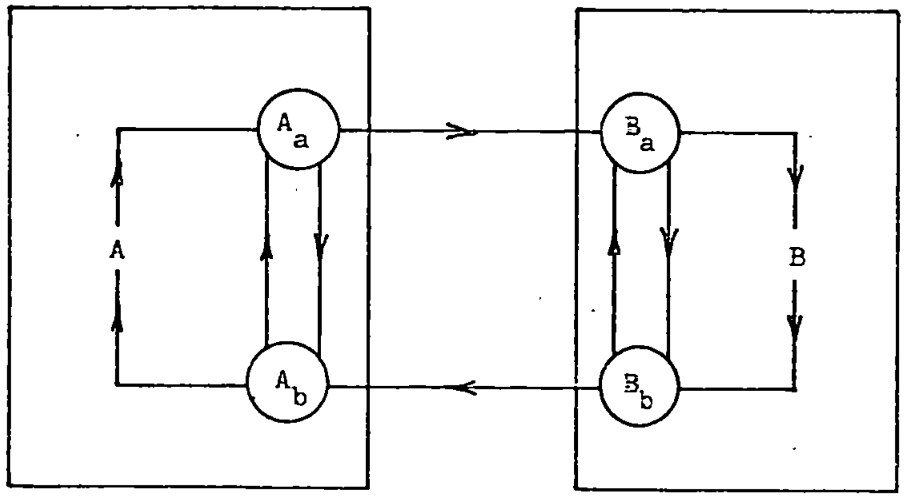

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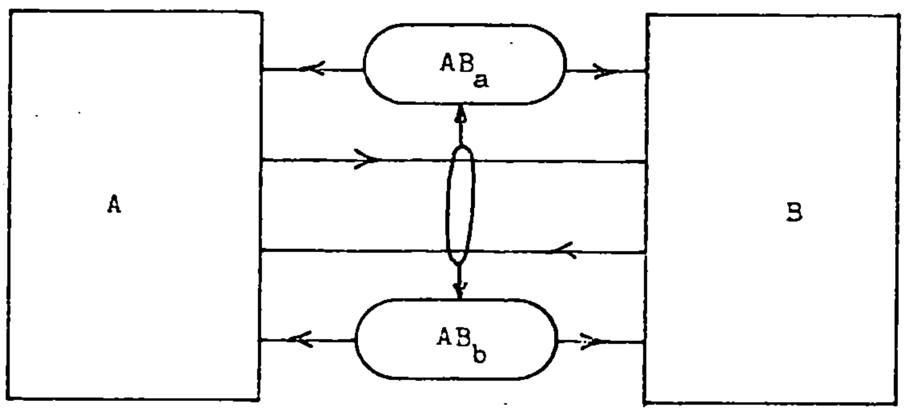


Figure 6.

Firstly, the models that a participant constructs may be collectively viewed as a reference frame through which his experience in encounters is organised. That is, they comprise a system of values within which conversational events may be perceived and interpreted, and events which imply values beyond the reference frame are poorly or inappropriately perceived. Moreover, the reference frame encompasses the perception of all events within the conversation; A's model of B (A_b), for example, not only seeks to make B's behaviour intelligible to A, but also seeks A to anticipate B's modelling of A (B_a) and B's modelling of himself (B_b). Similarly, A's model of himself governs his perceptions of feelings arising in conversation with B, and makes intelligible his behaviour towards B.

Secondly, to the extent that A's model of B's experience of the conversation is not consistent with B's experience, disjunctions may arise leading A and B to interpret the same event in different ways. To minimise disjunctions of this kind, A and B may engage in a more or less explicit negotiation of a common frame of reference for their experience of each other, which is then reinterpreted by each participant and assimilated into their internal models (Fig. 6). By offering interpretations of events rather than participating on the basis of interpretations, A and B may be said to be engaged in an interpersonal modelling conversation.

Thirdly, A and B may separately engage in covert conversations with themselves, the purposes of which are to actively elaborate their models of themselves and each other. These internal modelling conversations necessarily entail the temporary cessation of participation on the basis of the models. Moreover, for such a conversation to take place within the person, an image of self or other is partitioned, and engaged in a dialogue mediated by an internal reference frame. Figs. 7 and 8 represent A's modelling of himself and of B respectively, in which A covertly interrogates himself (A') or B (B'), as, for example, when A contemplates 'why did I do that?' or 'what made B say such-and-such?'. Again, an internal reference frame (α and β) comprises a secondary system of values that organises the internal conversation.

1.1.1.4. It is clear that the model sketched out above is a considerable oversimplification, and conceals many of the complexities of human interaction. However, it is introduced for a specific purpose, and whilst limited in generality, suffices as a first approximation, and provides a context for the discussions that follow, in which certain features of the model are refined. At this point we may succinctly state the objectives of the research studies in terms of the model, namely the development of interactive procedures for enhancing the nature of internal and interpersonal modelling conversations.

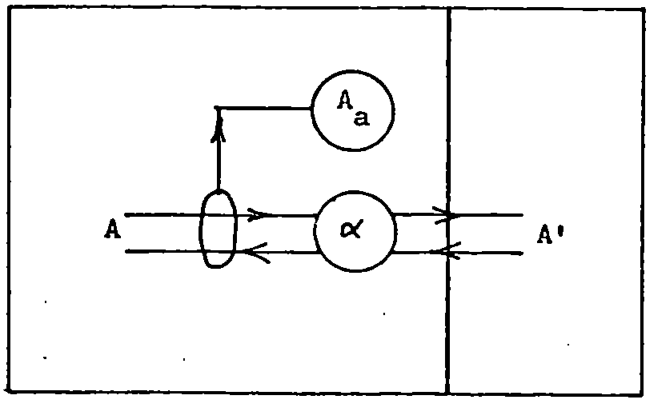


Figure 7

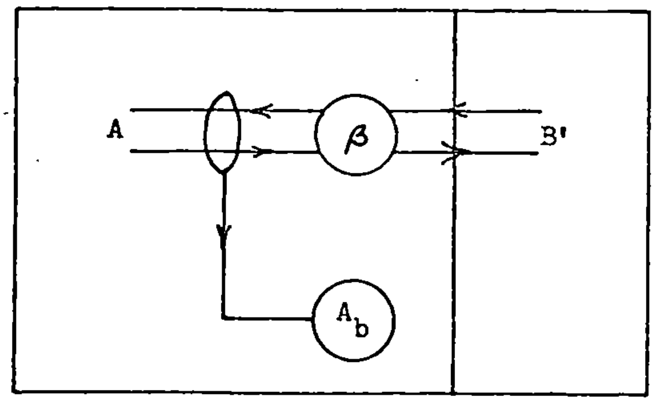


Figure 8

1.1.2. Social skills and social performances.

1.1.2.1. In recent years research has been stimulated by an empirical and theoretical approach to interpersonal relationships which has attempted to analyse social performance as a skilled activity, This research has centred on what has come to be known as the 'social skill model'(Argyle and Kendon, 1967; Argyle, 1967, 1969, 1975). Few would argue with the claim that persons are more or less skilled in an interpersonal sense; certainly many professions, salesmen, counsellors, politicians, for example, require a degree of social adeptness that only some form of training may produce. Many might also contend that training in the social graces is undesirable as it cultivates the abilities of persons to manipulate other, less fortunate persons. As a counter argument Argyle and Kendon (1967) suggest that some mental disorders may be remedied in part by training in basic social skills, such as when to encourage and when to avoid eye contact. Indeed the lack of this apparently elementary social skill may provoke quite unexpected results, as in Shakespeare's 'The Rape of Lucrece' (Champness, 1970).

In formulating their model Argyle and his colleagues have borrowed heavily from research in an ostensibly unrelated field, namely sensorimotor skills in industry and defence. Target pursuit, tracking, and maze following skills do not seem immediately to parellel the complexities of human interaction, however, and the question arises; what feature of interpersonal relationships may be accomodated by a model of skill derived from this source?

To answer this question we must trace the development of the model from its original formulation (Argyle and Kendon, 1967) to later accounts (Argyle, 1969) and identify the ways in which the model is consistent with, or departs from, a sensorimotor skills approach. The aim is not to present a critique of the social skills but to highlight those features of human interaction that are amenable to a sensorimotor skills analysis and those that are not.

1.1.2.2. Argyle and Kendon (1967).

Although taking the form of a collection of empirical research findings rather than a serious attempt at model building, the starting point for the authors is the information-processing model of skill developed by Welford (1958). Figure 9 represents a later version of Welford's original scheme in which the discrete processes of perception, translation and reponse are organised as a control system. Considerable research has identified the properties of these separate processes and most workers in the field would agree on the following features:-

(a) Reception processes; selectivity and organisation of perception towards a criterion of 'economy of effort'; anticipation, expectation, the abstraction of constants, categorisation and identification are all features of a perceptual system that optimises past experiences in the organisation of current stimulation (Gibson, 1969).

(b) Translation processes; sets of rules which govern the choice of response from alternatives; distinguished from perceptual identification by refractory period following identification (Hilgendorf, 1966); as response alternatives increase choice reaction time increases (Hick, 1952).

(c) Effector processes; motor activity, frequently automatised such that autonomuos control systems free central processor of control activities; perception at this stage predominantly kinaesthetic and proprioceptive, and is marked by a shift from dependence on external control stimuli of internal origin (Holding, 1965).

When this model is applied to social interaction four perspectives emerge which apparently consolidate a great deal of research findings, and which open up avenues for further research, namely (a) that interactants in encounters may be viewed as 'coupled systems' (Ashby, 1956), in which behaviours emitted by each interactant provide feedback to the other, enabling continual corrective action, (b) that social responses may be amenable to a functional analysis, yielding a hierarchically ordered set of component skills, (c) that such an analysis may prove to be a basis for training in social skills, and (d) that

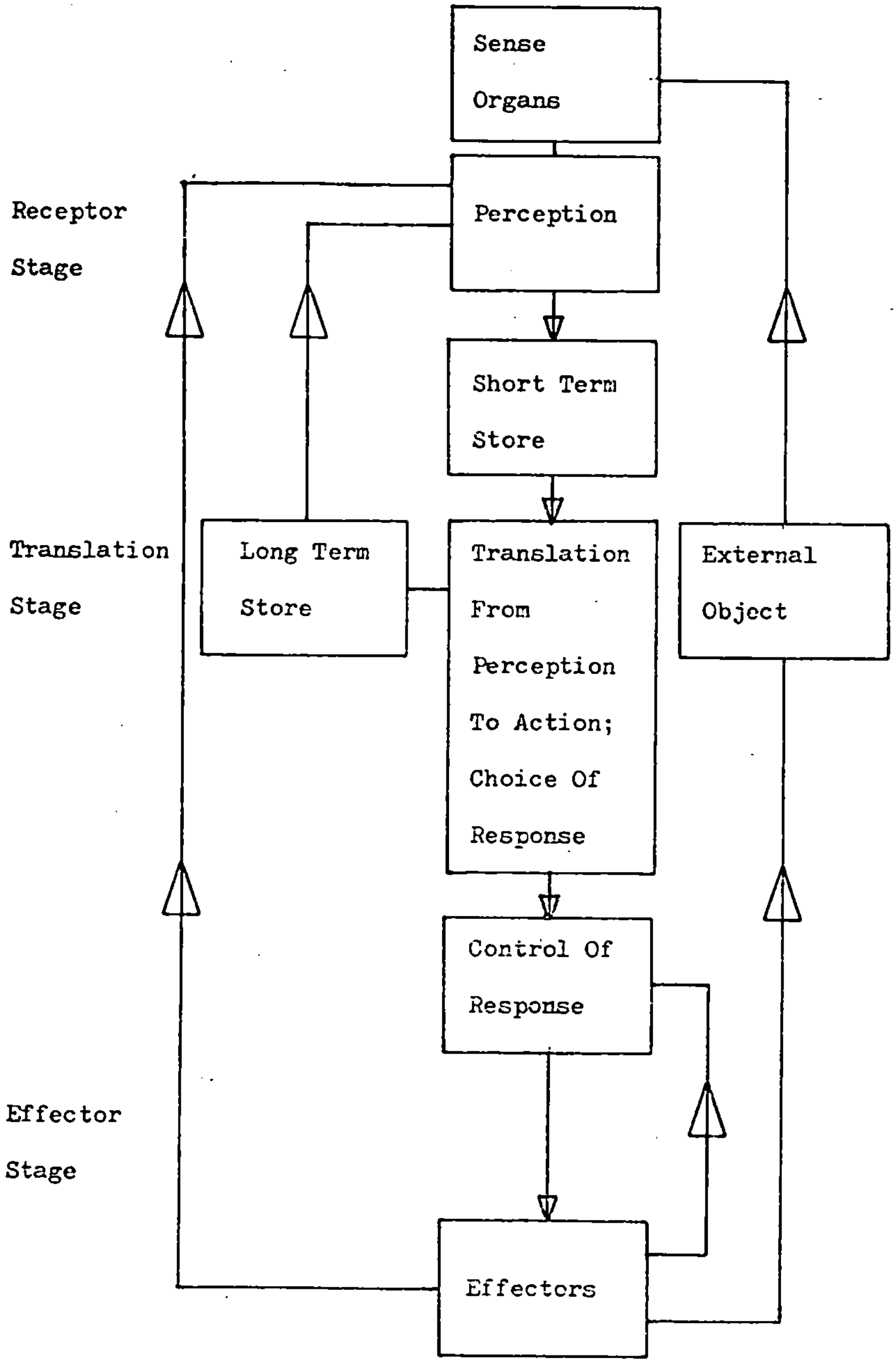


Figure 9 Sensorimotor Skill Model

Welford (1968, p.19).

the notion of social competence provides a basis for the analysis and treatment of failures of social skills.

(a) Argyle and Kendon note that the maintenance of encounters is mediated by behaviours of which the interactants are normally unaware, and which appears to correspond to a communication mode in which explicit messages are 'framed' by signals of a higher level of abstraction (Watzlawick, Beavin and Jackson, 1968). Thus cues are transmitted which regulate the expression of emotional states, the time-structure of the interaction, intimacy and involvement levels, and maintain presented self-images. The level of control to which the social skills model is addressed is then the context of rules within which interaction takes place. Only rarely are these signals explicit, and are most frequently non-verbal and paralinguistic. The authors report vast quantities of research findings that display the relaxation between posture, patterns of gaze and eye contact, proximity, bodily movements and facial expressions to the progress and outcome of encounters. The authors suggest that establishing the frame or 'working consensus' (Goffman, 1959) of the encounter is a negotiation in which the interactants seek to achieve a steady-state consistent with their goals in interacting, and limited by their interaction style and compatibility. This steady-state is characterised as an 'intimacy equilibrium', which is achieved by reciprocal self-disclosure until one or other interactant checks the process by introducing negative feedback to prohibit further disclosure.

However, the authors are unable to predict from their model the level of intimacy at which any pair of interactants stabilise.

(b) Whilst the authors suggest that social responses are amenable to a functional analysis into component skills, this aspect of their model is poorly developed. They note, for example, Scheflen's (1964) analysis of psychotherapy interviews into presentation (total performance), position (monetary stance) and point (individual act) without extending the analysis by articulating it against the function of non-verbal cues. Instead, social responses are broadly categorised into 'standing features', such as the physical boundaries of a focussed interaction, and the physical orientation of the interactants, and 'dynamic features', such as indications of readiness to engage in conversation, the taking of turns in speaking, the expression of attending, and so on. Little in the way of a theoretical framework is offered, and research findings are grouped together by modality of communication rather than by function. Although the authors postulate that the maintenance of other interactants' perceptions of self is a skilled activity the function of particular social responses in achieving this is only briefly indicated:

> 'a person's style of behaviour can indicate by gesture, manner of speech and general demeanor what kind of a person he thinks he is and the way he is used to being treated'.
>
> (p.82).

However, in discussing the failure to maintain a presented self-image the authors note that the aversion of gaze during embarrassment appears to be associated with the reduction of anxiety resulting from the removal of audience feedback (Argyle, Lalljee, Cook and Latane, 1967).

(c) Training in social skills might be a possibility only if the functional analysis of social skills can achieve the same degree of throughness as component analyses of motor skills. However, the authors do speculate on the necessary methodological conditions for such training, and on possible training techniques. They note, for instance, that measures of competence are required and that the amount, quality and frequency of feedback to the learner are crucial determinants of skill acquision. Supplementary and augmented feedback in the form of supervisory assessment and video recordings of the role-playing episodes are effective only to the extent that the trainee learns to differentiate cues arising directly from the social situation and from his own social responses (Holding, 1965). Similarly, training would entail the elaboration of a response repertoire and greater flexibility of the translation rules. A central problem however, in the modification of existing social skills, and paralleled in the sensorimotor skills, is that skills once established are executed autonomously, frequently without recourse to cognitive monitoring. That is, the exacution of a skill is regulated less by intrinsic cues arising from the environment than by intrinsic cues arising within the operator. The modification of skill will thus require conscious intervention into relatively closed perception-action systems, the 'unlearning' of existing stimulus-response links, and the reorganisation of discrete operations.

(d) Argyle and Kendon note that mental disorders display failures in social performances, and that disorders may arise from social failure or that social failure may be a secondary result of other personality disturbances. The authors report studies which demonstrate in a variety of mental disorders instances of the lack or poor coordination of specific social responses. For example, autistic children display complete gaze avoidance (Hutt and Ounsted, 1966), schizophrenics an inability to distinguish non-verbal cues (Bateson, Jackson, Haley and Weakland, 1956), depressives a low-pitched, monotonous voice quality (Ostwald, 1965), and so on. The authors indicate that these failures in social performance may be classified according to disturbances at different points in the social skill model, namely, (a) perceptual failures arising from the misattention to or inability to discriminate between social stimuli, (b) motivational disturbances, such as the lack of affiliative motivation, leading to an inability to establish goals in a social activity, (c) disturbances of translation arising from an inability to correct social techniques in the light of feedback, or from a limited response set, and (d) disturbances of self-image arising either from inappropriate claims for confirmation or from uncertainty as to what claims may be made.

In summary, the view of human interaction engendered by the social skills model is that of meshing of skilled operators;

'We suggest that an individual engaged in interaction is engaged in a more or less skilled performance. His behaviour here, as when he is driving a car, is directed, adaptive, and far from automatic, though it may be seen to be built of elements that are automatized. Here, too, we have an individual carrying out a series of actions that are related to the consequences that he has in mind to bring about; in order to do this, he has to match his output with the input available to him and must correct his output in the light of his matching process, Thus he may be discussing current affairs with an acquaintance, and be concerned perhaps merely to sustain a pleasant flow of talk. He must be on the watch, then, for signs of emotional disturbance in his acquaintance, which might signal that he had said something that might provoke an argument. At another level, he must be on the lookout for signals that his acquaintance is ready to talk to him or for him to listen. He must make sure his tone of voice and choice of words, his gestures, and the level of involvement in what he is saying, are appropriate for the kind of occasion of the encounter'.

Argyle & Kendon (1967, p.56-57).

1.1.2.3. Argyle (1969, 1975).

The foregoing discussion makes clear that the social skills model featured the interactant as a skilled operator, goal-orientated, emitting social responses which are consummated by goal attainment. Such a model is effective for describing those aspects of social behaviour concerned with the maintenance of rules that govern the progress of the encounter. What aspects of human interaction are not accomodated by this model?

The authors recognise that much of social behaviour is concerned with maintaining a presented self-image. Thus behaviours associated with 'projecting an identity', 'seeking confirmation of a self-image', 'establishing a situated identity' may be identified by their function within the encounter. However, the social skills model fails to identify behaviours associated with four aspects of self-image maintenance:-

(a) behaviours associated with the formation of a self-image; why is a self-image constructed in one way rather than another?

(b) behaviours associated with modifications to a self-image; following disconfirmation, what determines the choice or construction of alternative self-images?

(c) behaviours associated with transitions of self- image between encounters; what determines the shift between presented self-images as the interactant moves from one encounter to another?

(d) behaviours associated with the extent of self-disclosure in the attainment of equilibrium; at what point and why does an interactant prohibit further self-disclosure?

In short, these features of human interaction centre on the interactant's capacity to actively model an image of himself in separate encounters, and most importantly an image of the other with whom he interacts. Behaviours associated with empathy, understanding, sympathy and so on, cannot be accounted for without recourse to the interactant's modelling of the other. Similarly, behaviours associated with deceit, hostility, threats, and anxiety cannot be accounted for without recourse to a model of self.

In his later formulations, Argyle (1969, 1975) clearly recognises the role of these modelling processes;

> "According to the social skill model, each person in an encounter is trying to manipulate the other person, in order to attain his own goals. The model likens dealing with people to the manipulation of a machine - which is probably how psychopaths deal with people, but this doesn't quite fit the social behaviour and experience of normal people. The model can be extended in two ways to make it less psychopathetic. (1) An interactor's immediate goals may be for the other to benefit in some way......(2) During social behaviour we are usually aware of being the object of intentions, perceptions and attitudes on the part of the others present.....to take account of concern with the other's point of view, this use of an imaginary cognitive model of the other, some addition seems necessary to the social skill model itself, perhaps as an extra loop at the 'translation' stage.........One formulation of the missing process is to postulate that actors in a cognitive sense 'take the role of the other'".
>
> (1969, p.188-189).

and, in commenting on Goffman's (1959) model of social behaviour as dramatic performance:

> "there is communication directed towards others, and there is continuous use of feedback and corrective action in both cases, The main objection to the social behaviour as drama model is that first, the parts are only partly scripted beforehand, and have to be made up as one goes along, and secondly, the part the actor is playing is his own personality, not that of another".
>
> (1975, p.55).

The status of the social skill model has, for Argyle, undergone some alteration; social behaviour is now viewed as a hierarchical system, in which 'the lower-level elements are automatic and habitual, while the higher-level sequences are under cognitive control'(1975. p.55). This view remains consistent with the sensorimotor skill model; routine activities proceed smoothly with the minimum of attention being given to them, but if an unusual situation arises control passes to a higher level, and cognitive processes intervene. The analogy of the transfer of control within an organisation (Borger and Seabourne, 1966) from the operator level to the foreman level when the former encounters a situation he is not competent to deal with seems appropriate here.

However, such a view suggests that modelling of self and other is avoided <u>unless</u> events occur which demand conscious attention.

Whilst Argyle acknowledges that 'taking the role of the other' leads to greater accuracy in predicting responses of other interactants (Feffer and Suchotliff, 1966), little significance is attached to processes internal to interactants other than those necessary to account for the organisation and coordination of behaviour. In terms of the model of conversation outlined in 1.1.1., the social skills model is primarily concerned with the articulation of social behaviour (Fig. 10), and only processes concerned with the maintenance of models of self and other are considered. The basis on which these models are constructed is not a feature of the social skills model.

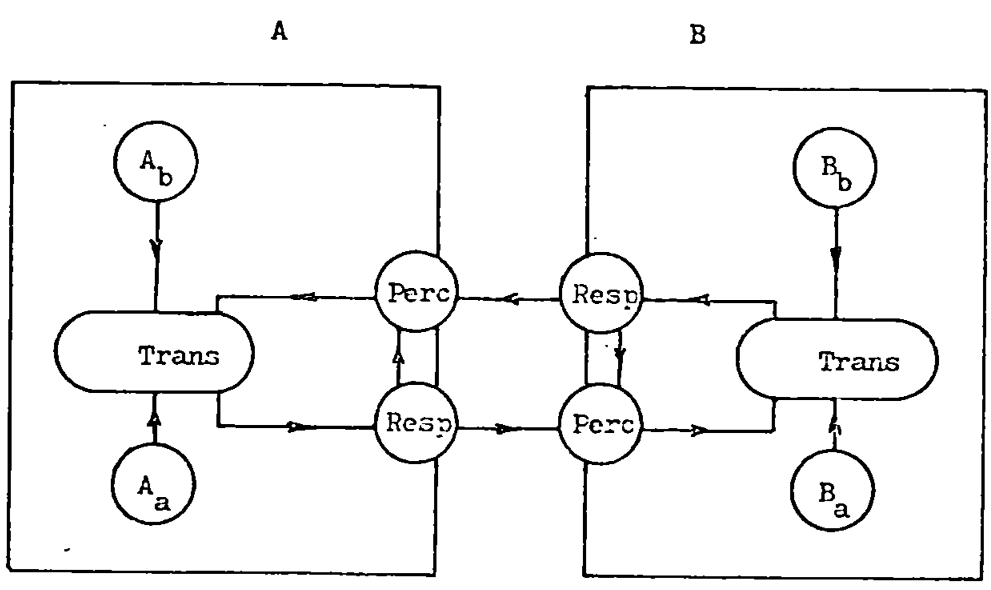


Figure 10

What significance have other writers attached to the process of modelling self and other in human interaction? This feature of social relationships has been fundamental to the symbolic interactionism tradition since the writings of G.H. Mead, and is outlined in the following section.

1.1.3. Symbolic interactionism and ethnomethodology.

1.1.3.1. The view of social action as conduct which is constructed by the actor in facing and dealing with social encounters, by indicating to himself and interpreting what he indicates, by perceiving himself instead of merely giving expression to himself, has long been associated with G.H.Mead. The following sections outline the contribution of Mead's symbolic interactionism to an understanding of the modelling of self and other. In addition, recent trends since Goffman's first publications (1955) have developed a new interactionism, originally providing an image of persons acting out displays aimed at communicating images of self, definitions of situations, and demonstrations of social membership and solidarity. More recently attention has once again been shifted, in the sociological field at least, away from interactant's construction of meaning in encounters towards invariant interpretative procedures by which those meanings are constructed (Garfinkel, 1967).

1.1.3.2. G.H. Mead.

Mead's views on human interaction and their origins in Cooley's (1902) writings begin with man as constructing a 'self', this construction transforming his abilities to participate in the physical and social world. In constructing a self, Mead refers to the capacity for reflexive consciousness in which the person becomes an object of his own awareness. Self-consciousness, then, becomes the means by which the person perceives himself as he might perceive another:

> "The apparatus of reason would not be complete unless it swept itself into its own analysis of the field of experience or unless the individual brought into the same experiential field as that of the other individual selves in relation to whom he acts in any given social situation. Reason cannot become impersonal unless it takes an objective, non-affective attitude towards itself; otherwise we have just consciousness, not self-consciousness".
>
> G.H. Mead (1964, p.202).

But constructing a model of self is not a once and for all achievement. Instead, the self is constituted only in the process of self-interaction, and does not exist as an enduring psychological or personality structure. To be sure, the self that is constituted does bear considerable invariance from construction to construction, but this is seen as a function of social rather than dispositional contingencies. From the similarity between the process of constructing a model of self and the process of constructing a model of other in experience it becomes evident that the self arises only from social experience, and that the 'conversation of gestures with oneself' is a condition that arises from the primitive experience of expression being for another.

In describing social interaction Mead distinguishes non-symbolic process. In the former, persons respond directly to one another's gestures or actions, a feature which is treated in length in the social skills model discussed above. However, in symbolic interactions persons actively interpret each other's gestures and act on those meanings constituted by this interpretation. In addition, the interactant conveys to the other indications or definitions as to how he is to act. The dual processes of definition and interpretation operate to maintain and transform the 'working consensus' of the encounter; should the interpretations that provide the basic assumptions for an encounter be undermined the entire working consensus will collapse and require a joint effort at redefinition. Thus the social act has an inherent uncertainty which may be manifested in several ways; joint actions have to be initiated and they may not be, they may be interrupted, abandoned or transformed, interactants may entertain disjunctive interpretations without realising it, new situations may arise, calling for novel forms of joint action, and so on.

Consciousness of the self distinguishes the 'I' that is aware of the social 'me', and it is fundamentally the same 'I' that is aware of social 'others'. Thus for Mead, like Husserl before him and later writings of Sartre, consciousness is a monad in which experience of self and other perpetuate the disjunction between the irreconcilable subject and object;

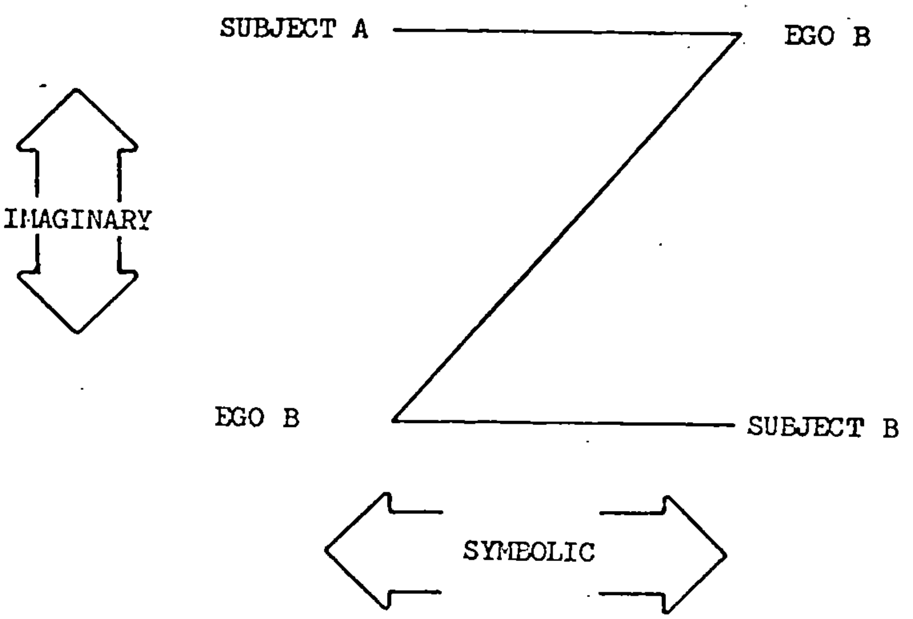
> "It is impossible to exist in an environment of men without their becoming objects for me, and for them through me, without my being an object for them, without my subjectivity taking on its objective reality through them as the interiorisation of my human objectivity".

Sartre (1960, p.186).

Thus the 'me' (en-soi, or self as past) remains unknown to 'I' (pour-soi, existence) unless it is looked at as 'other' (hence Rimbaud's "Je est un autre"), and as we have seen Mead asserts this may be achieved only by constituting in the social context the attitudes of a real or imaginary other;

> "The 'I' does not get into the limelight; we talk to ourselves but do not see ourselves. The 'I' reacts to the self which arises through the taking of the attitudes of others".
>
> Mead (1964, p.229).

Thus the variety of 'looking-glass selves' (Cooley, 1902) constituted by the person is a direct function of the variety of relationships he subtends with others. The 'me' that is constituted is the 'I' of a moment ago, the 'I' of the present is not given directly in experience. Neither is the 'I' of the other given directly in experience. Instead, the experience of the other is inferred from his behaviour. These reciprocal processes of representing, or modelling, the other for 'I', and the self for the other bear a close resemblance to Lacan's schema for articulating the relationships between the subject (Mead's 'I') and the ego (Mead's 'me') in the 'mirror-stage' of the development of the self-concept in children;



Lacan (1968)

In this scheme, subject A's experience of B's behaviour enables him to construct a symbolic other (ego B) from which subject B's experience of A may be inferred . In so doing, of course, subject A must formulate the imaginary self (ego A) which comprises the behaviours on which subject B bases a similar inference. To the extent that subject A inaccurately infers subject B's experience of him, ego A is unrealistic and becomes the source of social and psychological failure. It is important to note that Mead with this view of psychological disturbance, which sets it in marked contrast to the contention of the social skills model that some aspects of psychological breakdown are a result of the individual lacking necessary skills;

> "The unity and structure of the complete self reflects the unity and structure of the social process as a whole.........The phenomenon of dissociation of personality is caused by a breaking up of the complete, unitary self into the component selves by which it is composed and which respectively correspond to different aspects of the social process in which the person is involved".
>
> Mead (1964, p.209).

To summarise Mead's contribution, a qualitative distinction, rather than simply a distinction of level, is drawn between the routine, stimulus-response mode of non-symbolic interaction, and the interpretive meaning construction mode of symbolic interaction. The latter may proceed only by the modelling of the perceptions and attitudes of the other, and the modelling of the self as viewed by the other. Behaviour in encounters is then a function of these models since they determine the interpretation of the symbolic acts of others, and the definitions of self and other conveyed in the encounter. Joint activity then proceeds on the basis of a definition of the encounter established through these processes, (Fig. 11). Finally, psychological failures are, in general, seen as social phenomena, deriving from breakdowns of the social contexts within which the actor constructs a variety of selves.

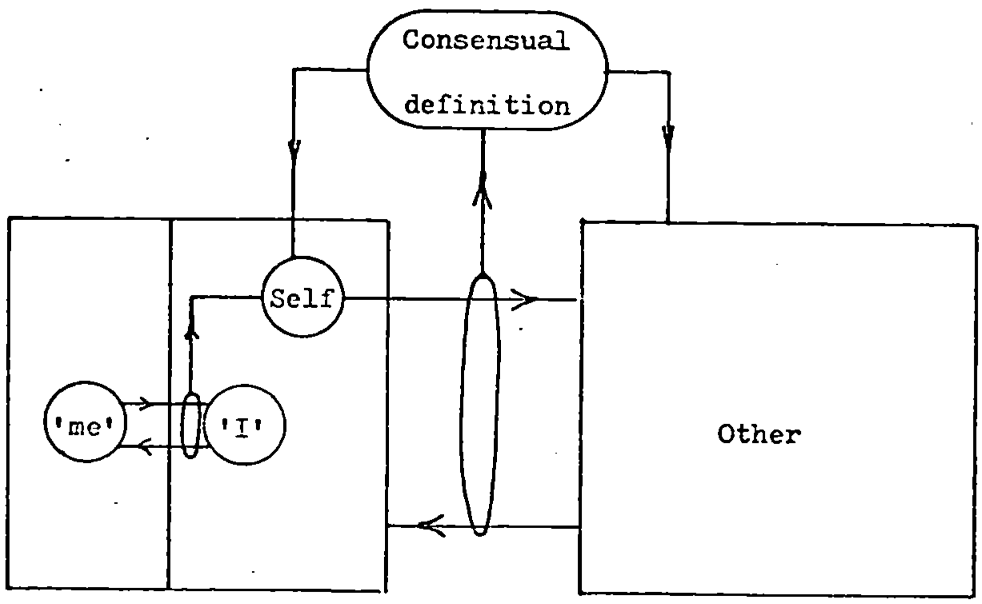


Figure 11.

1.1.3.3. Goffman and Garfinkel.

Whilst owing a great deal to the work of Cooley and Mead, Goffman (1955, 1967, 1969, 1971) began to develop an interactionism which shifted emphasis away from the rationalistic model of encounters, where interaction appeared to involve more thought than behaviour. Instead he developed a model focussing on ritualised expression, the presentation of and honouring of selves, expressions of solidarity, role and group membership. Thus attention shifted from the purpose of interaction to the ways in which interaction was done, or the syntax in contrast to the semantics of social acts. At the core of Goffman's model is the perspective of expression within an encounter viewed in terms of its communicative role, rather than any tension-release or consummatory function it may have. Goffman argues that whilst an interactant may well engage in modelling the experience of others, he must do so by relying on appearances engendered by social responses;

> "paradoxically, the more the individual is concerned with the reality (of the other's experience) that is not available to perception, the more he must concentrate his attention on appearances".
>
> (1969, p.241-242).

This would indeed be a very persuasive argument if it were not for the fact that the communication of the other's experience of self may be frequently explicitly referred to in the conversation. It is this atmosphere of the individual sometimes guardedly, and frequently inadvertently, meting out fragments of his experience of self and other that pervades Goffman's accounts of social interaction. The central component of his 'dramaturgical' (1969) model is that of 'impression management';

> "The individual will have to act so that he intentionally or unintentionally expresses himself, and the others will in turn have to be impressed by him.....The expressiveness of the individual appears to involve two radically different kinds of sign activity; the expression he gives and the expression he gives off".
>
> (1969, p.14).

Thus the interactant is cast as a performer, projecting a character which may or may not be credited or bestowed upon him by an audience;

> "The individual stakes out a self, comments on his having done so, and comments on his commenting, even whilst the others are taking the whole process into consideration in coming to an assessment of him, which consideration he then takes into consideration in revising his view of himself".
>
> (1971, p.342).

The self is then something other than an organic thing, and not even a construction of the individual, but "a dramatic effect arising diffusely from a scene that is presented" (1969, p.245). In defining and sustaining a definition of a situation, the interactant has recourse to social techniques, a view which leads itself to treatment within the social skills model. He must be able to remedy discredited self presentations of his own and of others; he must be able to communicate his contribution to situational definitions and the working consensus; he must be able to maintain such a definition in the face of discrepant role behaviour and out-of-character communications, and so on. These processes are defined more clearly in Goffman's discussion of their breakdown, manifested in embarrassment. Embarrassment arises from the sudden increase in uncertainty arising from a failure of the working consensus, principally from an individual's presented self being discredited. The significant aspect of embarrassment for Goffman is its contagion, where the audience becomes 'embarrassed for' the individual, and the self-consciousness that results for all participants. Goffman writes that in the interval between the failure of one working consensus and the establishment of a new one the participants find they can neither do without these now invalid assumptions nor base their own responses on them; "the habitable reality shrinks until everyone feels small or out of place", (1967).

Goffman's view of interaction bears some resemblance to that provided by the social skills model, in that only when an encounter fails are participants required to remodel images of self. Moreover, models of experience of other are required only in the sense that deception and concealment are intended to cultivate a particular experience of self in other. Beyond this the individual does not need to 'take the role of the other'.

This focus of attention on how interactions are done rather than participants experience of them characterises the recent trend in sociological explanation following Garfinkel's 'Studies in Ethnomethodology' (1967), and it is useful to trace the contribution of ethnomethodology to the study of conversations. Garfinkel focusses on two issues; (1) the study of invariant procedures by which individuals make sense of their social world. It is the procedures rather than the sense generated that is of prime interest; (2) an individual's ability to make sense of his social world depends on his ability to announce to himself and others what that sense is. But of interest to us here is that

Garfinkel establishes an equivalence between making sense of situations and the telling of that sense;

> "the activities whereby members produce and manage settings of organised everyday affairs are identical with members' procedures for making those settings 'account-able'.....When I speak of accountable my interests are directed to such matters as the following. I mean observable-and-reportable, i.e. available to members as situated practices of looking-and-telling".
>
> Garfinkel (1967, p.1)

Thus a fundamental process in generating meaning within an encounter is describing and explaining that encounter. This enables Garfinkel to analyse the procedures by which members explain their experience of encounters, and draw from this the invariant processes assumed to structure the means by which sense is generated,. Moreover, any piece of talk within an encounter does not simply describe an interaction, but <u>indexes</u> the shared contextual meaning established within the encounter. Thus accounts of encounters are unique to those encounters. Conversational analysis then proceeds to seek regularities in the syntax of talk (e.g. sequencing, turn-taking, summarisations, etc.) which are not dependant on the subject matter of the talk itself.

This perspective on encounters does not seek to describe the experience of interactants, merely how those experiences are constituted through interaction. Thus, for example, the failure of an encounter through the interactant's construction of discrepant interpretations of events is not problematic, since they may be seen not to adequately follow procedures for establishing shared indexical meaning. The aim to reveal these invariant procedures does not pretend to account for the everyday experiences of deception, concealment, anxiety or guilt. However, to identify the function of conversational procedures requires an estimation of the experience that they achieve for members, an aspect of methodology that certainly is problematic. Thus, for example, the behaviours comprising loss of poise, reddening of face, fumbling, stuttering, and avoidance of eye contact, cannot be seen to be functional without recourse to the imputed experience of embarrassment. Ethnomethodology is thus in danger of recreating the dilemma of operationalist strictures on the relationship between an observation language and theoretical terms, asserting either that theoretical terms are necessary, or that theoretical terms be isomorphic to predicates in the observation language (as, for example, Garfinkel's equivalence between perception and explanation). The appeal to 'common-sense procedures of members' in no way escapes this problem, and leads ethnomethodology to study only those procedures that have less recourse to the imputed experiences of members.

1.1.4. <u>The therapeutic relationship.</u>

1.1.4.1. In the discussions above the various perspectives on conversations have been deliberately polarised, in the simplest way, as to whether they are primarily concerned with behaviour or experience. This distinction is historically, culturally and methodologically inescapable in the scientific treatment of social interaction, arising as it has from the dualistic philosophies of the seventeenth and eighteenth centuaries. Such is also true of those professions concerned with helping and counselling, although it is in these fields that no compromise in the partitioning of interest can be achieved. Therapists and counsellors are, by the nature of their profession, concerned equally with behaviour and its disturbances and the mental life of their clients. Moreover it is in these professions that we find additional concern with explicating the relationship between members, the therapist and the client, and those features of this relationship that are instrumental to changes within the encounter. What views, then, have therapists and counsellors on the nature of conversational competence? To discuss this we will outline three perspectives on the therapeutic relationship; the neo-Freudian position of Lacan, the existential-phenomenological poition of Laing and his colleagues, and the personological position of Rogers.

1.1.4.2. <u>Jacques Lacan.</u>

The main impact of Lacan in France a decade ago was his insistence on redirecting attention to the work of Freud in its explication of the role of language in the therapeutic encounter. As a result Lacan came to formulate a linguistic model of the unconscious, in which the unconscious is seen as the locus of a symbolic function providing a set of syntactical rules governing the expression of repressed experience. The key of Lacan's analysis derives from his assertion that repression can arise from an act of veto by a significant other on the expression of subjective experience. This assertion lends him to define the unconscious as structured for the other, but which is not available to self in the encounter:

> "the unconscious is that part of the concrete discourse insofar as it is transindividual which is not at the disposition of the subject to reestablish the continuity of his conscious discourse".
>
> Lacan (1963.)

This marks a significant departure from Freud's personal unconscious, and fixes the realm of the unconscious clearly in the domain of social experience, as 'transindividual'. The expression of the unconscious in discourse then depends on the capacity of language to carry symbolism as well as signification, and it is the enhancing, not the interpreting, of this symbolism that the therapist seeks to achieve. Thus, Lacan distinguishes the 'Empty Word' of the client as discourse without symbolism. from the 'Full Word' in which transindividual experience is actualised in the subject's discourse. The elementary function of the Empty Word is as a 'password', signifying the possibility of communication, and Lacan employs as an analogy of this common use of language the exchange of a 'coin whose obverse and reverse no longer bear anything but worn effigies, and which is passed from hand to hand in silence'. The course of therapy is then the transition of the subject's discourse from the Empty to the Full Word:

> "the subject begins by talking about himself without talking to you, or by talking to you without talking about himself. When he can talk to you about himself the analysis will be over".

(1966, p.373).

The origin of the unconscious and its symbolic function is, for Lacan, in the construction of the 'imaginary' ego in the 'mirror-stage' of childhood (see 1.1.3.1.) and is based on the simultaneous opposition and identity of self and other. At this stage the child's developing self-conscious mirrors the objective appearance of the other by objectivising himself as he appears to the other, establishing the disjuction between 'I' (the experiencing subject) and the 'me' (the object of experience, and the subject as he might appear to another). To the extent that this imaginary construct supplants the experiencing 'I' (as a result, for example, of injunctions on expression of experience by others), the discourse of the subject becomes void of symbolism, and symbolic experience is repressed in encounters with others. Thus analysis seeks to dissolve the dimension of the imaginary, and reestablish in discourse the subject's experience replete with the symbolism of the

Full Word.

This linguistic distinction between the imaginary Empty Word, and the symbolic Full Word is then the crucial dimension of Lacan's description of the therapeutic relationship. The former is the 'language of the other', the latter the 'language of the self', and is as Wilden notes equivalent to a distinction between digital and analog communication:

> "For 'digital', one may read: language, 'objectivity', reason, mind, white, 'civilised', man, as the case may be. Similarly, for 'analog', one may read: nonverbal communication, 'subjectivity', emotion, body, people of colour, 'primitive', woman........ As Watzlawick, Beavin and Jackson have remarked (1967), the distinction between the form and the function of analog communication and the form and function of digital communication rather precisely maps that between the primary and secondary processes in Freud".
>
> Wilden (1972, p.22n).

The language of the self, then, cannot be directly translated into the digital form of everyday speech; as language becomes more functional it ceases to carry symbolism, and as it becomes more subjectively particular it loses its function as a communicative mode. Everyday communication, however, does enable symbolic expression; nonverbal communication, 'reading between the lines', and especially metaphor and metonymy. The roles of metaphor and metonymy are especially important as they represent the two linguistic features of a sign, namely its combination and contexture, and its selection and substitution, (Jakobson, 1956);

> "thus there are always two possible interpretants of the sign, one referring to the code and the other to the context of the message. The interpretant referring to the code is linked to it by similarity (metaphor), and the interpretant referring to the message is linked to it by contiguity (metonymy)".

Wilden (1972, p.47).

These two processes are the media by which symbolic expression may be actualised in discourse, and correspond respectively to Freud's use of the terms "condensation" and "displacement". Thus jokes (condensation-metaphor) and slips of the tongue (displacement-metonymy) are, for Lacan, simple instances of a linguistic function in which the language of the self forces its expression into everyday speech.

To summarise Lacan's views on the therapeutic relationship, the distinction between the imaginary construction of the self as an essential feature of human experience and symbolic life of the unconscious is a product of social experience and leads to two qualitatively distinct modes of discourse; the language of the other of digital signs, and the language of the self of symbolic expression. The breakdown of social discourse is seen as the withdrawal of experience into the imaginary language of the other, and the task of the therapist is to encourage the retrieval and expression of unavailable experience through symbolic activity.

Lacan's linguistic model thus spans both Mead's emphasis on the social origins of the self and the social skills model's emphasis on nonverbal communication. However, Lacan does not view the self construct as a product of essentially cognitive activity as does Mead, nor does he view nonverbal communication as a system of signals, as do Argyle and Goffman. Instead his emphasis lies with a subjective mode of experiencing the import of symbolism within encounters. This mode of awareness, in contrast to the objectification of self and other within the encounter, requires further attention, and it is to the existentialist position of Laing that we now turn.

1.1.4.3. R.D. Laing.

The development of Laing's views on sanity and madness display two dimensions of movement over successive publications; the shift from studying the individual qua individual (1965) to the study of the social context or nexus of individuals (1970), and the shift from a Husserlian phenomenology in the former to an elaboration of Sartrean existentialism. In relation to the former, however, Laing was at all times concerned with the individual in relation to others, and the source of constructions of oneself and others, and the role of the self-conscious:

> "When two sane persons are together one expects that A will recognize B to be more or less the person B takes himself to be, and vice versa. That is, for my part, I expect that my own definition of myself should, by and large, be endorsed by the other person, assuming

that I am not deliberately impersonating someone else, being hypocritical, lying and so on. Within the context of mutual sanity there is, however, quite a wide margin for conflict, error, misconception, in short for a disjunction of one kind or another between the person one is in one's own eyes (one's being-for-oneself) and the person one is in the eyes of the other (one's being- for-the-other), and, conversly, between who or what he is for me and who or what he is for himself; finally, between what one imagines to be his picture of oneself and his attitudes and intentions towards oneself, and the picture, attitude and intentions he has in actuality towards oneself, and vice versa".

(1965, p.35).

This reflexive process of modelling and meta-modelling of self and others was later developed into the Interpersonal Perception Method (1966), which by developing Heider's scheme of notation for interpersonal perception (Heider, 1959) asserts

"that as my identity is refracted through the media of the different inflections of 'the other'....... so my identity undergoes myriad metamorphoses or alterations, in terms of the others I become to the others........These alterations in my identity.... are further reinteriorised by me to become multifaceted meta-identities....... Self-identity (my view of myself) and meta-identity (my view of your view of me) are theoretical constructs, not concrete realities. In concreto, rather than in abstracto, self-identity ('I' looking at 'me') is constituted not only by our looking at ourselves, but also by our looking at others looking at us and our reconstruction and alteration of the views of the other about us ".

Laing, Phillipson & Lee
(1966, p.4-6).

In this passage we find welded together the views of Cooley and Mead as well as those of Sartre and Husserl in an elaborate formulation of identity and self-consciousness (the component of attribution to the experience of others forms the basis of recent developments in 'attribution theory', Kelley, 1967). But Laing, as a doctor, is primarily concerned with failures to establish or maintain a viable identity. Thus, in the 'Divided Self' he formulated the notion of ontological insecurity in which one's being-for-oneself is obscured or supplanted by one's-being-for-the-other. As a result self- and meta-identities are extremely vulnerable to engulfment (absorbtion by the other), implosion (substitution of the other), petrification (objectification by the other). In all cases, the presence of another is a threat to identity, leading to the inevitable conclusion of alienation and isolation. Because contact with others is an inevitable part of daily life, the person in this dilemma withdraws from the experience of interaction erecting instead of his 'true' self one, or a system of 'false' selves, capable of transacting normal social activities, whilst the disembodied 'true' self remains a detached, frequently critical, observer.

In his later writings (Laing, 1969; Laing & Esterson, 1970) Laing identifies the source of this alienation in the social, and particularly the familial, context. In doing so he drew heavily on two sources; (1) research conducted at Palo Alto on the origins of schizophrenia in the 'double-bind' (Bateson, Jackson, Haley and Weakland, 1956), and (2) on Sartre's case studies, for example 'Saint Genet' (1952), which Laing and Cooper reviewed at great length (1964). From Sartre, Laing borrowed the notions of the process of a social group, such as the family (events that appear to have originated from no particular person or persons) and praxis (events which are traceable to the actions of individual members). Laing had by this time come to view the person labelled as insane as the product of a social nexus, a scapegoat, a symptom of a group's pathology. Thus he viewed his task in studying schizophrenics' families to be to trace the process of 'becoming mad' back to the individual actions within the family, making process intelligible through praxis. The model he applied to praxis was at first the 'double-bind' theory developed by Bateson and his colleagues (1956), where a communication conundrum was directed at the individual by expressing conflicting and contradictory injunctions at different levels of abstractions (for example, the explicit primary injunction 'Do not do so and so, or I will punish you' transmitted in an implicit context of a secondary injunction 'Do not see me as punishing you'). Through social techniques such as the double-bind, members of the family establish collusive and collaborative frames of reference which succeed in disconfirming, disqualifying and invalidating the individual's efforts at constructing self- and meta-identities. The end result of this 'nexus of mystification' in the family is the definition and expulsion of one of its members as insane.

This brief exposition serves to outline Laing's views on the nature of social encounters, namely, as arenas in which the individual constructs an identity, compounded of his view of himself, his views of others, his views of other's views of himself, and so on. Thus, Laing, by combining all these ingredients, was able to blend together the contributions of Mead, Goffman and Sartre into a unified existential account of experience in encounters. Once again we find that failures to establish an identity may be traced to the nature of cues provided by others, and the ability of the individual to integrate these cues in constructing a self- and meta-identity. The role of the therapist becomes that of a 'journey' (Gordon, 1972) first through the nexus of the family to the source of confusion in the cues provided for the individual, and secondly through the system of false-selves erected by the individual to mediate between his fragile, unstable point of experience and the conspiracy of others in the family. However, Laing describes only the ontogenesis of social and psychological failure, and gives few clues as to what his therapy seeks to achieve. In the following section we will consider competence as an ideal, in the 'fully functioning person' (Rogers, 1959).

1.1.4.4. Carl Rogers.

Roger's nondirective approach to the therapeutic relationship is above all client-centred, nonauthoritarian and is directed towards encouraging the client's self-exploration in the immediate, therapeutic situation. Roger's technique is pervaded with a view of human potential, allied to that of Maslow (1968), in which the person may come to actualise himself in encounters with others by the assimilation of new experiences in the ongoing process of personal growth. The necessary and sufficient conditions for self-actualisation revolve around the non-evaluative stance that the therapist takes to the client, and which the client may take to himself, which Rogers terms 'unconditional positive regard'. It is essential that the therapist communicate this regard, and that the client perceive the therapist's empathic understanding of his experience, which is a genuine response to the client and not contrived in any way:

> "It has been our experience to date that although the therapeutic relationship is used differently by different clients, it is not necessary nor helpful to manipulate the relationship in specific ways for specific kinds of client. To do this damages, it seems to us, the most helpful and significant aspects of the experience, that is a genuine relationship between two persons, each of whom, to the best of his ability, is endeavouring to be himself in the interaction ".
>
> Rogers (1959, p.213).

'Being oneself', a condition that the therapist must achieve in order to enable the client to do likewise, is achieved as the capacity for 'congruence' between awareness available to the person and his experience arising from the encounter. Congruence depends on the ability to accurately symbolise experience in the construction of a 'self experience' by differentiating and discriminating the objects of feelings and perceptions and by becoming aware of experiences that have in the past been denied to awareness or distorted (inadequately symbolised) in awareness. Thus Rogers suggests that incongruence arises when awareness selectively samples the experiential field:

> "(1) Because of the need for self-regard, the individual perceives his experience selectively, in terms of the conditions of wotth which have come to exist for him. (a) Experiences which are in accord with his conditions of worth ate perceived and symbolised in awareness. (b) Experiences which run contrary to the conditions of worth are perceived selectively and distortedly as if in accord with the conditions of worth, or are in part or whole denied to awareness ".
>
> (1959, p.225-226).

and as incongruence continues, experiences which are inconsistent with the self-experience are 'subceived' as threatening:

> "(2) The essential nature of threat is that if the experience were accurately symbolised in awareness the self-concept would no longer be a consistent gestalt, the conditions of worth would be violated, and the need for self-regard would be frustrated ".
>
> (1959, p.227).

Roger's analysis is essentially individualistic when contrasted with Lacan and the later writings of Laing. He does not postulate on the origins of incongruence, or of conditions of worth, and does not imply that the growth of congruence can occur only in social or therapeutic relationships. He does insist however, that the growth of congruence is only a part of the development of the capacity for change:

> "In trying to grasp and conceptualise the process of change I was initially looking for elements which might mark or characterise change itself. I was thinking of change as an entity and searching for its specific attributes.........Individuals move, I began to see, not from a fixity or homeostasis through to a new fixity, though such a process is indeed possible. But much the more significant continuum is from fixity to changingness, from rigid structure to flow, from stasis to process ".
>
> (1958, p.143).

Finally, congruence is characterised by experience of the immediate present free of categorisation deriving from past experiences (the latter paralleling Sartre's 'mauvais fois'), the self becoming "simply the subjective and reflexive awareness of experiencing (and).....less frequently a perceived object " (1958, p.148), and feelings well matched in awareness by symbols.

To summarise, Rogers presents a rather vague, non-mechanistic picture of the fully functioning person who is characterised by

(1) a well-developed capacity to differentiate between and symbolise experiences in constructing a self-image, and (2) the capacity to experience self as a point of subjectivity rather than as an object of awareness, and (3) the capacity to initiate change in the symbolisation of experience spontaneously.

1.1.4.5. The three views of the therapeutic process presented in this section each characterise psychological breakdown as a failure to construct an adequate internal representation of self. Lacan's 'imaginary ego', Laing's 'meta-identity' and Roger's 'self-concept' refer to processes arising out of, and in many ways controlled by social relationships, and their descriptions of these processes may be seen to be detailed elaborations of the social processes of interpretations and definition identified by Mead.

Their concern with the nature of the counsellor-client relationship, however, sets them apart from the theoretical considerations of Mead. This relationship is conceptualised as a special case of conversation, the objectives of which are to facilitate, support, and if necessary to provoke renewed modelling activity within the client. For example, Lacan views the role of the therapist to be to encourage the client to dissolve the imaginary ego, and with it all constraints on symbolic communication. Again, Rogers views the task of therapy to enable the client to symbolise his experience more accurately in awareness. To achieve these objectives the counsellor must provide certain conditions within the relationship and engage in particular kinds of activities. For instance, he must encourage the client to objectivise and communicate his view of himself, and respond to this communication in a way which does not impose his own values on the client's self-experience. Many psychotherapies may be criticised on these grounds, not for the values they embody, but for the effect of bringing the client's self-reflection to a halt, by introducing an alternative model of self. Clearly, the therapist or counsellor must respond to the client's communications in a way which leads the client towards further modelling activities.

That the process of self-reflection is valued in therapy more than the nature of the model that is constructed is refected in Rogers' comments on a second impottant feature of the therapeutic process, namely, that a goal of therapy is for the client to develop the capacity for further change. That is, success in therapy may be characterised as the growth of the client's ability to conduct self-directed and self- initiated modelling activity. To achieve this the client must become the counsellor to himself, and have internalised or represented for himself the conditions that the counsellor establishes to facilitate modelling activity.

These aspects of the activities of the counsellor will be discussed in more detail in Chapter 1.2., but it is important to articulate the client-therapist relationship in terms of the model of conversation. Fig. 12 depicts the broad outline of the conversation in which the client engages in internal modelling activity, encouraged and supported by the counsellor. The shaded area denotes the counsellor's model of the process of therapy, and in later chapters the substitution of this model by interactive procedures will be discussed. Successful therapy is represented in the diagram as the development by the client of a model of the process of counselling (M).

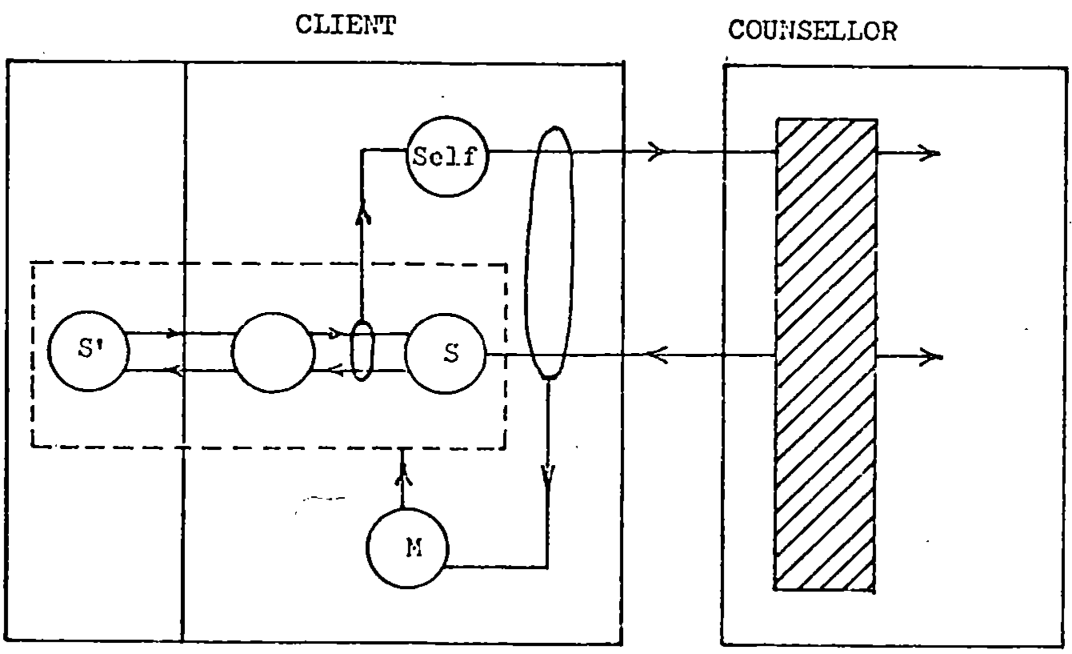


Figure 12.

1.1.5. Dimensions of conversational competence.

1.1.5.1. In the preceding sections a number of markedly distinct approaches to conversational encounters have been presented, with the aim of identifying the underlying themes of conversational competence. We have seen, for example, that the focus of the social skills model has been on the function of nonverbal signals in the regulation and control of encounters, in marked contrast to the focus of symbolic interactionism on the cognitive modelling of perceptions of self and other. Similarly, in contrasting approaches to the therapeutic relationship we have juxtaposed linguistic models of unconscious symbolism with existential models of the formulation of identities through person perception. We may at this stage concentrate on articulating the themes that have been highlighted by these approaches by considering them as the performance characteristics of the model of conversation:-

(a) Modes of awareness; we may distinguish the activity of modelling from the activity of participating in encounters on the basis of models by identifying the direction of attention of the participant. Modelling activity as described by Mead entails attending to internal images of self and other as objects of consciousness, Participative activity as described by Rogers entails attending to external events, where the self becomes 'simply the subjective and reflexive awareness of experiencing'.

(b) Distinctiveness of models; participation on the basis of models is influenced by the extent to which models are adequate representations of self and others. Laing's account of identity emphasises the consequences of overlapping and collapsed models in the reciprocal processes of projection and introjection.

(c) Perceptual differentiation; for Rogers the capacity to symbolise experience accurately is reflected in the adequacy of models of self and other. Modelling activity may be viewed as a process of perceptual differentiation in which alternative constructions of experienced events are explored and their implications tested.

1.1.5.2. Modes of awareness.

We have noted in the preceding discussions the value that Rogers places on a feature of the 'fully functioning person', the ability to dissolve the self as an object in the ongoing experience of the encounter. In contrast, Mead and Laing emphasise the importance to interaction of viewing the self and other as objects of consciousness, and then actively modelling them as constructs instrumental to the conduct of an encounter. 'Taking the role of the other', for example, would not be possible if the perceptions and attitudes of the other towards self, and the perceptions and attitudes of self towards the other were not consciously deliberated upon.

Consider first the experience of self. Self may be experienced as:

> "that which I am, with certain traits and characteristics, talents and limitations. These attributes constitute my essence: I an X and not Y; 'Xness' is a part of my essence and 'Yness' is not. My self thus has essential characteristics that cumulatively define what I am. This sort of experience of myself is thus the object of my attention. Let us call this the experience of oneself as-object ".
>
> Keen (1970, p.14).

Here, the self is essentially the 'looked-at', an object to be attributed with qualities and attributes, symbolised in experience as 'known' rather than 'lived', evaluated, scrutinised and judged. Clearly, if this were the only experience of self available to the interactant, an irreconcilable split between the 'self that observes' and the 'self that interacts' would result, a mode of experiencing that Laing terms 'schizoid'. Indeed, for Laing ontological insecurity arises from the perceptions of the other as object, and the reflexive insight that self may become an object for the other. Duval and Wicklund (1972) indicate that 'objective self awareness' is characterised by the turning inwards of attention away from the environment so that the individual attends to his conscious state, personal history, body, and so on. By externalising himself via a mirror, video-camera, tape-recording, the individual is presented with the view of himself another might achieve. Similarly, if he is performing in front of an audience, the inclination to view himself self-consciously as an object of the audience's gaze is very great. In the study of communication sets, Davis and Wicklund (1972) were able to show that the presence of a camera, mirror, or audience induced self appraisal in their subjects, and that these conditions led them to achieve greater integration of information for eventual transmission to an audience than a control group. Similarly, in the presence of a mirror and camera in an experiment involving a modification of the Stroop colour-word test (Geller & Shaver, 1976) subjects were required to name the colours of self-evaluative or neutral words. It was found that under the experimental conditions of self-awareness, naming latencies were increased only for self-evaluative words. Finally, Davis and Brock (1975) found that subjects seated in front of a camera or mirror used more first person pronouns when asked to guess the meanings of foreign language passages than control subjects.

A number of studies strongly suggest that the appraisal of self in objective self-awareness involves similar processes to the appraisal of others, namely the inference and attribution of causes of observed behaviour. The question 'Why did I do that?' leads to similar attribution processes as the question 'Why did <u>he</u> do that?' Bem (1967), in his replications of cognitive dissonance experiments was able to show that when subjects were induced to perform some behaviour for which there is insufficient justification, rather than be motivated to 'seek added attractions' to justify their behaviour subjects simply took account of the low extrinsic justifications for their actions and inferred that intrinsic justifications must have been high for them to have performed that behaviour. Numerous studies have extended this process of attributing causes for self's behaviour, both for overt and autonomic responses. In particular, Schachter and Singer (1962) have shown that if two people have identical stimulus inputs (an emotion-provoking exercise of filling in an insulting questionnaire) and identical levels of arousal (induced by a drug) but differ in their belief about the degree to which the stimulus has produced the arousal (knowledge or lack of knowledge of the effects of the administered drus), they will also differ in their evaluation of the stimulus (greater or less emotional response in the questionnaire situation).

The appraisal of the behaviour of self and other and the attribution of experience and intentions from behavioural data is a well-documented area of research (Jones, Kanouse, Kelley, Nisbett, Valins and Weiner, 1972) stemming from the pioneering work of Heider (1957) and featured prominently in the theory and techniques developed by Laing and his colleagues (Laing, Phillipson and Lee, 1966). Less thoroughly researched, principally because of its non-empirical nature, though equally important to conversational competence, is the experience of self-as-subject, or 'subjective self-awareness' (Duval and Wicklund, 1972). Subjective self-awareness is the reflexive experience simply of being:

> "The experience of <u>what</u> I am is at times dwarfed by the experience <u>that</u> I am. This is a second, entirely different sort of self-experience which we shall call the experience of <u>self-as-subject</u>. Rather than viewing myself as an object of my self-conscious scrutiny, I am now living the part of the viewer, the subject of the act, 'I-see-me'. The 'I' experience does not contain attributes, characteristics and traits, as the 'me' experience does. Rather than being experienced as a

fixed entity, the 'I' is experienced as a dynamic, open-ended activity without the stability of the me-as-object, i.e. without an essence. The 'I' is pure existence, noteworthy because it is, not because it is such and such ".

Keen (1970, p.14.)

Keen notes that experience of self-as-subject entails three components; (1) that self-as-subject is the 'ground' against which the 'figure' of the world is perceived, a point of reference providing an elementary self-not-self distinction; (2) that this is associated with the experience of 'self as agent' (Macmurray, 1957) as the origin of the intentional acts, and (3) that this form of awareness in conversation appears to entail a form of transubjectivity, even though each interactant's experience of the other is mediated by behaviour. For Duval and Wicklund (1972) subjective self-awareness in encounters entails the shift of attention to the environment, not to the other in an evaluative sense, but to the content of the conversation, and the experience of the other. They argue, for instance, that the 'actor-observer' effect highlighted by experiments in attribution theory (Jones & Nisbett, 1972) is directly related to whether awareness is subjective or objective and the focus of attention associated with each mode. It has been shown that actors participating within a conversation frequently attribute 'situational' causes (causal role of the environment) to their own and other actor's behaviour, whilst observers removed from the conversation tend to attribute 'dispositional' causes (causes a function of individuals). Duval and Wicklund suggest that participation in conversation more frequently requires subjective self-awareness in which attention is outer directed, and in perceiving the other's outwardly directed attention "self criticism will diminish and he will attribute blame to the environment" (p.206). Conversely, the observer perceives the actors as objects of his perception, entailing the same process as self-objectification, in which attention is directed towards attributes of self. Thus, in the latter case, causality is attributed to the person himself, in this case the actors he is observing.

If both modes he is experiencing are functional aspects of conversations, what determines the shift between subjective and objective self-awareness? Clearly, the demands of the conversation will vary over time, and to the extent that the individual responds to the conversation itself he will neither become excessively 'misinvolved' (Goffman, 1967) nor excessively identified with the other;

> "We would suggest that the conditions leading to objective self-awareness (or subjective self-awareness) are nothing more than stimuli that cause the person to focus attention on himself (or on the environment). More generally, whether attention is directed inward or outward is completely determined. We assume that subjective self-awareness is the primary state in that the environment is normally a strong enough stimulus to draw attention toward it, which means the self is totally excluded from attention. In order that the person become objectively self aware, it is necessary to create conditions that remind him

of his status as an object in the world........ we will assume that a person can be made objectively self aware by the presence of another simply by his knowledge that the other is aware of him. If he has good reason to believe that the other is not seriously attending to him, then the presence of the other will not arouse the objective stste. But when a person encounters another and believes that the other is focussed on him he will begin to evaluate himself along dimensions that are cued by the situation........ one condition that should increase subjective self awareness and curtail the effect of stimuli designed to bolster the objective state is that of placing the person into an active situation. If he talks, shovels coal, skis down a mountainside, or engages in any other activity that necessitates his focussing attention on events external to himself, subjective self awareness will result".

Duval & Wicklund (1972, p.7-9).

Thus involvement in the content of conversation and in the experience of the other entail subjective self awareness.

1.1.5.3. Distinctiveness of models.

From the 'mirror stage' (Lacan, 1968) of childhood onwards the reflexive awareness of self cultivates the distinctiveness of the self over and against the other. We have discussed the role of the other as the locus of signification in discourse, of two modes of awareness of self and other, and of the internalisation of self as an other. Thus, the construction of identity in encounters requires an other. In this section we will discuss two processes in conversations in which experience of the other is confused by the experience of self (projection), and in which the experience of self is confused by the experience of other (introjection). Projection entails 'actions whose primary object is not the other's experience of me, but my experience of the other' (Laing, Phillipson & Lee, 1966), actions which intend to divorce the other's experience of self from the subject's self-image. In so doing, Laing notes that the subject's meta-identity (his view of the other's view of him) becomes free-floating, enabling a meta-construction of self that is consistent with the subject's direct self construction. Thus, one experiences one's outer world in terms of one's inner world. Projection thus prevents the subject from developing accurate attributions to the experience of others. We might expect to find that projection is marked by the attribution to others of an attribution to own behaviour identical with own attributions to own behaviour. Valins and Nisbett (1972) report that this is the case in a number of emotional disorders they have studied, in which 'inappropriate' attributions to self were projected onto other's experience of self, ultimately preventing the collection of experiential data from which contrary attributions might obtain:

> "The client, a twenty-five-year-old black, unmarried male, came for therapy because he thought he was homosexual. Deeply upset by this prospect, he found himself frequently in states of severe anxiety and depression. His attribution of homosexuality was based on several observations. Sexual intercourse was unsatisfactory, he often found himself looking

at the crotch area of other men, and he believed that his penis was abnormally small. This latter belief appeared to be the major source of his difficulties. As he put it, 'black people are supposed to be hung like horses and I'm not'..... .....A therapist was necessary mainly because the client was too ashamed of his possible homosexuality to check his beliefs with other people. His fears about homosexuality led to incorrect interpretations of behaviour. These interpretations might very well have been corrected had he spoken to friends and been influenced by their interpretations. Many beliefs, however, are simply too undesirable to discuss, and in such cases we often do not check their validity through social consensus. Under these circumstances normal behaviours can be used incorrectly to generate a diagnosis of abnormality".

Valins & Nisbett (1972, p.138-139).

Here we see projection operating to isolate the meta-identity of the client from the experiences of others. The construction of others' experience of self is then prescriptive rather than predictive (Mischel, 1964) leading, as for paranoid delusions, to situations in which these constructions are inaccessible to refutation.

The reciprocal process of projection is that of introjection, in in which constructions of self that are perceived to be held by others are superimposed over, and substituted for the subject's own construction of self. Where this latter construction is vulnerable, the threat of the self-definitions of others is the threat of 'engulfment' by their personalities:

> "A firm sense of one's autonomous identity is required in order that one may be related as one human being to another. Otherwise, any and every relationship threatens the individual with loss of identity. One form this takes can be engulfment. In this the individual dreads relatedness as such, with anyone or anything or, indeed, even with himself, because his uncertainty about the stability of his autonomy lays him open to the dread lest in any relationship he will lose his autonomy and identity............Engulfment is felt as a risk in being understood (thus grasped, comprehended), in being loved, or even simply in being seen. To be hated may be feared for other reasons, but to be hated as such is often less disturbing than to be destroyed, as it is felt, through being engulfed by love".
>
> Laing (1965, p.44).

In terms of attribution theory, we might expect introjection to be marked by the attribution of causes to self's own behaviour identical with those causes attributed to the other's experience of self. Here, the person is, as it were, open to information concerning own behaviour from others, but closed to information concerning own behaviour arising from within. This process of 'reattribution' (Nisbett and Valins, 1972) has some empirical and therapeutic value, Storms and Nisbett (1970), for example, provided two groups of insomniac subjects with placebo pills, informing one group that the pill reduced arousal and the other that the pill enhanced arousal:

> "The investigators reasoned that insomnia is due in part to arousal caused by rehearsing emotional thoughts. The perception of arousal, in terms of the present line of reasoning, should lead to the inference that the emotional cognitions are quite powerful. This inference should in turn heighten emotionality. If the subject believes his arousal is caused by a pill however, the perception of arousal should not result in an inference of emotionality, the cycle might be broken, and sleep would ensue. It was found that such subjects did in fact report getting to sleep more quickly on the nights when they took the pills.........They reasoned that if insomniac subjects believed themselves to be under the influence of a drug that was capable of <u>reducing arousal</u>, any arousal felt at bedtime might be taken as evidence that the emotional thoughts that were present were quite intense. Subjects would be expected to infer, in effect, 'If I'm as aroused as this when a pill is supposed to keep me calm, then I must be very worked up'............As expected it took such subjects longer to get to sleep on the nights they took the pills then it had previously taken them. Apparently, it is as easy for experimenters to strengthen attribution of arousal to the stimulus situation as it is to weaken such attributions".

Nisbett & Valins (1972, p.72).

The introjection of attributions of others thus can have a powerful effect on the perception of own overt and automatic behaviour.

Failures to establish distinctiveness of self- and meta-identities highlight the second dimension of conversational competence; whilst self's and other's interpretations of events within encounters may differ, the preservation of this distinctiveness and realisation of disjunctive interpretations are essential components of competence.

1.1.5.4. Perceptual differentiation.

Finally, we have noted the concern of the social skills model, for example, to emphasise conversational competence as the ability to discriminate cues and translate them into an organised and coordinated performance. In contrast, the symbolic interactionism and counselling view has highlighted the need for the interactant to more adequately symbolise his experience in the construction of models of self and others. What is the common grounding of these diverse approaches?

The common ground is seemingly provided by Miller, Galanter and Pribram (1960) in their argument that any performanace, skilled ot otherwise, may be progressively analysed into a hierarchy of operations, each operation involving a test or evaluation as to its satisfactory completion. It is this evaluative component that is the focus of competence, rather than the operations themselves; skilled performance consists not of performing behaviours that are in any way extraordinary, but of the ability to coordinate commonplace movements and activities through a perceptual system of extraordinarily fine discriminations. The basic unit of their analysis, the Test-Operate-Test-Exit unit (TOTE), is essentially an elementary servo-mechanism:

> "The interpretation towards which the argument moves is one that has been called the 'cybernetic hypothesis', namely that the fundamental building block of the nervous system is the feedback loop ....it is, in capsule, the account we wish to give of the relation between image and action. The TOTE represents the basic patterns in which our Plans are cast, the test phase of the TOTE involves the specification of whatever knowledge is necessary for the comparison that is to be made, and the operational phase represents what the organism does about it ".
>
> Miller, Galanter & Pribram (1960, p.27-31).

Thus, our proposition here is that conversational competence is not a function of the extent or elaborateness of the repertoire of social responses, but the ability to distinguish stimulus conditions arising within an encounter, and to distinguish alterations in stimulus conditions as a result of action. Moreover, these stimulus conditions are not to be considered only as those arising from the responses of other interactants, but the entire field of stimulation, proprioceptive, visual, auditory, emotional, cognitive, arising as sensations within the encounter. This definition of stimulation is not altogether unreasonable, as we have seen in the preceding discussions of models of awareness and experiences of self. In the case of objective self-awareness, for example, the attribution of causes to behavioural effects is determined by the individual's capacity to differentiate effects, to differentiate causes, and to determine in what ways vaious causes covary with a given effect. This process, the 'covariation principle' (Kelley, 1972), is the cornerstone of attribution theory, and can be seen to bear a very close resemblance to the process of detecting invariances in stimulus conditions and outcomes which characterise perceptual learning.

The final step in defining this aspect of conversational competence is then to restate the issue as the interactant's capacity for perceptual differentiation:

> "defined as an increase in the ability of an organism to get information from its environment, as a result of practice with the array of stimulation provided by the environment. This definition implies that there are potential variables of stimuli which are not differentiated within the mass of impinging stimulation, but which may be, given the proper conditions of exposure and practice. As they are differentiated, the resulting perceptions become more specific with respect to stimulation, that is, in greater correspondence with it. There is a change in what the organism can respond to, The change is not acquisition or substitution of a new response to stimulation previously responded to in some other way, but is rather responding in any discriminating way to a variable of stimulation not responded to previously. The criterion of perceptual learning is thus an increase in specificity. What is learned can be described as

detection of properties, patterns, and distinctive features".

Gibson (1969, p.77).

Conversational competence may thus be characterised as perceptual skill in identifying invariances and distinctive features in modelling self and other. The importance of perceptual skill to the internal conversation is evident when the role of perceptions of others in interpersonal conversation is considered:

> "What we actually do as we speak with and to each other is talk to ourselves. Unless I can transport myself completely into your world, so that I can see the entire world exactly as you see it and can respond to the things around you as you respond to them, I really cannot deal with the world exactly as you do. When I speak to you, I am talking to a hypothesis or an estimation that I have about you and about what you are. In a sense, I really am talking to my image or my hypothesis of you".

Keltner (1973, p.49).

1.1.6. The breakdown of competence.

1.1.6.1. In discussing dimensions of competence we have suggested that:-

(a) the movement between the two states of objective and subjective self-awareness reflects a significant shift in the locus of the interactant's attention in conversations. Competence is characterised by the linkage between these shifts of attention and the state of the conversation.

(b) The distinctiveness of models of self and models of other reflect perceptual competence in the appraisal of experience. This entails that the interactant is able to demarcate all possible perspectives (my view of myself, my view of him, my view of his view of himself, my view of his view of me, and so on) without any one perspective occluding the other.

(c) The capacity to adequately symbolise experience by modelling self and other entails the development of a perceptual system that may detect, recognise and identify attributes of self and other within the internal modelling conversation.

In this final section, we will briefly consider in what ways and with what manifestations the breakdown of competence reflects these dimensions. To do this an arbitrary distinction will be drawn between failure that obtains from a breakdown of the internal conversation and its consequences for the interpersonal context within which it occurs. In drawing this distinction, however, it will become clear that the internal and 'external' conversations are intimately linked.

1.1.6.2. The breakdown of the internal conversation.

(a) The response to anxiety; the experience of anxiety is common enough and in itself does not constitute a failure of conversatio-al competence. Rather, it is the nature of the response to anxiety that facilitates or clouds the internal conversation. "Anxiety is the recognition that the events with which one is confronted lie outside the range of convenience of one's construct system" (Kelly, 1955, p.495). That is, anxiety is the result of attributing to self an inability to adequately model future action. Keen (1970) draws essentially the same conclusion in describing anxiety as a function of the necessity of choice in the absence of a value referent. Thus, in acting the individual establishes first, that a choice has been made, and second, that a value referent has been created. Similarly, Tillich (1952) notes that action in spite of anxiety is an assertion of being, by a movement of awareness from possibility to actuality. Thus, the withdrawal of choice and the avoidance of anxiety is for Tillich 'the avoidance of being', for Keen a failure 'to be-a-subject', and for Kelly a 'failure of construction'. Avoidance may take a variety of forms, for example, withdrawal from the choice situation, refusal to acknowledge the necessity of choice, substituting a known, but illusory, outcome or event, employing an inappropriate but existing, value referent, and so on. These responses to anxiety have one feature in common, namely, the inability to tolerate incompleteness in the model of self, and the perseveration of self-examination in objective self-awareness.

(b) Guilt; the experience of guilt is a frequent concomitant of objective self awareness and entails "the perception of one's apparent dislodgement from his core role structure" (Kelly, 1955, p.502). That is, in appraising his behaviour, the individual attributes to himself intentions, causes and wishes which are inconsistent with more central evaluative dimensions of his self model. If we accept this view of guilt, we find difficulty in concurring with Bem's (1967) assertion that the subject _passively_ surveys his apparently unjustified behaviour in cognitive dissonance experiments. He may well survey his behaviour as if it were another's, but he does so, it seems, with a vested interest, namely, that the behaviour he is observing _is his own_. It is not sufficient for Bem simply to suggest an equivalence between observing another's behaviour and observing one' own:

> "Consider the viewpoint of an outside observer who hears the individual making favourable statements about the tasks to a fellow student........ If one now places the hypothetical observer and the communicator into the same skin, the findings obtained by Festinger and Carlsmith are the result. There is no aversive motivational pressure postulated; the dependent variable is viewed simply as a self-judgement based on the available evidence".

Bem (1967, p.200).

One does not experience guilt for the apparently unjustified behaviour of another; one experiences it only for one's own inconsistent desires and behaviours. In certain schizoid states, however, Laing notes that guilt is less prevalent (1965), principally because the split between the 'inner self' and the 'false self' leads the person to view the behaviour of the false self as unrelated to his experience.

(c) Threat; Kelly writes that:

> "threat is the awareness of the imminent comprehensive change in one's core structures..........This means that the threat represents a multifaceted alternative core structure........A prisoner of twenty years, while eager, is nevertheless threatened on the last day by the imminence of his release".
>
> (1955, p.489-90).

Threat, then, arises from experiential evidence that implies attributes of self which are incompatible with the self-model currently held by the individual. Thus Laing's (1965) accounts of the ontological threats of implosion and engulfment may be viewed as responses to the potency of the other's model of self over the subject's own. Similarly, Landfield (1951) notes that the potency may be expressed in two ways, namely by exemplification, where the other exemplifies a past self-model of the subject, and by expectancy, where the other's model of the subject is incompatable with the subject's own. In addition, threat can take the form of a response to mounting evidence that self-attributions are inappropriate or inadequate, for example:

> "A childless husband can be increasingly threatened as each year adds new weight to the evidence that he does not have what it takes to be a father. An unmarried woman in her late twenties can be threatened by her thirtieth birthday".

Kelly (1955, p.493).

Clearly, one response to threatening evidence is to disregard it, and this characterises a conversational stratagem which Kelly terms 'hostility'. Since it is frequently an interpersonal phenomenon, hostility will be discussed in the following section. However, hostility has an intra-personal parallel in the prescriptive construction of self-models (Mischel, 1964). As Mischel cogently points out, the girl who says 'I shall marry a man having such and such characteristics':

> "is not predicting what will happen, but is expressing her intention to marry that kind of man. She has <u>decided</u> that this is the 'right' sort of man for her. Her decision is not an inference based on laws describing what in fact happens; it is a prescriptive for what she should do based on rules she follows in deciding what to do".

Mischel (1964, p.134).

These rules may be seen to constitute the girl's self-model; being left on the shelf will be the inevitable result of her avoidance of revision to her self-model. Rather than acknowledge that 'my expectations of men are too high' she might say instead 'I did not get the chance of meeting the right man' or more sadly 'men are deplorable'.

(d) Self-deception and denial; as an illustration of the origins of self-deception, Keen (1972) traces the consequences of lying in the child. For example, lying to his parents implicitly entails that the child is aware of his own self-model, his parent's model of him, and of a discrepancy between them. He does not experience guilt at this stage because his actions are not inconsistent with his awn self-model. However, should he internalise aspects of his parents' model of him. and assimilate these aspects to his self-model, then further lies to his parents may provoke the guilt experience, as he is now aware of an incompatibility within his self-model. If this process of introjection advances further so that his self-model is more or less completely occluded by his parents' model of him, then the experience of guilt disappears as the child begins to misperceive his actions and intentions in terms of evaluative dimensions derived from his parents' view of him. Introjection is now complete, and having established a self model that is idealised and unrealistic, incompatible experiences are forgotten, or, in Kelly's terms, suspended:

"Suspension implies that the idea or element of experience is forgotten simply because the person can, at the moment, tolerate no structure within which the idea would have meaning......... It is important to bear in mind that ideas are not suspended because of their intrinsic nature but rather because their implications are intolerable".

Kelly (1955, p.473-474).

A feature of self-deception to note is that it suggests that at some level the subject is aware of the intolerable implications of a particular attribution to himself, but that he does not entertain these implications in his conscious awareness. Rather than invoke unconscious processes, we may assert that self-deception is an instance of perceptual failure in self-appraisal. In his model of 'perceptual readiness' Bruner (1957) suggests that non-veridical perception may arise if the differential availability of perceptual categories does not match the probability of occurrence of events. Thus, if the subject is inclined to view his behaviour as honest to remain consistent with his self-model, the honest-dishonest attribution is unlikely to be readily avilable in self-perception, and other attributes will direct his attention to alternative cues during perceptual search in order to achieve categorisations more compatible with his self-model.

1.1.6.3. Breakdown of the interpersonal conversation.

Although we have identified anxiety, guilt, threat and self-deception as features of the subject's internal modelling conversation, they are clearly modified by and modify, his relationships with significant others. In this final section we shall briefly note a variety of interpersonal consequences of conversational breakdown, which again reflect the dimensions of competence previously discussed; (a) projection and introjection; (b) interpersonal disjunctions; (c) misinvolvement; (d) hostility.

(a) Projection and introjection; section 1.1.5.3. discussed the consequences of confusion of self- and other-models for identity. Here the consequences for the encounter of projection and introjection might briefly be noted. Laing et al (1966) provide an example of the consequences of projection, in misattributing to the other experiences which are based on the subject's own experiences, in a fight between a married couple on the second night of their honeymoon. In this instance, both partners engaged in reciprocal projection <u>and</u> failed to realise their misunderstanding (p.18). The consequences of introjection, on the other hand, are frequently associated with the manipulation of one person by another. Iago, for example, capitalised on Othello's introjected definition of himself as the victim of Desdemona's infidelity.

(b) Interpersonal disjunctions; often associated with a failure to distinguish between models of self and other, disjunctions arise from the mismatched interpretive systems between interactants. An example of a particular form of disjunction is embarrassment, where a model of self that a subject presents in an encounter, and for which he seeks confirmation from the other, is discrepant with the model of the subject that the other has come to formulate. As a result, the other fails to confirm the subject's claims as justified, and the subject experiences a mild form of 'implosion'. Persons who are not easily embarrassed are likely to be less able to formulate a model of the other's view of them, perhaps as a consequence of projection, and are thus less sensitive to the presence of disconfirmatory cues.

(c) Misinvolvement; Goffman (1971) identifies several forms of alienation from interaction which parallels a dimension of competence discussed previously, namely, the coordination of mode of awareness with conversational state. Preoccupation with evaluations of self at a time when the external attentional demands of the conversation are high ia an instance of misinvolvement:

> "At the cost of his involvement in the prescribed focus of attention, the individual may focus his attention more than he ought upon himself - himself as someone who is faring well or badly, as someone calling forth a desirable or undesirable response from others. It is possible of course, for the individual to dwell upon himself as a topic of conversation - and yet not to be self-conscious. Self-consciousness for the individual does not, it seems, result from his deep interest in the topic of conversation, which may happen to be himself, but rather from his giving attention to himself as an interactant at a time when he ought to be free to involve himself in the content of the conversation".

Goffman (1971, p.118).

(d) Hostility; Kelly notes that hostility is 'the continued effort to extort validational evidence of a type of social prediction which has already proved itself a failure', (1955, p.510). Here we may observe the interpersonal consequences of a particular response to the subject's self-model, namely to manipulate the interpersonal situation in such a way as to obtain, at whatever cost, validation for a particular self construction. Mischel (1964) notes that if I view my boss as dominating:

> "my anticipation of the boss' behaviour tends to be a self-fulfilling prophecy. Because I construe him as dominating I insult him and this is likely to make him do just what I 'predicted' he would do when I construed him as dominating".
>
> Mischel (1964, p.181).

Similar outcomes obtain for the individual suffering paranoid delusions; his insistence that he is being victimised may lead others eventually to exhibit real justification for such views. His delusions become real, and his constructions of others and himself are validated.

1.1.6.4. In this chapter we have introduced the notion of conversational competence by constructing a preliminary model of conversations, reviewing a number of theoretical contributions to the model, and identifying its performance characteristics. We have suggested that therapeutic encounters are primarily concerned with developing conversational competence, and to achieve this focus on the client's modelling activities. If it is possible to enumerate the activities of the therapist, procedures that may substitute for the therapist might be developed. The following chapter first examines the nature of the internal modelling conversation in greater detail and attempts to clarify the role of the therapist in relation to this activity. On such a basis, specifications for interactive procedures are established.

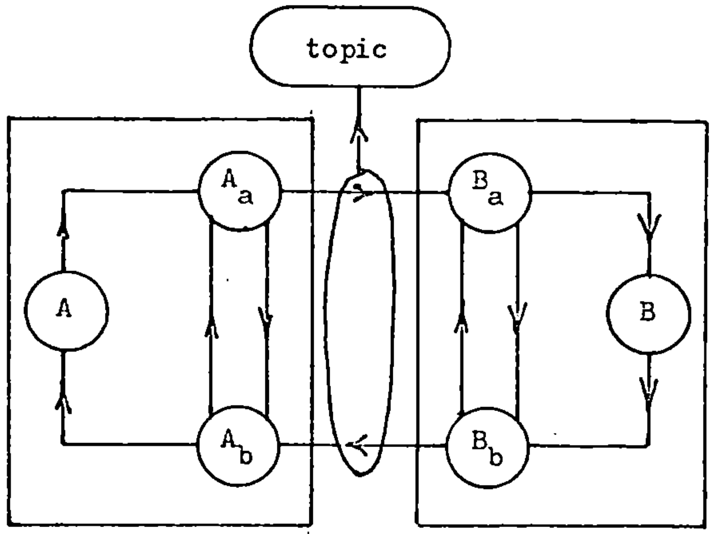
Chapter 1.2.

Modelling conversations

1.2.1. The structure of modelling conversations.

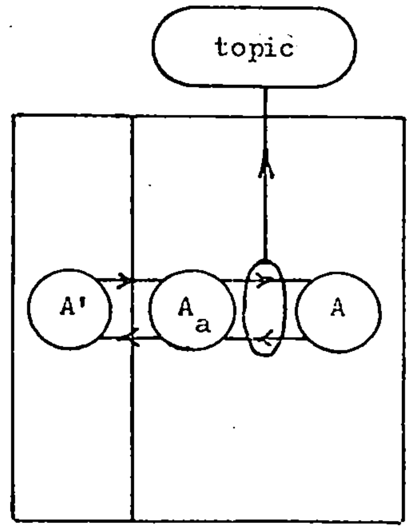
1.2.1.1. The rudimentary model of conversations developed in the preceding chapters displays a number of ambiguities which this chapter seeks to clarify. These ambiguities centre on the nature of the reference frames imputed to organise conversation, ambiguities which must be resolved if we wish to develop procedures capable of enhancing these frames. To recapitulate, two modes of conversational awareness were distinguished, namely participative and modelling modes, associated with subjective and objective self-awareness. Participative conversations were characterised in that activity was organised on the basis of internal models of self and other, whilst modelling conversations brought these models under review. In addition, internal conversations were distinguished from interpersonal conversations; the former were characterised by the subject interacting with an imaginary participant, for example, the constructed images of 'me' or 'other'. We have also suggested that reference frames have a control function in that they provide dimensions for evaluating conversational events arising both within and between participants. The preliminary models of conversation are summarised in Fig. 13, and it is the nature of the control function of models denoted by a question mark that is the concern of this chapter.

The objectives of research may be clarified in terms of these figures. Essentially, we seek to devise algorithms of activities in which a participant may engage in order for him to bring about changes in the control functions of the boxes denoted by '?'.



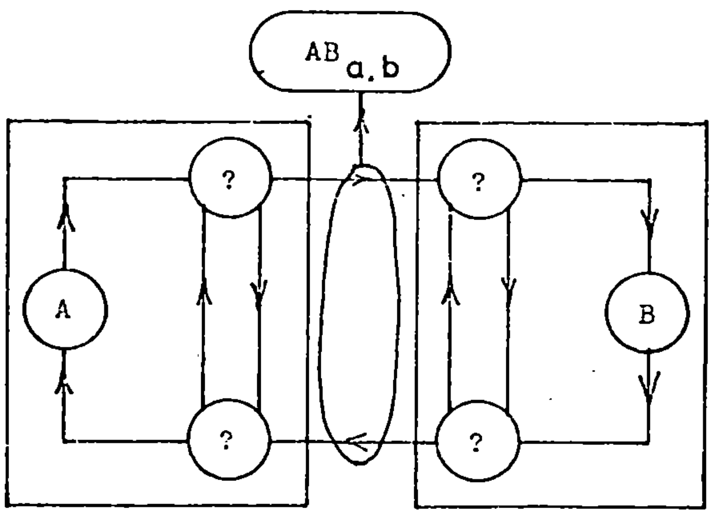
"talking about a topic"

INTERPERSONAL PARTICIPATIVE CONVERSATION



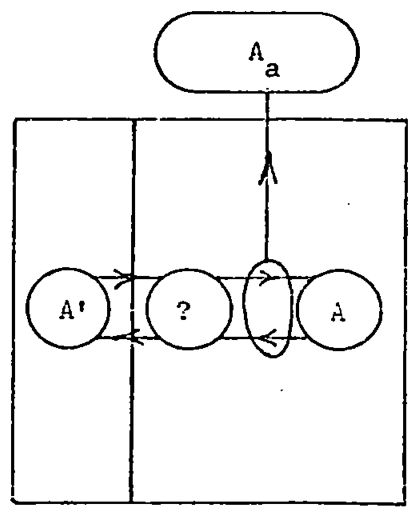
"thinking about a topic"

INTERNAL PARTICIPATIVE CONVERSATION



"talking about each other"

INTERPERSONAL MODELLING CONVERSATION



"thinking about self"

INTERNAL MODELLING CONVERSATION

Figure 13 Conversational Modes.

The objectives of these algorithms of activities so closely parallel the activities of a counsellor or therapist that we will base its design on the minimal functions of the counsellor or therapist. These minimal functions are outlined in Section 1.2.3. To simulate the activities of the counsellor, the algorithm must be in a primitive sense interactive, in that the effects it seeks to achieve are conversational in nature. It must be designed, then, to respond to the participants' activities and make provisions for the participant to choose between activities. Moreover, it must intervene into, offer direction for, and manage the participants' activities consistent with his stated purposes. Interactive algorithms cannot be totally unobtrusive as they necessarily embody specifications for participant activity. On the other hand, to achieve the objective above, namely to encourage modelling activity by the participant, they cannot be completely determinate. They are instead required to be 'fuzzy' algorithms, where outcomes are probabilistically related to starting states. It is not the objective of this research to compose a computer program capable of fulfilling these functions, although if the algorithm of activities is defined clearly enough as a tree of operations and choice points such a program is feasible. Instead the task is viewed as outlining the requirements of such algorithms for a number of related objectives, translating these requirements into operational form, and the preliminary testing of the algorithms in a series of case studies. In every case, the algorithms have been mediated by a participant experimenter in face-to-face interactions.

The construction of algorithms of conversational activities was shaped by a model of counselling which may now be outlined. To do so, we must first consider in detail the nature of the frame of reference denoted by '?' in Fig,. 13.

From extensive work on man-machine systems, Pask has developed a 'theory of individuals and conversations' (1975) which provides a sufficiently developed structural model of model-building processes on which to base conversational procedures. Essentially, Pask's approach is a cybernetic one, and deals primarily with supports to model-building which might be achieved by a computer program. However, Pask identifies the psychological process of model-building by enumerating the features that an algorithm must possess in order to participate in a model-building activity with a human participant.

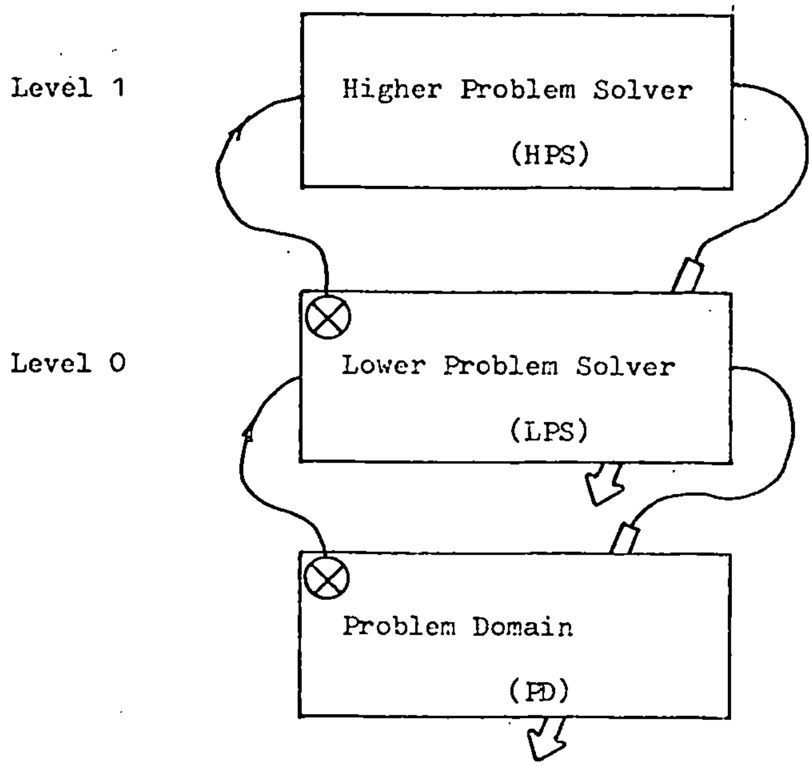
1.2.1.2. The nature of models.

Pask begins by asserting that an individual's model of the world is in essence a schema which represents what may be done in the world. What may be done is not couched in behavioural terms, however, but in the sense of constructing a relation. Thus, knowledge is equated with operations that bring about relations. For example, a relation is embodied in the statement ' a spanner is a tool for tightening nuts', and implies the existance of operations capable of predications such as ' a spanner is an object of such-and-such a shape', 'a nut is.......', 'tightening a nut is to.......', and so on. To observe the operations of tightening a nut is not necessary to infer the existence of the knowledge of a spanner's function. The individual's model of a spanner, namely the concept, 'a spanner', is then an organised set of procedures capable of constructing relations on the topic of a 'a spanner'.

The class of procedures that comprise the model are termed 'fuzzy algorithms', since the set of outcomes they achieve are diverse and non-determinate. That is, outcomes form a 'fuzzy set', in that they are probabilistically related to procedures. Procedures may thus be viewed as heuristics for constructing relations. The question 'what is a spanner?'might be answered in different ways depending on whether it is asked by a mechanic or a child. In this sense, procedures are descriptions of 'competence' as distinct from 'usage', a distinction that is paralleled by Chomsky's notion of linguistic competence (1972) and de Saussure's contrast of 'la langue' and 'la parole' (1959). The relations that might be constructed are then a subset of a class of relations, and it is important to note that an individual may habitually construct only a finite and limited set of derivations from the heuristic, which is frequently termed 'perceptual fixity'.

1.2.1.3. The nature of learning.

Pask defines a memory of a relation as a procedure that operates on a class of concepts to reconstruct that relation. That is, a memory is a concept of a concept, a procedure that reconstructs another procedure capable of constructing a relation. This aspect of self-reference is central to Pask's theory of individuals, and learning a concept entails procedures capable of constructing procedures. Learning may then be symbolised in the following way:

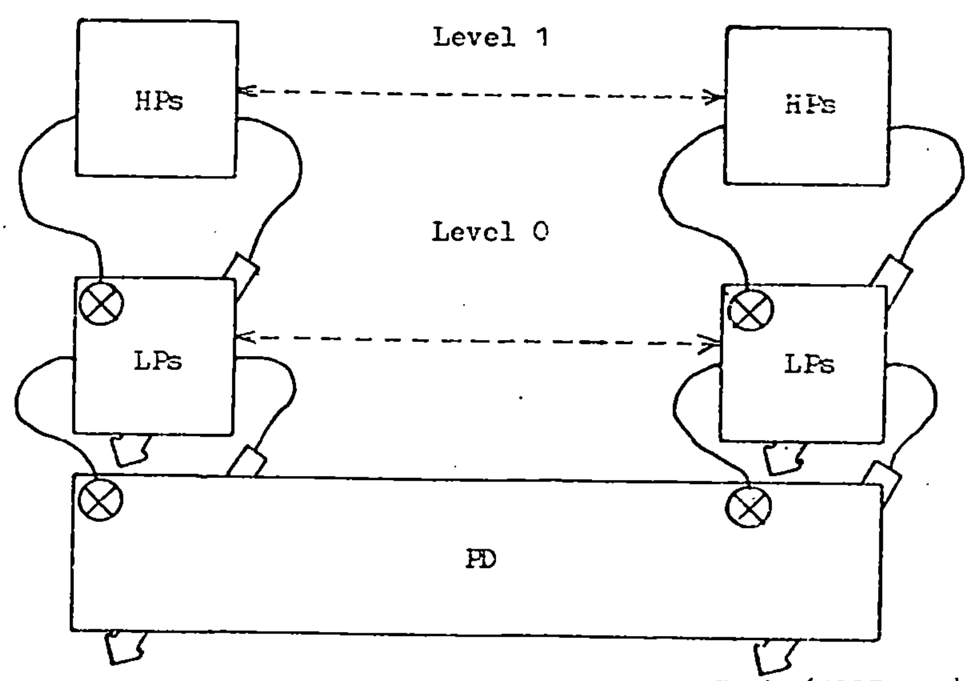


Pask (1975, p.46).

where the Higher Problem Solver executes operations on the Lower Problem Solver (via the parametric loop) and evaluates their outcomes (via the comparator loop) to combine existing procedures or construct procedures de novo. The Lower Problem Solver, in turn, executes operations in the Problem Domain to construct a relation.

Cognitive and perceptual fixity is characterised as the existence of a habitual organisation of the procedures within the control system, such that the construction of particular procedures is preferred over others. Pask and Scott (1972) describe two learning strategies (serialism and holism) that exhibit differential control functions within this system, namely, the construction of LPS procedures in a serial or parallel fashion. Clearly, many other styles and strategies of learning (e.g. levelling and sharpening, field dependence-independence etc.) may be characterised in terms of the performance characteristics of the system.

The activities of teaching and counselling may be characterised as the provocation by one participant of learning in another by exchanges at both Levels 1 and 0, as in the following diagram:



Pask (1975, p.47).

In this diagram, understanding and agreement may be observed in the nature of the exchanges at Levels 1 and 0;

"If a participant explains a topic relation at LEV 0, this is evidence for a concept i; if the explanation is agreed, that is evidence for a concept equivalent to (not necessarily identical with) a concept entertained by the other participant. If the participant explains how he constructed and reconstructs this concept, at LEV 1, this is evidence for a memory; if the explanation is agreed, in the sense that it reproduces an equivalent concept in the other participant, that is evidence for an equivalent (not necessarily identical) memory. This condition is called <u>understanding</u> (in a given domain, by these participants, of a topic relation)."

Pask (1975, p.49).

1.2.1.4. <u>The nature of individuals.</u>

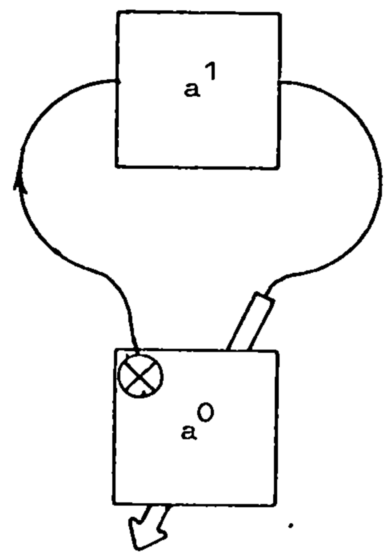
The diagram above provides the minimal requirements for a conversation. However, the demarcation of individuals requires special attention. Two methods of demarcation are possible:

"1.8.1. An external observer, locking on at L conversation, can resort to many kinds of individuation. Two extreme methods are as follows. 1.8.2. To demarcate a processor, independently of the procedures it is executing. This is 'Mechanical (M) Individuation'.....1.8.3. To demarcate a coherent cognitive organisation or stable class of procedures, independently of the processors in which the procedures are executed. Such entities are called 'Psychological (P) Individuals'".

Pask (1975, p.164).

In this way, Pask is enabled to assert that two persons in a conversation, may, at times, be considered a singular P individual executed within two spatially distinct, but procedurally identical M individuals, as, for example, in 'moments of excellence' (Pask, 1972). In those cases where the participants in the conversation are engaged in disjoint procedures, the conversation may be factored into two distinct P individuals executed within two distinct M individuals.

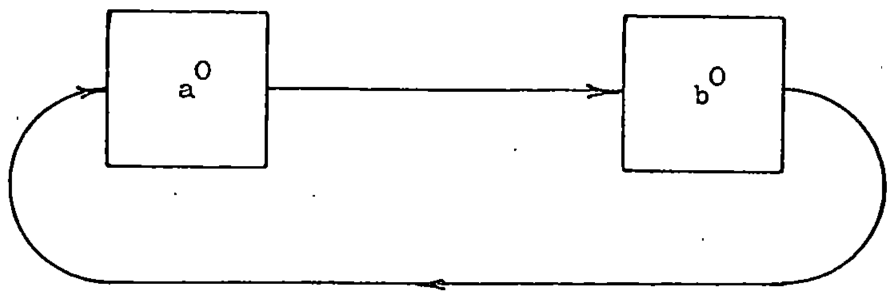
P individuals are characterised by self-reference, in that the procedures that make them up are self-reproducible when executed in an M individual. In Pask's terms self-reproducibility entails furnishing explanations, modelling and reproducing operations. Thus, procedures which 'write thenselves' may be termed self-reproducible; concepts ('procedures operating on a domain of relations R_i') and memories ('procedures operating on a domain of concepts'), are both features of self-reproducible systems. A self-referential system thus requires a minimal demarcation of domains, distinguishing 'what may be known' from 'what may be done'. Self-reproducibility thus entails a causal coupling between operations, as in, for example, the reconstruction of a concept from memory requiring the operation of one procedure on a subset of procedures. Such a causal coupling is represented in the following schema:



In this figure, a^1 acts causally upon a^0 through a cycle involving an operation (the parametric arrow) and a description (the comparator symbol). In a general sense a^1 might be said to have an hypothesis and the expectation that this hypothesis will be confirmed after a^0 carries out certain operations.

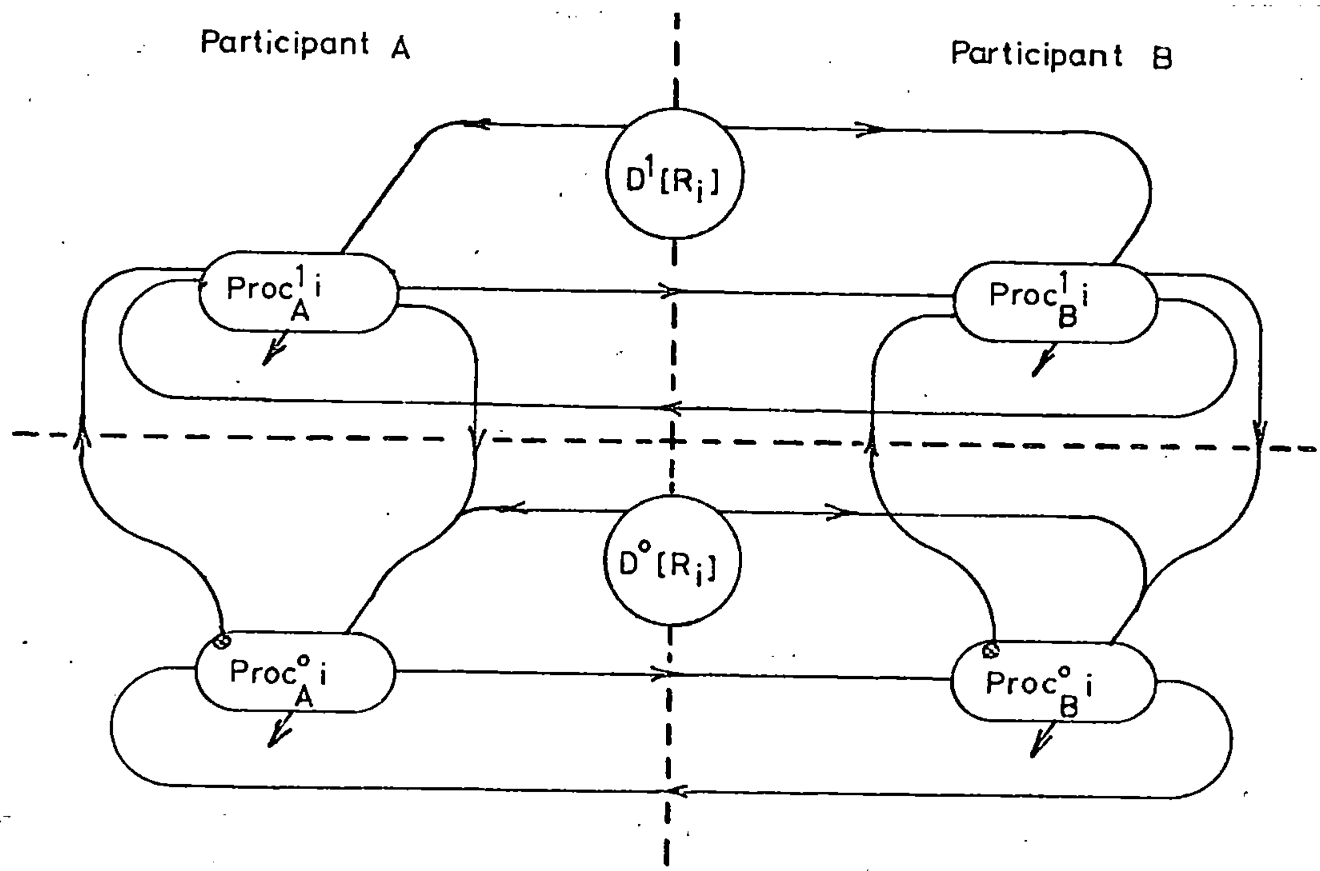
1.2.1.5. The nature of transactions.

In a conversation involving two P individuals, another form of coupling in addition to the above is present, namely a provocative coupling prompting a search expected to furnish or generate information. Provocative couplings may take the following forms: posing a question, presenting a choice amongst alternatives, accepting a command, furnishing an explanation, deciding, and so on. These provocative transactions may be compared with causal transactions such as executing a command, building a model, giving an explanation, selecting a reply, which all involve the participant entertaining a hypothesis and assessing outcomes. Provocative couplings are represented by the following schema, in which b^O elicits a 'reply' from a^O:



This form of coupling is mediated by a language L. In the simplest case, the language is a machine code, or the language of a computer program. The result of a procedure is thus an operation performed in L, constructing a relation R in a conversational domain D. As we have seen, P individuals are characterised by stratification into at least two domains, thus L must also be stratified. Such a stratification enables the distinction between statements of 'what may be known' (L^1) and 'what may be done' (L^O). In both cases, an operation is thus the act of predication (constructing a relation) in L.

1.2.1.6. Having established these features of conversational systems, Pask proceeds to construct the minimal properties (the 'conversational skeleton') of two P individuals in conversation, which is diagrammed as follows:-



Pask (1975, p.183).

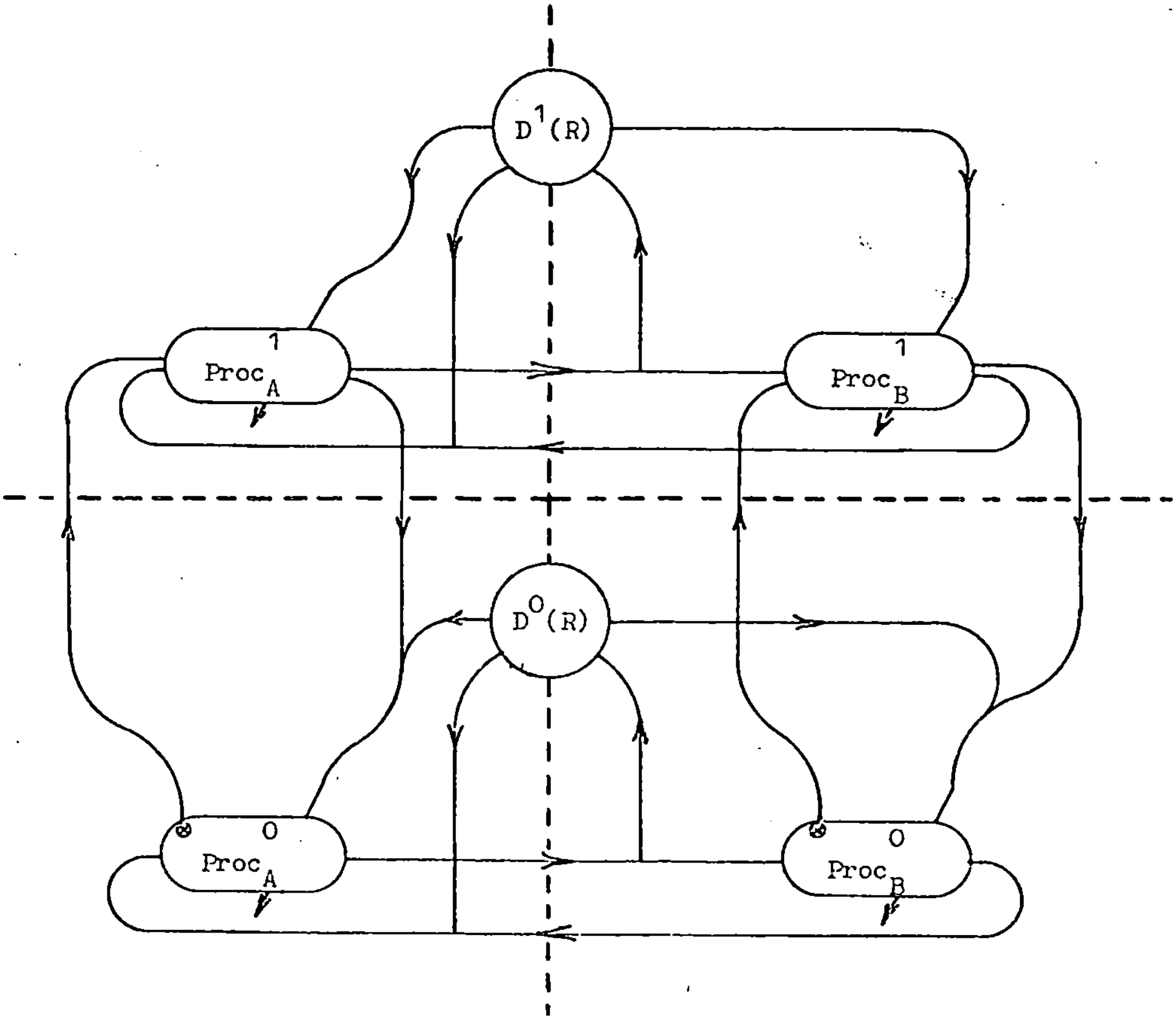
By combining causal and provocative couplings, and by confirming the domain of conversation to constructing the relation R_i, the conversation depicted here is a problem-solving activity:

> "the notation used for ostension is a filling out of the conversational skeleton to produce an icon for representing the condition that R_i is understood by the participants A and B. To image ostension R_i (rather than R) is entered in the compartments reserved for D^1 (R) and D^O (R), an arc is drawn from D^O(R) to the parametric or causal imputs of A and B (the boxes containing $\underline{Proc_A^O}$i and $\underline{Proc_B^O}$i) to represent the 'A! attend to R_i' or 'B! attend to R_i' part of a command or question. In contrast, the provocative coupling between A and B at level L^O represents the problem

solving activity engendered by the command or question in respect of R_i and this provocative transaction takes place in the context of data regarding how R_i may be brought about (shown as arcs at the appropriate level entering or leaving D^0 (R_i)). The same convention is employed to depict ostension for transactions taking place at L^1 (here the connections enter or leave the compartment filled by D^1 (R_i)). If there is no subscript ......then the participants are at liberty to ostend any topic in relation in R_i apart from constraints that appear in other places."

Pask (1975, p.187).

The vertical cleft, 'the locus of understanding' represents the boundary of two loci of control, across which information is transferred between two asynchronomous systems A and B, such that A/B synchronocity is achieved. Over several occasions, that is, several instances of understanding, more than one relation may be ostended, and the domains D^1 and D^0 freely accessed by the participants:



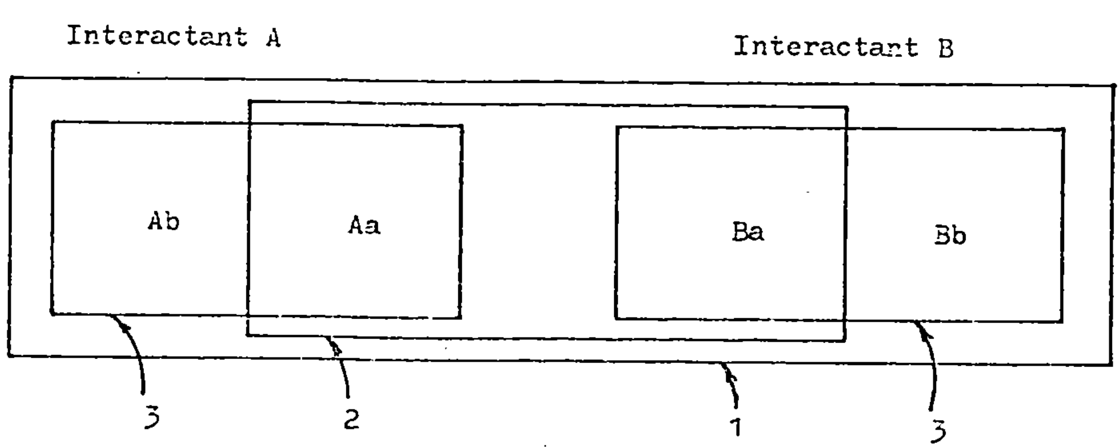
Pask (1975, p.198).

1.2.1.7. So far we have discussed the conversational system as if it were partitioned into two P individuals corresponding to discrete interactants. However, Pask points out that the individual interactant, engaged in problem-solving and modelling activity in isolation, is also a P individual comprising procedures executed in the M individual, his body. In the same way that an interpersonal conversation may be factored into two asynchronous P individuals, a necessary derivation from Pask's axioms is that the interactant in isolation may be factored into two (or more) P individuals. In a very real sense, the individual may be said to be in conversation with himself, as in the case of the subject learning on his own;

> "Quite possibly the P individuals π_A and π_B figure as a learner and a teacher. If so, this icon gives substance to the earlier contention that whenever someone (identified as an M individual) is said 'to learn on his own', in particular, to direct his own attention, follow his bent or personal curiosity, or explore a domain, this statement implies the co-existence of at least two P individuals π_A and π_B in the same brain. More generally, the icon represents private thinking and cogitation".
>
> Pask (1975,p.233).

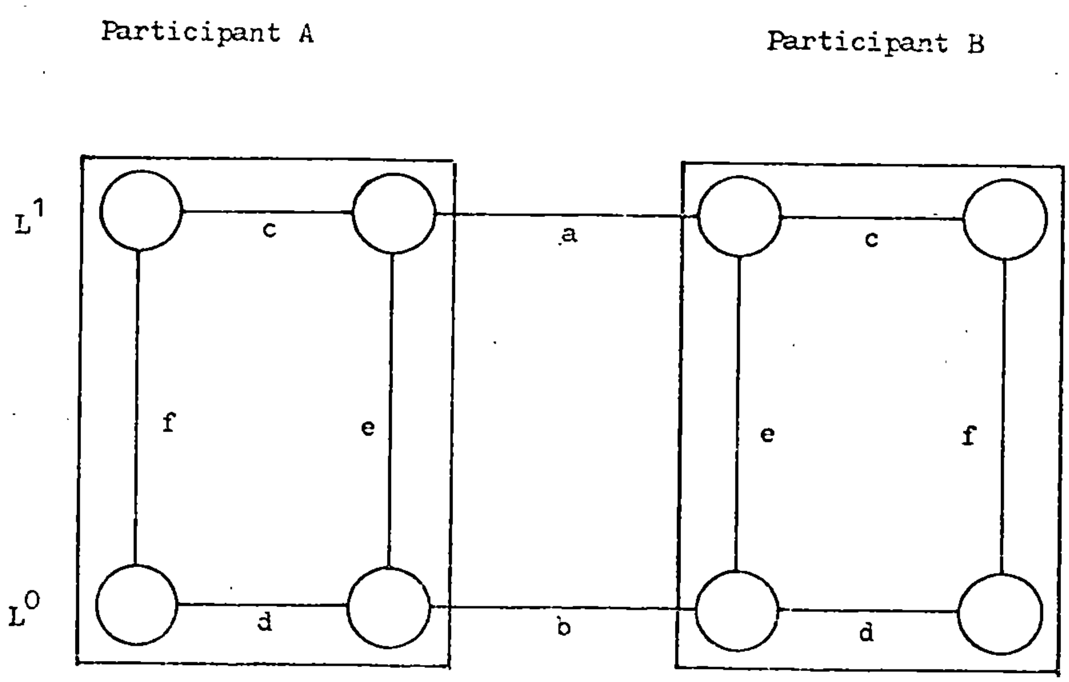
Mead's distinction between 'I', the experiencing subject, and 'me', an imaged representation of self as viewed by another person, may now be cast in Pask's terms as separate P individuals, exhibiting distinct loci of control.

1.2.1.8. At this stage it is possible to discuss the nature of processes taking place within a two-person conversation, by demarcating the several P individuals that may be partitioned:-



The first level of analysis (1) is one of non-partition, where the conversation as a whole may be viewed as a P individual. This level of analysis may, for example, be employed in the study of group behaviour where pairs of members are viewed as unitary systems. The second level of analysis (2) depicts that part of the interactant's internal conversation which is known to the other, corresponding to Quadrants 1 and 3 of the 'Johari Window', (Luft, 1971). The final level of analysis (3) partitions the interactants themselves into two P individuals sustaining modelling conversations independently (Quadrants 2 and 4 of the 'Johari Window'), whilst each interactant is engaged in social conversation.

Finally, to this vertical partitioning may be added the horizontal partitioning between levels of discourse, and the nature of the transactions occurring within and between object- and meta-level:-



(a) denotes all provocative coupling between interactants concerning 'what may be known'; meta-communication and framing, either through explicit behaviour or implicit non-verbal and paralinguistic behaviour; messages concerning the nature of the relationship; respective roles of sender and receiver, and logical typing of object level transactions.

(b) denotes all provocative coupling between interactants concerning 'what may be done'; explicit behaviour forming the content of the conversation.

(c) denotes all provocative coupling within the interactants concerning 'what may be known'; all processes concerned with establishing the frame of reference for internal conversations; loosely, the conversational domain of consciousness as in Laing's formulation, ' the unconscious is what we do not communicate, to ourselves or to one another', (Laing, 1969, p.17).

(d) denotes all provocative coupling within the interactants concerning 'what may be done'; all processes wherein experience is represented to awareness in serial form, e.g. covert verbalisations.

(e) denotes all causal coupling within the subject governing object-level dialogue with other interactants; dialogue is organised according to what is construed as permitted within the frame established for the conversation; certain claims concerning self may be entertained, presented and confirmation sought, whilst other claims are not.

(f) denotes all causal coupling within the self-image of the interactant governing object-level dialogue within the interactant; the internal dialogue is organised according to what the interactant construes as permissible representations of thoughts, ideas, feelings etc.; in a real sense, the internal conversation is structured according to a frame of reference established within the subject, determining the boundaries of his conscious experience.

1.2.2, Facilitating modelling conversations.

1.2.2.1. Pask's description of conversations enables us to clarify the conversational modes outlined in Fig. 13, and to discuss the role of the counsellor as a facilitator of such conversations. Pask's primary concern has been to lay the foundations for a tutorial system in which the learner engages in activity under the guidance of a teacher who may be embodied in a tutorial system (namely, the Course Assembly System and Tutorial Environment, CASTE). However, the counsellor's activities are not aimed at evaluating the client's modelling in terms of the quality of the model he achieves, as in the case of the teacher. Instead, the counsellor is concerned with the nature and quality of the process of modelling in which the client engages. Furthermore, the client in a counselling interview usually nominates the conversational domain by presenting a complaint, whilst teaching is most frequently characterised by the teacher delineating the domain of the to-be-learned.

The activities of teacher and counsellor do coincide, however, in that they both act as supportive environments in which modelling activity may take place, and are both aimed at enabling the learner or client to develop procedures at a level of organisation that permits modelling activity to be conducted independently of the teacher or counsellor. That is, the teacher and counsellor aim at providing the learner with skills necessary for him to learn on his own.

This function of the teacher and the counsellor, namely to provide support and enable the development of modelling skills, are embodied in a system which Pask terms the Cooperative Externalisation Technique:

> "An experimental contract is established whereby the participating subject aims for a goal which he cannot actually achieve on his own. The observer's participant gives the subject the cooperative assistance needed in order to satisfy the experimental contract if and only if he engages in dialogue, and by means of it, externalises the (normally private) cognitive events involved in keeping his contract or, equivalently, satisfying the agreed goal. This method is called a cooperative externalisation technique (or CET) and the series of instructions characterising the observer's participant (whether executed by a human being or a machine) is a CET heuristic".

Pask (1975, p.23).

The teacher or counsellor may be said to 'draw out' of the learner or client cycles of search that lead to the execution of procedures that might otherwise remain inoperative, and the construction of procedures de novo, and to elaborate the conversational domain in order to achieve understanding. Teacher and counsellor may thus be thought of as a 'cognitive reflector' in this supportive role;

> "B draws out cycles of understanding relevant to R ......From A's point of view the support, B, looks like a cooperative agent that....helps him come to grips with this conversational domain.....B does, of

> course, learn as A does. Strictly it learns about A in the context of R.....and acts as the complementary converse of A in the conversational domain of R. It is, in fact, a reflector that performs the following (equisignificant) operations: (a) B mirrors A in the context of R and (b) B also does whatever is needed in order that A shall understand R ".

Pask (1975, p.202- 4).

Viewing the counsellor as a CET heuristic entails that he:-

(a) encourage modelling activity in a domain nominated by the client

(b) provide conditions whereby this modelling activity is exteriorised in the counselling interview

(c) sympathetically model the client's processes himself in order to support and direct the activities of the client

(d) provide the conditions necessary for the client to independently initiate modelling activity.

These activities of the counsellor will be developed in the following section in connection with interactive procedures for facilitating modelling.

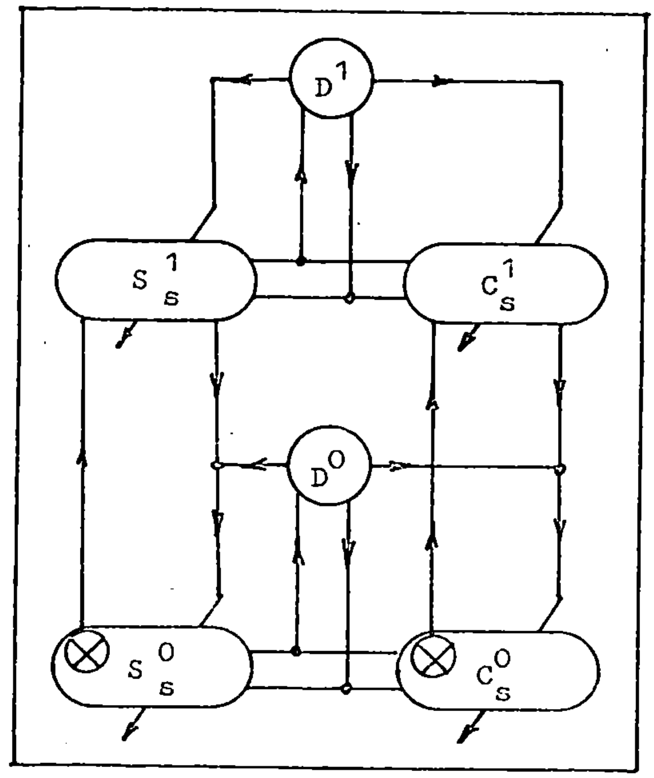
1.2.2.2. The counsellor-client relationship is a specialised conversation, in that the topics ostended in the conversational domain are frequently the models that the client has constructed himself. That is, the counsellor engages the client in a conversation concerning his reference frames in participative conversations. We have suggested that in order to do this, the counsellor must have constructed a frame of reference for counselling conversations, namely a theory of counselling. We may now construct a scheme which describes the nature of the modelling conversation that the counsellor (C) elicits from the clients (S), and its relation to the conversations that the client engages in with significant others (O), (see Fig. 14).

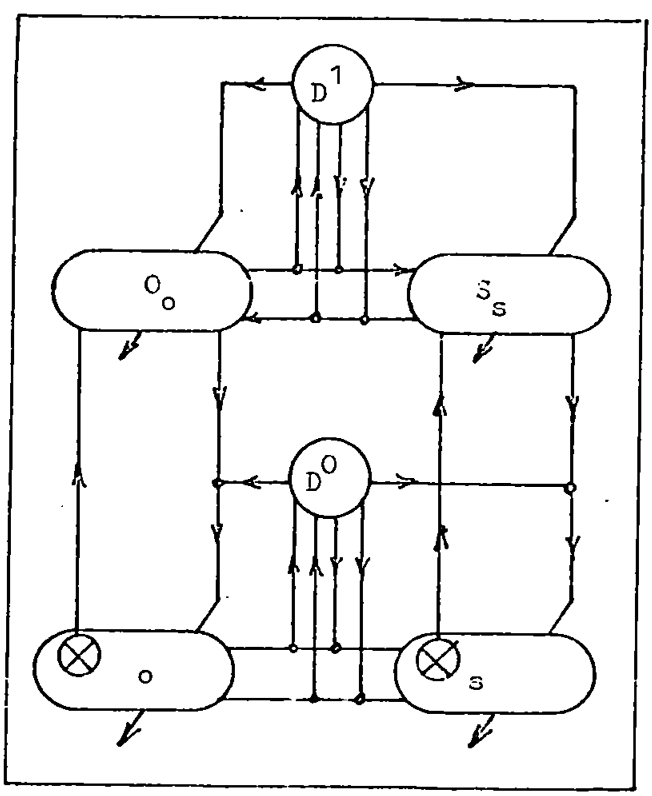
It is clear that the counselling conversation is one level removed from the client's everyday conversations, in that the counsellor invites the client to predict his frame of reference in the conversations (Ss). However, in addition to this the counsellor may also induce the client to operate on his reference frame, to construct or reconstruct procedures that lead to the elaboration of the client's model of himself. In very simple terms it might be said that the counsellor leads the client to learn alternative ways of viewing himself when participating in conversations with other people.

He may, for example, lead the client to overcome a stable set of procedures established within his reference frame and to explore the consequences of alternative parameters for his conversations with others. Alternatively he may lead the client to the realisation that certain parameters of his model of himself are not reflected in his actions in conversations with other people.

Counselling

Conversation





Participative

Conversation

Figure 14 The relationship between counselling and participative conversations.

1.2.2.3. The main feature of the counselling conversation is that it takes place within a frame of reference that corresponds to a theory of counselling. That is, L^1 transactions for the counsellor involve those procedures that govern the counsellor's mode of interaction with the client (C^1_s); the nature of the questions that the counsellor asks, the timing of his prompts, the nature of his responses to the client's modelling activity, are all features of this reference frame.

It is important to note that the client also participates within this frame (S^1_s). His modelling activity will be determined by his interpretations of the counselling interview, however rudimentary these may be at the onset. As the interview progresses these interpretations may be developed, and a component of the conversation will be concerned with the nature of this reference frame for the client. The counsellor may, for example, explain what he is doing and why he is doing it, or he may encourage the client to express his views on the nature of the counselling relationship.

The development of the client's reference frame in the counselling interview is an important objective of counselling. It is through this reference frame that the client may operate on his model of self and others, and to the extent that he may conduct this modelling activity independently of the counselling relationship the outcome of counselling may be viewed as successful. Success in counselling implies that the client may become a counsellor to himself. To do so, he must have represented for himself a model of the counselling process. The final stage of counselling is the internalisation of counselling procedures to bring about adaptive changes in internal modelling conversations, represented schematically in Fig. 15, where S' represents the imaged representation of self, and C the imaged representation of the counsellor.

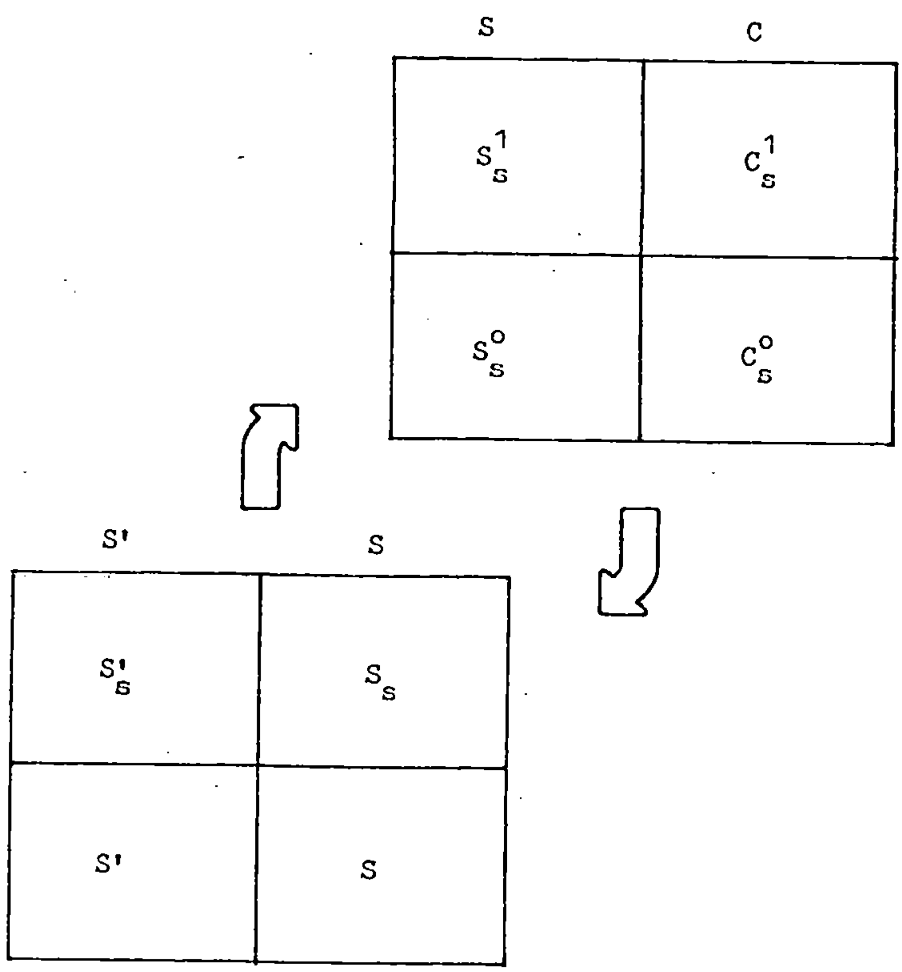


Figure 15 The internalised modelling conversation.

1.2.2.4. Finally, the priliminary model of conversations may be revised to illustrate as simply as possible the role of the counsellor in facilitating modelling conversations of the client.

Fig. 16 depicts the process of counselling as beginning (a) with the counsellor (C) providing conditions necessary for the client (S) to externalise his models of himself, (S_s) and the counsellor (S_c), to which the counsellor responds in such a way as to encourage the client to engage in internal modelling activity (b), represented as a covert conversation between the client and the imaged representation of the counsellor, and finally (c) to be capable of managing and sustaining modelling conversations independently of the counsellor.

The immediate goals of the counselling interview may then be summarised:-

(i) The elaboration of the client's interpersonal reference frame. That is, the exploration, reconstruction and extension of the client's model of himself and personal others. Most theories of counselling achieve this, either by providing an alternative interpretive framework for the client's experiences (e.g. Valins & Nisbett, 1972), or by providing conditions in which the client may originate an alternative interpretive framework himself (e.g. Bannister, 1975).

(ii) The translation of the elaborated and reconstructed reference frame into its behavioural consequences. That is, the exploration by the client of the outcomes of reconstructions in his model of himself and others to his personal relationships. Theories of counselling either request the client to anticipate the effects of alterations in his view of himself, or to enact alternatives self-constructions in laboratory or real-life conditions with the aim of improving the client's capacity to derive behavioural interpretations for a greater variety of self-roles (Mann and Mann, 1959).

(iii) The developments by the client of what may be termed 'modelling skill', or the capacity to adaptively respond to interpersonal circumstances by bringing his models of self and other under critical review. To achieve this, the client must develop through the counselling interview a higher-order model of the counselling process, capable of making comparisons between and operating on the client's interpersonal reference frame. Few theories of counselling appear directly to address this objective. One exception is Rogers (1951), whose approach, outlined in 1.1.4., is specifically aimed at increasing the client's 'openness' to experience and capacity for self-initiated change.

What would be the properties of an interactive algorithm capable of substituting for the counsellor in this scheme? To answer this question, the activities of the counsellor must be considered in relation to specifications for the design of such algorithms.

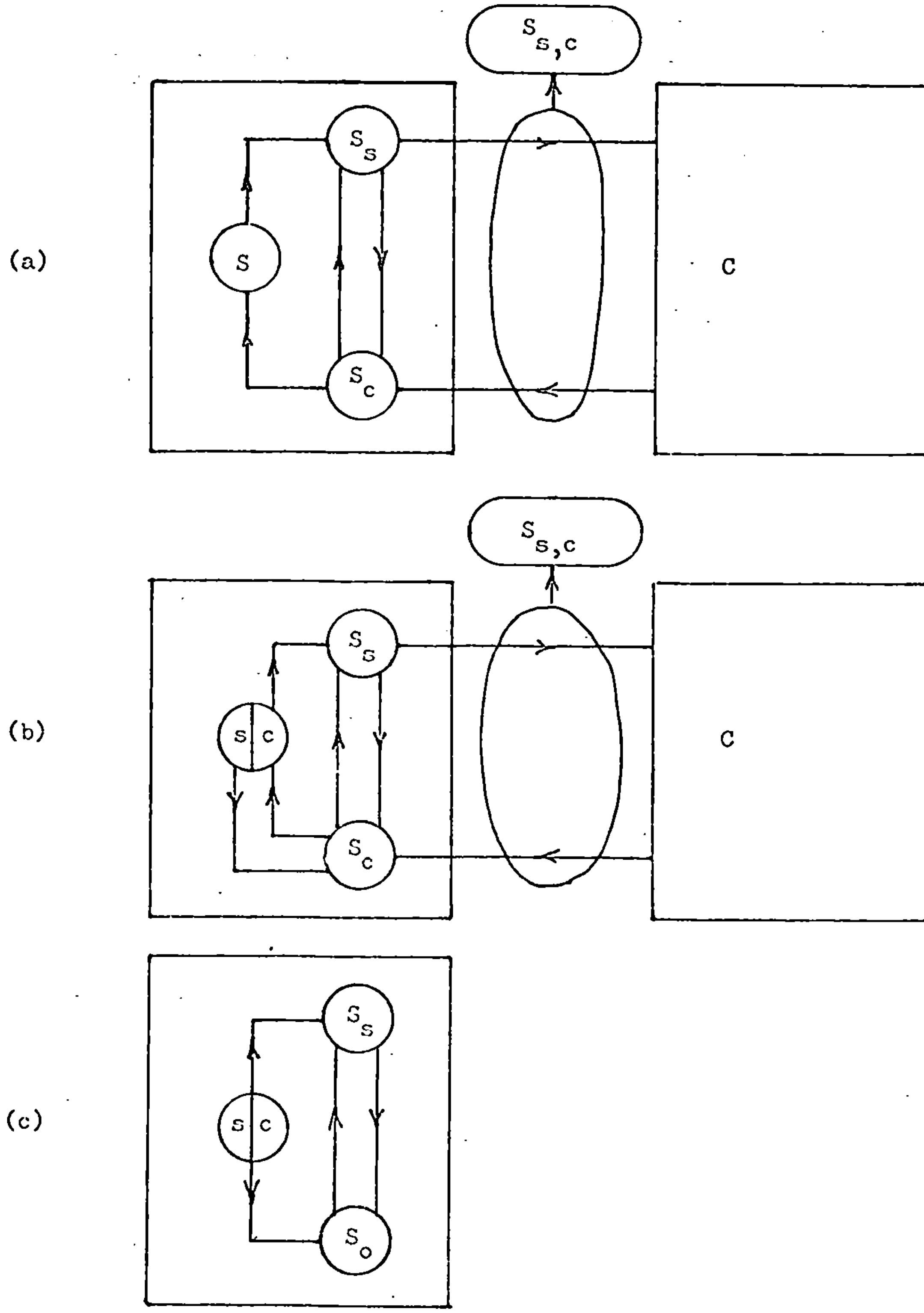


Figure 16 The counselling process.

1.2.3. Specifications for conversational procedures.

1.2.3.1. The preceding analysis of conversational modelling has made possible the sketching of a generalised scheme through which modelling may be enhanced. Of course, such a scheme is itself conversational in that it seeks to promote modelling within a conversational context. Four general principles of this conversational scheme may be considered: (a) the first task of procedures will be to exteriorise internal conversations; (b) it must comprise certain specified modelling activities; (c) it must incorporate a system of transformations on the exteriorised conversation, thus acting as a cognitive reflector; (d) finally it must incorporate methods to ensure that procedures become represented internally. Each principle may be considered in turn in relation to the skills of the counsellor.

1.2.3.2. Exteriorising internal conversations.

Several issues must be considered in the choice and development of methods for exteriorising internal conversations. The first consideration focusses on assumptions concerning the context in which modelling occurs, namely whether to study modelling within the context of or apart from interpersonal relationships. If the former is chosen, modelling processes are viewed as intimately linked with the relationship, and the exteriorising of modelling becomes the focus of attention in the conversation. This paradigm characterises the counsellor-client relationship, in which the counsellor acts as a personalised cognitive reflector for the client's modelling processes. Modelling is thus coloured by the form that the relationship takes, and the number of processes considered essential to the client's modelling depend on this interpersonal context (e.g. transference, in which the client displaces on to the counsellor feelings and ideas which derive from previous figures in his life). Such a paradigm is acceptable if, and only if, the client's modelling processes as revealed in the relationship are viewed as determined by that relationship, and not assumed to be isomorphic with any other significant relationship the client may subtend, nor with modelling operations in which the client may engage in private reflection. Clearly there is noe equal to a human relationship for providing a context within which a client may articulate and modify models of himself and others. However, specific claims for the value of a specialised relationship concerned with such an objective are hard to come by. Counsellors are necessarily trained and skilled at providing such a context, and in the sympathetic reflection of the client's processes, but they provide services which are essentially human, and within the capacity of most persons. When the disadvantages that accrue from this specialised relationship are also considered, the need to clarify the functions of therapy and counselling become especially urgent. Landfield (1975), for example, identifies five factors which may obtain adverse outcomes in the therapeutic relationship:-

> "Several factors pertaining to how man orders his experience may be abstracted which can adversely influence the ease with which a client converses with his therapist in the initial sessions of treatment. These factors include: (1) the client's expectancies about the nature of treatment and his role in the process which are incongruent

with the expectancies of his therapist (Stone et al., 1964; Levitt. 1966); (2) the therapist's expectancies about the nature of the treatment and his role in the process which are incongruent with the expectancies of his client; (3) a high level of interpersonal risk associated with self-disclosure; (4) a high degree of incongruency between client and therapist in the content of their attitudes, social language or values; and (5) an ambiguity or lack of direction in the treatment of clients who need the security of greater structure".

Landfield (1975, p.13).

Clearly, the context that the therapeutic relationship provides for the modelling processes of clients is negotiable, to the extent that the relationship should stabilise at a mutually agreeable definition. However, this is expecting a great deal of conversational competence from a client whose uncertainties are mainly in the same area, and when conventional role expectations of therapist and therapy are also considered, negotiation would seem unlikely if not impossible.

The consequences are that, in many cases, the therapeutic relationship is laden with 'demand characteristics' (Orne, 1962) as to the nature and outcome of the modelling processes in which the client comes to engage. Both therapist and client must then entertain great uncertainty as to the generality of the models the client constructs in such a relationship.

Attempts to ensure closer isomorphism between the exteriorised and the hypothetical internal conversation in general seek to remove 'demand characteristics' from the conversational context. Non-directive therapy, for example, re-asserts the importance of the interpersonal relationship but seeks to remove barriers to modelling isomorphism by redefining the role of the counsellor to a non-evaluative, non-interpretive participant 'reflector'. However, conditions for fulfilling this role are clearly specified (Rogers, 1959), and the possiblity must be considered that the non-directive counsellor becomes, in the client's eyes, a model to be imitated.

Of course, isomorphism cannot be estimated, but by identifying sources of distortion, and by designing procedures that limit these effects, the possibility of greater isomorphism is assumed. As tests of the importance of the interpersonal relationship, procedures have been developed which discard the therapist entirely, and substitute him with computerised algorithms fulfilling the basic requirements for the exteriorisation of modelling processes (e.g.the MAD doctor non-directive interviewing program, Weizenbaum, 1967; PEGASUS, a program for eliciting and transforming repertory grids, Thomas & Shaw, 1976; Thomas, 1975). Valuable as these systems are in simulating the role of the counsellor, there is no reason to believe that clients (or students) do not experience 'demand characteristics' in their interactions with them.

Given these considerations, procedures designed to exteriorise the modelling conversations of the user must meet the following specifications:-

(i) That the procedure incorporate the means to record the user's predications. It was pointed out in 1.2.1. that the predications the client formulates do not comprise the model itself, but are constructions produced within the parameters of the model. The purpose of a record is to infer the nature of the parameters by the application of explicitly defined transformations.

(ii) That the procedure enable as near as possible the exteriorisation of predicates isomorphic to predications within internal conversations. Two considerations are relevant here. First, verbal statements employing conventional signifiers cannot be assumed to completely convey personal experience. Minimising the demand for publicly intelligible verbalisations may increase isomorphism. Second, ensuring the confidentiality of the user's predications may encourage private symbolism, again increasing isomorphism. A restriction here is that such predicates must be amenable to transformation.

(iii) That the procedure enable the user to specify the conversation domain. Ideally, the procedure should request the user to nominate a domain, identify and comment on departures from that domain, and enable the user to redefine the domain as modelling proceeds.

1.2.3.3. Specifying modelling activities.

It is insufficient for a counsellor simply to invite a client to his clinic to provoke the client into modelling activity. He must, and does, provide some rough guidelines as to the kind of activity in which to engage. That is, the counsellor indicates that modelling activity is required, for example, by direct questions of the sort: 'what made you come to see me?' or 'what seems to be the trouble?' and so on. Although it may seem trivial to assert that the client has to do something in order to exteriorise his modelling processes, it is certainly non-trivial to ask what he should do. In the first few minutes of the counselling interview what should be done may gradually be negotiated, and will centre on the domain of the complaint as perceived by the client, and the nature of effective modelling processes as perceived by the counsellor. These operations may be specified as those necessary for the elaboration of the client's perceptual system from which his models are constructed.

Procedures designed to specify modelling activities must then meet the following specifications:-

(i) that the modelling activities be appropriate to the conversational domain as specified by the user. That is, the procedure should comprise activities that encourage the user to predicate within any domain he might nominate.

(ii) That the external record function as a secondary modelling facility on which the user may perform additional operations. This is an important feature of procedures designed to promote experimentation by the user, and suggests that the activities entailed in the client bringing about an anticipated change in the external record are associated with the development of higher order control functions. In addition, activities which operate on the external record may enable the user to achieve a more satisfactory representation of his internal conversations.

1.2.3.4. The cognitive reflector.

Most counsellors and therapists would agree that their role is less frequently to diagnose, interpret or classify their client's comments, than it is to provide a supportive and buffering environment in which the client may engage in self-exploratory dialogue. The interpersonal component of the dialogue has been considered in general terms (1.2.3.2.), but it is necessary to enumerate in greater detail the minimal functions of the counsellor as 'cognitive reflector' (Pask, 1975).

Minimally, the role of the counsellor is to provide support for the client's modelling activities, and to achieve this he must sympathetically parallel the client's processes by engaging in modelling activity himself, synchronising his reflective attention with that of his client:

> ".....just as the patient must relate everything his self-observation can detect and keep back all logical and effective objections that seek to make him select amongst them, so the doctor must position himself to make available everything he is told.....without substituting a censorship of his own for the selection the patient has foregone. To put it in a

formula, he must turn his own unconscious like a receptive organ towards the transmitting unconscious of the patient".

Freud (1953, XII, p.115-116).

In addition the counsellor also performs the function of summarising the client's operations. Lacan, for example, refers to the function of the analyst to recode the patient's statements when he remarks that he locates the 'point de capiton', pinning down the patient's flow of expression by bringing 'the indefinite glissement of signification to a stop'. To do this he performs transformations on his client's statements, the most elementary transformation being the recombination of the client's predications in a novel form; for example, the counsellor may intervene with 'has what you have said about X anything to do with what you have said about Y?' or 'when you say X do you mean Y?' and so on. Clearly, X and Y are optimally re-presentations of the client's predications in his own words. Transformations of this kind frequently focus on predications relevant to the client's stated purposes.

In performing transformations and summarising client's modelling activities the counsellor is acting both as a recording device and as a medium for the feedback of relevant aspects of the client's dialogue. A final function of a 'cognitive reflector' is to offer feedback summaries at the most appropriate moment in the client's reflective processes. Judgements of this kind are particularly difficult to make, and are frequently viewed as aspects of counselling skill (for example, Lacan recognises the difficulty for the therapist in identifying appropriate 'times for understanding' and 'moments for concluding'). However, naive criteria for this function may be tentatively established, e.g. feedback may be offered when (1) the client requests it, (2) the client's modelling activities have slowed down or stopped, (3) at predefined and regular intervals, irrespective of the status of the client's modelling processes, and (4) at predefined stages in the program of activities.

Procedures designed to function as <u>cognitive reflectors</u> must then meet the following specifications:-

(i) that they entail a <u>supportive dialogue</u> (Thomas & Harri-Augstein, 1976) responding to the user's current state and minimally fulfilling the counselling ideals of 'empathy' and 'unconditional positive regard'. This means that their intervention into the user's modelling is based on a formulation of the internal state of the user in order for him to engage in certain activities. To achieve this, procedures must be able either to predict user atates or to request information from the user concerning his current state, and to respond on the basis of his information.

(ii) That they embody a class of <u>non-evaluative transformations</u> to be performed on the predicates the user formulates. The objective of transforming user's predicates is to provoke further modelling activity in particular directions. Thus, transformations are criterion-based, although criteria should be associated with the user's modelling process rather than the content of modelling. The therapeutic ideal of 'congruence' (Rogers, 1951) between what the counsellor feels and what he says in the interview is thus obviated.

(iii) That they manage and coordinate the feedback of transformation outcomes to the user. Three issues are involved in this specification, namely the type of transformation outcome to be presented, the timing of the presentation, and the form of the display through which transformation outcomes are presented. As algorithms of activities may embody a finite repertoire of transformations, a means of appropriate selection must be devised. Similarly, criteria concerned with the receiving state of the user are required to coordinate feedback timing. Finally, the outcomes of transformations must take a form that is intelligible to the user, and which permit the user to translate the outcomes into directives for future modelling behaviour.

1.2.3.5. Internalising the procedures.

In the discussion of approaches to the therapeutic relationship, it was noted that Rogers (1958) viewed the acquisition of conversational competence as a movement from 'fixity to changingness'. Such a movement suggests the development by the client of the means to monitor and manage modelling processes as a result of activities in which these processes are exteriorised. That is, of fundamental importance to conversational competence is the development by the client of a superordinate perceptual system capable of identifying the status of his model and the requirements of conversational circumstances in which he is engaged. He does, in fact, need to 'learn-to-learn'. In engaging the client in certain modelling activities, therapists and counsellors are aiming at outcomes which may not immediately be manifested in the therapeutic situation. They are, in general, expecting to achieve a form of learning that is a by-product of their overt activities. In this discussion of the 'logical categories of learning' Bateson, (1972) notes that the form of learning sought in the therapeutic encounter is Learning III, where:

> "Learning I is change in specificity of response by correction of errors of choice within a set of alternatives. Learning II is a change in the process of Learning I, e.g. a corrective change in the set of alternatives from which choice is made, or it is a change in how the sequence of experience is punctuated. Learning III is a change in the process of Learning II, e.g. a corrective change in the system of sets of alternatives from which a choice is made..... In psychotherapy, Learning II is exemplified most conspicuously by the phenomena of 'transference'. Orthodox Freudian theory asserts that the patient will inevitably bting to the therapy room inappropriate notions about his relationship to the therapist. These notions (conscious or unconscious) will be such that he will act and talk in a way which would press the therapist to respond in ways which would resemble the patient's picture of how some important other person (usually a parent) treated the patient in the near or distant past. In the language of the present paper, the patient will try to shape his interchange with the therapist according to the premises of his (the patient's) former Learning II.....Let us.....

> list some of the changes which we shall be willing to call Learning III. (a) the individual might learn to form more readily those habits the forming of which we call Learning II. (b) He might learn to close for himself the 'loopholes' which would allow him to avoid Learning III. (c) He might learn to change the habits acquired by Learning II. (d) He might learn that he is a creature which can and does unconsciously achieve Learning II. (e) He might learn to limit or direct his learning II. (f) If Learning II is a learning of the contexts of Learning I, then Learning III should be a learning of the contexts of those contexts".
>
> Bateson (1972, p.264-275).

Learning III may be viewed in the present context as the internalisation and construction of procedures for staging, managing and reviewing modelling conversations. That is, the client becomes a counsellor to himself, predicating his model of himself through self-observation performing internalised transformations, and on that basis engaging in further modelling. The nature of this activity has been described as the 'hour-glass' phenomenon, (Thomas and Harri-Augstein, 1976), in which the client engages in a flexible cycle of operation involving (i) the construction or identification of alternative constructions of self, (ii) the pursuit of one alternative involving a single organised hierarchy of control, and (iii) an open-ended phase of reflection and review of the outcomes of acting on the basis of that one alternative, (Fig. 17).

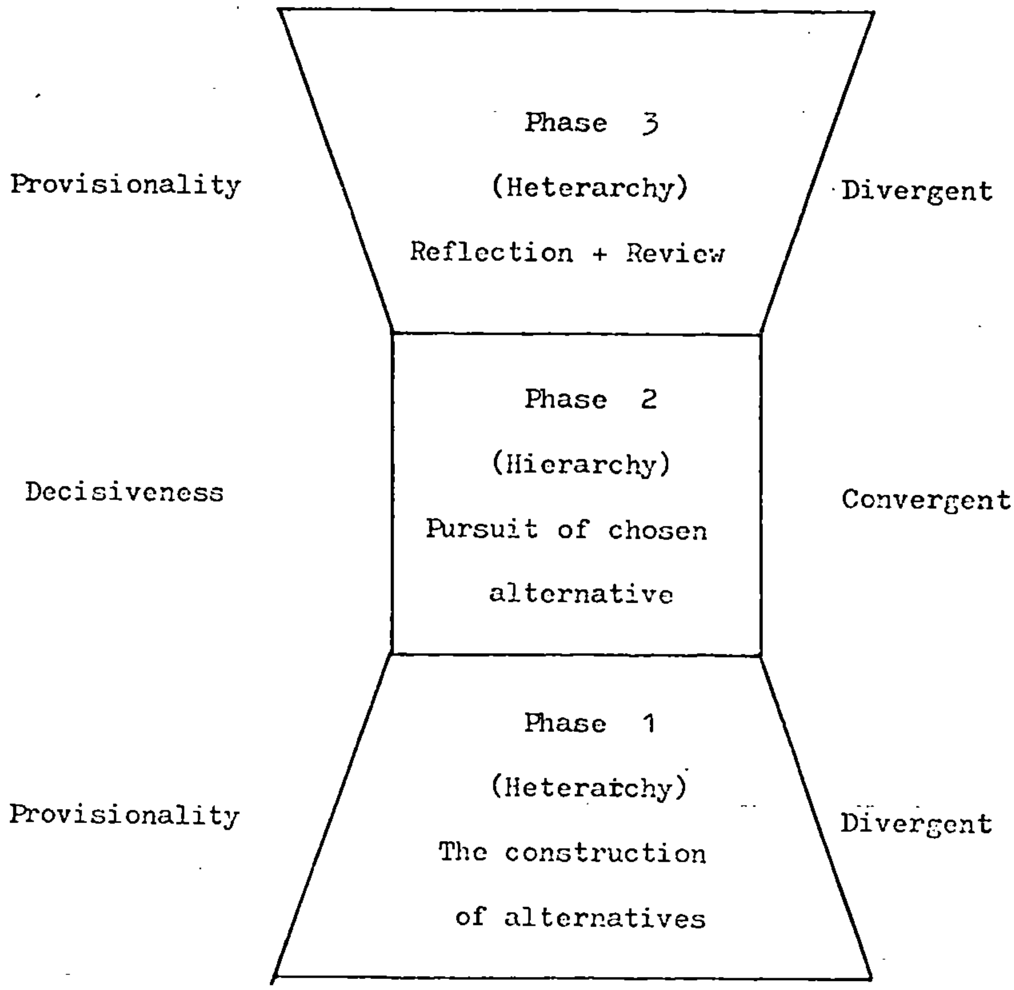


Figure 17 The 'hour-glass' phenomenon.

Thomas & Harri-Augstein (1976, p.8.).

To achieve an internal representation of procedures, algorithms should ideally:-

(i) enable the user to engage in independent modelling activity. To do so procedures should call attention to intrinsic cues arising during modelling activity by the judicious use of augmented feedback (via the transformations of 1.2.3.4. ii), making possible the control of the modelling conversation by the user on the basis of intrinsic cues. It is important to note that the existence of intrinsic cues cannot be inferred from the user's performance with the aid of augmented feedback. Holding points out that "there is no point in learning to rely upon information which will not be there when training is finished" (1965, p.22). Only if sufficient use has been made of feedback during modelling activities can the identification of intrinsic cues be assumed. However, the experiments conducted by Trowill (1967), Miller and DiCara (1967), Shapiro and Zifferblatt (1976) and Seymour (1954) do suggest that training makes available the use of cues and the development of control in functions which are frequently assumed to be beyond voluntary control.

(ii) enable the user to explore the extent of transference of modelling skills to new conversational domains. The algorithm may incorporate the means for the user to nominate alternative domains and engage in modelling activity within that domain.

(iii) enable the user to formulate a meta-language through which he may comment on his modelling activity. This may be achieved by requesting that the user anticipate the outcomes of various transformations that the algorithm applies to his predications. To the extent that he becomes able to label and denote his modelling activity, his predictions concerning the outcomes of transformations become increasingly accurate.

1.2.3.6. A number of existing methodologies appear to embody conversational procedures for encouraging the modelling of self and others. As these methodologies may provide a framework for the development of interactive algorithms, they may briefly be examined in terms of the design specifications of the preceding section. The most promising methodologies for this purpose are (a) McFall's 'mystic monitor', (b) Mair's 'conversation cycle', and (c) Kelly's 'repertory grid'. The features of each methodology associated with the design specifications are listed in Table 1.

(a) The procedure of McFall's 'mystic monitor' (reported in Bannister and Fransella, 1971) entails that a subject isolate himself with a tape-recorder and a set of self-administered suggestions, namely to set the tape-recorder to 'record' and to talk into it for twenty minutes about whatever comes into his head; to rewind the tape-recorder and listen to what he has said; to talk into the tape-recorder a second time for as long as he wishes; to replay it a second time; to repeat this process as many times as he wishes; finally to erase tape to ensure confidentiality.

Whilst notrequiring the subject to engage in a specific modelling activity, the procedure does confront the subject with the <u>need</u> to model self. Maintaining a self-directed monologue is no easy task, and the emergence of dialogue (between the subject and an imaginary audience of generalised others, or a variety of specific others) is reportedly unavoidable. As it stands, the procedure provides a minimal cognitive reflector, since the subject's monologue does not undergo any form of transformation. No attempt is made to assess the outcomes or continuance of the modelling processes involved.

Design Specifications	Mystic Monitor	Conversation Cycle	Repertory Grid
1) EXTERIORISING MODELLING CONVERSATIONS			
a) Record of predications	Tape-recorded solo speech sequences	'Public' and 'private' character-isations	Grid matrix of element pred-ications
b) Isomorphism with internal conversation	Within limits of speech	Within limits of written represent-ations	Construing as a perceptual process
c) Domain spec-ified by user	Yes, but no checks	Partner acts as check	Nomination of element sample
2) SPECIFY MODELLING ACTIVITIES			
a) Appropriate to domain	As deter-mined by user	Perceptions of partner	Constructs elicited from element sample
b) Secondary modelling	None specified	Dialogue between participants	Laddering, implications grid, etc.

cont/

3) COGNITIVE REFLECTOR			
a) Supportive dialogue	None	Partner as support	When mediated by experimenter
b) Non-evaluative transformations	None	Comparisons between successive character-isations	Multivariate analyses
c) Feedback of transformation outcomes	None	None : trans-formations self-admin-istered	Various grid displays
4) INTERNAL-ISATION OF PROCEDURES			
a) Enable indep-endent modelling activity	Not spec-ified	Not spec-ified	Not spec-ified
b) Test transfer	Not spec-ified	Not spec-ified	Test element sample
c) Enable form-ation of meta-language	Not spec-ified	Not spec-ified	Laddering, implications grid, etc.

Table 1 : A comparison of three procedures.

Represented in terms of the model of conversations, the procedure ideally leads to modelling activity through the comparison of two or more recorded speech sequences (Fig. 18), which are re-presented to the user untransformed.

(b) Mair's 'conversation cycle' (1970a, 1970b) requires two participants A and B, who both formulate and record character sketches of two kinds, (a) a 'public' sketch of the other participant that they are willing to transmit and to justify to the other, and (b) a 'private' sketch of the other participant that they are not required to transmit, but to keep for personal reference. Sketches (a) are then exchanged by the participants and a justificatory dialogue ensues. At the end of this dialogue the first encounter is terminated. The process is then repeated on future encounters.

The transformations are self-administered independently by each participant, and comprise (i) comparisons between the two sketches on each occasion, (ii) comparison between sketches (a) between occasions, (iii) comparison between sketches (b) between occasions. The aim is to identify changes in the characterisation of the other participant as a result of exchange and justificatory dialogues, and to identify the movement of characterisation elements from sketch (b) to sketch (a) over successive occasions. The modelling conversation is thus specifically centred on the other, rather than on the self. Fig. 19 represents the structure of the dialogue and the source of the two types of characterisation sketch and comparisons between them (denoted by comparator symbols). Ideally, comparisons of this kind, repeated over successive occasions, lead both partici-

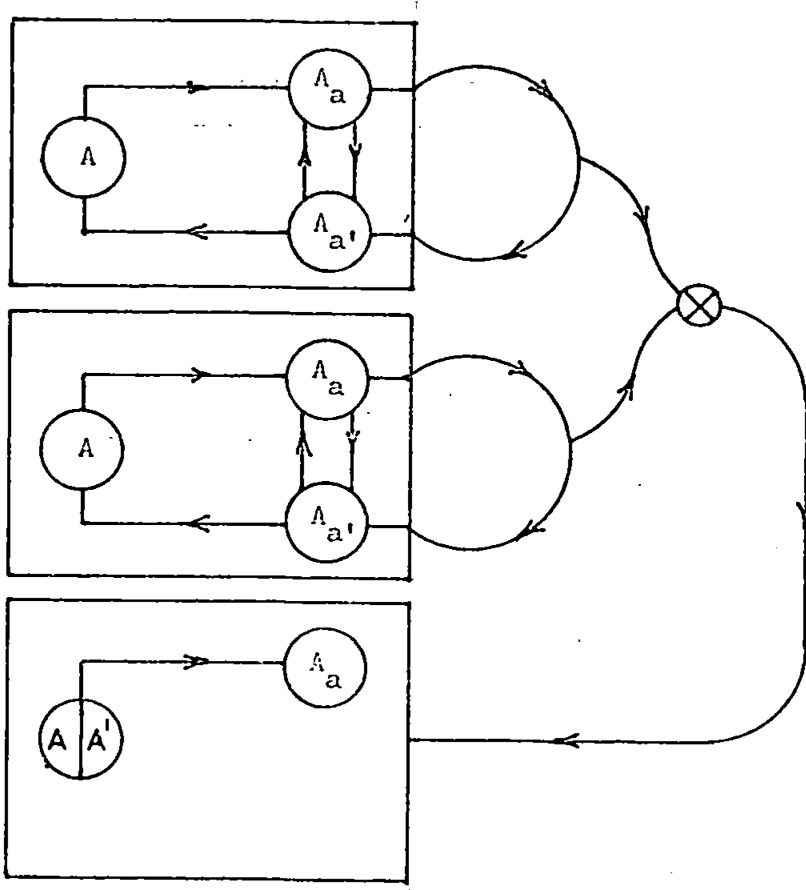


Figure 18   The 'mystic monitor' cycle.

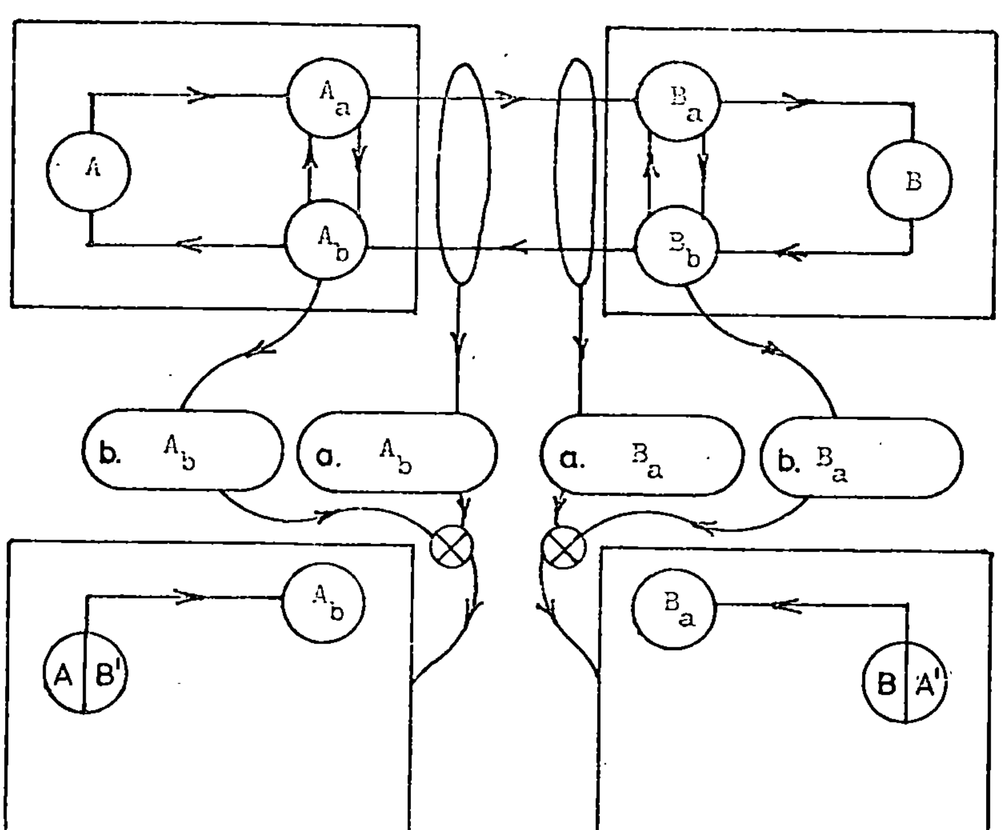


Figure 19   The 'conversation cycle'.

pants into modelling activity focussing on their view of their partner.

(c) The repertory grid (Kelly, 1955; Bannister & Mair, 1968) is usually administered by an experimenter, although with some instruction and practice, may be self-administered. In both cases, production of a grid entails identifying a set of stimulus objects which are then systematically predicated in the subject's own terms. Elicitation of the predicates (usually) follows from comparisons of subsets of stimulus objects presented in a modelling facility, the predicates thus formed then applied to the entire set of stimulus objects. Predications are usually represented numerically by treating predicates and their polar opposites as constituting a scale. In scaling stimulus objects, the subject is performing operations that act on predications in the conversational domain. Transformations are usually numerical, and feature the assumption of functional equivalence, namely that predicates obtaining similar (to a specified degree) orderings of stimulus objects are denoted as functionally equivalent discriminations. The procedure itself involves specific modelling activities, which are the construction of a semi-ordered set of predications. When the stimulus set comprises the subject himself and selected personal others, the process of predication partially exteriorises models of self and others. Near isomorphism is achieved when the procedure is self-administered, as predicates formulated with the aid of an experimenter (E) reflect those modelling processes that obtain when the subject is in negotiation with E. A number of secondary techniques, for example, 'laddering' and 'implications grid' (Hinkle, 1965) lead to further modelling activity. Fig.20 represents the subject interacting with the repertory grid procedure under conditions of self administration. It may be seen that both the subject (in his predications) and the procedure (in its transformations) act on the externalised conversational domain which comprises predications of A's view of himself and a number of other people. In order for A to interpret the displays derived from the transforms, a model of what the procedure achieves is developed, eventually enabling internal modelling activity to take place.

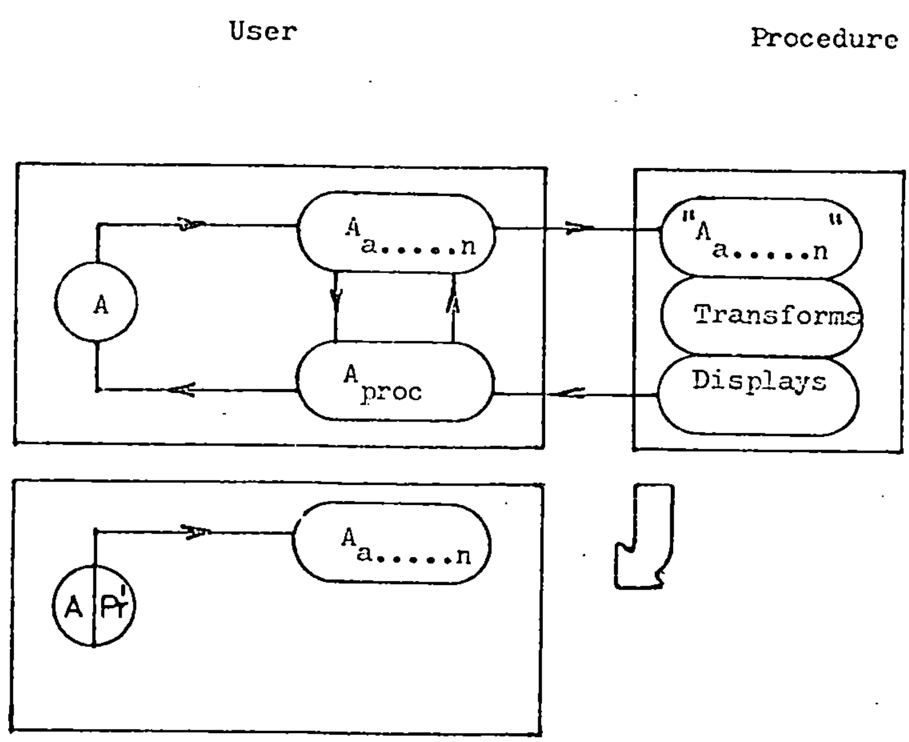


Figure 20 The repertory grid procedure.

This brief comparison of three procedures reveals their widely differing conversational functions. All three may potentially facilitate modelling competence in the participants, but by different routes. For example, the 'mystic monitor' may lead the user to become more competent in observing his own behaviour and able to detect the projection of inappropriate expectancies on other people with whom he converses. Mair's 'conversation cycle' enables the articulation of roles in relation to others and the 'development of skill in recognising and expressing for your own use.....the diverse ways in which ideas can be held for use within oneself rather than jettisoned carelessly in the outside world' (Mair, 1970b, p.171). Finally, the repertory grid enables the user to elaborate a detailed model of himself and others, and to explore the properties of this model, with a view to initiating adaptive changes within it.

1.2.4. The programme of research.

1.2.4.1. The studies reported in the following chapters each develop separate intervention strategies designed to promote conversational competence. The key concept that emerges from these studies is that procedures must operate on the reference frame of the subject's conversations, both internal and interpersonal. From earlier discussions, it will be evident that the reference frame of a conversation delineates 'what may be known' in that conversation, and that what may be known in turn determines what may be communicated in an object language. Intervention strategies are devised to redefine or elaborate conversational reference frames; internally, to enable the subject to make more known to himself in his modelling activities, and interpersonally, to enable participants to make more known to each other through interpersonal action.

1.2.4.2. The studies that follow are grouped according to three research objectives; namely (a) to reveal the optimal conditions for exteriorising internal modelling, (b) to develop procedures for enhancing internal modelling and (c) to develop procedures for enhancing interpersonal modelling.

(a) Preliminary studies; exploratory studies aimed at revealing the conditions in which the internal conversation may be exteriorised and the relationship between interpersonal and internal reference frames. The three methods described above were employed, namely, McFall's 'Mystic Monitor', Mair's 'conversation cycle', and the repertory grid.

(i) Reference frames in a friendship; a study of a series of six encounters between two friends, each encounter followed by a solo Mystic Monitor session. (1) The interpersonal conversations are analysed to reveal the sequence of interpersonal reference frames. (2) The solo sessions are discussed in terms of the extent to which internal modelling conversations may be exteriorised in private monologue.

(ii) Reference frames of a group; an account of the development of reference frames in a study group composed of 12 students of art and design. Reference frames are identified by their function for the group at different points in its development, and interpersonal action between members highlighted to reveal the maintenance of and transition between reference frames. Towards the end of the series of group discussions a collective 'group' repertory grid is produced, and analysed to highlight (1) the construction of group events by 'consensus groups' of members, and (2) the construction by the group of group events according to the extent to which the two group goals of 'task satisfaction' and 'social-emotional satisfaction' are achieved.

(iii) Reference frames in interviews; a series of 12 repertory grid interviews of A-level students is reported, the interviews being part of a study course run in a College of Technology. The grids produced on student's construction of significant learning events they had experienced. The set of grids are analysed to reveal

(1) the extent of diversity in students' construction of significant learning experiences, (2) the distribution of students' attention over various classes of experience. Interview relationships between course tutors and students are discussed in terms of negotiation of an interview reference frame, and the extent to which the contribution of the interviewer to this frame are expressed as 'demand characteristics' (1) shaping the students' verbal reports, and (2) shaping the students' internal reference frame, thus determining the extent of self-exploration.

(b) Studies of internal conversations; explorations of serial repertory grid procedures aimed at providing the user with (1) indicators of the locus of changes in construction, and (2) measures of the user's insight into his own modelling processes. (1) is achieved by deriving from a sample of grid data a probabilistic model of a number of repertory grid outcomes, and the application of this model in the Bayesian analysis of the user's grid. This analysis provides predictions for subsequent grids, and discrepant outcomes are re-presented as directed prompts for the user to engage in secondary modelling activities. (2) is achieved by the user anticipating grid outcomes on the basis of his experience of modelling activity, these anticipations serving as referents for locating discrepancies in his observed grid outcomes. These discrepancies provide directed prompts for the development of the user's insight into modelling activities.

(i) The core grid; a study of a sample of serial grids from five subjects based on constructions of self and personal others to provide (1) an aggregate operational definition of 'core' constructions and 'central' elements, enabling the classification of constructs and elements in the sample, (2) analytical procedures capable of detecting core constructs and central elements in individual grids, (3) estimates of the prior probability distributions of core constructs and central elements, and (4) estimates of the likelihood that analytical procedures are capable of identifying constructs and elements that satisfy the aggregate operational definition. These procedures are then applied to a single case-study of a serial grid to highlight (1) the derivation of core grid outcomes, (2) the way in which degrees of certainty are assigned to these outcomes, (3) the use of outcomes as predictive referents for subsequent grids, and (4) the location of discrepant outcomes and their use as prompts to direct the subject's modelling activities to areas of his experience undergoing reconstruction.

(ii) The reconstruction grid; a study of a sample of serial grids from seven subjects based on constructions of self and personal others to provide (1) a set of operational definitions of construct and element reconstruction, enabling the classification of constructs and elements in the sample, (2) procedures capable of detecting construct and element reconstruction in replicated grids, (3) estimates of the prior probabilities of construct and element reconstruction, and (4) estimates of the likelihood that reconstruction identified by these procedures satisfies operational definitions of element and construct reconstruction. These procedures are applied to the same case-study as (i) above, to highlight the integration of core grid with reconstruction grid outcomes, and the utilisation of discrepancies between probabilistic predictions and observed outcomes as prompts for the subject's modelling activities.

(iii) The insight grid; a study combining the core and reconstruction grid procedures in which methods for displaying probabilistic and subjective predictions and outcomes are developed. These procedures form a six-module sequence of activities, and this design is applied to two case-studies, one of which is reported in detail. The procedures are evaluated to highlight (1) insight into the construction processes of the modelling activities, (2) elaboration of internal reference frames, (3) re-categorisation of previously modelled experiences, and (4) the transfer of training to other modelling activities.

(c) Studies of interpersonal conversations; explorations of serial repertory grid procedures aimed at articulating internal reference frames with interpersonal reference frames within on-going relationships. These studies involve extending the procedures developed in (b) above to identify the extent to which participants contribute to a shared reference frame. Observing the confidential nature of subjective modelling, techniques for analysing the aggregate grid formed by combining participants' constructs are developed. Additional outcomes are derived from the aggregate grid analysis enabling (1) the construction of probabilistic predictions regarding the extent of each participant's contribution to the shared reference frame, and (2) the development of subjective insight into the shared reference frame.

(i) The aggregate grid; a study in which analytical procedures for both internal and interpersonal reference frames are developed. These are applied to a case-study of the shared reference frame of a friendship dyad, in order to highlight (1) the maintenance and transition of shared reference frames, and (2) mechanisms within the relationship that enable participants to act on the shared reference frame. The procedure is then further developed to highlight two classes of disjunction: (1) between-occasion disjunctions within the individual and aggregate grid outcomes which indicate towards the occurrence of significant events within the relationship, and (2) within-occasion disjunctions which indicate towards the differential and discrepant contributions of participants to the shared reference frame. This extended procedure is then applied to a second case-study of an unmarried couple to illustrate (1) the locus of core construct disjunctions within- and between-occasions, and (2) the way in which these disjunctions serve as directed prompts in the participant's modelling activities.

(ii) The reciprocal insight grid; a study of a married couple in which the procedures of the insight and aggregate grid are combined to identify, predict, and assign degrees of certainty to predictions of 'core' constructs in individual and shared reference frames. The reciprocal insight grids are analysed to highlight (1) the use of disjunctions between participants as directed prompts for secondary modelling activity, (2) the use of disjunctions between occasions for identifying significant events within the relationship.

Part 2

Preliminary studies

Chapter 2.1 Reference frames in a friendship.

Chapter 2.2. Reference frames of a group.

Chapter 2.3. Reference frames in interviews.

Chapter 2.4. Summary.

Chapter 2.1.

Reference frames in a friendship

2.1.1. The conversation cycle.

2.1.2. Modelling events in conversations.

2.1.3. A coding frame for conversations.

2.1.4. The unfolding drama.

2.1.5. Encountering one's self.

2.1.6. Summary.

2.1.1. The conversation cycle.

2.1.1.1. The pilot study reported in this chapter explores the conditions under which the modelling of self and other may be exteriorised in an existing friendship relationship, and the value of particular transformations performed on the record of modelling activity. The procedures of this study are based on the 'conversation cycle' described by Mair (1970a, 1970b), but modified by incorporating McFall's 'mystic monitor' (described in Bannister and Fransella, 1971). The form that the combined procedures took was two participants (the experimenter, E, and a colleague, Peter) to engage in a series of six tape-recorded conversations in which the nature of their relationship was the topic of discussion (corresponding to the 'public' character sketches of the 'conversation cycle'), the conversations immediately followed by each participant retiring alone to a private room, first to replay the tape-recording of the conversation, and then to talk into the tape-recorder on the topic of the preceding conversation (corresponding to the 'private' character sketches of the 'conversation cycle'). This 'solo' recording was immediately replayed and a second 'solo' recording made.

The intention at the onset was to continue the conversations after each 'solo' session. However, the design was flexible and the final form that the sessions took was as follows:-

Session 1	Conversation 1 (30 mins.)
	Solo (15 +15 mins.
	Conversation 2 (30 mins.)

Session 2	Conversation 3 (60 mins)
	Solo (15 + 15 mins.)
Session 3	Conversation 4 (60 mins.)
	Solo (15 ± 15 mins.)
Session 4	Conversation 5 (30 mins.)
	Solo (15 + 15 mins.)
	Conversation 6 (30 mins.)

Each participant carried with them their own portable tape-recorder and simultaneous recordings of each of the six conversations were obtained. The 'solo' tape-recordings were retained by the participants because of their confidential nature, and completely erased after the sixth conversation. The recordings of the conversations were retained in order to (a) exhibit the course of the six conversations, and (b) develop a set of transformations to be applied to the content of the conversations.

2.1.1.2. The procedure may be described in terms of the model of conversations (Fig. 21) as a cycle involving the alternation between a primarily interpersonal modelling conversation and a partly exteriorised internal modelling conversation. Modelling in the 'solo' sessions is cued by the recording obtained in the 'conversational' sessions, but the solo sessions do not incorporate any form of transformation on the record produced. The 'conversational' sessions do, however, act as a modelling facility, in which each participant may attempt to bring about changes in the nature

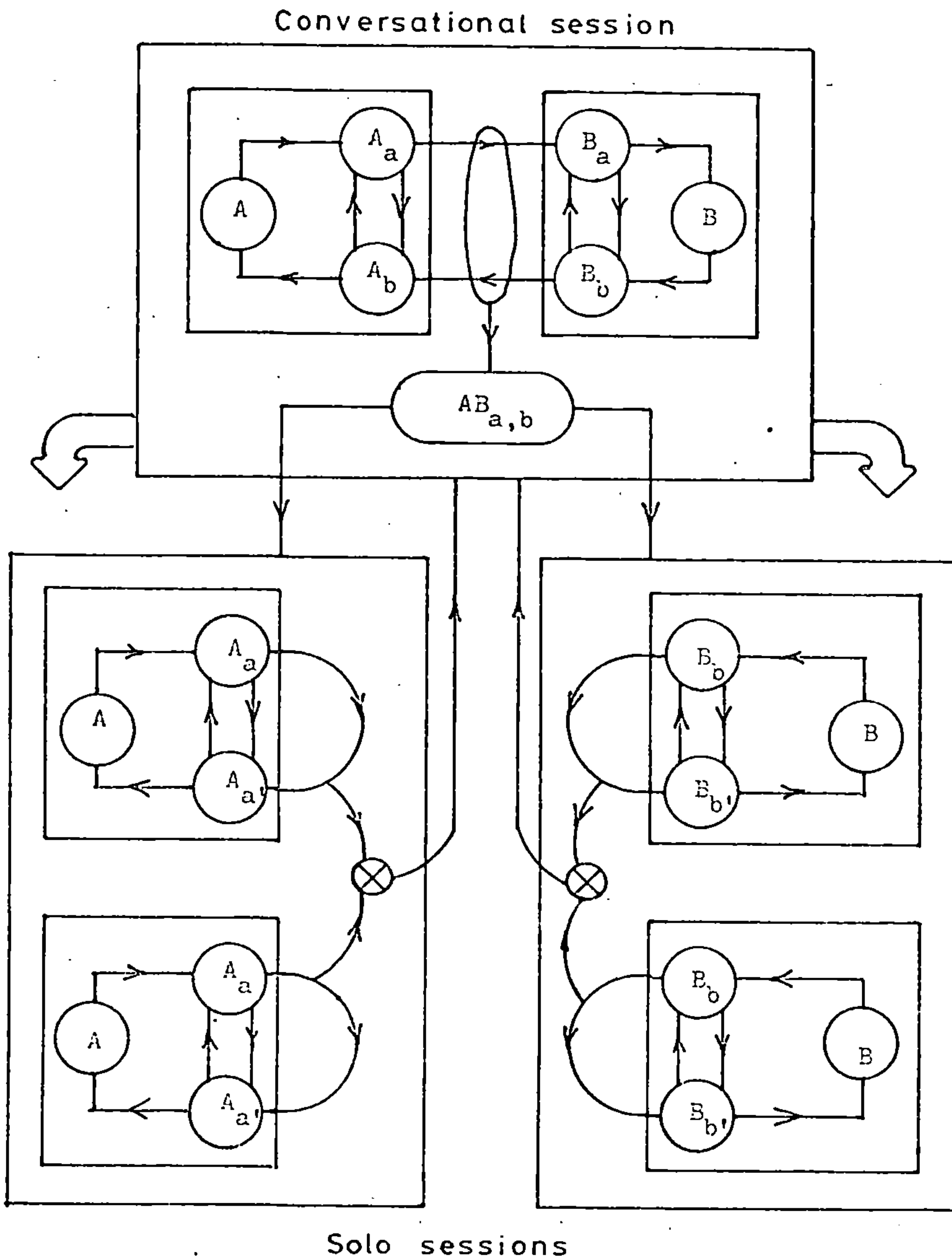


Figure 21 The modified conversation cycle.

of the negotiated models of both participants ($AB_{a,b}$) on the basis of comparisons between 'solo' tape sequences (indicated by the comparator symbols).

Transformations of each participant's modelling predicates within the 'conversational' sessions were essentially mediated by the other participant. That is, each participant responds to the comments of the other concerning the nature of their relationship in terma of personal implications. Such transformations clearly are not non-evaluative. As an attempt to establish a class of descriptive transformations capable of being incorporated into the procedure, an independent judge was asked to listen to the tape-recordings of the conversations after the four sessions had been completed. The intention was to employ common-sense criteria for firstly identifying 'significant events' within the conversations which related to either or both participant's modelling processes, and secondly to categorise 'significant events' in terms of the nature of the negotiated models of each participant within the conversation, henceforward termed the <u>reference frame</u> of the conversation.

The judge was chosen for her knowledge of drama and literary criticism, and thus had a critical eye for role-playing and character acting. The four hours of conversation, full of hesitations, silences, and redundancies, was reduced to highlight salient features only. Having listened to all the tapes, the judge was asked to isolate 'significant events':-

> "Now that you have heard all the tapes, will you please start back at the beginning and isolate what you consider to be significant events in the conversations. By significant, I mean having an effect, immediate or otherwise, on both the participants as a whole. A significant

event may be a number of things; somebody losing their temper, somebody disclosing personal feelings, altercations, prevarications and evasions, pregnant silences, and so on. Now switch on the tapr-recorder and mark down the numbers on the counter that correspond to the beginning and ending of significant events as you see them. Feel free to rewind the tape at any time and play back sections of it. There is no limit to the number of events you may wish to isolate".

After working through all six tapes, 47 separate events were isolated as 'significant', and the four hours of conversation was reduced to 53.6 minutes (see Appendix A). The isolated events were then transferred, in the order in which they occurred, to a second tape which then represented the sequence of salient points in the six conversations.

A coding frame was then developed in discussion with the independent judge, and applied to the significant events that had been isolated.

2.1.1.3. In summary the purpose of this pilot study is to clarify the following points:-

(i) the nature of modelling activity in ongoing conversations, and the construction and reconstruction of reference frames within conversations,

(ii) the development of a coding frame for categorising modelling activities in ongoing conversations.

(iii) the conditions under which internal modelling processes might be exteriorised to enable a participant to develop control over modelling processes.

Points (i) and (ii) are discussed in detail by firstly summarising modelling activity in the six conversations in terms of the significant events selected by the independent judge (section 2.1.2), and secondly by developing a coding frame (section 2.1.3) and examining its feasibility as a possible transformation to be incorporated into the procedure (section 2.1.4.). Point (iii) is examined by discussing the value of the 'solo' sessions as a self-directed modelling activity (section 2.1.5.).

2.1.2. Modelling events in conversations.

2.1.2.1. From the 47 significant events selected by the independent judge a summary of the six conversations becomes possible. The following account is unlikely to be completely impartial, however, but does serve to convey the nature of negotiations concerning a shared model of participation in conversation. It will become evident that such negotiations are neither non-problematic nor totally explicit; misunderstandings, disjunctive interpretations and hostility appear to be distinctive features of joint modelling activity. Of particular interest in this study are those episodes and occasions where disjunctions might be resolved by appropriate interventions, and the form that procedures might take to coordinate intervention of this kind.

2.1.2.2. The first conversation.

Peter and I had arranged to meet one afternoon to begin the experiment. When we had both sat down, I opened the conversation with a statement summarising what I thought the experiment could achieve for our established relationship. This statement initially provoked a fairly theoretical discussion about how we could observe roles in interactions. This discussion seemed to provide an orientation which, after 10 minutes, allowed both of us to talk in an unemotional way about our relationship, even though what was being described were ostensibly personal feelings:-

(E) Well, the things you say to me are that you know you can upset me easily (pause) and often I see you exerting real disciplin to avoid doing that. Now it may be quite false, the assumption that you upset me by doing certain things.

(P) I think of two classes of things I can't say to you; the things that will upset you, and the things that will upset me to say (pause). Personally, I am more worried by the things I can't say, than the things I shouldn't say (pause). That's where the stress is

During the first 20 minutes of the conversation, this remote stance towards our relationship seemed to predominate. Both of us were initially very aware of the microphones, and this had the effect of making us both self-conscious and the conversation stilted. However, it seemed to keep our attention on what was being said. On the whole, I disclosed very little of the way in which I experienced the relationship, and instead interrogated Peter about his experiences, as he seemed more ready to reflect on them than I was:-

(E) You feel that when you're talking to me you have to behave yourself, compared with other people?

(P) Well, no. I feel much less constrained by you, because I don't feel judged by you.

(E) But you don't feel judged by Paul, do you?

(P) Well, you and Paul. I am much closer to you than other people, to both of you.

Although much of what was being said was fairly discrediting of each other, the mood of the first 20 minutes was of a mutual positive regard, each of us conceding our bad points to the other without much real disclosure:-

(P) I've always been less afraid of you than most people.

(E) That's because I am more formal and intellectual than you, probably.

(P) And yet people don't find you as cold and hostile as me. People find you a much more easily likeable person.

(E) That's because I go along with their feelings at the expense of my own.

These concessions were being made without either of us putting ourselves at risk, we had already expressed these feelings to each other on earlier occasions. In this sense, the interaction in the first 20 minutes was a ceremony in which we established a frame of reference that was familiar to us from the previous meetings. Mention was even made of the difficulty of us relating to each other on different terms:-

(E) We've come to an agreement over the years, that there are definitely things that we don't do to each other.

(P) Yes. I suppose I don't talk about my emotional life much, and I don't ask you about yours.

It became evident that I was more committed to maintaining our usual frame of reference than was Peter. In the last 10 minutes of this first conversation, it was evident that Peter was attempting to make known feelings he would otherwise not have expressed. For my part, I was reluctant to move away from the 'safe' objective attitude to our relationship. The first breach in this frame of reference came after 25 minutes in an exchange of negative feelings towards each other:-

(P) I remember the other night, when you said how we had drifted apart (pause). My immediate feeling was that you were more dispensible to me than I was to you.

(E) (Laughs) Of course! That has first survival value, doesn't it?

(P) Oh, really?

(E) I'm sure of it. I think the same thing (pause). That's one way of protecting myself, saying 'Oh, Peter is a bad trip, and look at him now. He obviously needs people. Aren't I lucky to get out', or something like that.

(P) Well, I'm glad its mutual.

This exchange had the effect of bringing to Peter's attention the fact that I was remaining aloof from the conversation, not disclosing my real feelings, and simply interrogating him. At this point however, we left for separate rooms to make our solo tapes. The conversation seemed to have ended on this unresolved issue; that if either of us really wished to alter our usual pattern of interacting, then both of us would have to work hard to participate in building an alternative frame of reference. It seemed as if each was unwilling to make this effort without being convinced the other was doing so as well. In later conversations it emerged that we each thought the other was not pulling their weight, and this, combined with much expression of negative feelings, prevented either of us from taking risks necessary to establish a new basis for the relationship.

2.1.2.3. The second conversation.

When we reconvened to resume the conversation after making our solo tapes, Peter appeared withdrawn and unresponsive, and seemed reluctant to continue with the conversation. As it seemed to lack any immediate purpose, I once again found myself establishing our usual pattern for interacting, prompting Peter to comment on his experience of making his solo tape, and adopting the familiar objective, interrogative stance. However, Peter seemed to have been able to detect the inadequacy of our frame of reference in making his solo tape, and commented strongly on the difficulties he experienced in the conversations. He was reacting against what he observed to be happening, but without being able to make any headway towards an alternative:-

> (P) Well, what was I supposed to do on the solo tape? Was I supposed to talk to you as if you were there? Or was I supposed to talk about talking to you? I talked about talking to you. I talked about what I felt about you, What I thought was wrong with what we did and are doing.

Nevertheless, instead of responding to these comments, I persisted in focussing attention on Peter's experiences, and avoided trying to move the conversation into an alternative area. It seemed that, because of Peter's experience making his solo tape, neither he nor I were able to define our situation. Instead, it slipped deeper into an 'interview format', me by necessity asking questions, and Peter, also by necessity, having to reflect on his own experiences. Eventually after 15 minutes, we both came to realise that we might be eliciting good interview material, but as a conversation we were getting nowhere. I could do little but prompt Peter in a half-hearted way, and Peter could do nothing but meander through his uncertainties. Finally, I began to feel frustrated with the apparent inevitability of our situation, and in a mild outburst, objected to the stable roles that we were forced to assume:-

(P) I don't think it's as you think. I am making a fuss because I feel bad, and I don't see why I shouldn't. But it's not necessarily that serious.
(E) Ha! Look here! I've got no grounds for any other conclusions, other than youre obstructing me, and I'm obstructing you. I've only got your behaviour. I've only got what you say, and the way you look, haven't I?
(P) So. I said it makes me feel bad and depressed. I haven't said that matters. You think it's serious.
(E) It makes it impossible to talk to you at this moment!

Soon afterwards, we broke for the day. We were once again in the position of neither of us being able to produce an alternative definition of our relationship, partly because neither of us wanted to, and partly because when we did want to we could not coincide in our efforts. Peter had become more aware of this impasse than I whilst he was listening to the tape of the previous conversation, and seemed more able and willing to describe his experiences of it.

2.1.2.4. The third conversation.

On the second day, the conversation resumed in much the same mood as it had closed on the day before. Once again, Peter was withdrawn and apparently disinterested in the conversation, and I sensed he would not be interested in anything I might have to say. He seemed to have given up trying to participate in the conversation, and because to him it seemed impossible to alter our style of relating, he had entered a fugue state of self-reproach. As he seemed to be unapproachable, I once again assumed an interrogative stance.

This was to both of us the familiar pattern of me paying attention to Peter's experience but being unable to reciprocate, and Peter becoming more withdrawn and unforthcoming. However, Peter's commentary on his feelings seemed to be an insightful account of the uncertainties he experienced in relating to other people, especially to me in the present encounter:-

> (P) I have made a kind of progress in the last year, which consists of adjustment, and learning to enjoy what I have. Learning to live in the present (pause). But it feels like a betrayal (pause). It's a betrayal of myself. It makes me easier for other people to get on with. It makes my life more pleasant (pause), but I feel there are real issues (pause) I feel it's very important to go into my depression and it's there that I will find myself.

So Peter was asserting that to make an effort to elevate the conversation appeared to him to falsify and betray his real feelings. He was, in fact, justified in concentrating our attention on his problems, and was fully exploiting the 'question-answer' frame of reference I had established at the outset. Although I felt able to appreciate these feelings of Peter's, I did not seem to be able to reciprocate. This appeared to be no fault of either Peter or myself. However, I began to challenge Peter directly over my not being allowed to participate:-

(P) Maybe if I make you look at me for long enough, you'll get bored with it, and then I won't have to look at you (pause). I'm just not bothering with you.
(E) Because it's much more interesting to talk about you?
(P) Yes, (pause) I'm not sure that's wrong. I think bothering with you is very difficult.
(E) Not worth the effort?
(P) Who can say?
(E) You're the only person who can say.
(P) I don't know if you're worth the effort, do I?

This led Peter to express why he found it impossible to alter the frame of our conversation:-

(P) I don't know what you're good for. I don't know what can be done with you (pause) I know what I can do with you as a thing, but I don't know what I can do with you as a person.

When we withdrew to make our solo tapes we had once again reached the impasse of being unable to redefine our relationship, but we had achieved a partial recognition of this fact. Peter in particular was able to describe the limitations, as he experienced them, in his and my participation, but did so in a way that made these perceptions self-validating. That is, in describing the shorcomings of the present encounter, alternative modes of interacting were prohibited.

2.1.2.5. <u>The fourth conversation.</u>

The next day the conversation began with an attempt not to repeat the routines of the previous day. We began by initially talking about other people, outside the present encounter:-

> (E) Yes, I have similar problems with other people. I knew you must be recuperating from something. I mean you just walked right past R and M without acknowledging them at all.
> (P) Yes. I can't talk to them at all. It's just hopeless. I used to feel that I couldn't talk to M because it was such a drag, now I can't because I am overwhelmed by my own feelings.

Once again I tried to establish the 'question-answer' frame of reference, but Peter wisely drew attention to this. Instead, we both acknowledged the pitfalls in our usual pattern of relating, and by referring to them, seemed to be seeking an alternative. For the first time since the conversation began, we both appeared to coincide in our efforts at participating in the conversation. After 20 minutes, I seemed to find myself more able to disclose my experiences, and Peter seemed more able to accept them as contributions to the conversation:-

(E) I probably have more difficulty with you talking about concepts than I do talking about anything else. Then again, I've got the feeling that I'm dependent on you for some things. My experience of you has been that you can be very nice but when you're not, you're very bad for me. That sort of payoff makes it seem it's not worth my while. Initially I thought all I had to do was to forget about you and not talk to you. But I now realise that either I break this dependency - and I was getting close to it by saying that you're the least accessible person I know, and therefore the most desirable to access - or I just let it drop like you've done, saying 'there's that area of my life that's incomplete and unresolved', and simply think of it as a mistake.

These exchanges seemed to be possible only by both of us talking about events that had happened in previous conversations. That is, the current frame of reference seemed to be to allude to our immediate experiences by introducing events and feelings from the neutral regions of past conversations.

We were thus able to exchange our perceptions in a way we had not before. In this lively exchange we both had to defend our viewponits, but at least there appeared to be genuine reciprocation taking place:-

(E) You're saying you didn't deny my worth?
(P) Yes.
(E) I don't believe it. I'm positive you did. All I heard on the tape was sparring, me and you each getting in our bit as quickly as we can, and staying with it. You bullied me at a time when I was just at a breaking point, and you bullied me till I fell off the edge.
(P) (Laughs) But I don't know where the edge is for you.

(E) But you know there is an edge, and if you bully me enough I'll fall off it.

(P) I don't, actually.

(E) Rubbish! You expect me.....

(P) (Laughs) You seem to be getting very intense now. Are you reaching the edge now?

(E) No!

By forcing each other to make concessions, we were each justifying our rights to express our feelings, and have them accepted by the other. At the close of this session, we both seemed to have recognised several important aspects of our relationship; that we have a very limited repertoire of alternative frames of reference, that we employed them irrespective of our situation, being unable to modify or extend them in any way, and that we found we were unable to create a new frame of reference to allow us to interact in a different way:-

(E) So we can only play these two games?

(P) Yes. It's a pity there aren't any alternatives.

(E) Yes, it's a pity they are the only alternatives and they are both equally bad for us. What else is there?

(P) (Laughs) I don't know. What else there is is what happens, and it doesn't happen to us.

On this note of resignation, we retired to make our solo tapes. In this conversation we had at least achieved more than earlier conversations, in that we had exchanged our perceptions of the limitations of our repertoire of frames, and expressed the difficulties of interacting within them. We had also recognised that creating new frames of reference required a 'natural' spontaneity, and that, by definition, this could not be forced. The original aim of attempting to achieve new interaction frames now seemed more distant, but we were at least aware of the difficulties.

2.1.2.6. <u>The fifth conversation.</u>

On the final day, the conversation began with a retrospective account of each of our problems in previous conversations. We were responding to each other as if the experiment were already over, and that we had tried and failed to establish changes in our relationship. However, this 'analytic' frame did allow both of us to express our experience of the other in the neutral context of past events. Nevertheless, we were still in conversation, and what we were expressing seemed to have relevance to the immediate encounter, even though the way it was said was couched in the past tense. This enabled us both to remain fairly distant from each other's feelings, to accept them in an objective, understanding way, but not to feel that they put us at immediate risk in the present. The result was a calm, undemonstrative exchange of opinions:-

> (P) I didn't want to be like that. I didn't want to subject people totally to my emotions. On the other hand, I didn't want to be like you, because I see you as unreachable. My justification was that I wasn't making policy decisions but that you were. As I didn't have access to them, I didn't have access to you.
> (E) I agree I was slow to start, but once I had I lost my head in it. Part of it was not to give in, because I realised that when I try not to give in, you stop. The bind was that you said 'you don't value yourself, and I'll only value you if you value yourself'. Then when I tried

it made no difference, so either way I lost out.

We both seemed to be aware that this was the last in the series of conversations, and seemed reluctant to take risks and were resigned to our limitations. In the objective, 'analytic' frame, we both seemed to find it easy to make concessions to the other:-

(E) I think that losing my temper is being irresponsible and inconsiderate, and listening to my own music exclusively. Betraying myself on the other hand (pause) I used to think of myself as an empty vessel, impressionable and being led into feelings just by listening to other people.

(P) Yes. I used to think of you like that.

(E) Well, it was true. That was a case of my betraying myself.

At this point we broke to make our solo tapes. Whilst it appeared that we had achieved a great deal in the way of expressing and reciprocating our experiences, we had done so within a frame of reference that had effectively neutralised their impact on each other. This seemed to be associated with our awareness of the termination of the series of conversations, and of our resignation to the failure to achieve any significant changes within our relationship.

2.1.2.7. The sixth conversation.

In the final conversation, the 'analytic' attitude was resumed. Very few significant exchanges occurred, and instead an impersonal and conceptual discussion took place. We had, in fact, resumed the familiar 'intellectual' frame of reference, seemingly because the end of the conversation was in sight. Within this frame, we discussed the experiment and our roles for each other in intellectual terms. In short, we seemed to be 'winding ourselves down' through an impersonal review of events, a show of mutual understanding, and a final theoretical discussion. In a similar way to our introductory frame, this closing frame appeared to be a ceremony in which we ensured that we closed on terms familiar to us both. If feelings were expressed, they were expressed as concessions to the other, who would in turn be expected to acknowledge them and reciprocate. It seemed as though, in recognising our failure to significantly change our relationship, we had at least ratified that it could continue on terms familiar to us both from the past.

2.1.3. A coding frame for conversations.

2.1.3.1. It is evident from the preceding summary of the six conversations that on several occasions the participants entered a recursive cycle in which a sequence of reference frames were repeatedly negotiated, enacted, and unresolved. To discuss the nature of procedures to facilitate the resolution of cycles such as these, a method of identifying reference frames must first be developed. Such a method should initially achieve three objectives:4

(i) to identify types of interaction modality independently of the content of the conversation. By modality is meant the interactive properties of conversations (for example, whether the topic of discussion is of an immediately personal nature, signifying modelling activity), which describe a variety of conversational situations.

(ii) to identify classes of complementary models of self and other constructed by participants, That is, to classify reference frames of sufficient generality to apply to a variety of conversational situations.

(iii) to highlight the sequencing of and transitions between reference frames, and the nature of conversational events that lead to transitions.

As a first approximation to a coding frame capable of fulfilling these functions two dimensions of interaction modality and four types of reference frames were established through discussion with the independent judge and repeated examinations of the tape-recordings.

2.1.3.2. Interactional modality.

The first coding frame classified 'significant events' by their interaction modalities, namely the degree of activity and the extent of reference to immediate personal meanings. The 47 'significant events' were each transcribed and typed on separate sheets of paper, and then transferred in random order to a second magnetic tape. Thus, the second tape consisted of a continuous sequence of discrete events drawn from all six conversations, but arranged in random order. The transcripts were arranged in the same order as the events on the tape. The independent judge was then presented with the transcripts and asked to read them through from start to finish whilst listening to the edited tape recording. The tape was then rewound, and the judge was asked to go through both the transcripts and the tape once more and classify each event as either, (i) 'active' or 'passive'; (ii) 'personal or 'impersonal'. The criteria for these categories were as follows:-

(i) "Active events are rapid and 'snappy' exchanges of ideas, feelings or perceptions. Both people are actively participating and reciprocating, even though they may seem more intent on getting their own ideas and feelings across, than they are of understanding the other person. Activity does not necessarily imply understanding comprehension or empathy, but simply the event of a rapid two-way exchange, effective or otherwise.

(ii) "By contrast, passive events are slow and long drawn out, usually taking the form of a monologue by one or both people, in which ideas or feelings are being explored but not reciprocated. Both people seem self-absorbed, inactive and unwilling to participate.

(iii) "In personal events one or both people are directly experiencing themselves in the conversation, and are expressing immediate perceptions and feelings about the relationship. They seem to be describing experiences for the first time, experiences they might not have disclosed at other times in other circumstances. They may feel they have to defend and justify these feelings.

(iv) "By contrast, in impersonal events both people are focussing on abstract ideas, objects, or other people, or on themselves but external to their current encounter. If they are talking about themselves, they are doing so in a remote and neutral way, and seem to avoid expressing immediate perceptions and feelings. The conversation seems to be formal and inhibited."

The encoding of the 47 'significant events' is listed in Appendix A.

2.1.3.3. Interactional reference frame.

The second stage in the development of the coding frame consisted of classifying the 47 'significant events' by the interactional frame of reference they appeared to imply. Frame of reference refers to the tacit assumptions, or model, that both participants share, providing a shared definition of the situation in which the conversation takes place.

However, persons in relation are predisposed to a particular subset of all possible frames of reference;

> "But one is not simply a person, one is also this particular person. One has an identity. One's identity is established in and through the way one relates to the persons...comprising one's world....The style of a person's relationship is the pattern of relating which defines the particular person one is in the relation....In relating personally, therefore, a person is formed, and in becoming formed, a particular person is constituted."
>
> Esterson (1972, p 214-5)

Nevertheless, the particular person that comes to be constituted is a function of the particular person to whom he relates. What is at issue here is the form that 'complementarity', takes in any particular conversation.

Complementarity requires the reciprocal recognition and ratification of a model of self by the other person. When this interlocking of models of self is not possible, a frame of reference has either to be constructed de novo or the conversation has to be confined to a socially prescribed level. Two strategies are then possible; either one may search for that particular person who will provide a satisfactory complement to one's own model of self, or one engages in modelling activity with or without cooperation from the other person, to provide a satisfactory complement to the other person. Pragmatically, both activities seem to occur in conversations, and the measure of a fulfilling conversation may well be the balance achieved between these two activities.

The extent to which complementarity was achieved in the six conversations described here may be assessed by the prevalence of certain frames of reference in the encounters. As the relationship was long-standing, we may expect particular frames of reference, familiar to both participants from previous occasions, to be introduced and employed as a means to stabilise self-models. Of particular interest then, would be those occasions in which modelling activity took place, and the resulting confusion arising from contradictory or paradoxical models during these transactions.

Contradictory models would be those models of self communicated by the other person that repudiated the model that self was in process of constructing. A paradoxical model would arise from two or more incompatible models of self communicated by the other person. During modelling activity, where <u>both</u> participants may be seeking a new stability, paradoxes and contradictions are bound to arise. The main issue that this raises for the study of modelling conversations is whether paradox and contradiction may be overcome by the participants, who then achieve a new equilibrium, or whether modelling activity is inhibited, with the result that both participants fall back into a complementarity familiar to them both from earlier conversations.

2.1.3.4. To identify the underlying frames of reference in the six conversations, the 47 'significant events', typed on separate sheets, were sorted by the independent judge into classes. Instructions for this sorting were as follows:-

> "Now that you are familiar with the 47 sections of conversation, will you now attempt to sort them into piles representing different themes as you see them. By theme I mean you to consider the pattern and purpose of the interactions, and the games or routines that are being played out by either or both people. Think of each as a fragment of a play, and consider the drama that each interaction suggests, and the role the characters have to take to enable this drama to unfold. Now go through the transcripts, and separate the first few that you see as different from each other. As you go on, place on top of these first few those transcripts which you see as being of the same kind. Make as many piles as you wish, but if you end up with a large number of separate piles, try to collapse them together, and so end with the barest minimum of discrete classes. If you have any difficulty with some of the sections, put them into a separate pile and consider them later".

Having completed the sort, four separate piles representing different frames of reference emerged (see Appendix A). By working through the transcripts in each pile, the independent judge and E came to an agreement on the nature of each of the four frames, and terms to describe them, namely '<u>debate</u>', '<u>performance</u>', '<u>stroking</u>', and '<u>fight-flight</u>'. In the first three frames complementarity between participants seemed stable, but in the fourth ('fight-flight'), complementarity appeared to be in a state of flux. The four frames may be briefly described as follows:-

(i) The '<u>debate</u>' frame of reference appeared to be a prevalent feature of the relationship prior to the experiment. Characteristic of this frame is the 'intellectual discussion', in which ideas and concepts were toyed with in a purely abstract and formal way. However, underlying the intellectual exchange was a great deal of unexpressed hostility and resentment, and complementary models were essentially competitive, in which each person would attempt to subsume the other's ideas with his own. The main feature of this complementarity was that the resentment was never openly expressed, even though at times it was acutely experienced, but was channelled into the 'cut and thrust' of the intellectual exchange. This is illustrated in the following exchange from the sixth conversation:-

> (E) Sartre had this concept of 'bad faith', by which he described people who were unable to directly experience their present, and who lived in the past. It seems quite a good description of you. All this stuff about your history. You know how bad it is, but you can't not do it.
> (P) Yes. Well, I'm not really interested in acquiring good faith. I mean, some people say they know other people. I think it's very important not to believe them. I think the real trap is there, in that illusion of experiencing the present. I think you have to remember yourself, like Ouspensky says.

(ii) The '<u>performance</u>' frame of reference was also a prevalent feature of the relationship, and was characterised by the complementary models of 'actor' and 'audience'. In this frame, one person would enter a self-explanatory monologue, in which apparently profound feelings would be expressed, whilst the other would assume the role of 'audience', occasionally prompting and asking questions. The two main features of this frame are that the actor:

> "implicitly requests his observers to take seriously the impression that is fostered before them..... to believe that the character they see actually posses the attributes he appears to possess".
>
> Goffman (1972, p.28).

and that the audience be apparently fully attentive, patient and understanding. This frame is illustrated in the third conversation:-

(E) Why's that?
(P) I made a kind of progress in the last year, which consists of adjustment, and learning to enjoy what I have. Learning to live in the present (pause). But it feels like a betrayal (pause). It's a betrayal to myself. It makes me easier for other people to get on with. It makes my life more pleasant (pause) but I feel there are real issues (pause) I feel it's very important to go into my depression and it's there that I will find myself.
(E) Yes. I see,

(iii) The '<u>stroking</u>' frame of reference is ostensibly more of a 'ritual' than those previously described, in that it seems to achieve complementarity by a ceremonial mutual recognition of the feelings of the other person. That is, although the content of 'stroking' exchanges may not convey immediate feelings and experiences, the exchange establishes a **stability** of positive regard between participants. The term has been coined from Berne, (1963):

> "stroking may be employed colloquially to denote any act implying recognition of the other's presence..... An exchange of strokes constitutes a transaction, which is the unit of social intercourse".
>
> (p.15).

In may cases, 'stroking' involves conceding to the other person faults and negative aspects of self, usually known by both participants and thus constituting no risk to the self-image, and reciprocal concessions of the same kind by the other person. This is illustrated in the first conversation:-

> (P) I've always been less afraid of you than most people.
> (E) That's because I'm more formal and intellectual than you, probably.
> (P) I see (laughs). You're the one that's even worse than even me.
> (E) Yes. But I haven't got such a black history (laughs). But I am probably further removed from my experience than you are

(iv) Finally, the '<u>fight-flight</u>' frame of reference is characterised by a great deal of activity, in which participants attack each other, often quite violently, or defend themselves from attack. The term, coined from Bion (1952), emphasises the similarity in the state of mind underlying both attack and defence, and as Bion asserts, "there is no essential difference between panic flight and uncontrolled attack". The complementarity of this frame of reference appears instinctively and involuntary, in no way the result of a transaction, and purely transitory, in that the models communicated by self and other do not offer any kind of stability. In many instances, 'fight-flight' appears as a reaction, rather than an alternative, to the 'situated identities' of other frames, and it is perhaps through this frame that redefinition of models of self and other occurs. However, during attacking and defending exchanges, there is a great deal of confusion and uncertainty in communications concerning models, and paradox and contradiction invariably result. Often, there is explicit reference to the models of self being conveyed by each participant, and sometimes direct reference is made to those activities that create paradox and contradiction. An illustration of this is to be found in the second conversation:-

(P) I don't think it's as bad as you think. I am making a fuss because I feel bad, and I don't see why I shouldn't. But it's not necessarily that serious.
(E) Ha! Look here'. I've got no grounds for any other conclusion, other than you're obstructing me, and I'm obstructing you. I've only got you're behaviour. I've only got what you say, and the way you look, haven't I?
(P) So, I said it makes me feel bad and depressed.

I haven't said that matters. You think it's serious.

(E) It makes it impossible to talk to you at this moment.

(P) (Laughs) That's your problem.

2.1.3.5. Finally, the sequence of 'significant events' in each of the six conversations was described in terms of content. This was a global description, identifying not only what was said, but also the activities of the participants in saying it. Using this coding frame, the ' significant events' in the six conversations were first listed in tabular form to highlight their sequence (Table 2).

TABLE 2 Analysis of Events in the Six Conversations.

EVENT	CONTENT	INTERACTION MODALITY	FRAME OF REFERENCE
1.1	E & P discuss concepts implied by experiment	Passive/ impersonal	
			Debate
1.2	E & P apply ideas to present encounter	Active/ impersonal	
1.3 - 1.4	E prompts P to disclose feelings about present encounter		Performance
1.5	E & P concede their faults	Passive/ personal	
			Stroking
1.6.	E & P acknowledge limits of present encounter		
1.7 - 1.8 abo	E prompts P to disclose feelings about present encounter		Performance
1.9	E & P exchange negative feelings		
		Active/ personal	Fight-flight
1.10	P interrogates E to disclose feelings about present encounter		

TABLE 2 (continued).

EVENT	CONTENT	INTERACTION MODALITY	FRAME OF REFERENCE
2.1 - 2.3	E prompts P to disclose feelings about present encounter	Passive/ personal	Performance
2.4 - 2.5	P expresses neagative feelings		
2.6 - 2.7	E & P exchange negative feelings	Active/ personal	Fight-flight
3.1. - 3.2	E prompts P to disclose feelings about present encounter	Passive/ personal	Performance
3.2 - 3.4	P expresses neagative feelings		
3.5	E expresses negative feelings	Active/ personal	Fight-flight
3.6	E & P exchange negative feelings		
3.7	P expresses negative feelings	Passive/ personal	Performance

TABLE 2 (continued)

EVENT	CONTENT	INTERACTION MODALITY	FRAME OF REFERENCE
3.8	E & P exchange negative feelings	Active/ personal	Fight-flight
4.1	E & P exchange ideas about external relations	Passive/ impersonal	Stroking
4.2	E & P acknowledge limits of present encounter		
4.3	E & P exchange negative feelings	Active/ personal	Fight-flight
4.4	E prompts P to disclose feelings about present encounter	Passive/ personal	Performance
4.5 - 4.7	E & P exchange feelings about present encounter	Active/ personal	Fight-flight
4.8 - 4.11	E & P dispute their faults		
4.12	E & P acknowledge limits of present encounter	Passive/ personal	Stroking

TABLE 2 (continued).

EVENT	CONTENT	INTERACTION MODALITY	FRAME OF REFERENCE
5.1	E prompts P to disclose feelings about present encounter		Performance
5.2	P prompts E to disclose feelings about present encounter		
5.3	E & P concede their faults	Passive/ personal	Stroking
5.4	E prompts P to disclose feelings about present encounter		Performance
5.5 - 5.7	E & P concede their faults		Stroking
6.1	E & P discuss experimental procedure	Passive/ impersonal	Debate
6.2	E & P concede their faults	Passive/ personal	Stroking

TABLE 2 (continued).

EVENT	CONTENT	INTERACTION MODALITY	FRAME OF REFERENCE
6.3	E & P discuss concepts implied by experiment	Passive/ impersonal	Debate

2.1.4. The Unfolding Drama.

2.1.4.1. Of the four hours of tape-recorded interactions, 22.3% (53.6 minutes) were selected as containing 'significant events' by the independent judge. Although this is a fairly high percentage, it must be remembered that the purpose of the conversations as understood by the participants was to explore alternative bases for their relationship. By comparison, the incidence of significant exchanges in less purposeful encounters would be expected to be much smaller.

The purpose of the coding frame may be summarised as follows:-

(i) to obtain an analysis of the structure of the six conversations in terms of the frequency and sequence of classes of significant events;

(ii) to identify those points within conversations at which the coding frame might be utilised by the participants to consolidate or redirect their modelling activities;

(iii) to identify those points over the conversational sequence as a whole at which the coding frame might be utilised to consolidate or redirect modelling activities.

By examining the conversations in this way the potential usefulness of the coding frame as a transformation of participant's modelling may be assessed.

2.1.4.2. <u>The structure of the conversations.</u>

Table 2 may be summarised to reveal the nature of the six conversations in terms of the classification of the 47 significant events identified by the independent judge (Table 3).

Of the four frames of reference, 'performance' (38.3%) and 'fight-flight' (31.9%) were represented overall considerably more frequently than either 'debate' (8.5%) or 'stroking' (21.3%). This suggests that 'debate' and 'stroking' had specific functions, particular to certain circumstances and conditions in the conversational sequence, whilst 'performance' and 'fight-flight' had more general functions in the development of the conversations.

If we look in more detail at the distribution of the four frames over the six conversations we see that 'debate' and 'stroking' occur principally at the beginning and end of the series, and are thus particularly relevant to 'opening' and 'closing' manoeuvres in the conversations. Whilst they may achieve a similar overall effect for the two participants, they do so by different means. As a prevalent feature of the relationship prior to the experiment, 'debate' appears to foster a stability based on a well established and familiar pattern of interaction.. The stability arrived at through the 'stroking' frame derives principally from a concordance of regard of each person for the other, achieved by reciprocal concessions and disclosures. This temporary and mutual understanding is, however, more convenient than real, and immediate feelings are supressed in favour of the exchange of relatively 'riskless

Conversation	Reference frame D	P	S	FF	Interaction modality Act.	Pas.	Per.	Imp.	Total
1	2	4	2	2	3	7	8	2	10
2	-	5	-	2	2	5	7	-	7
3	-	5	-	3	3	5	8	-	8
4	-	1	3	8	8	4	10	2	12
5	-	3	4	-	-	7	7	-	7
6	2	-	1	-	-	3	1	2	3
Total	2	18	10	15	16	31	41	6	47
Percent	8.5	38.3	21.3	31.9	34.0	66.0	87.2	12.8	

TABLE 3 Classification of significant events.

disclosures.

These frames appear to constitute ceremonial behaviour, in part an affirmation of the possibility of relating, and in part the avoidance of confronting roles for each other, and the inevitable loss of complementarity. Whilst 'debate' constitutes a retreat into well-tried and neutral bases for relating, 'stroking' may be seen as 'playing at' self-disclosure, without real commitment or active particpation, As can be seen in Table 4, which classifies each reference frame in terms of interaction modality, 'debate', as viewed by the independent judge, entails interaction at a predominantly 'impersonal' level, whilst 'stroking', although an apparent reciprocal expression of feelings, is in fact a 'passive' exchange, in which participation is at a minimum. The functional value of these frames at the opening and closing of the conversational series is at first ' a meeting ritual', in which the conversation is initiated in terms familiar to both participants, and second as a 'parting ritual', where both persons ensure that the relationship may continue outside the experiment on familiar terms.

	Modality				
Frame	Active	Passive	Personal	Impersonal	Total
Debate	1	3	-	4	4
Performance	-	18	18	-	18
Stroking	-	10	8	2	10
Fight-flight	15	-	15	-	15
Total	16	31	41	6	47

TABLE 4 Classification of reference frames by interaction modality.

This feature can be seen in the distribution of interaction modalities over the six conversations (see Table 3), where 'active' modes of interaction peak on the fourth conversation, and tail off to zero in the last two conversations, and the striking prevalence of 'impersonal' meanings in the sixth and last conversation. Here the 'parting ritual' is emphasised, in that to achieve a stability enabling the relationship to continue requires a final closing down of active and personal exchanges.

The sequence of conversations appears to comprise two cycles of activity, and opens and closes with functional, but ritualised, behaviour. Looking more closely at the distribution of the 'performance' and 'fight-flight' frames (see Table 3), we see that the two cycles do in fact differ. In the first cycle, the 'performance' frame predominates in the activity phase, whilst the 'fight-flight' frame gradually increases in duration to become the dominant frame in the activity phase of the second cycle. Similarly, it is the 'passive' mode of interaction that dominates the first cycle, and the 'active' mode the second. 'Fight-flight' appears to be a reactive frame, in which the complementarity of other frames is confronted. In this sense, the two cycles of repeating activity-recession are analogues to a play, with the dramatic form of exposition, plot, counter-plot and denouement. In the first cycle the two actors face each other, and in a languid and resigned way, discuss the sterility and futility of their relationship. Here Peter is the principal actor, and it is his self-absorbed soliloquys that express this shared sense of futility:-

(P) I seem to find the honesty of all my feelings really questionable. I don't seem to believe anything I feel. I think about you, and I think 'Oh him, I don't really like him'. And yet I don't think I really dislike you. I just don't seem to believe what I feel for anyone.....I don't know what you're good for. I don't know what can be done with you (pause). I know what I can do with you as a thing, but I don't know what I can do with you as a person.....As a result of seeing you, I now see myself differently, and do things differently with other people but not with you. (pause) I said on the solo tape that you were just as bad as me (pause) With you I get straight to my depression (long pause) I think it's because you're like me. You have the same deadness as me, you're looking for your experience just as much as I am.

This mood of resignation is exacerbated by the stifling nature of the 'performance' frame. Reciprocation is at a minimum, since a passive audience is the essential complement to the self-exploratory soliloquy. However, this frame seemed often to be used by both actors to channel their negative feelings for the other without fear of reciprocation. That is, the nature of the actor-audience roles inhibited reciprocation, and because of this the actor was able to punish the passive audience, and have this punishment unquestionably accepted. This perhaps explains the high frequency of transitions from the 'performance' to the 'fight-flight' frame (see Appendix A), in that the actor would eventually exceed the threshold of toleration of the audience.

Having described the structure of the conversations as a repeating sequence of particular reference frames, we may now enquire whether the coding frames provide an appropriate means for intervening in the conversation to achieve either consolidation or redirection of participants' modelling activity. To do this, criteria must be developed to identify at what point intervention is most desirable. By examining particular episodes within a conversation we may begin to identify interpersonal events that indicate blocking or cycling in modelling.

2.1.4.3. Contradiction and paradox in modelling.

A feature of the three frames 'debate', 'performance' and 'stroking', is that the stability of complementary models is assured by a reduction in the variety of interaction outcomes. However, under the law of 'requisite variety' as formulated by Ashby (1968), this limitation in the variety of outcomes can be achieved in two ways: by implementing frames that comprise inherently restricted outcomes, or by the active compensation of both participants to counter the variety of outcomes with variety in their behaviour. As is evident, the first three frames achieve stability by the former means, restricting the roles that may be assumed and the kinds of interpersonal action that are permitted within them. By contrast, the 'fight-flight' frame appears to offer many participative roles, in which 'no holds are barred'. Thus, stability may be acheived only by a compensatory increase in the variety of interpersonal action. The striving for a stable complementarity thus elicits a wide variety of behaviours, and as a result contradictions and paradoxes in 'situated identities' may arise.

'Fight-flight' is fundamentally a reactive frame. In it, participants seek alternative assumptions for their relationship, on which 'situated identities' more consistent with their current needs may be based. However, it does not entail cooperative activity, but is instead primarily antagonistic. The variety introduced into the encounter by one person is matched by variety from the other. Often, each blames the other for prohibiting the emergence of self-models that each feel are appropriate and genuine. Blaming takes the form of explicit denunciation, the exposing the blocking by the other, and the imputation of deliberate conspiracies. Feelings of persecution predominate, and failures in the encounter are attributed to the behaviour of the other. Contradictions of self-models fostered by the other is used as a means to reject the complementarity they assert, this often taking the form of moves in an elaborate game:-

> (P) I remember the other night, when you said how we had drifted apart (pause). My immediate feeling was that you were more dispensable to me than I was to you.
>
> <u>(Asserts a self-model of indifference, demands dependence from E as its complement).</u>
>
> (E) (Laughs) Of course! That has first survival value, doesn't it?
>
> <u>(Reduces the implications of P's self-model for own self-model.)</u>
>
> (P) Really?
>
> (E) I'm sure of it. I think the same thing (pause) That's one way of protecting myself, saying 'Oh, Peter is a bad trip, and look at him now. He obviously needs people. Aren't I lucky to get out', or something like that.
>
> <u>(Rejects 'dependent' role, indirectly contradicts P's</u>

self-model).

(P) I'm glad it's mutual.

(Re-asserts self-model in a modified form).

This is an example of an attempted transition to a new set of shared assumptions. Whilst both participants are asserting the right to establish new self-models, they fail to achieve a mutually satisfying complementarity.

Open confrontation and contradiction imply that both participants are aware that alternative models are being fostered in the encounter. By contrast, a paradoxical situation arises when one or both participants are unaware of modelling activities as they are occurring. Open confrontation may, however, follow the realisation that paradoxical expectations are being made:-

(E) It only intensifies it? It makes it more difficult for you to speak to me now?

(Assumes an 'audience' self-model).

(P) Yes (long pause). I don't think it's as bad as you think. I am making a fuss because I feel bad, and I don't see why I shouldn't. But it's not necessarily that serious.

(Rejects E's 'audience' complement).

(E) Ha! Look here! I've got no grounds for any other conclusions, other than you're obstructing me, and I'm obstructing you. I've only got you're behaviour. I've only got what you say, and the way you look, haven't I?

(Refers explicitly to paradoxical demands.)

(P) So, I said it makes me feel bad and depressed. I haven't said that matters. You think it's serious.

(Implicitly denies expressing paradoxical demands).

(E) It makes it impossible to talk to you at this moment!
(Refers to the lack of complementarity).

During the modelling process in conversations, contradiction and paradox in the expectations that each participant has for the other's role may inevitably occur. However, it is apparent in this series of conversations that a new complementarity did not emerge from activity in the 'fight-flight' frame. Instead, the dramatic confrontation was left unresolved, and in the last two conversations both participants attempted to resume familiar frames of reference. It is evident from Table 2 that the fifth conversation was primarily 'analytic', in the sense that both persons discussed events in the previous four conversations, but did so in the neutral territory of passive reminiscence.

To recapitulate, the drama, as it unfolds over the series of conversations, does indicate an attempt by both persons to redefine their relationship. Attempts at redefinition appear to occur during 'fight-flight' episodes, and it is at those points in collective modelling activity where paradoxical and contradictory self-models arise that procedurally defined intervention might occur. The task of such a procedure would be:

(i) to identify the occurrence of paradoxical or contradictory self-models;

(ii) To display (in terms intelligible to the participants) the sequence of immediately preceding reference frames;

(iii) to encourage secondary modelling with the aim of modifying the recurrent sequence of reference frames.

A coding frame similar to that reported here might provide the basis for such a procedure. However, such a coding frame must necessarily be open-ended, and capable of recognising the emergence of novel reference frames within the conversation. Moreover, such an open-ended frame would entail the development of a recording device capable of identifying reference frames in diverse conversations, and capable of isolating the distinctive features of reference frames as they appear from the very start of the conversation. Whilst the frames identified in the present series of conversations appear to have some generality to the participants in the study, we may expect to find particular frames specific to certain participants. A recording device capable of fulfilling these functions would then need to be able to:

(i) generate and redefine coding frames by observing ongoing exchanges;

(ii) translate exchanges as they occur into the terms of the coding frame;

(iii) identify appropriate moments to intervene in ongoing exchanges;

(iv) display the coding of exchanges in a form intelligible to the participants;

(v) focus the display in a way that directs the participant's attention for secondary modelling activity.

Computer programs capable of achieving some of these objectives do exist, for example PRIMATE (Humphreys, 1971), but are not designed to analyse and feedback into ongoing conversations. Secondly, such programs are not capable of independently devising coding frames; these are generally provided by the user in coding his data in a particular form. Thirdly, criteria for intervention into ongoing exchanges are only tentatively defined here (namely, the occurrence of paradoxical or contradictory self-models), and require further detailed elaboration. Finally, the display of the coding frames and focussing of participants' attention is as yet undefined; what directives for further modelling should the procedure embody?

In conclusion we have identified the need to develop a procedure capable of generating a coding frame for analysing recursive behaviour in conversations, and intervening into the conversations in a constructive way. The coding frame developed here indicates the functions of such a procedure, and examples of criteria for coordinating intervention. However, the frame and the criteria lack sufficient generality to form the basis of such a procedure. Moreover, there is every indication that modelling conversations require to be computer-mediated in order to achieve these purposes.

2.1.5. Encountering one's self.

2.1.5.1. What effect did the solo recording sessions have on the course of the encounters? This is difficult to assess within an orthodox experimental approach for two reasons.

Firstly, the solo recordings were, by necessity, private sessions, and although the tapes were not immediately erased, they were kept for personal reference only. Consequently, their content is not open to the treatment that is normally applied to psychological data.

Secondly, the main effect of the solo sessions may not be to produce immediate change in succeeding interactions, but instead long-term changes outside the scope of the study.

In this pilot study, perhaps the question may be more usefully reworded as; what might the solo sessions achieve? To explore this I will describe my own impressions of the effects of listening to recordings of interactions in which I participated, and of making and listening to solo tapes.

By both listening to oneself in interaction, and privately 'talking to oneself', that is, externalising an otherwise covert and internal dialogue, one is presented with feedback about the social roles assumed in conversations with others, and those assumed in conversation with oneself. In describing a 'conversation cycle' in which 'private' and 'public' statements about another participant are recorded during a series of interactions, Mair has clarified the logic of this process:

> "The posture one person takes up towards another may be more readily clarified (even for the person himself) when he compares what he would say and what he would not say to the other person. By examining the similarities and differences between one's private and public views of a person, one may be able to more surely define his assumptions about that other person in relation to himself. He may then be in a better position to choose to adjust or maintain that stance once it has been spelled out so clearly. The participants in so examining the differences between their public and private versions and systematically questioning themselves as to 'why?' each difference and similarity exists for them are likely also to extend their awareness and skills in conceptualising the sorts of needs or concerns they have regarding self-maintenance or self-development in many of their relationships with others".
>
> Mair (1970b, p.172).

In a similar vein, the discussion of Part 1 emphasised the interdependence between what is privately communicated within the individual, and what is publicly communicated between individuals. That is, the solo sessions may be seen not only as an exercise in bringing to awareness one's roles for others, but also a means to bring about changes in the relationship between the interpersonal and the internal dialogue. Many people experience the internal conversation occurring during the interaction itself as disruptive.

In creating a separate, private, situation in which the internal dialogue is externalised, the aim is not to diminish or remove its occurrence during person-to-person interactions. Instead, its purpose is to provide conditions whereby the otherwise covert activity may be externalised, attended to and observed and possibly modified.

2.1.5.2. One major obstacle that feedback of this sort creates is an over-determination of role behaviour in succeeding interactions. That is, becoming aware of what one did or did not do in past interactions can, and does, lead one to 'programme' a self-model for later interactions, and to implement it irrespective of circumstances and conditions when face-to-face with the other person.

Secondly, listening to a recording of myself in an interaction with another person immediately presents me with a view of myself as seen by a third person. In effect, I am forced to regard myself and the other person as social objects in the process of communicating (Cameron, 1947). Without listening to the tape recording, this stance is difficult to achieve. I become immediately aware of what both persons as social objects are or are not achieving in the interaction, and this enables me to appraise the conversation as a whole event, relatively independent of my own interests in it.

There are difficulties with this attitude. I can, for instance, become emotionally absorbed in the recorded events, and feel 'if only I had said this, then.....'. Here, I become absorbed by my own interests, cease to view the interaction as a whole event and fail to take the role of the other and seriously consider his interests in the interaction.

Thirdly, in encountering myself in this way, I am confronted with basic Meadian dichotomy between 'I' and 'me'. In attempting to bring myself as an experiencing subject (I) to my awareness, I succeed only in recreating a social object (me), a specific memory of 'I'. My 'objective-listener' attitude thus prevents me from encountering myself as an experiencing subject.

Finally, in making a solo tape I attempt directly to address myself. I am attempting to externalise my stream of consciousness, but as speech is limited as a channel, I am immediately forced to make implicit decisions about what I need or feel able to say, and to reject redundant thoughts or feelings. Initially, I am more aware of having to make these decisions, than I am of the content about which I am deciding. Because of this, I sense a certain falsity in what I am saying to myself, and this selection process does not permit my thoughts and feelings to free-wheel.

2.1.5.3. These limitations reflect the depths of the habits developed in person-to-person interactions by which self-expression is regulated. In short, I am led to view myself or the tape recorder as another person, and apply similar forms of selectivity to the choice of what to say or not to say as I would if another person were actually present. On listening to the first 15 minutes of the solo tape this becomes embarrassingly obvious in a number of ways.

First, there are numerous silences in which this selectivity has grown so acute that all expression is prohibited, and extreme self-consciousness predominates. Second, the linguistic form of what is said reveals a variety of role postures. For example, fake melodrama, corrections, apologies, confiding in whispers, fake laughter, question and answering, and the punctuation of statements with sociocentric sequences ('I mean, 'You know?', etc.;Duncan, 1972) that derive from social intercourse, all demonstrate the adoption of roles-for-others, when in fact no others are present. Third, particular attitudes demonstrate not simply a 'generalised other' but a variety of 'particular others'. For example, I may be complaining about some injustice done to myself to a 'sympathetic listener', an other whose attitudes towards me are familiar and favourable. Or I may directly address the other participant as if he were present and continue our conversation in a 'riskless' situation where I can express the feelings I had inhibited during the conversation. Yet again, I may address a 'father figure', or a colleague, and so on. The choice of which 'particular other' is appropriate seems to be determined by what I wish to say, and I cannot say anything of significance without an imaged other person being present. Fourth, I may adopt two roles, and support an apparently real dialogue between two participants, alternatively taking the two separate roles, often to the extent of using different voices for each role. Finally, I may be addressing a future self, in that I am using the solo tape as a means to plan and organise my behaviour in succeeding interactions. In this instance, I am using the tape recording as a note-pad, and by making notes for future reference, I may regulate the aspects of myself that I wish to express.

We must then conclude that for these reasons the solo tape sessions do not achieve the externalisation of internal modelling conversations. However, completing the solo sessions may be useful in other ways, for example, in exposing the limitations that roles-for-others impose on private dialogue, in providing a means to plan future conversations, and so on. Whilst solo sessions may be valuable in these respects, we must turn to other techniques to provide a means to exteriorise and record internal modelling conversations.

2.1.6. Summary.

2.1.6.1. The pilot study reported in this chapter described the application of a conversational procedure in a series of six conversations between two friends. Each conversation was recorded and was followed by a self-confrontation exercise which the participants explored with a tape-recorder in private their experience of the conversations.

2.1.6.2. The recorded conversations were analysed by an independent judge in order to develop a coding frame for conversational events capable of providing a display for the participants to enhance their modelling activities in the ongoing conversation. The coding frame focussed on active-passive and personal-impersonal aspects of the conversations, and four categories of shared reference frame were identified. The use of the coding frame as a means to prompt modelling activity in the conversations was discussed, and problems associated with this function highlighted.

2.1.6.3. Owing to their confidential nature, the private recordings were not retained. However, the nature of solo conversations using this technique was discussed in detail, and it was concluded that the technique was not a satisfactory means of externalising internal modelling processes.

Chapter 2.2.

Reference frames of a group

2.2.1. The construction and maintenance of reference frames in the group.

2.2.2. Modelling conversations in the group.

2.2.3. Exteriorising the model of the group.

2.2.4. Summary.

2.2.1. The construction and maintenance of reference frames in a group.

2.2.1.1. In the previous study the nature of modelling activity in an ongoing series of conversations was examined, and the conditions under which modelling activity might be enhanced discussed. The objective was to outline in general terms the requirements of a procedure capable of intervening in modelling conversations to bring about change in modelling activity. This chapter has similar goals, but focusses instead on modelling activity within a group. That is, we must first enquire what form modelling takes in a group, how this activity might be enhanced, and explore the capability of one technique, namely the 'group grid', to achieve this function.

2.2.1.2. How does a group meeting for the first time establish a reference frame for their activities? The group studied in this chapter comprised 12 first-year art students in a south London Polytechnic, meeting once a week for 16 weeks, in the context of a 'learning workshop', organised by myself.

The meetings were convened as part of the Complementary Studies course for 90 minutes on each Tuesday morning, and were arranged before term began by the Head of the Complementary Studies department and the Design Course Tutor. As the group meetings progressed several students gradually lost touch and ceased to come regularly, and when they did come, participated only half-heartedly. Overall, the students' reactions to the workshop varied considerably; some thought it a waste of time and unproductive, some thought it actively disruptive, and some made use of it in a variety of ways and stated that they had profited by it.

Although I opened the first meeting with a brief statement about my purposes in being in the group, I insisted that I would not do those things normally seen as lecturing or teaching, and I proposed that I participate only as another member of the group. I put this over in the first two meetings by firstly neither offering material for group discussion nor by lecturing them on a topic, and secondly by reflecting back the students' demands for me to structure the meeting in the traditional way. In short, I did not offer a ready-made frame of reference within which the group could operate.

The general reaction to this was to insist that I lead the group, and much of the discussion in the first three meetings was either questions directed at me about what I intended to do, or partial attempts by the students to initiate a discussion about what the group could or could not achieve without a leader. These discussions extended over the first three weeks and seemed to be by far the most central and recurring problem the group experienced. It was a question that determined in those first few weeks which of the students were prepared to accept the ambiguity of the situation and attempt to participate, and those that rejected the group because of it.

2.2.1.3. During this period the participants were acting as individuals, raising questions and offering comments. However, by the second week various members began to act together, and two or three subgroups formed to express shared opinions about their situation. On one occasion the entire group excluded me from their discussion which was the first coherent statement by the group as a unit of the way they experienced the workshop, and as a way of announcing that they could be cohesive and independent if they so wished. Some members thought that I had set up a 'Candid Camera' situation and was observing their reactions for my own purposes. I felt I had to admit to being interested in group behaviour, but it was not my intention to put them into a difficult situation for research purposes alone. Other members complained that coming to the meetings was pointless as the group had no purpose, and 'did not seem to be going anywhere'. Some disagreed and claimed that they enjoyed the 'party atmosphere'. One or two others reacted by rejecting, not just myself, but the group as a whole. They said they 'were not interested in the group as a group', and that they had joined the design course to develop their own ideas independently of their colleagues.

2.2.1.4. By and large, these reactions gave to the group a sense of cohesion in the face of perceived adversity. This cohesion derived from the emergence in the group of a single shared assumption, namely that the only form of action in the group that was acceptible was either complaints about the group, or directly disruptive actions. This assumption might be termed the 'grumble assumption'. It is significant that when one member began to voice an opinion that the group could achieve something worthwhile, other group members greeted this comment with silence, and she quickly appended it with the qualification 'if only you could give us something to do and get involved in'. So, in reacting against the situation, the group as a whole had provided itself with some definition, and this was sufficient to give it a unit identity, with myself as a negative referent, and to provide some normative basis for coordinating their actions. However, the group seemed to be more unified because of the coherent views expressed by one member. He was, in effect, implicitly 'elected' to represent the group's views on their situation. That is, his contributions as the group's representative were an announcement to the group of what the group viewed as acceptable actions. It seemed as if the group was objectivising, through his statements, the norms for the group. It must be remembered that the students met each day during the intervening weeks, and it was difficult to assess how implicit or explicit this process of nomination was. However, later group events do seem to indicate that nomination and election are usually not openly discussed, but are the result of a collective transaction within the group.

2.2.1.5. However, by the fourth week it seemed as if the group had exhausted its 'grumbles', and had become accustomed to my abdication of the role 'leader'. The 'grumble' assumption did not seem to provide a satisfactory basis for the group's activities, and members began to show signs of boredom and frustration. At this point several students decided it was not profitable to remain with the group, and ceased to come regularly to the meetings. My own feelings were that to make anything productive the group would need to get down to some hard work and expend a lot of effort, and as I did not appear to want to be solely responsible for this work, the members began to ask themselves whether they were prepared to put that much effort into the group themselves. Those that remained in the group began to search around for a constructive alternative to the 'grumble' assumption. Several members began to propose activities of various kinds, but it was the representative for the 'grumble' phase that seemed more vocal and was listened to more readily. His suggestion, to form an improvised music group, was greeted with relief. In effect, he was becoming the group's spokesman. Other members, confronted with the effort and axieties of organising the group, were more ready to follow this member to redefine the group's assumptions as he wished, than they were to elect a new representative to more appropriately represent their current assumptions. Suggestions from other group members were ignored, since the spokesman had been seen to adequately affirm the group's earlier assumptions. As it happened, the group slowly became aware of the discrepancy between their current assumptions and those expressed by this student, and he was later to be superseded by another member.

With this suggestion, the group once again became redefined, this time seemingly as 'task-oriented', and the elected leader appraised suggestions from other members as to how to organise the event. He claimed that improvising music 'was a good way of losing inhibitions and getting to know each other better. Instead of all this talk, we'll play a game'. It seemed clear to me that many did not wish to lose their inhibitions in this way, but were unable to express this view coherently. Interestingly, this tension between current shared assumtions in the group and the representative's ideas for for the group was partially relieved by another student, who jokingly began to make fun of the group and the 'improvised music game' suggestion. He seemed gradually to be elected the 'social-emotional' leader of the group (Bales & Slater, 1955), smoothing out the discrepancy the group experienced between its own goals and the 'task' leader's purposes.

Several weeks later when the group was reviewing the music event, another representative was implicitly elected to voice the then shared opinion that the music group was good fun, but achieved nothing worthwhile. As a result, there was a mild confrontation between the two, leaders directly about 'what was good for the group', and indirectly about who best represented the less vocal members. The group entered a different phase of discussion focussed on person-to-person communication, and again seemed to meet the group's immediate needs. In may ways the group was reacting against the hazards of personal disclosure that was a required part of the 'improvised music game'. The group was now quieter and less demonstrative, and seemed to wish for an 'intellectual discussion' interlude. With the emergence of the 'intellectual' assumption came the nomination of another representative, who, although not as intellectual as some other members, seemed best to represent the group's quiescent mood. Naturally enough, this was strongly opposed by the previous representative, but the group had already collectively moved away from the 'party games' assumption.

2.2.1.6. These few examples seem to indicate that at several points during the course of the workshop the group experienced a need to change the definition of their situation. The activities engaged in by the group at these points may be viewed as modelling conversations. To achieve redefinition they would appear initially to pool ideas and suggestions, but it was often not the person with the best suggestion that was elected to represent the group's views. Instead, the representative was required to achieve certain transitory functions, chiefly to restore a sense of cohesion, purpose and identity to the group, enabling it to move from one set of assumptions to another, and to express, not necessarily openly, the current mood and desired definition of the group.

In each case, the acceptable behaviour of the group was regulated by these assumptions. For example, during the 'party games' phase, making a great deal of noise and shedding inhibitions was the standard established by the group. During the 'grumble' phase, only complaints about the purpose of the group were acceptible. The movement of the role of leader from one person to another seemed to coincide with a transition between assumptions that the group felt to be necessary. Leadership changed hands many times, depending on the group's need for new contributions, and most of the members of the group assumed this role on a variety of occasions. That the role was assumed and awarded implicitly, and was a naturally occurring aspect of the group's development, was evident from the reluctance of the members to adopt the suggestion of a 'leadership-rota'. Had it been adopted, this would have entailed a single person maintaining for a week the role of leader irrespective of the contributions he might be able to make, or the state of the group. At that stage, many students saw that, should that happen, the assumptions of the group would have been disrupted, and the purpose of the group's activities would have been discrepant with its implicit needs.

Modelling activity within the group seemed to be a necessary part of the group's function. It is difficult to assess whether by moving through a variety of different assumptions the group progressed in any way. As pointed out, this discussion is not intended to evaluate the outcome of the workshop. Instead, it has drawn attention to the continuous transaction between group members, and between expressed purposes and covert needs, over the initial 8 to 10 weeks of the workshop. It remains necessary to look in more detail at communication within the group at different times to establish how assumptions, needs and nomination of leaders are negotiated in modelling conversations.

2.2.2. Modelling conversations in a group.

2.2.2.1. Applying the model of conversations developed in Part 1 to the group, we may sketch the nature of conversations between one group member (M) and the rest of the group (Fig. 22), in both the participative and modelling modes.

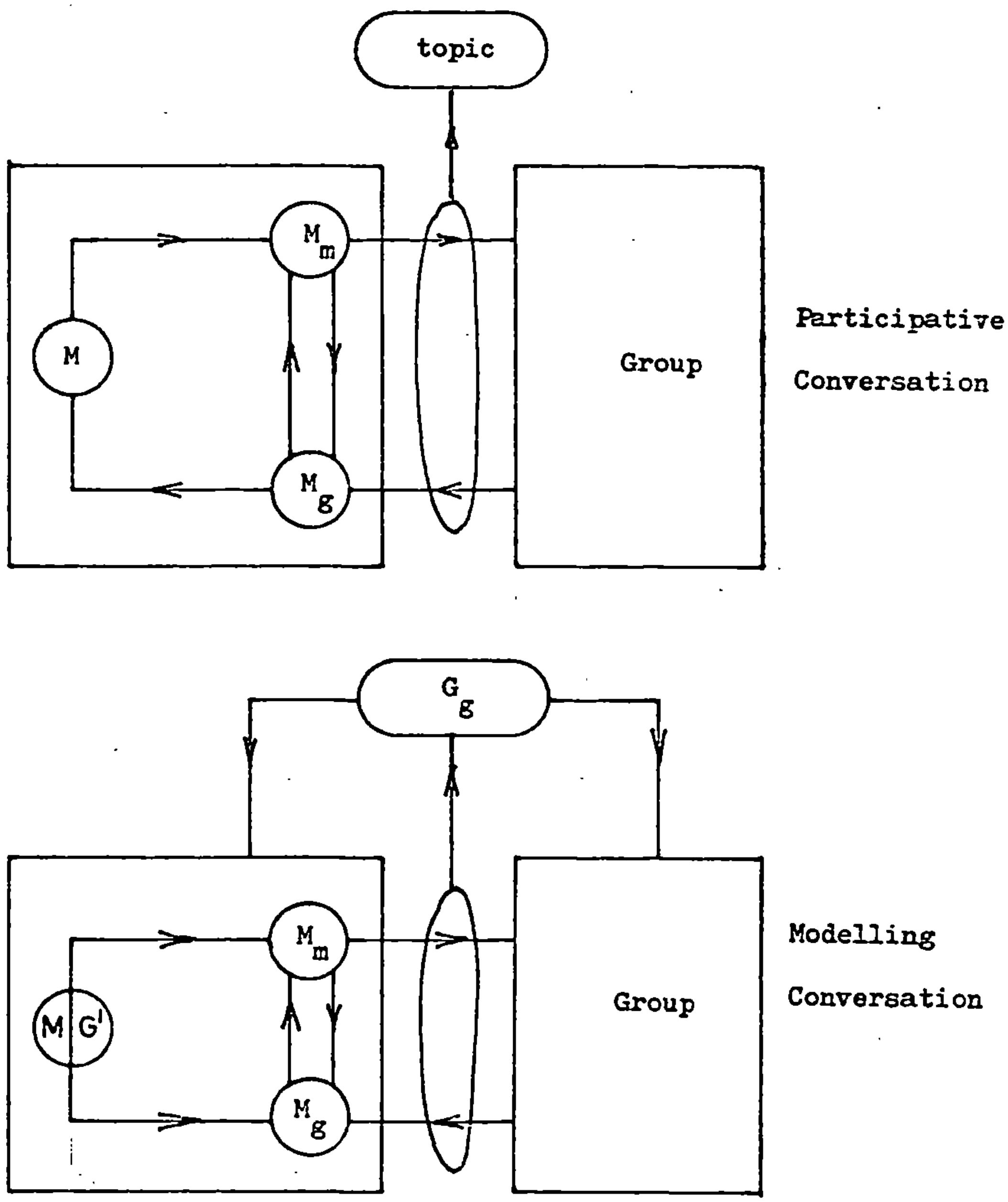


Figure 22 Conversations within a group.

It may be seen that in modelling conversations the participant operates on his model of the group's activities (M_g), and negotiates with the group a shared frame of reference (G_g), which is then internalised via group sanctions on member behaviour.

What form do conversations within the group take when in the modelling mode? It is clear that without a shared reference frame members would remain in a state of bewilderment, and would be unable to develop a coherent picture of what was expected of them and what they expected of others. In the first meeting, for example, it was evident that my opening remarks had deprived the group of such a definition, and the members were left wondering how each of them was expected to participate. Individually thrown back on their resources, the students began to attempt to interpret the purpose of the group as if I were concealing it from them, in order to arrive at some definition of the situation. What seemed to be clear was that, without a purpose, the group could not provide ant basis for regulating member's self-models.

Reservedly at first and later more readily, the students began to seek to define their situation by expressing their interpretations, and by agreeing with other member's interpretations, often at the expense of their own ideas.

Two transactions appeared to be occurring simultaneously. Firstly, the members were establishing that they were in communication without necessarily having anything of significance to say to each other, The show of consensus and the feelings of mutuality that appeared to exist between group members did not seem to imply real agreement, but instead constituted a ceremony that had to be performed to establish a 'password' (Lacan, 1968), indicating that further communication was possible.

Secondly, in the absence of any alternative definition, each member seemed to be seeking to influence the definition of the situation that other members came to formulate. That is, each person was trying to gain some measure of control over how they presented themselves within the group and how much information about themselves they were prepared to disclose.

2.2.2.2. The result of this bargaining was twofold. First, each member of the group attempted to construct an image of how they appeared to other members, and what was expected of them on the basis of this image. The validity of these constructions could be tested either by overtly acting on the basis of that construction, or by 'putting himself tentatively in the other person's shoes' (Kelly, 1955), and covertly anticipating the group's responses. The show of mutuality of feelings reflected members' attempts to obtain validation from other members, often at the expense of their real feelings, and to set the seal to a contractual self-model in the context of the group.

Second the group achieved a definition of their situation, even though it may have been innappropriate. Collective bargaining had thus established a code of acceptable behaviour (e.g. the 'grumble' assumption), which seemed to be the product of implicit trial-and-error communication in the group.. For example, the student who said, "You are setting this all up to observe our reactions" was affirmed by another, who remarked, "Yes, you must have a purpose you haven't or wont tell us about". Other members expanded this interpretation, each confirming the others and contributing an overall definition of the situation: "It's a pointless exercise because we now know what you are up to", "We're on Candid Camera", etc. So, in addition to a collective affirmation of the readiness of group members to communicate, they were able to approximate a definition of their predicament, which enabled individuals to express their ideas and feelings about it, a contribution they were unable to make before.

2.2.2.3. Having established a shared definition, there appeared to be strong pressures within the group to maintain that definition and to conform to the standards it implied. One way that shared assumptions seemed to be affirmed by the group was in sanctions against non-standard remarks (e.g. the silence with which favourable comments were greeted in the 'grumble' phase).

A second, more profound, method of affirming shared assumptions occurred during activities and events the group had initiated. For example, in the 14th week the group met to create a collage on the wall of their coffee-room, using paper, paint and glue. The mood of this event was a 'party game', but it was through the medium of the activity itself (sharing ideas, and cooperative glueing and painting) that the form the group wished the finished collage to take, and the way it was to be achieved, was negotiated.

The situation was pre-defined (the group had arranged the event at the previous meeting), the context within which it was to take place was fixed (the coffee-room, the paint and glue, the purpose of creating a collage). All that remained was to transact the frame of reference necessary to coordinate each person's activities towards the collective goal.

Different individuals began by approaching the problem in different ways; some covered small areas with a great deal of detail, whilst others tackled larger areas. Eventually, different areas began to overlap, and the need for coordination was felt strongly. Without being verbally explicit, group members demonstrated their ides to each other with the aid of paint and glue and 'context-bound' statements: "No, not like that. Like this", and "That's good. If I did this, then.....". Because of the shared context in which the group was operating, communication within the group took the form of a "restricted" code" (Bernstein, 1971), anchored in the activity itself. At the objective or 'report' level (Bateson & Ruesch, 1951), the students were expressing their intentions as a mix of incomplete verbal statements and action predicates. At the implicit, or 'command' level they were expressing their relationships with one another, the form that permitted interaction should take, the extent of personal disclosure that would be acceptable, and the structure the group required in order to achieve its goals by cooperative activity. In this way, the group was able to set up shared assumptions, and affirm them in action.

Additionally, they were able to convey and affirm these assumptions by criticising members who violated them. Again, at the 'report' level, one student was mildly ridiculed for something he had drawn on the wall, but what was important was not to make fun of his work, but for the group to collectively express at the 'command' level their assumptions about appropriate contributions to the collage. In short, it was not what he was doing that the group disapproved of, but who he thought he was in relation to the group. His actions did not invalidate the group's shared assumptions, nor did they lead the group to revise them. On the contrary, his actions reinforced the group's cohesion, and it was he who experienced invalidation.

Whilst the group was committed to achieve a particular goal or activity, it seemed it was impossible to review and fully revise the frame of reference for the group's behaviour. That is, a 'restricted code' was appropriate for affirming assumptions and situated identities, and for managing cooperative activity, but did not permit sufficient flexibility of expression within the group to re-appraise role relationships. Instead, moments of transition seemed to require an 'elaborated code', through which members were able to openly discuss the group, what it had achieved, what it might attempt next, and how it should reorganise itself. An 'elaborated code' might at these stages be introduced via procedures for exteriorising group member's modelling of group activities. Section 2.2.3. discusses such an attempt, employing the 'group grid' procedure.

2.2.2.4. I have described these examples in order to highlight the variations of the group's structure in time, changes in the functioning of the group, and the way these changes were transacted within the group. Although the development of the group culture followed the pattern of dependence-counterdependence-consensual validation (Bennis, 1964) described by T-group trainers, it is important to note that these processes seem not to be 'instantaneous, inevitable and instinctive', as Bion (1952) chooses to see them. They are instead a reflection of the way a group of individuals negotiate a viable social reality and social order, and are by no means anchored in their objective situation. As cooperative activity succeeds in redefining the psycho-social environment of the group, so the 'situated identities' of group members readjust, and these changes are, in most cases appropriate to the collective needs of the group. In a study of a therapy group over a period of one year (Fransella & Joyston-Bechal, 1971), it was evident that not only did group members undergo perceptual change at the same time, but also that these changes coincided with those times when the group would most likely be in transition from one set of shared assumptions to another (i.e. soon after the group had become established, and immediately prior to its termination.

The following sections explore a procedure which externalises members' perceptions of group meetings, in an attempt to intervene into the process of assumption construction.

2.2.3. Exteriorising the model of the group.

2.2.3.1. In the final few weeks of the second term, I suggested that the group produce a more detailed commentary on their perceptions and shared experiences, using a simplified form of the repertory grid namely, the 'group grid'. Six of the students agreed that a record of their reactions to the group at different stages of its development would provide a useful topic for discussion. They were able to isolate 10 events and meetings in the group, including the one they were currently engaged in, which they felt marked definite stages in the group's development:-

(i) the first week (week 1)
(ii) excluding E from discussion (week 3)
(iii) the role playing exercise (week 2)
(iv) the tape-measure race (week 5)
(v) visiting the perspex factory (week 10)
(vi) visiting the university (week 12)
(vii) the improvised music event (week 7)
(viii) the 'consequences party game' (week 4)
(ix) visiting the furniture workshop (week 8)
(x) the grid exercise (week 14)

From these 10 events, groups of three were selected at random, and the six students and myself each produced a personal construct (following the instructions in Appendix B), writing down our descriptions on cards. Each person then rated all 10 elements on his own constructs, using a three point scale for simplicity, and recorded his ratings on a grid form (see Appendix B). Between 5 and 11 constructs were produced in this way by each member, and everyone's construct cards, with their names and a set of ratings on each, were pooled to produce a total of 46 constructs. Each construct, a personal description of events in the group, thus formed part of a large 'group grid', representing the collective appraisal by the group of events they had experienced as significant.

2.2.3.2. The numerical inter-relationships between the ratings assigned to the 46 constructs in the 'group-grid' were analysed by a computer program developed for this purpose (Thomas & Garnons-Williams, 1970). The constructs were then further analysed for elementary linkage types (McQuitty, 1957), Appendix B gives the details of these analyses. The effect of pooling the group's constructs in this way was to identify areas of consensus between members in their perceptions of group events, and areas of experience particular to individual students. Linkage analysis separates out groups of numerically related constructs, some of which may be formed by the constructs of a number of members, and although the wording of the constructs may vary, refer to experiences common to many members within the group. However, we would also expect a number of isolated constructs and small groups of related constructs to emerge, referring to more personal experiences of particular group members. This would be a healthy sign that consensus was not complete, and that members could still make individual contributions to the group.

In addition, it should be remembered that the context within which the elicitation took place was a group event. Even though each person elicited his own privately worded constructs, the overall form that they would take would be regulated by the shared assumptions of the group at that time, and may largely reflect these assumptions. So, on the one hand the constructs described members' experiences of the group at different stages of its development, and on the other, reflect the current frame of reference of the group. In this sense, a predominance of isolate constructs and individual groupings would highlight either highly individualised perceptions of past group events, or a lack of current consensus.

In fact, from the 46 pooled constructs, two very large types (15 and 14 constructs), four small types (between 2 and 5 constructs), and 6 isolates emerged (see Table 5). Every group member contributed at least one construct to the two large groups, and some as many as four or five constructs. These two types seem to represent the main area of consensus in the group, and judging from the core construct descriptions (see Table 6), appear to focus on the two main group goals of 'task satisfaction' (Type II) and 'social-emotional satisfaction' (TypeI) described by Bales and Slater (1955).

Except for one student (Anne), these two areas appear to dominate the attention of all group members during the elicitation of constructs. Again with the exception of Anne, there is about equal emphasis within the group on the two goals, with three students focussing on the 'social-emotional' aspect (Thomas, Barry, Simon), and two students (Linda, Sue) and E focussing on 'task' aspects of group activities. These large types indicate that not only are

TABLE 5 Number of constructs contributed by each group member to the linkage types.

Construct Linkage Types

Member	I	II	III	IV	V	VI	Isolates	Total
Thomas	2	1				2	1	6
Barry	3	2			1			6
Anne	1	1	3					5
Linda	1	2	1	2				6
Simon	5	1						6
E	2	4	1				4	11
Sue	1	3			1		1	6
Total	15	14	5	2	2	2	6	46

all students construing in these two areas (thus reflecting areas of common concern), but that within these areas there is a great deal of agreement in their perceptions of the 'task' and 'social-emotional' effectiveness of the various group events.

These two goals not only appear to be the group's primary criteria for evaluating events in the group, they seem also to be the basis on which cooperative activity is organised. That is, the transaction of shared assumptions for regulating behaviour within the group, and the nomination of a leader appropriate to the context of group activities, will largely depend on the extent of agreement between group members in their perceptions of their situation, in terms of 'task' and 'social-emotional' effectiveness.

TABLE 6 Core constructs in the first two largest types.

TYPE I	EXCITING	vs.	FRIGHTENING
	NATURAL		TIGHT
	POSITIVE		NEGATIVE
	CONFIDENT		NERVOUS
	RELAXED		PROBING
TYPE II	OBVIOUS PURPOSE	vs.	PURPOSELESS
	UNITY IN GROUP		BORING
	SURE		UNSURE
	INVOLVED		UNINTERESTING
	AIM		AIMLESS

2.2.3.3. It might be said at this stage that Types I and II represent that main parameters within which the group has established a reference frame, ensuring a consistent and integrated interpretive system by which each group member perceives the activities of the group. We may then enquire, how do these parameters define the group's reference frame at different stages of its development?

Each of the 15 constructs of Type I and the 14 constructs of Type II were examined and their poles denoted as + (if the construct description indicated goal satisfaction, e.g. EXCITING, UNITY IN GROUP) or - (if construct descriptions indicated lack of goal satisfaction, e.g. FRIGHTENING, BORING). Each of the 10 events were examined, and scored as + if they were rated at the positive pole of a construct, or - if rated at the negative pole. Those events that obtained a mid-point rating were omitted from the scoring procedure. Table 7 records the frequencies that obtained from this scoring procedure, and it may be seen that events vary considerably in the extent to which they satisfy social-emotional goals (χ^2 (9) = 89.702, .001 > p) and task goals (χ^2 (9) = 26.916, .005 > p).

On the basis of these data, the development of the group as manifested by their construral of events and activities evidently passes through four phases:-

Phase 1: First meeting
Role playing exercise
Excluding E from discussion

Phase 2:	'Consequences' party game
	Tape measure race
	Improvised music-event
Phase 3:	Visit furniture workshop
	Visit perspex factory
	Visit university
Phase 4:	Grid exercise

Week	Event	Social-emotional goals (I) +	Social-emotional goals (I) −	Task goals (II) +	Task goals (II) −
1	First meeting	-	15	11	3
2	Role playing exercise	4	11	3	9
3	Excluding E from discussion	-	15	13	1
4	'Consequences' party game	13	2	4	10
5	Tape-measure race	12	3	8	5
7	Improvised music event	13	2	8	5
8	Visit furniture workshop	12	1	12	2
10	Visit perspex factory	14	-	12	1
12	Visit university	15	-	12	2
14	Grid exercise	6	5	6	5

TABLE 7 Frequencies of positive and negative ratings of group events on construct Types I and II.

Each of these four phases illustrates a distinct reference frame within the group, according to the degree to which each of the two primary goals is or is not satisfied. Fig. 23 charts the degree to which each phase satisfies these goals, expressed as proportions of positive ratings.

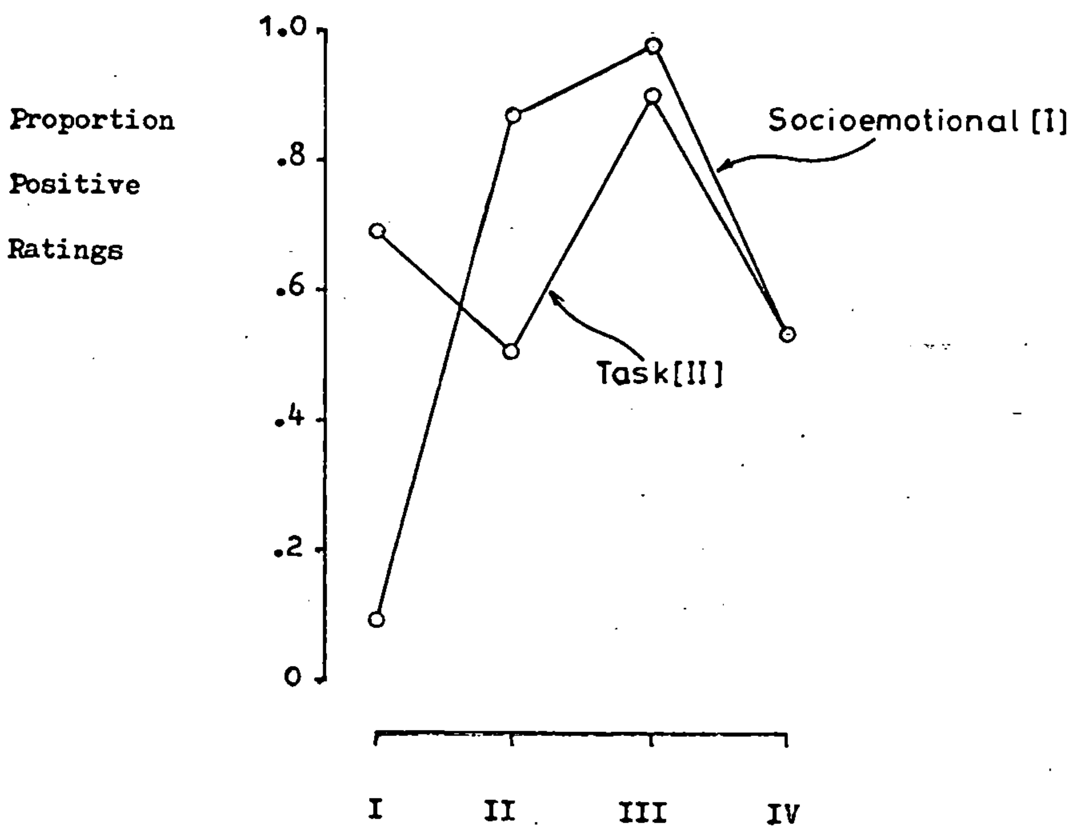


Figure 23 Goal satisfaction over four phases of group development.

It is evident that Phase I failed to satisfy both primary goals, and was viewed as disruptive in particular of social-emotional goals. The first three weeks thus illustrate a period of instability and insecurity within the group, and events taking place in these meetings were FRIGHTENING, TIGHT, NEGATIVE, NERVOUS and PROBING. As we have pointed out, it was during this phase that the 'grumble' assumption seemed dominant. Phase II heralds a new set of assumptions, compensating for the insecurity of Phase I by establishing a 'party atmosphere'. However, the group was unable to maintain this frame for any length of time, and began to organise for themselves a number of visits, which, for the first time, appeared to satisfy both task and social-emotional goals. Finally, the grid exercise itself was viewed as a return to task-oriented activities, but did not appear to achieve immediate satisfaction.

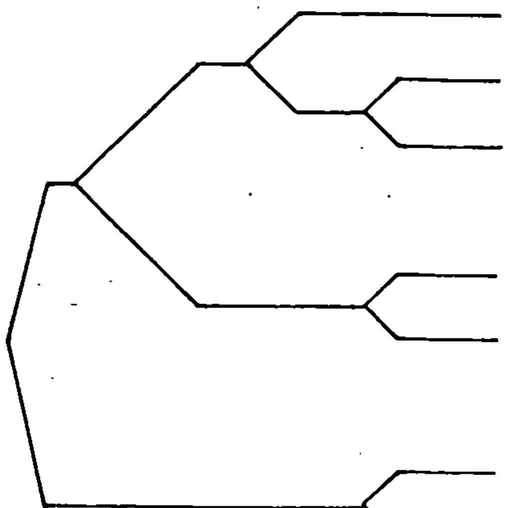
We have thus been able to illustrate the nature of the group's reference frames and tranisitions between frames, by examination of the construction of group events by the group as a whole. But what of the structure of the group in terms of the extent to which members share interpretations of events?

2.2.3.4. Although the first two types account for 63% of the pooled constructs in the 'group grid', the 6 isolates and 4 small types do indicate either some lack of consensus between group members, or highly individualised perceptions of group events. Of the small types, only III and V comprise constructs from more than one group member, and thus do reflect some overlap other than in the two primary group goals. The remaining two small types (IV & VI), and the 6 isolates represent perceptions of group events particular to only four individuals (Thomas, Linda, E, Sue), although 4 of the

6 isolates were extra constructs elicited by myself.

From an idea developed by McKnight (1974) it was possible to calculate the extent of overlap in each of the construct linkage types of the 'group grid' between every pair of group members, thus forming a 'consensus matrix' (see Appendix B for details). From this matrix, it was further possible to isolate 'member types' by means of relaxed rank order typal analysis, ROTA (McQuitty, 1971). Three'member types' emerged (see Fig. 24), according to the extent to which the constructs elicited by each group member contributed to construct types shared by other members. As can be seen, the first 'member type' (Thomas, Simon, Barry) is formed because of the emphasis of those members on construct Type I ('social-emotional' goals), the second (Sue, E) by their emphasis on construct Type II ('task' goals), and the third (Linda, Anne) by virtue of closely sharing the first three construct types. Although other members also share three construct types, they are not so closely associated in the 'consensus matrix', since they have each elicited other constructs that contributed to construct types that were not shared by other group members. That is, although Linda produces a type of her own (IV), Anne's constructs map onto Linda's without exception. Interestingly, Linda and Anne were close friends inside and outside of college, and both worked together when they elicited constructs for the 'group Grid'.

Although I had relinquished claims to leadership at the start of the group, the main distiction between myself and Sue, and Thomas, Simon and Barry was in our emphasis on the attainment of 'task'



Group Members	Shared Construct Types I	II	III	V
Thomas	2	1		
Simon	5	1		
Barry	3	2		1
Sue	1	3		1
E	2	4	1	
Linda	1	2	1	
Anne	1	1	3	

Figure 24 Elicitation consensus in 'member types'.

goals in the group. Oddly, the group at the outset, and Thomas, Simon and Barry in particular, were most insistent that the group met with an objective purpose, and the absence of 'task' goals led to a considerable reaction in the group. However, by this session (week 11), it seemed that most group members had become accustomed to the absence of concrete purposes, and had instead begun to seek alternative means of appraising group activities and goals. Whilst emphasis on 'social-emotional' goals would normally lead to a continuation from session to session of the 'party games' assumption, it appears that other group members were able to offset this trend by balancing 'task' attainment against 'social-emotional' satisfaction. Interestingly, it was Sue who was nominated by the group to bring some form of relief from the 'party games' assumption of the improvised music event. Without over-reaching the implications of the 'group grid' data, it did seem to corroborate my own impressions of the variety of apparent purposes and needs of different group members.

2.2.3.5. Summaries of this information were made available to group members in the final meeting of the course. In all, three displays concerning the group's modelling of group events were presented and discussed in some detail:-

(i) On the basis of the linkage analysis of constructs and elements, the responses of the 'group grid' were rearranged to provide a 'focussed grid' (Thomas and Shaw, 1976). From the focussed grid group members were able to identify the major construct types, and the effect of these types in distinguishing group events.

(ii) A figure depicting the evaluation of group events in terms of the two largest types (see Fig. 23). This enabled group members to chart the course of the group in terms of social-emotional and task achievement.

(iii) The consensus diagram (Fig. 24) was provided, depicting the three consensus sub-groups and the areas of agreement in evaluating group events.

Although these displays provoked considerable discussion and seemed capable of summarising group attitudes, they were criticised in a number of ways:-

(a) the group members had produced their constructs two weeks before the displays were re-presented and many felt that they no longer represented their feelings concerning the group. When it was suggested that the displays might summarise their feelings of two weeks ago, many students said they were more interested in how they currently felt. In short, this criticism implied that presentation of the displays was inappropriately timed owing to the delay associated with the group grid;

(b) many members objected to the fact that their responses had been analysed by computer. After further questioning it was clear that they were concerned not because a computer was involved, but because the transformations of their responses was not explicit. In reply E explained the analyses in detail, and acknowledged that such a procedure should be simple and explicit to the users;

(c) finally, many group members objected that the view of their feelings for group events depicted by the displays was partial and biased. In addition, members objected to the context in which constructs were elicited and speculated on the form that the displays might take if they produced constructs in their own time in an environment of their own choosing. E replied that selectivity in such a procedure was undesirable but inevitable, and that the selection made should be examined in terms of the purpose of producing displays. This led on to a discussion of the purpose for producing displays of this kind.

In summary, we must conclude that the procedure developed in the group grid for externalising and displaying modelling activity within the group was not completely satisfactory. Although the repertory grid seemed an appropriate vehicle for directing modelling conversations, the conditions under which constructs were produced and the displays which might be derived required further investigation. The following chapter reports such an investigation, and focusses on the limitations of the interview environment for externalising modelling activity.

2.2.4. <u>Summary</u>.

2.2.4.1. The aim of this account has been to briefly describe firstly the main characteristics of modelling dialogues within a group that lead it and its members to develop a sense of identity and purpose in an unstructured situation, and secondly methods by which this dialogue might be exteriorised and diaplayed. Three properties of modelling conversations emerged:-

(i) In protracted transactions, group members evolve a contractual framework of shared, though not necessarily overtly expressed, assumptions about membership and participation in the group, these assumptions varying with changes in circumstances. Shared assumptions seem to have four functions. First, they provide a coherent definition for the situation in which the group members find themselves. This situational definition channelises perceptions and experiences of group activities in certain directions at the expense of others. Second, shared assumptions provide a unitary identity for the group, giving rise to a sense of coherence, continuity and 'belonging'. The group was thus characterised by a tacit bond between members, expressing, in addition to a collective goal, a tendency for cooperative activity and for the differentiation of a social structure. Third, in providing a basis for social differentiation, the shared assumptions of a group establish individual identities for each of its members. As circumstances change different assumptions and objectives emerge, and individuals are called upon to make varying contributions. Finally, shared assumptions establish criteria of acceptable interpersonal action in the group. These criteria protect group members from situations in which conflicting demands on them may arise. Infractions of these criteria generally reinforce the shared assumptions, as the group collectively ostracises errant members.

2.2.4.2. (ii) During the course of the transactions, a variety of roles are differentiated within the group. In particular, representatives are nominated and tacitly elected to assert, co-ordinate and affirm current shared assumptions. As circumstances within the group, and the needs of the group members change, so the group's shared assumptions are revised and redefined. New assumptions become necessary as initial assumptions are exhausted. Evolving a new set of assumptions requires the negotiation of an alternative model of the group. But the closure of the negotiation requires bringing them to the attention of the group, and the member most able to achieve this is accepted as a representative. The representative's functions are purely transitory, in that his 'situated identity' is effective only at moments of transition between 'old' and 'new' assumptions.

2.2.4.3. (iii) A tenable set of assumptions and a representative to express them arrived at through a modelling transaction between group members. This transaction occurs at several levels of discourse at different stages of the group's development, but in each case involves three distinct phases of bargaining. First it is established that a state of communication exists between group members. At this stage, little of any significance need be said by group members, but their willingness to exchange views is sufficient to assert that all participants are in a state of readiness to make genuine exchanges. Second, there follows a period of negotiation, and by exchanging their perceptions individuals reach a contractual agreement on a model of the group.

Finally, the product of the transaction, a workable definition of the group's situation, is collectively affirmed by action on the basis of this definition, by nominating a representative to express it, and by sanctioning members who contravene it.

2.2.4.4. An attempt was made to develop a procedure capable of externalising group member's modelling of the group, namely the 'group grid'. Transformations performed on member's responses were devised, and displays presented to group members with the purpose of reflecting the group's modelling processes and encouraging further modelling activity. The limitations of the displays were discussed with group members, and three problems highlighted; (i) that the displays were presented at an inappropriate time; (ii) that the transformations performed on group member's responses were not made explicit; (iii) that the selective nature of the transformations was partial and biassed. It was concluded that further investigation into these issues was required.

Chapter 2.3.

Reference frames in interviews

2.3.1. The repertory grid interview.

2.3.1.1. The two preceding chapters have reported pilot studies which briefly outline the contexts within which procedures designed to enhace modelling capabilities might be implemented, with a view to identifying what such procedures must be able to achieve. Chapter 2.1. concluded by enumerating the necessary functions of procedures capable of intervening in a two-person conversation, whilst Chapter 2.2. investigated the limitations of a particular procedure for intervening in group activities. A recurrent issue in both studies concerned two aspects of procedures of this kind:-

(i) that the activities involved in externalising modelling processes had a biassing effect on the record of modelling that was produced;

(ii) that the environment in which these activities took place limited the nature of modelling activity engaged in.

This chapter investigates the use of the repertory grid procedure within a particular psycho-social environment, namely a two-person interview situation. The study that follows aims to reveal the sources of bias in modelling activity using the repertory grid technique.

2.3.1.2. The interviews reported in this chapter took place in an invited learning workshop run by a team of students and staff from the Centre for the Study of Human Learning at a South London

College of Technology. The workshop had been arranged at the request of a group of post-school A-level students and their teachers, and consisted of two days intensive workshop activities, with a four-week follow-up of one day a week. The course programme was built around activities designed to enhance student's appreciation of learning, and in addition to other workshop activities it was planned to discuss in depth with the students their experiences of learning, and to expand the idea of learning to include events in their lives that had, in their view, made lasting impressions on them.

The discussions took place at the start of the course, each discussion comprising a face-to-face interview structured around the elicitation of a repertory grid. In all 12 students were individually interviewed by 6 team members, each interview lasting 2-3 hours. Students were randomly assigned to interviewers. Each interview commenced with the team member requesting the following:-

> "I would like you to think of things that have happened to you or things that you have done, that have, in your view, produced considerable changes in you. Try thinking of events, sequences of events or whole periods in your life; things that you have seen, heard or read, people you have met or relationships you have had that you consider have made a lasting impression on you. In short, events in your life that have changed you, good and bad alike. Describe them in any way you wish and write each separately on a numbered card'

Having recorded in this way between 10 and 12 experiences, the cards were then shuffled by the team member and three selected at random. These three cards were then given to the student who was asked:-

> "Think about these three experiences. Can you see any way in which two of them are alike, yet different from the third? Try to view them in terms of the way they affected you at the time, or the impression they have made on you since".

Although many of the students initially found this comparison difficult to make, and required some help from team members, they very soon became practised at it. Having separated the three cards into a pair and a single, the student was asked:-

> "Now describe to me what it is that the pair of experiences have in common, and what is different about the odd one out. Write down briefly in any words you wish what these characteristics are on a numbered card. You have now described your first construct".

The student was then asked to think of his descriptions as forming a five-point scale comprising boxes numbered from 1 to 5, with the pair in box 1 and the single in box 5. Taking up the remaining cards, he was asked to place each card in a box on the scale according to the extent to which each experience was described by that construct. The middle box (3) was reserved for experiences to which the construct either did not apply, or which could equally be described by both poles of the construct.

2.3.1.3. Between 6 and 11 constructs were elicited by each student in the course of 12 interviews. Although a great deal of discussion was often generated by this elicitation process the record contained in the repertory grid provides only the roughest outline of the main ideas touched upon. Nevertheless, there was a considerable range in the types of experience and construct elicited by the students (see Appendix C). Many experiences seemed to have deeply affected some students at some time in their lives (e.g. the crushed ambition of a boy who failed his RAF medical, the disturbing experience of a girl who was chased by a man in a park, the emotional upset of breaking off with a boy or girl friend, etc.), and it was often these experiences that sparked off the most intense discussion.

Team members reported after the course that there was a considerable range of 'openness' in the elicitation interviews. For example, a team member reported that one girl,

> "while literally shaking to begin with, soon relaxed and chatted very freely, opening up at a speed that took me back at first.....She talked about a great variety of events, and insisted on talking out in full the effects of the individual experiences".

Of another student, a second team member admits that,

> "I felt that most of her statements were peripheral and that no 'openning up' was happening. There was something fragile about her that warned me not to push her without having a couple of days to spare

with her.....She holds a certain distance between herself and the experiences she recalled, occasionally talking as if it was not her she was talking about."

It soon became evident that these differences in the quality of the conversations that the interview provoked greatly influenced the content of the final grid. With this in mind, it was recognised that the content of the grids was more significantly a record of the conversations between the team members and the students than a record of the student's experience alone, and this figured largely in the insights that emerged from the study.

It should be remembered that team members possessed only basic training in interview and repertory grid techniques. They were, however, briefed on the desired nature of the interview they were to conduct, and thus each had a view of the purpose of the interview and some understanding of the procedure involved. Representing the interview in terms of the model of conversations (Fig. 25) we may view the purpose of the interview as the completion of a grid as a result of the students' internal modelling conversation, and mediated by his view of himself (S_s) and the interviewer (S_i). However, the interviewer responds in terms of his view of the nature and purpose of the procedure he is employing (I_{proc}) as well as his view of the student (I_s).

2.3.1.4. After the interviews were completed, 12 grids obtained were separately analysed to reveal (i) the diversity of the constructs that students had formulated, and (ii) the classes of experience that the students had selected as elements.

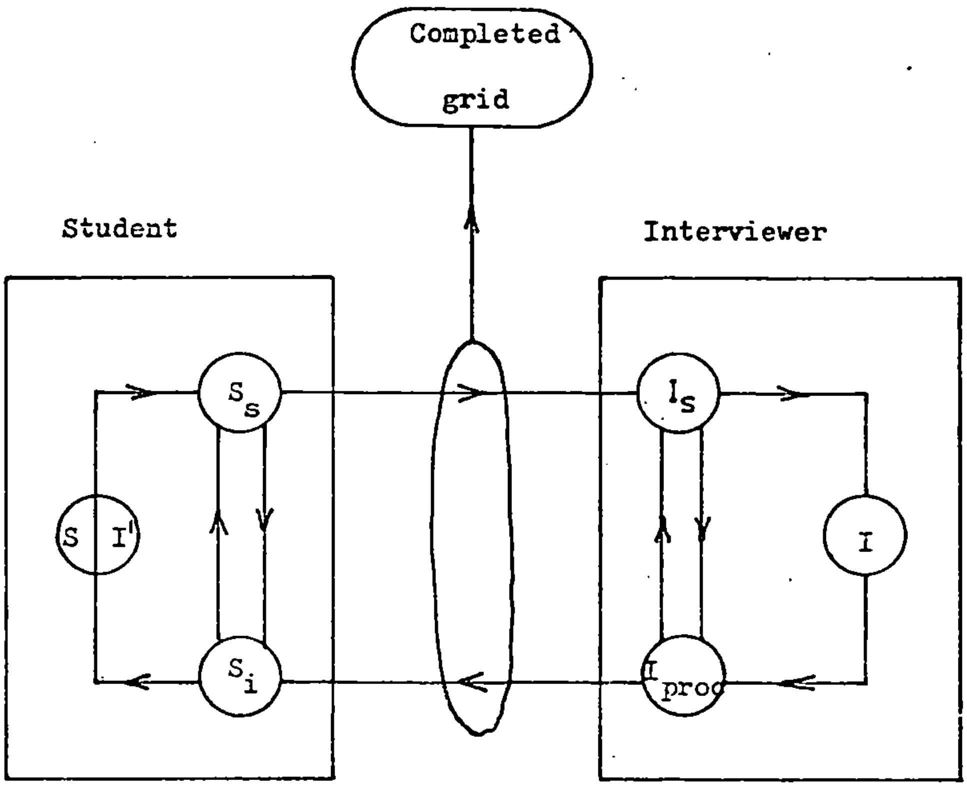


Figure 25 The repertory grid interview.

(i) A measure of the diversity in construing the elicited experiences was calculated for each grid. Based on the rationale of the coefficient of the concordance (Kendall, 1948), diversity of the construction would be indicated by the lack of concordance between constructs in the ratings assigned to all experiences. A lack of concordance would imply that each of the student's constructs was producing a unique pattern of assigned ratings, that his attention was being directed to many different aspects of the experiences he described. In short, even if the way he words his constructs does not suggest it, he is describing his experience to himself at least, very fluently. On the other hand, if there were a high degree of concordance between his constructs, that is, each construct was producing the same pattern of assigned ratings, then his attention would seem to be fixed on one distinction alone.

The 12 grids were divided into two groups: High Diversity grids where the concordance coefficient obtains a probability of 5% or less, and Low Diversity grids, obtaining a probability greater than 5% (see Fig. 26).

(ii) The elements of the 12 grids were pooled to form a sample of 145 individual experiences. A <u>coding frame</u> was developed to classify the 145 elements. The coding categories were constructed in two areas:-

(a) in terms of the <u>immediate effect</u> on the students of the experiences they described. Two categories were defined to classify

(1) those experiences that were immediately <u>confirming</u> to the student's self-image (+), and

(2) those experiences that were immediately <u>disconfirming</u> of the students self-image(-).

Although most of the 145 experiences were immediately recognisable as either confirming or disconfirming, in some cases it was necessary to check ambiguous descriptions against their ratings on evaluative constructs in the grids.

(b) in terms of the origin of the experiences described by the students. Five categories were used;

(1) experiences that originated in school or college, either in relation to the subjects students were following, or the teachers and lecturers who taught them, but not those experiences arising from direct contact with friends in school and college.

(2) experiences originating within the family, including brothers and sisters,

(3) experiences from activities and relationships with peers of their own age group, either within or outside school or college,

(4) experiences originating in recreational activities of all kinds (e.g. reading, films, theatre, pop festivals, etc) not associated with schoolwork,

(5) a miscellaneous category (e.g. failing an R.A.F. medial, moving from Canada to England, etc).

The full results of element coding are tabulated in Appendix C.

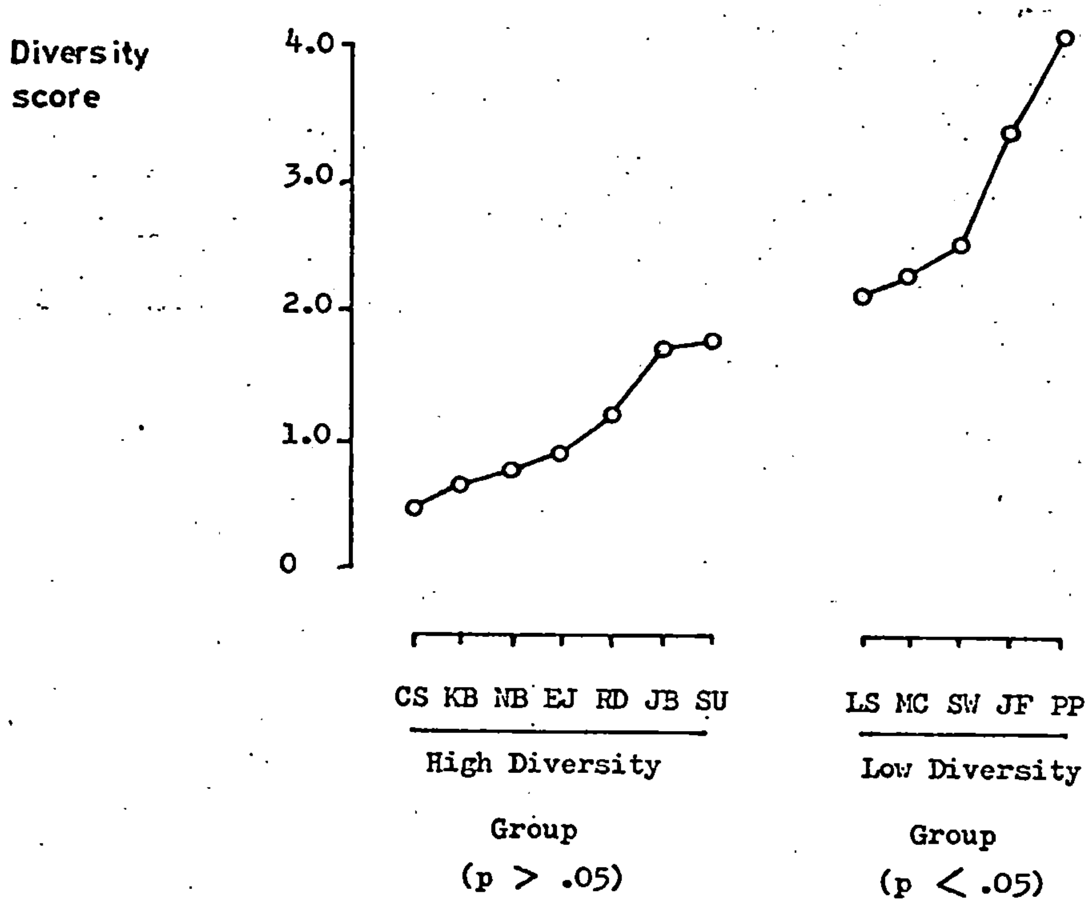


Figure 26 Diversity of construction in the 12 grids

2.3.1.5. These analyses and measures were employed to test the following hypotheses :-

(i) that the sample of elements selected by students is biased by the interviewer with whom the grid was completed.

(ii) that specific classes of elements tend to be consistently evaluated in particular terms by students.

(iii) that the representativeness of students' element samples determines the diversity of the constructs they came to formulate in the interviews.

These may be viewed as hypotheses concerning the limitations on modelling activity imposed by the interview context.

2.3.2. Limitations on modelling activity.

2.3.2.1. The measures derived from the 12 grids were initially organised in the following ways:-

(1) the distribution of elements over the origin of experiences categories for the High Diversity and Low Diversity Groups of grids (Fig. 27).

(2) the distribution of elements over the origin of experiences categories and the immediate effect Categories (Fig. 28).

(3) the distribution of elements of different immediate effect for the High and Low Diversity groups of grids on the collapsed origin of experiences categories School - Family and Peers - Recreation - Miscellaneous (Fig. 29).

Examining these data, it was evident that the Low Diversity group of grids comprised a skewed selection of elements (see Fig. 27). These grids contained a greater proportion of experiences deriving from School and Peers (72.6%) than did the High Diversity grids (57.8%; Mann-Whitney U (7/5) = 6, p= .037, one-tailed), indicating the greater range of experiences contained in the High Diversity grids, which included events classified in the Miscellaneous category (e.g. failing R.A.F. Medical, failure as a marine engineer, neighbour's attitudes, etc.).

Second, in all 12 grids, recounted events to do with School and Family were more likely to be disconfirming experiences (Fig. 28; 34.5%) than confirming experiences (17.2%; Wilcoxon T (11) = 12, z = 1.87, p = .031, one-tailed), whilst experiences with Peers and Recreational activities were more likely to be confirming (31.0%) than disconfirming (13.1%; Wilcoxon T (11) = 14, z = 1.69, p = .046, one-tailed).

Finally, within the combined classes of events in School and Family, the Low Diversity group of students (see Fig. 29) displayed a marked, though non-significant, trend to experience these events as more disconfirming (41.9%) than the High Diversity group (28.9%; Mann-Whitney U (7/5) = 9, p = .101, one-tailed).

These comparisons strongly suggests that the two groups differed in their emphases on the source of the experiences that initiated personal change. Because of the greater spread of experiences expressed by the High Diversity group, those students were more able to appraise their experience in different ways. Conversely, the Low Diversity group, with their emphasis on experiences in school, college and with their Peers, were drawn more to the polarity between school experiences and their relationships with their friends. During the elicitation of constructs, in which groups of three experiences were drawn at random, the Low Diversity Group were more often presented with experiences to do with school and friends, and so their constructs more frequently expressed their distinction.

These data appear to support the second and third hypotheses in that element sampling determines the extent of modelling activity (as represented by the construct diversity measure), and that

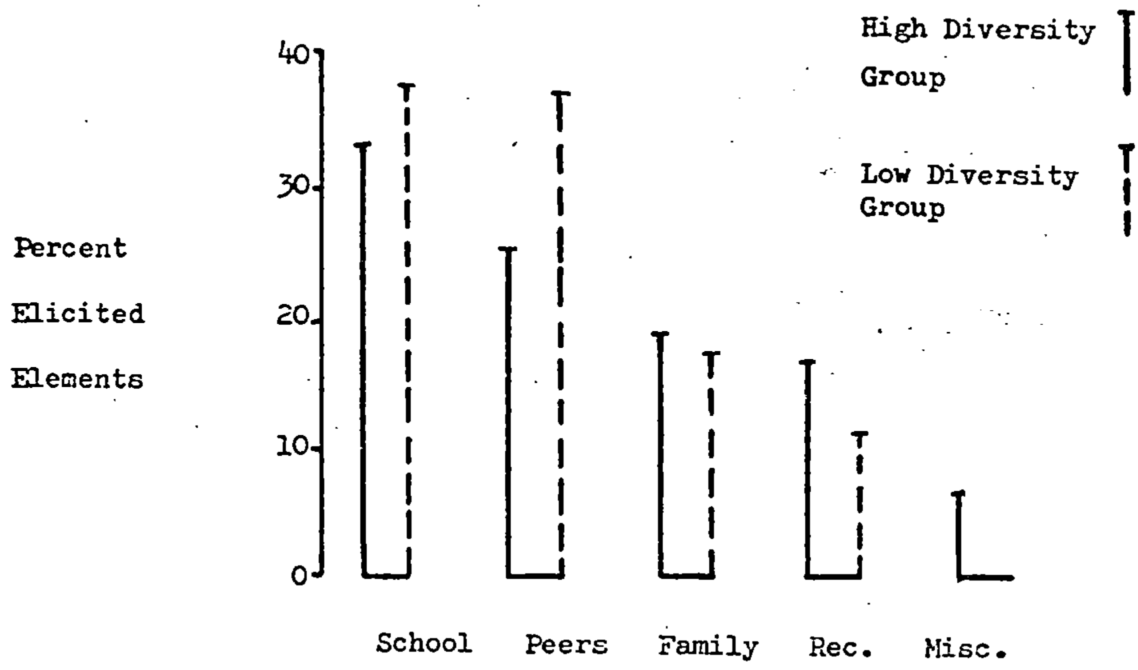


Figure 27 Element classes in the two diversity groups

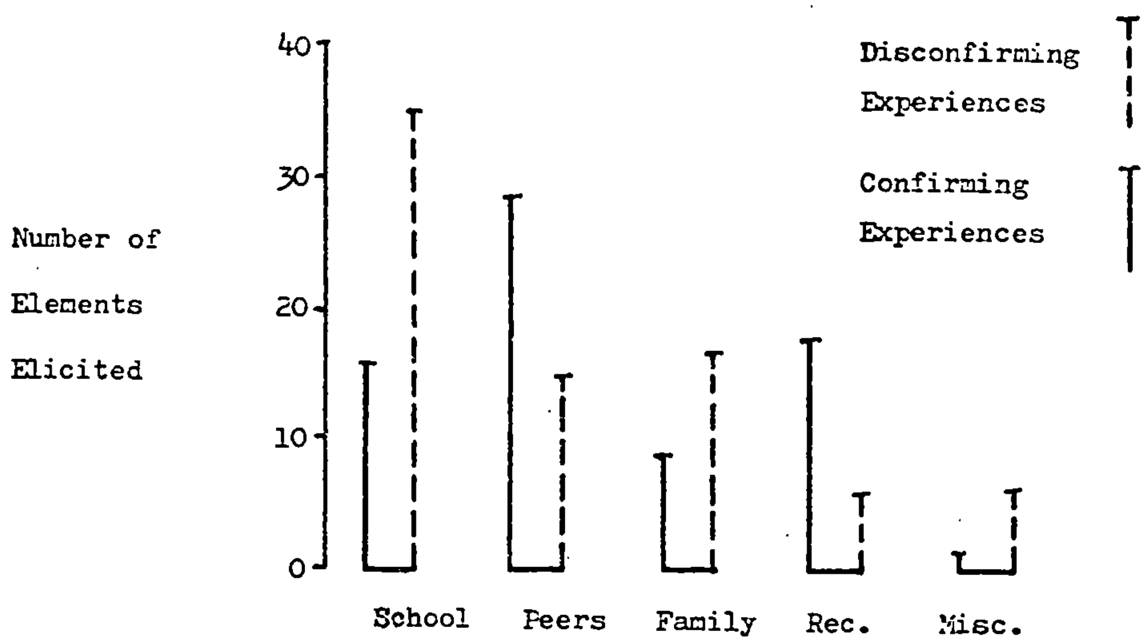


Figure 28 Element classes in the twelve grids

specific classes of elements are consistently evaluated by the students in a particular way. This latter finding, reflected in the preference of the Low Diversity group in particular to evaluate experiences in School and Family as disconfirming, seems to be a function of an alliance established between team-members and students in the context of the college where the interviews took place. For example, efforts were made to stay in contact with the students for the entire day, sharing lunch and coffee breaks to continue the discussions. This had the effect of drawing attention to the usual nature of student-teacher relationships, and relationships in the family, and students' views on these subjects were generally supported by the team-members. Team-members' comments after the course seem to reflect this support ;

> "P's experiences seem to fall into 2 or 3 categories. He went to public school and was deeply affected by it, and eventually went through a rebellion against that and his family. He now regards himself as being free of these influences, and 'doing his own thing'. But he still has a great deal to say about what's wrong with the educational system."

and

> "J seemed to feel it was hopeless trying to study for exams when he had so many problems with arithmetic and reading text-books. He said that staying on at college was partly a reaction against his parents favouritism for his sister, whom he

resented because she was successful at everything she did, and partly because he was being bullied by his parents to make something of his life."

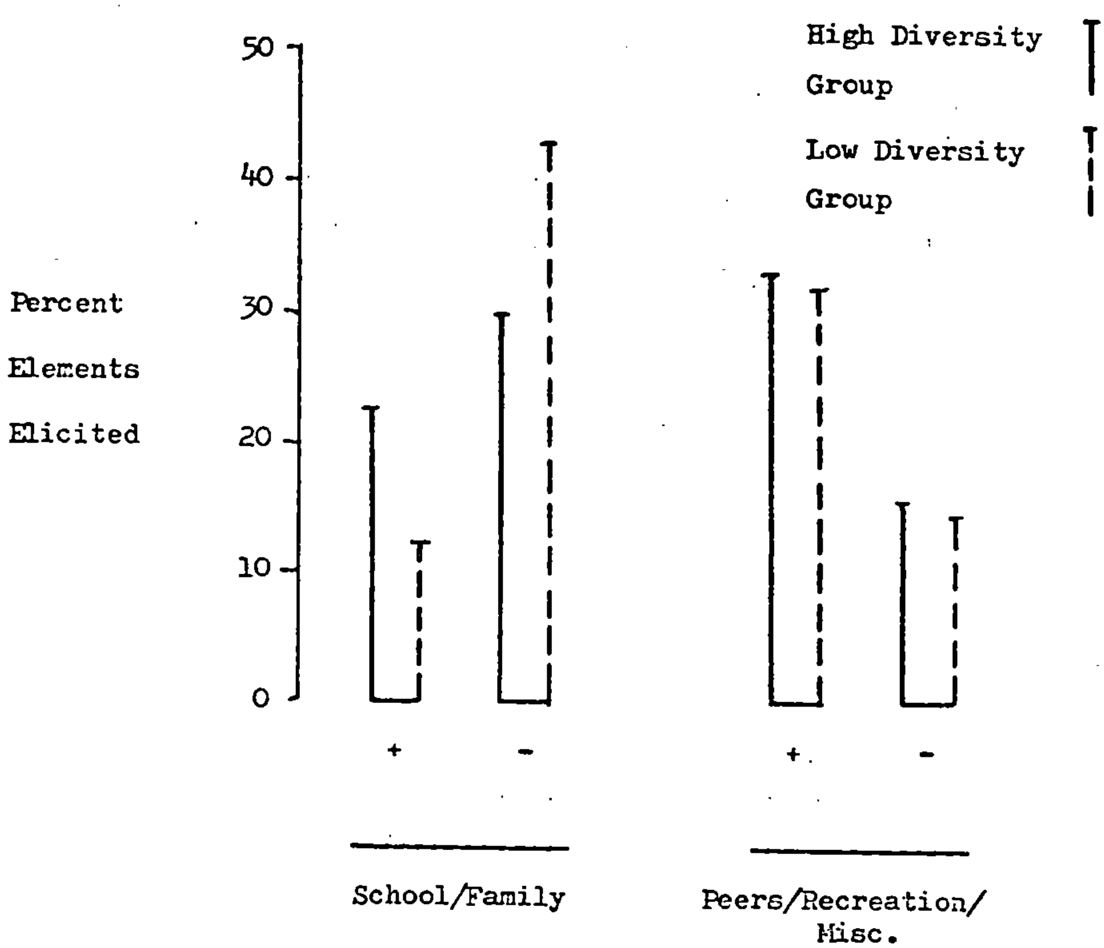


Figure 29 Combined element classes in the two Diversity groups

2.3.2.2. We may now investigate the first hypothesis, namely that the sample of elements selected by students was biased by the interviewer with whom the grid was completed. In this way, the 'demand characteristics' (Orne, 1962) imposed by interviewers might be revealed. That is, each team member might inadvertently express conditions for the nature of the discussion to be conducted, these conditions not simply regulating the verbal report of students' experiences, but also fixing the domain of the students' exploratory self-appraisal.

It should be remembered that each team member was briefed to negotiate a number of experiences from a fixed set of categories. However, the confirming or disconfirming value of these experiences to the students was not dictated. Thus, whilst the six interviewers did not differ in the frequencies with which their students elicited experiences from each category of origin (χ^2 (15) = 19.44, ns), there were large variations between team mebers in the immediate effect for the students of the elicited experiences when all elements elicited by each interviewer were pooled. (Table 8; χ^2 (5) = 20.90, .001 > p).

	INTERVIEWERS						TOTAL
	I_1	I_2	I_3	I_4	I_5	I_6	
Confirming experiences	21	1	14	15	16	4	71
Disconfirming experiences	16	19	10	11	9	9	74
TOTAL	37	20	24	26	25	13	145

TABLE 8 Frequencies of Classes of experience obtaining for each interviewer

In particular I_2 and I_5 may be contrasted in their relative emphasis on confirming and disconfirming experiences.

It should be noted that all interviewers engaged in two interviews, with the exception of I_1 (three interviews) and I_6 (one interview). However, these pooled data do indicate differences in emphasis between interviewers which lead to biassed element samples. These samples, in turn, may markedly limit the diversity with which elements in the sample are evaluated.

2.3.2.3. The nature of the data obtained in this pilot study does not permit the hypothesis to be accepted with certainty, or conclusions of great generality to be made. As the interviews were not initiated to test these hypotheses, appropriate controls have not been available. In particular, although students were randomly assigned to interviewers, it cannot be asserted that variations between interviewers in element distribution are <u>solely</u> a function of interviewer style. However, the study suggests that such variation is possible, and that construct elicitation is a function of this variation. With some reservations then, we may conclude that the environmental conditions in which modelling activity is expected to occur may determine the nature of modelling activity as it is recorded in the repertory grid, and that these conditions are likely to be represented in the interview as the reference frame for interview transactions. The critical aspect of this reference frame may then be seen to be the extent to which interviewer and interviewee contribute to the frame.

2.3.3. Summary.

2.3.3.1. The main points that emerged from this study and their implication for the development of procedures for enhancing modelling conversations are as follows:-

2.3.3.2. That there are indications that the elicitation and completion of repertory grids in an interview context is susceptible to interviewer's bias. This was demonstrated in the case of the production of element samples, but seems equally likely to occur in the formulation and production of constructs by the interviewee. Whilst interviewers may be trained to minimise the effects of bias, the main conclusion is that an interview situation entails the negotiation of a reference frame within which defined modelling activity occurs. The critical aspect of the frame is then the degree to which interviewer and interviewee contribute to it. To construct a modelling environment that is entirely free of the aspects of a reference frame is in all probability impossible, although the design of a procedure that may be self- or computer-administered may eliminate many limitations on a modelling activity.

2.3.3.3. That given a restricted element sample modelling activity is seriously limited. As a variant of the law of requisite variety (Ashby, 1968) it is evident that variety of construction may be increased only by increasing element variety. If the conversational domain is restrictively defined, modelling within that domain reflects these restrictions. This suggests that procedures intended to elaborate modelling should incorporate the means to extend the conversational domain when ever necessary. In the case of the repertory grid either the element sample should initially be diverse, or the facility to extend the element sample should be included.

Chapter 2.4.

Summary

2.4.1. Implications of the pilot studies.

2.4.2. The internal representation of procedures.

2.4.1. Implications of the pilot studies.

2.4.1.1. The three pilot studies reported in this section each explore modelling conversations in different contexts; in an established relationship between friends, in a group, in the two-person interview situation. The aim in each case has been to explore the optimal conditions in which modelling conversations might occur, and to sketch out the design specifications of interactive procedures for enhancing modelling activity enumerated in 1.2.3. in practical terms. On the basis of these pilot studies we may recapitulate the design specifications for such procedures, and pursue the implications of procedures for a model of conversational skills.

2.4.1.2. Section 1.2.3. outlined four classes of specification for procedures which might be abbreviated by the following rubrics:-

(i) OPERATE	:	the specification of modelling operations
(ii) EXTERNALISE	:	the externalisation of internal modelling conversations
(iii) REFLECT	:	the functions of a cognitive reflector
(iv) INTERNALISE	:	the internal representation of procedures

The main points that emerge from these pilot studies may be grouped under these rubrics according to their practical implications for procedures.

2.4.1.3. The specification of modelling operations.

Chapter 2.1. reported the use of a private tape-recording session based on McFall's 'mystic monitor' as an attempt to provide a context for the modelling of a series of conversations between two participants. The nature of the activity in which to engage was not specified in detail, and it was found that modelling activity was regulated by the introduction of an imaginary 'audience' to which speech was addressed. Depending on the type of audience invoked (e.g. a sympathetic listener, a respected listener, a resented listener, and so on), the domain and implications of the monologue varied. Whilst observing this feature during the exercise provided a number of insights into participative conversations, its value as a means of exhibiting a participant's self-model was limited.

Chapter 2.3. reported the use of the repertory grid technique to structure and record modelling activity in an interview situation. It was found that in those cases where a restricted element sample was obtained, modelling activity was limited. These findings suggested that the absence or restriction of specified modelling operations failed to provoke exploratory self-appraisal. In such cases it was evident that 'prompting' would serve a useful purpose, and parallel the activities of the counsellor in encouraging the client to extend his conversational domain. Incorporating prompting activity in a procedure, however, requires the formulation of criteria for identifying the need for prompts, and specifications for the range of appropriate prompts.

2.4.1.4. The externalisation of internal modelling conversations.

The private tape-recording session of Chapter 2.1. appeared also to limit the extent to which a participant's model of self and partner might be adequately represented in an external record. Engaging in a verbalised monologue entailed the serialisation of internal modelling processes, implying the selection of appropriate utterances from inappropriate utterances. The latter may never become externalised.

Similarly, the interview situation reported in Chapter 2.3. was limited to the extent that the interviewer biassed the definition of the conversational domain. As a result, some aspects of the interviewee's modelling of learning experiences were emphasised at the expense of others.

Chapter 2.2. reported the use of the 'group grid' to record the modelling of group activities by group members. When this record was re-presented to group members, many objected that it inadequately reflected their views of the group. It was argued that, given the selectivity inherent to the procedure, making this selectivity explicit would have led group members to engage in different modelling activity.

These three findings suggest that externalisation procedures should be designed in such a way that (i) selectivity at the interface of the user and the recording device be reduced as much as possible, and (ii) unavoidable and inherent selectivity of the recording device be made known to the user. As is evident, selectivity at this interface is not associated with the recording device alone, but also with the psycho-social environment in which modelling activity occurs.

2.4.1.5. The functions of a cognitive reflector.

Most of the problems encountered in the pilot studies reflect those features of procedures associated with cogitive reflection; in particular the nature of the transformations performed on the user's predications, and the nature of the displays of transformtion outcomes exhibited to the user.

Concerning the transformations embodied in the procedure, the participants in the group study (Chapter 2.2.) objected that these transforms were not sufficiently explicit, and that this made them reluctant to attach any significance to the displays that were derived from them. In addition, it was noted both in the friendship study (Chapter 2.1.) and the group that the timing of the feedback intervention was critical, and that criteria concerning the state of readiness of participants to receive feedback were necessary.

As the pilot studies were concerned with the preliminary exploration of procedures, no experience was gained in relation to the fourth specification, namely the internal representation of procedures by users. However, the capacity of the user to construct an internal representation of procedures for regulating modelling activity is completely determined by the effectiveness of procedures to specify modelling operations, externalise them, transform them, and exhibit the transforms to the user.

2.4.2. The internal representation of procedures.

2.4.2.1. The issues that have arisen in the pilot studies are explicitly concerned with the activities of an agent whose function it is to support, reflect and prompt the modelling activities of a participant. In other words, they are issues associated with the roles of the counsellor and the therapist. In the same way that the counsellor has constructed a model of his activities with clients, a theory of counselling, so procedures devised to simulate his activities embody a set of assumptions that derive from and function as a theory of counselling.

2.4.2.2. For counselling to be successful, the client must come to construct his own theory of counselling, to become a counsellor to himself, With the aid of the counsellor, the client acquires the means to denote, operate upon, and reconstruct his models of himself and personal others. For a procedure to achieve the same results, the user must be able to infer and construct a representation of the assumptions embodied in the procedure (Fig. 30). These assumptions articulate procedural activity; provoking modelling operations, representing them externally, transforming them, and displaying the transform outcomes. In addition to these functions, however, the procedure must be devised in such a way as to enable the user to formulate a theory of self-counselling. To clarify the features of procedures, the following chapters examine in detail the assumptions concerning the nature of modelling activity embodied in the repertory grid technique, and the way in which the technique may be developed to provide an interactive procedure capable of enhancing conversations. To achieve the latter objective, a model of conversational training will be outlined.

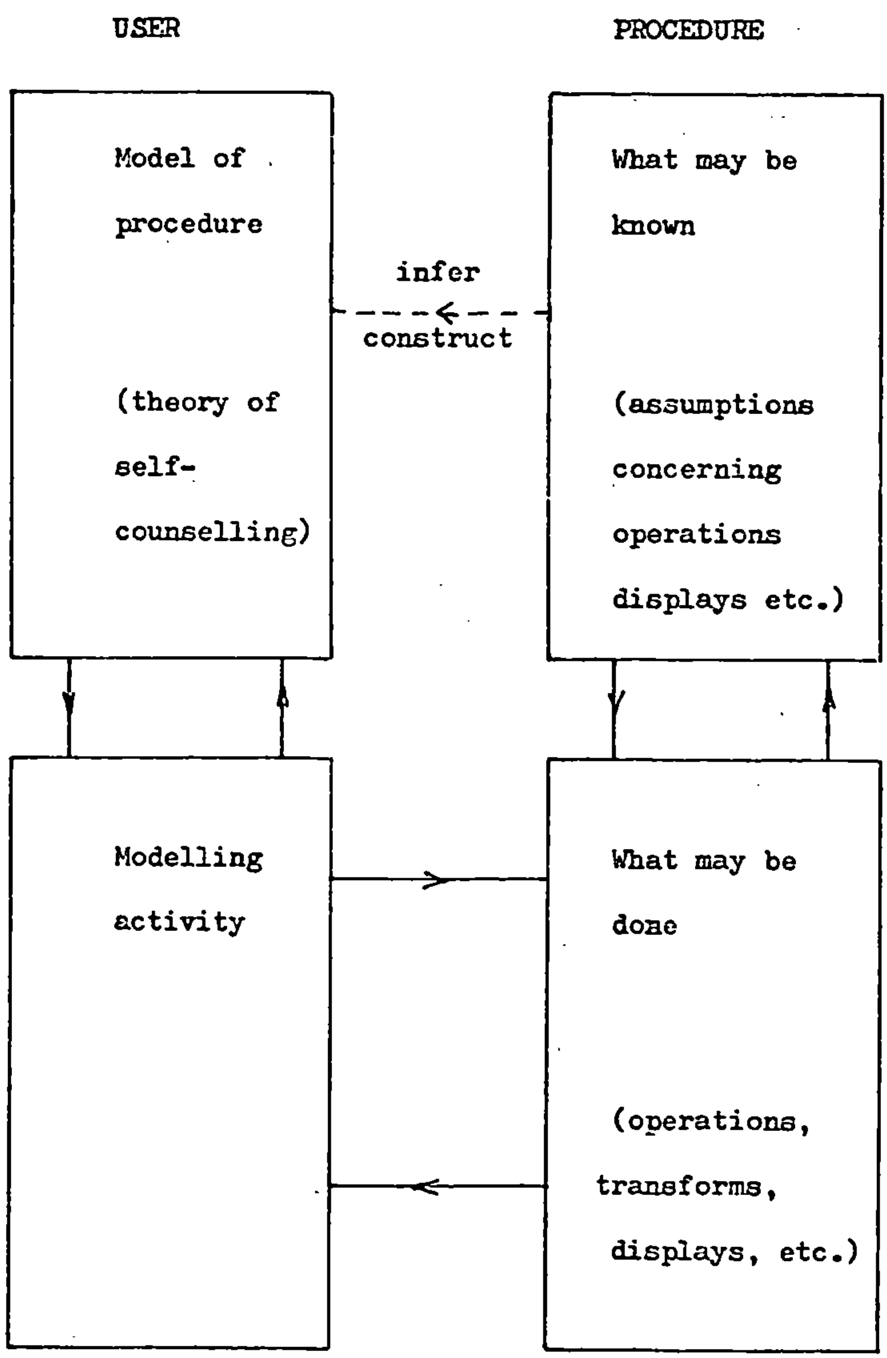


Figure 30 Internalisation of procedures.

Part 3

Intrapersonal modelling

Chapter 3.1.

Intervention procedures

3.1.1. Reflective strategies

3.1.2. An outline of the procedures.

3.1.1. Reflective strategies.

3.1.1.1. The pilot studies of Part 1 have indicated that procedures intended to enhance modelling activities are inherently selective. In this chapter the selectivity of procedures will be examined in relation to their function to provide optimal conditions for the acquisition of modelling skills. Thus, to develop an effective procedure it will be necessary to articulate the process of acquiring modelling skills, and to outline in detail how these processes are enhanced through interactions with procedures. The repertory grid technique was viewed as the most promising methodology for these purposes for the following reasons:-

(i) the technique provides a systematic method for exteriorising predicates within a given domain (i.e. the filling-in of a grid matrix);

(ii) the processes by which predications are formulated entail the differentiation of dimensions of variation within the domain (i.e. constructs);

(iii) the domain may be explicitly defined and bounded by the user (in terms of an element sample);

(iv) modelling is anchored in the domain specified (i.e. constructs are derived from and applied to the element sample);

(v) the record of predications (the grid matrix) may be represented numerically and explicitly defined transformations applied (e.g. mulitivariate analyses);

(vi) on the basis of transformations a variety of displays may be constructed (e.g. element configurations in multidimensional construct space);

(vii) predicates may separately be denoted and secondary modelling activity be based on this denotation (e.g. the application of weights to constructs in terms of their subjective relevance to choice situations; McKnight, 1976).

These features, combined with the recent development of interactive grid-based computer programs (e.g. Thomas, 1975; Thomas & Shaw, 1976) suggest the flexibility of the grid technique. Moreover, grid technique may be articulated as a series of steps, and assumptions associated with each step identified. These steps correspond to the properties of a modelling algorithm outlined in 1.2.3. Thus , four classes of assumption may be noted in relation to the operations implied by the grid technique (Fig.31), namely assumptions invoked in (a) specifying operations necessary to complete the grid, (b) obtaining a record of operations in the grid, (c) applying transformations to this record, and (d) exhibiting the outcomes of transformations to the user.

Decisions made at each stage will have implications for later stages. Thus, the demarcation of the conversational domain by

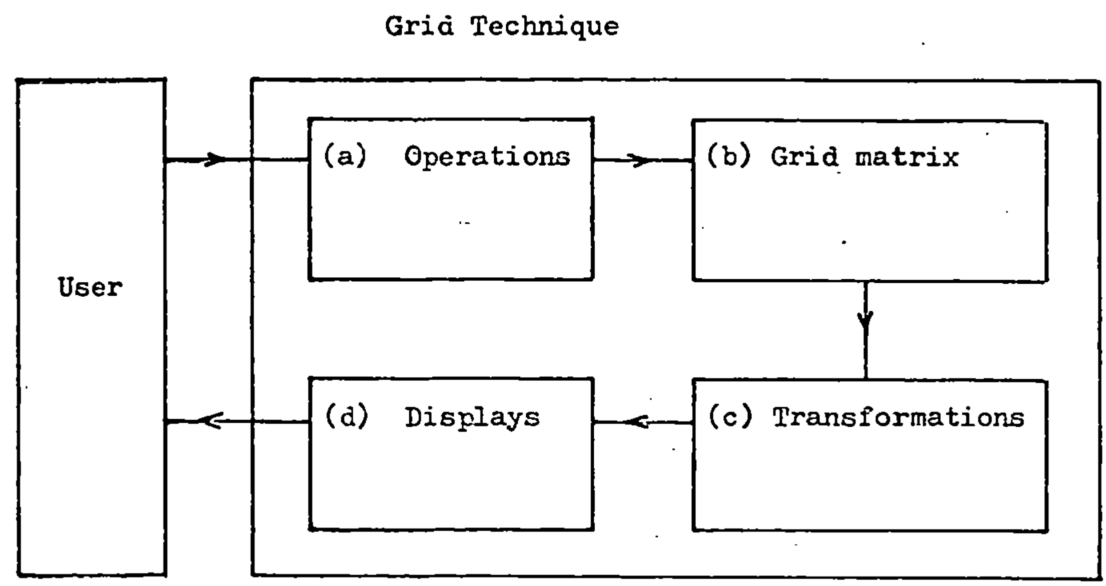


Figure 31 Operations in the grid technique.

deriving a particular sample of elements preempts the user to certain classes of predication. Similarly, decisions made in later stages frequently percolate back as parameters for an earlier stage. Thus, the preference for a particular data reduction model limits the choice of an appropriate scaling metric for representing the user's predications in the grid matrix.

Some of the assumptions involved in these stages of grid technique have already been identified (e.g. the effects of the psychological environment in the interview situation, the nature of and timing of displays in the group study, and so on). Owing to the flexibility of the grid technique assumptions involved at each stage are many and varied, and an exhaustive account cannot be included here (general categories of assumptions involved in the production and analysis of grids are outlined in Appendix D). However, we have suggested that the set of assumptions embodied in a procedure constitutes a theory of counselling, and thus it is essential to clarify the assumptions invoked by procedures for enhancing modelling conversations.

3.1.1.2. We have defined the objective of such procedures as provoking modelling activity in the user by interactively repond-ing to his modelling operations. These reponses have been broadly termed 'feedback', or "information on the value of the controlled quantity.....used to generate control forces" (Lerner, 1972, p.82). In the most general sense, the displays derived from a repertory grid may bring about a change in subsequent grid operations. However, we find difficulty in considering the client in a counselling interview as purely an error-actuated control system for the following reasons:-

(i) An unequivocal statement of the nature of target performance, of actual performance, and of the difference between actual and target performance is unlikely to be available in the counselling interview. That is, the client must interpret the counsellor's responses in his own terms.

(ii) Given that the client might locate a discrepancy between his constructions of target and actual performance, an unequivocal statement of the nature of a corrective reaction is unlikely to be available. That is, the client must formulate his own proc-edures for coping with diverse situations.

(iii) the client displays strategies for seeking and gaining information, implying that he generates and tests hypotheses concerning the relationship between his modelling activities and the counsellor's responses. That is, the client is seeking to model the counsellor (or procedure) with whom he is interacting.

Thus, (1) the elaboration by the client of an interpretive system to give meaning to the extrinsic responses of the counsellor and the intrinsic cues available during modelling, (2) the development of a system capable of originating adaptive responses, and (3) the growth of the capacity to self-counsel are goals of the counselling interview. The responses of the counsellor might then more properly be termed 'knowledge of results'.

This view has led to the development of reflective strategies of counselling, which contrast with orthodox views of interpretation as:

> "defining or restructuring of the situation through the presentation of an alternative description of some behaviour datum.....It consists of bringing an alternative frame of reference, or language system, to bear upon a set of observations or behaviours, with the end view of making them more available to manipulation."
>
> Levy (1963, p.5-7).

Here, the interpretive frame of reference employed is clearly that of the counsellor. Glover's distinction between 'inexact' and 'incomplete' interpretation undermines this arrangement:

> it would be well to establish some distinction between an 'inexact' and an 'incomplete' interpretation.....Apart from the degree of thoroughness in uncovering phantasy, an interpretation is never complete until the immediate defensive reactions following on the interpretation are subjected to investigation."
>
> Glover (1931, p.403).

and provides two directives for reflective strategies:-

(i) that the client's interpretations of the counsellor's responses constitute a starting point for further modelling activity,

(ii) that the client attempt, via further modelling activity, to verify or refute the interpretations offered by the counsellor.

These directives are displayed in Mair's conversational model of enquiry. If the participant in this model is viewed as the client, a context is provided for the client to engage in 'social experiments';

> "This sort of investigation <u>can</u> be regarded as cross-sectional.....but is probably more usefully and excitingly viewed as continuing venture. In the time intervening before the next meeting, each would note in detail his changing thoughts and feelings about what had happened in the previous session. Since I suspect that every confrontation of the sort outlined here will cause the participants to re-evaluate some of their concerns and stances an opportunity is being created for each participant to try to record and make some sense of the sorts of effects the experience has had on him. At this

stage, each person may find himself beginning to engage in courses of action of one kind or another to test out, confirm, disconfirm, assert or examine some of the concerns raised for him by the encounter. These personal or social 'experiments' he creates are of vital interest and concern to us in understanding how we explore and test the meanings we each make of events."

Mair (1970a, p.253).

Thus, not only is it recognised that the client seeks to generate a model of the counselling interview, but in addition provision is made to advance this process.

3.1.1.3. The objectives of interactive procedures may now be seen as the development of modelling activity at several levels of control by the display of information at different levels. Furthermore, information at one level of control leads to modelling at a higher level (Fig. 32). For example, statements ('A_c') concerning the client's perception of the counsellor (A_c) may only be utilised if the client is able to recognise and reconstruct his view of the counsellor. Thus, for the client to generate intrinsic cues, (or recognise existing cues) and become independent of the augmented feedback arising out of interactions with the counsellor, he must develop a higher-order model of this interaction (A_A), namely his views on relationships including his relationship with the counsellor.

The nature of the displays presented by the procedure or counsellor are critical. If feedback is utilised but not modelled sufficiently well to enable independent recognition of intrinsic cues, the client may become dependent on the information made available in the counselling interview for its control function alone. For example, the client may value the counselling interview because it presents him with alternative explanations for his experience that he could not otherwise generate. Thus, the feedback display may be evaluated in its effectiveness for provoking modelling;

> "the success of techniques of augmenting feedback will depend on whether they call attention to the intrinsic cues, or make possible control of the relevant reponses in a way which can later be taken over by the intrinsic cues".

Holding (1965, p.22).

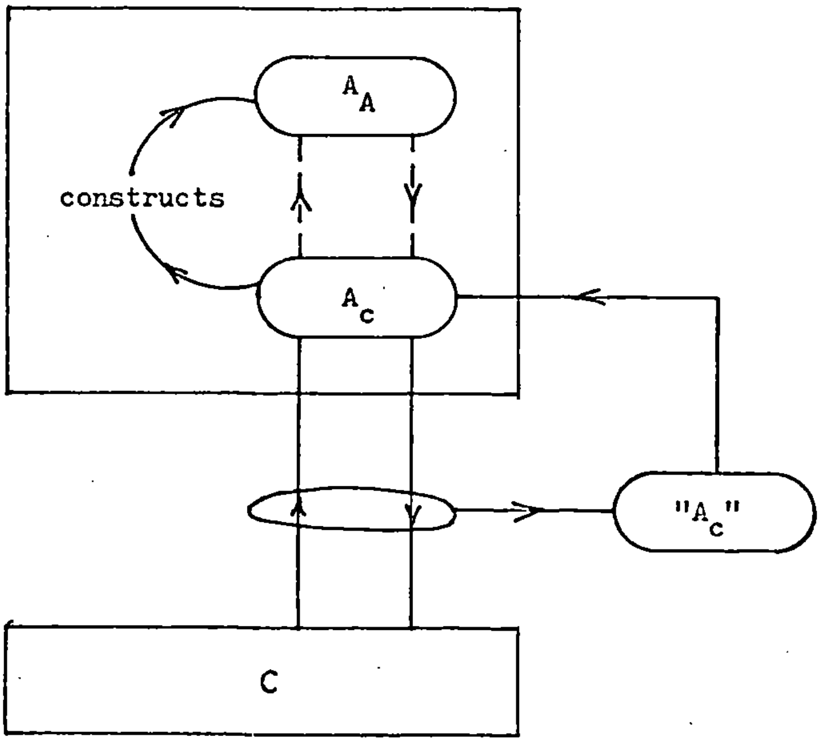


Figure 32.

3.1.1.4. In the counselling interview then, we may expect to find feedback transactions and modelling activity occurring at several levels. To account for the models which interactive procedures facilitate, we may construct a hierarchy of at least four levels:-

Level 1; a class of predications concerning objects and events in the world (for example A's predications of elements in a grid);

Level 2; a class of models of objects and events from which Level 1 predicates are derived (for example A's model of himself, his wife, his best friend, and so on);

Level 3; a class of constructions of the contexts in which models of objects and events occur and from which Level 2 models are derived (for example A's model of himself in the context of B, A's model of his wife in the context of C, and so on);

Level 4; a class of models of the contexts in which Level 2 models occur, from which constructions of contexts in Level 3 derive (for example A's model of his relationships with other people, A's model of his wife's relationships with other people, and so on).

Whilst some developments of grid technique enable predications to be externalised at least at Levels 2 and 3 (e.g. the 'laddering' technique; Hinkle, 1965; Wright, 1970), the grid matrix itself is a partial record of Level 1 operations (Fig. 33), a semi-ordered series of element predications.

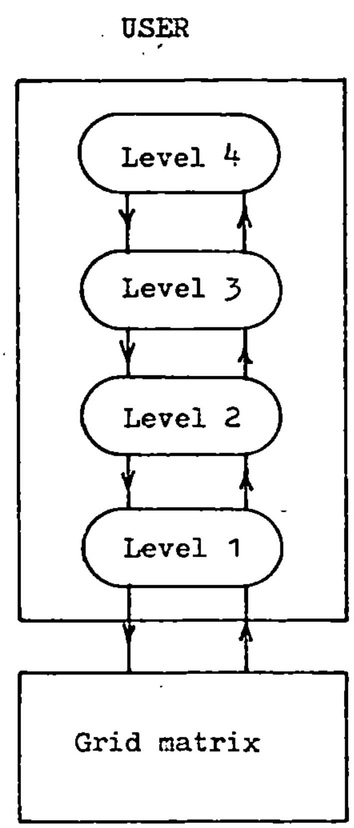


Figure 33.

To facilitate modelling at all four levels on the basis of predications in the grid matrix thus requires a set of transformations capable of producing feedback information and displays compatible with each level. That is, existing grid transformations (for example, data reduction models, derived indices, scores and measures, etc.) may be qualified in terms of the level at which such information may be interpreted by the user and the level at which further modelling activity is provoked. Conversely, the development of procedures to facilitate modelling at particular levels requires serious consideration of the nature of the transformations to be incorporated.

Applying this rationale to the levels of Fig. 33, an interactive procedure based on repertory grid predications should incorporate at least three transformations (T) from which displays (D) are derived compatible with Levels 1, 2 and 3, and which provoke modelling activity at Levels 2, 3 and 4 respectively (Fig. 34). Each display should then be devised such that it is intelligible at the appropriate level and that independence of the display may only be achieved by the elaboration of the model at the level above (indicated by the dotted lines).

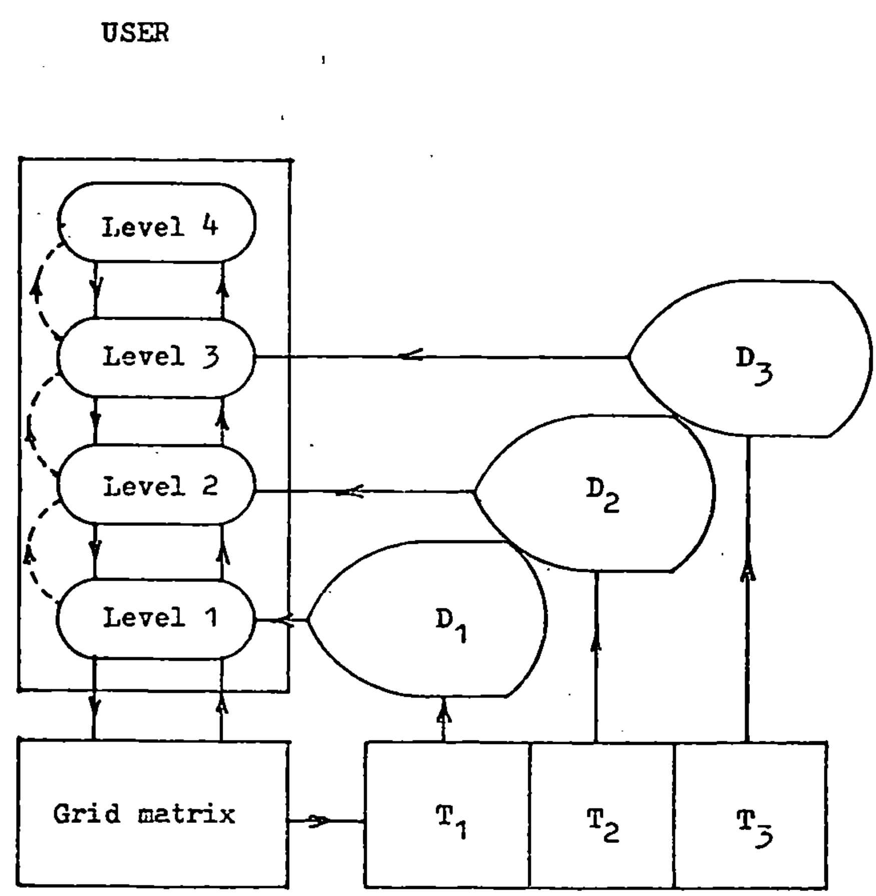


Figure 34.

3.1.1.5. What form would displays take at each of these levels? In general terms, the displays, like the responses of the counsellor that they seek to simulate, are themselves a series of predications in a conversational domain comparible with the level of user modelling to which they are directed. When displays are presented within a reflective strategy, the predicates that comprise the display act as <u>prompts</u>, encouraging the client to marshal his perceptions either to refute or to verify the display predicates, and to engage in the active modelling of the display and its implications. The domain of display predicates at each level clearly is bounded by the class of outcomes deriving from transformations, by the class of transformations themselves, and ultimately by the domain of user predications in the grid matrix. To clarfy the nature of display predications, prompts at each level might comprise the classes of information listed in Table 9, with examples of display prompts and transformations.

Level 1 displays thus lead the user to attempt to detect those features of his element predications that are associated with their classification in the display, and to elaborate the models from which these predicates derive. For example, the user may find that he consistently exhibits uncertainty in predicating a particular element in his grid, and pursues the implications of this for his modelling of that element. Level 2 displays prompt the user to identify the underlying structure of his element predications in the grid matrix, and to elaborate his modelling of the contexts in which such a structure has relevance. For example, the user may become aware that his construing of the element

Level	Information	Transformation	Prompt
1	Classifications of grid predications	e.g. rating extremity score (Landfield, 1971).	e.g. "You seem to be uncertain about the meaning of construct x".
2	Parameters underlying grid predications	e.g. cluster analysis of grid matrix (Thomas & Shaw, 1976).	e.g. "You seem to be construing in terms of these main attributes".
3	Parameters underlying grid produced in varying contexts	e.g. principal components analysis of differences between serial grids (Slater, 1972).	e.g. "You seem to be changing your construing along these dimensions".

TABLE 9 Levels of display information.

sample is limited to one or two underlying dimensions or attributes and that this has implications for his performance in situations involving those elements. Finally, Level 3 displays direct the user's attention to those element predications that vary from context to context, prompting him to elaborate his modelling of his construing processes. For example, the user may find that his construing of a particular element varies over situations involving that element, and pursues the implications of this for his modelling of himself in changing circumstances.

This analysis of modelling activity, whilst simplistic, does provide a method for selecting ot devising appropriate transformations and displays for an interactive procedure. Moreover, the analysis does not specify particular transformations but simply the general class of transformations appropriate to each level of modelling associated with a defined conversational domain. The following section will outline a plan for a series of procedures based on this analysis for a particular conversational domain, namely the construction of self and personal others.

3.1.2. An outline of the procedures.

3.1.2.1. The chapters that follow develop a grid-based interactive algorithm for enhancing a user's modelling of self. The algorithm is designed to meet the specifications of 1.2.3., and is structured to enhance modelling at the three levels in the analysis of the preceding section. Each chapter develops or tests a separate aspect of the algorithm, but in every case the focus of the studies is to elaborate and refine the class of transformations and appropriate displays incorporated into the procedure. To facilitate modelling activity at Level 4 the algorithm incorporates the production of a series of replicated grids separated in time, and the provision for the user to extend his predications of elements by introducing new constructs into his grid on successive occasions.

The transformations developed in the following studies fall into two classes, selected for their relevance to the user's modelling of self:-

(i) transformations which qualify grid predications in terms of their centrality or relevance to the user's model of self;

(ii) transformations which qualify grid predications in terms of their stability or consistency in the user's modelling of self.

Clearly, displays based on these transformations and compatible with the modelling of self, represent a subset of all possible displays available at the three levels defined in the preceding section. For example, the user may specify the domain of modelling as his view of 'mother' or 'wife' or even 'my job', 'my dog', and so on. Thus, within the domain bounded by an element sample, and between different element samples these transformations may be brought to bear on different modelling activities as specified by the user. Moreover, other clesses of transformations, capable of being utilised at the three defined levels are feasible. The qulification of grid predications in terms of certainty-uncertainty is one example.

As an orientation to the studies that follow the transformation classes may be defined in more detail, the particular transformations compatible with each level of modelling outlined, and the reflective strategies emloyed to encourage further modelling at each level sketched.

3.1.2.2. The two classes of transformation may be described in terms of the components of the grid as follows:-

(i) Centrality of predication; entails developing a classificatory system capable of distinguishing core constructs from peripheral constructs and central elements from incidental elements. In general terms core constructs are those dimensions that the user formulates as instrumental to defining himself in relation to personal others, whereas central elements are those figures in his grid which are most thoroughly defined by the constructs he formulates. The objective of these transformations is to identify the core features of the user's model of self.

(ii) Stability of predication; entails developing a classificatory system capable of distinguishing stable, transitional and unstable constructs and elements in a series of replicated grids. Stable constructs and elements are those that display consistency between grid replications, transitional constructs and elements are those that display intermittent inconsistency between grid replications, whilst unstable constructs and elements are those that fail to attain any level of consistency between grid replications. The objective of these transformations is to identify features of the user's model of self that undergo responsive change between the contexts in which grid predications are formulated.

These classificatory systems feature in the displays at all three levels defined earlier. However, they are incorporated into displays at each level in different ways, and the feature that distinguishes their use at each level is the reflective strategy, namely the prompts, compatible with modelling at that level. Examples which distinguish levels of prompting are listed in Table 9.

3.1.2.3. The development of transformations, displays and reflective strategies compatible with modelling at each of the three levels follows the general principles outlined below:-

(i) Level 1 feedback.

Transformations; to develop measures for classifying core and peripheral constructs, central and incidental elements, stable and unstable constructs and elements.

Reflective strategy; to incorporate as a component in the procedure a systematic method by which the user anticipates the classification of constructs and elements prior to the transformations above being performed. Discrepancies between his anticipations and transformation outcomes may then provide prompts for further modelling activity, namely, to furnish an explanation for the observed discrepancies.

Displays; to develop a display matrix defined by the user's anticipated classification and the classification derived from the transformations in which individual constructs or elements might be located. Discrepancies may then be readily identified.

(ii) Level 2 feedback.

Transformations; to develop de novo or adapt existing methods for identifying the underlying parameters of predications in each and a series of replicated and extended grids, capable of incorporating the measures developed for Level 1. Such methods, generally termed mulitivariate or data-reduction methods, should be consistent with the data model embodied in the method for representing grid predications (see Appendix D).

Reflective strategy; to incorporate as a component in the procedure the user activities of identifying, refuting or verifying and naming the parameters deriving from the transformations, and the comparison of parameters underlying grids completed on successive occasions.

Display; to develop a display matrix in which individual constructs and elements, qualified by Level 1 measures, may be arrayed to enable the user to identify parameters.

(iii) Level 3 feedback.

Transformations; to construct a probabilistic model of Level 1 outcomes by examining a sample of replicated grids, Estimates of the likelihood that Level 1 classifications indicate core constructs, central elements and stable constructs and elements may be obtained from this sample and prior probability distributions for these outcomes derived. By the application of Bayes' theorem, these data enable degrees of certainty to be assigned to Level 1 outcomes, and provide predictions for subsequent grid replications.

Reflective strategy; to incorporate as a component of the procedure a method by which the user is presented with discrepancies between Level 1 outcomes in his replicated grid and probable outcomes defined in terms of the transformations above. These discrepancies provide prompts for further modelling activity, namely, to furnish an explanation for the observed discrepancies.

Displays; to develop a display matrix defined in terms of the classification predicted by the Bayesian transformation of outcomes in the preceding grids, and the observed outcomes of the replicated grid. Individual constructs and elements may be located in the matrix, and discrepancies readily identified.

Briefly, Level 1 feedback is expected to provoke insight into the process of element predication in a way that enables the user to formulate statements concerning the nature of his modelling activity. He may then come to generate a first-level meta-language. Level 2 feedback encourages awareness of the implications of models of self and personal others, and enables the user to denote similar and contrasting patterns in his predicating activity. To do so, he generates a second-level metalanguage. Finally, he generates a third-level metalanguage to denote his insights into the contexts in which his models of self and personal others remain constant or change, in response to Level 3 feedback. The general model of the procedure, incorporating the transformations and display principles described here, is sketched in Fig.35.

3.1.2.4. These principles are developed in each study in greater detail. In particular, Chapters 3.2. and 3.3. focus on the development of Level 3 transformations and displays in relation to centrality of predication and stability of predication, respectively. Chapter 3.4. combines the techniques developed in the preceding chapters with reflective strategies, displays and transformations developed for Level 1 and 2, and tests the effectiveness of the procedures in two case studies. All three Chapters, however, focus on enhancing modelling internal to the user, and the implications of this modelling activity for the user's social relationships are not pursued.

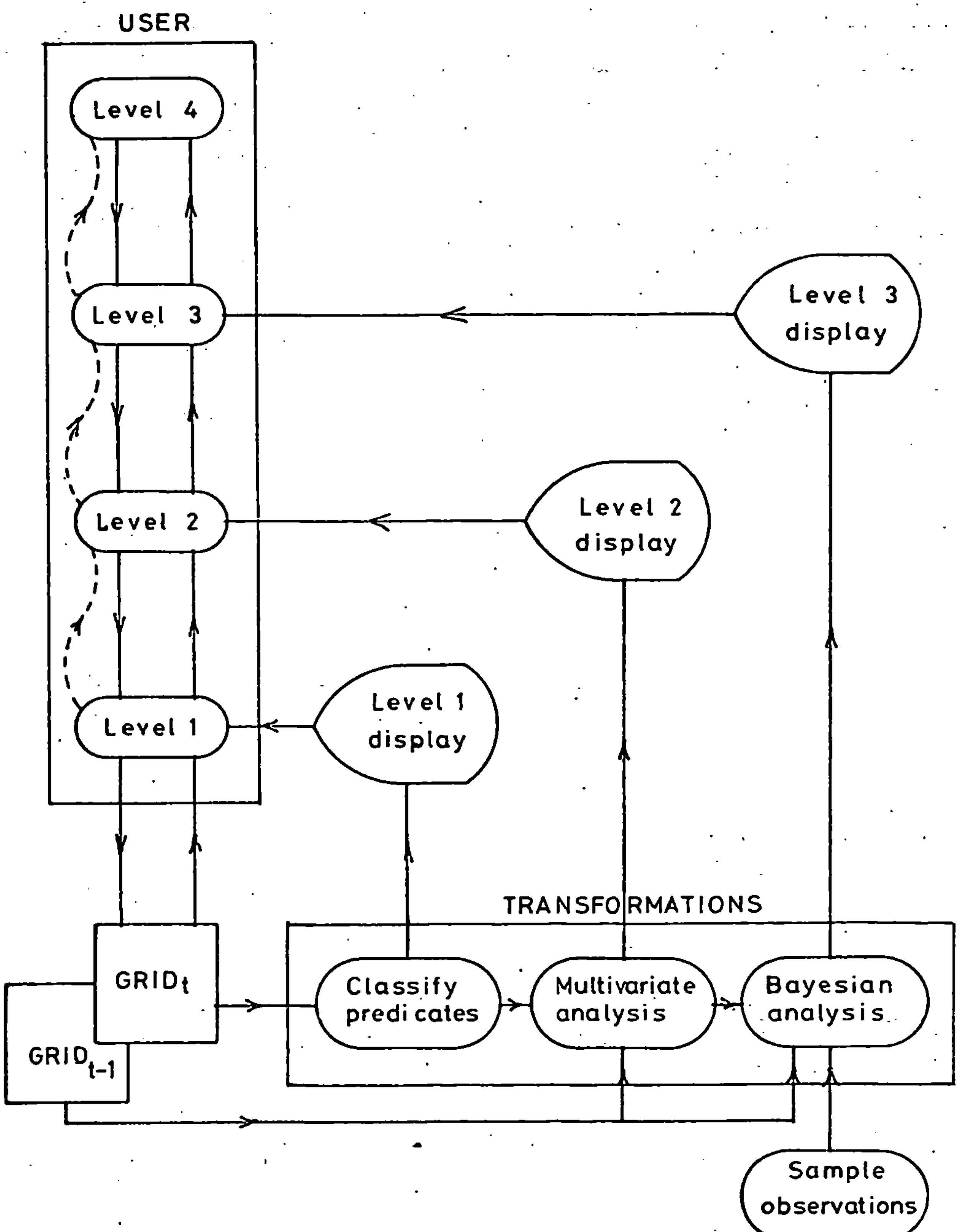


Figure 35 Model of procedures

Chapters 4.1. and 4.2. are explicitly concerned with facilitating modelling in an interpersonal context and apply the procedures developed in Part 3 to case-studies comprising married and unmarried couples. To explore the capacity of participants in these case-studies to engage in joint modelling activity, techniques are developed for qualifying a participant's predications in the context of their partner's predications, and appropriate transformations are developed accordingly.

Chapter 3.2.

The core grid

3.2.1. Stages in the development of core grid procedures.

3.2.2. Stage 1 ; Introduction

3.2.3. Stage 2 ; Defining predication centrality

3.2.4. Stage 3 ; Developing transformations

3.2.5. Stage 4 ; Developing reflective strategies

3.2.6. Summary

3.2.1. <u>Stages in the development of core grid procedures.</u>

3.2.1.1. The task of this chapter is to develop some aspects of the model of procedures outlined in Fig. 35, namely transformations and displays appropriate to Level 2 and 3 with respect to the <u>centrality of predications</u> in the user's grid matrix. To achieve these objectives, this chapter is organised into the following four stages which develop a procedure henceforward termed <u>the core grid</u>:-

3.2.1.2. <u>Stage 1; Theoretical introduction to centrality of predication.</u>

Step (i); An outline of the hypothetical conditions underlying centrality of predication in the repertory grid.

Step (ii); An introduction to definitions of centrality of predication deriving from previous research.

3.2.1.3. <u>Stage 2; Operational definitions of predication centrality and the collection of sample observations.</u>

Step (iii); An outline of the Bayesian analysis.

Step (iv); The construction of operational definitions of predication centrality.

Step (v); The collection of a sample of grids and the classification of sample predications according to the definitions of Step (iv).

Step (vi); From the classification of Step (v) the construction of prior probability distributions for definitions of predication centrality.

3.2.1.4. Stage 3; The development of transformations compatible with Level 2 and 3.

Step (vii); The development of a transformation for identifying predication centrality in individual grids.

Step (viii); The development of a transformation for identifying parameters underlying predications in grids.

Step (ix); The definition of outcome-classes deriving from transformations developed in Step (vii).

Step (x); The estimation of likelihood ratios associated with transformation outcomes.

3.2.1.5. Stage 4; The development of displays compatible with Levels 2 and 3.

Step (xi); The development of Level 2 displays deriving from Step (viii) transformations, and apply to a case-study.

Step (xii); The development of a reflective strategy and display for Level 3 transformations, developed in Stage 3.

3.2.2. Stage 1; Introduction.

3.2.2.1. The rationale of the core grid procedure is based on the observation that only a subset of grid predications formulated by a user adequately represent his experiences within a given conversational domain. Adequate representation may then be defined as the extent of mapping between the user's predications and predications as they are exteriorised in the grid matrix. Difficulties in achieving adequate mapping are everyday conversational experiences;

> "A person may say 'I have to go to a meeting tonight, but for some reason I don't want to go'. Now from this verbal content we have no way of getting at why he doesn't want to go. Only he has a way of getting at the feelings.....As he refers directly to his present experiencing he may say, 'Well, I don't know what it is, but I sure don't want to go!' He may continue to refer to his present experiencing and it may change even without further conceptual formulation......Or, he may say, 'H-mm, I don't want to go because Mr. X will be there and he will argue with me and I hate that.' This verbal content will have arisen for him from a direct reference.....Nor is this all the meaning that might emerge as he grapples with his present experiencing. A little later he may say, 'Oh, it isn't that I hate arguing with Mr. X; actually I love to argue with him, but I'm afraid he will make fun of me when I get excited in arguing.'..... He is not simply using certain concepts which accurately say something about him. He is not deducing from his behaviour that he is afraid of being ridiculed. Rather, he forms the conceptualizations on the

basis of direct reference to present experiencing."

Gendlin (1961, p.237-8).

Gendlin terms this process 'experiential explication', and identifies two criteria against which a formulation is judged subjectively plausible;

"first, there is independent access to the datum even without formulation.....For example, we listen to a discussion, then we have something to say. We 'know' what we are about to say even without reciting words to ourselves. If we are distracted, we may lose hold of what we are going to say.....Secondly, the directly noticed phenomenon has the power which I called response. What we directly sense or feel 'responds' differently to different sentences and nonverbal symbols.....These words carry forward our experiencing. They release, relieve our felt sense of being about to say something. We cannot.....represent.....what we concretely had as a meaning. Rather, to explicate is always a further process of experiencing."

Gendlin (1972, p.161-2).

Pask (1975) identifies two sources of disturbance which inhibit adequate formulations, (i) interlevel incompatibility, (ii) intralevel interference;

(i) Interlevel incompatibility;

"even if you do have a specific concept by token of which you can reconstruct it somehow, it does not follow that you can reconstruct it by a particular method. method. Even though you may also give an account of the method and use it with respect to some other concept. If you can do so, the concept and the method are P/P compatible; if not they are P/P incompatible."

Pask (1975, p.195).

Thus, whilst the user might identify a meaningful distinction between a set of elements, it does not follow either that his verbal description of this distinction, or his allocation of elements to operationalise this distinction, satisfactorily represents his 'felt' distinction. As a result the predication recorded may bear little ostensible relevance to his 'felt' distinction.

(ii) Intralevel interference;

"if the result.....is Proc_A^{o} r,i (for r other than i) then Proc_A^{O}l,i is mutable under Proc_A^{1}k,i in the context of R_i.....if a fresh construct is produced as a result then the original concept is mutated by the method."

Pask (1975, p.195).

In other words, if the user attempted to exteriorise a felt meaning but failed to do so, or produced an entirely different meaning, or reproduced the original meaning under a different verbal label, then the procedures for exteriorising those meanings interfere with one another.

In summary, we may identify two sources of failure to map experienced and exteriorised meaning, and two criteria for the goodness-of-fit between experienced and exteriorised meanings within the repertory grid. Clearly, the two sources of failure are not independent; sensing that his constructs do not adequately represent his felt meanings, the user may be content to accept his representation as an entirely different meaning. Conversely, the interference of one construction on another may lead the user away from an originally valued felt meaning either to discard it as valueless, or to change the experienced datum it initially explicated, to use Gendlin's terms.

3.2.2.2. We may at this stage indicate what might be identified from the user's grid as a failure of mapping of experienced and exteriorised meaning. Evidence of interlevel incompatibility is best seen as a lack of 'meaningfulness' of a construction for the user. Numerous studies have indicated that the felt 'meaningfulness' of a construction is strongly related to the manner in which the user represents it numerically, namely that the allotment of elements tends towards the scalar extremes on constructs of greater personal meaningfulness (Cromwell & Caldwell, 1962; O'Donovan, 1964, 1965; Tajfel & Wilkes, 1963; Mitsos, 1961; Landfield, 1965, 1971; Isaacson & Landfield, 1965; Isaacson, 1966; Bonarius, 1968; Bender, 1969, 1974). In other words, the user displays greater certainty and confidence in assigning elements to extreme positions on a construct scale when that construct is seen by him to make greater sense of his personal world.

Evidence of intralevel interference is demonstrated by the failure to reproduce on a subsequent occasion a previously valued construction from its verbal description, or to reproduce it by a construct with a different verbal description. In both cases, interference may be inferred from the failure to replicate a series of element allotments at a specified level. Clearly, many contingencies may arise in the interval between construct applications which might have produced changes in element allotment.

One notable attempt to tease out the differential effects of revision of opinion about element allotment as against the reinterpretation of a construct's original meaning has been made in the study of a therapy group by Fransella & Joyston-Bechal (1970). In this study both the consistency of element allotment and the pattern of construct inter-relationships on successive occasions were recorded, The rationale was that if opinion concerning a subset of elements had been revised (perhaps as a result of events in the group) then changes in element allotment would occur systematically across related constructs without disturbing the pattern of construct inter-relationships. If construct descriptions were reinterpreted, however, changes in element allotment would not be systematically represented on other constructs, and the pattern of construct inter-relationships would markedly differ.

Whilst this method identifies the locus of intralevel interference, the core grid procedure seeks to locate the source of interlevel incompatibility in the user's description of himself;

> "Core constructs are those which govern a person's maintenance processes - that is, those by which he maintains his identity and existence.....if his core constructs are too permeable.....he is likely to see too many new events as having a deeply personal significance.....Core constructs are likely to be more stable, more definite, more resistant to change in contrast to peripheral constructs..... namely those which can be altered without serious modifications of core structure."

Kelly, (1955, p.482-3).

A more detailed analysis of the nature and function of constructs of this kind may be found in Mischel's (1964) discussion, in which he argues that constructs are more frequently "rules which prescribe behaviour.....used to decide what one should make happen (than) hypotheses which describe behaviour.....used to predict what will happen" (p.184). In this sense, core constructs might be seen as self-fulfilling prophecies, resistant to refutation in the light of outcomes. It is ~~the~~ constructs of this kind that the core grid procedure seeks to identify.

Numerous studies have, in recent years, attempted to tease out the characteristics of core and peripheral constructs, Notably, Hinkle (1965) has developed a technique for assessing the relative resistence to change of constructs by asking his subjects whether, if they had to move themselves as an element from the preferred to the non-preferred poles of constructs x <u>or</u> y, they would choose to move along construct x rather than y, or vice versa. Hinkle was able to show that constructs of greater relative resistance to change were also those of greater superordinancy - that is, those constructs on which any change in element allotment would be reflected by similar changes on other constructs. Moreover, Bender, (1969) demonstrated that core constructs defined in this way were those along which subject's judgements of personal others were more extreme. Similarly, Tajfel & Wilkes (1963) found that 'salience' of elicited attributes (those elicited soonest and more frequently repeated) also led to greater rating extremity. These findings, and others in a similar vein, lead to the conclusion that core constructs are those that display more adequate mapping, and provide the scheme of interrelated conclusions set out in Fig. 36.

This scheme must be interpreted with extreme caution as such a picture arising from the admixture of assumptions and empirically demonstrated relations. In isolation these relationships cannot predict core constructs with certainty, and common-sense instances may be found that could refute them, for example:-

(i) for a person in the process of profound emotional change a construct that displays consisderable instability of element allotment cannot be assumed to be peripheral;

(ii) a lack of confidence in assigning elements to a particular construct in the same person need not indicate that the construct is peripheral;

(iii) for a person reluctant to direct his attention towards himself, core constructs need not necessarily be elicited soonest, repeated more frequently, or constitute the first principal component, and so on.

For the purposes of the core grid procedure no single definition appears to be sufficient, It will become clear that the Bayesian analysis of grid predications seeks to infer from a grid matrix which predications are central to the user's construction of himself, and to this end it will be necessary to establish rigorous operational definitions of centrality predication. By combining a variety of features of central predications in an aggregate operational definition, this rigour may be achieved.

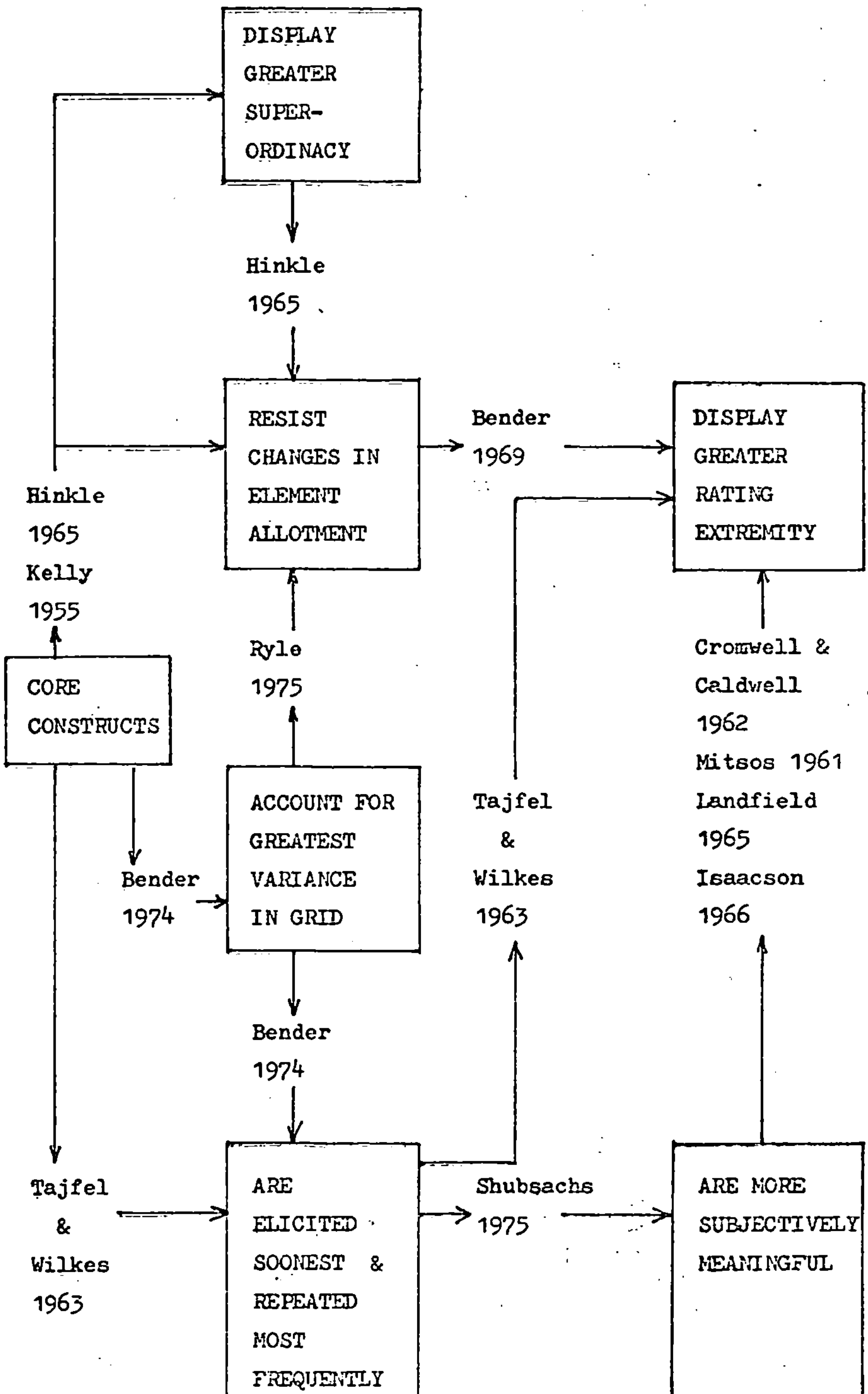


Figure 36 Studies demonstrating inter-relationships between Features of core constructs.

3.2.3. Stage 2; Defining predication centrality.

3.2.3.1. The preceding chapter indicated that the objective of Level 3 feedback was to enable the user to develop a third-level metalanguage to denote his insights into the contexts in which his modelling of self varies. To achieve this, the optimal reflective strategy was considered to be to present the user with discrepancies between the centrality of predications expected on the basis of previous grids and predications observed in his present grid, and to encourage the user to construct and express an explanation for these discrepancies. It is clear from the discussion of interlevel compatibility that predicates may fluctuate in centrality from occasion to occasion, and that this may reflect significant shifts in modelling between contexts. It became evident that an appropriate procedure for labelling predications would be to reflect these fluctuations by attaching degrees of certainty to the labels depending on the classifications of that predicate in previous grids. These labels, with degrees of certainty attached, would then provide a prediction regarding that predication in a subsequent grid.

However, predictions regarding future predications following a series of observed predications need to be based on a non-stochastic process. That is, the likelihood of a given outcome is not determined solely by the immediately preceding outcome, but by the entire sequence of outcomes on previous occasions. For example, should a particular element obtain a given predication consistently on five occasions the likelihood that the same predication will obtain on the sixth occasion is not equivalent to the likelihood that that predication will obtain on the second occasion. To clarify this we need to define a descriptive statistic capable of denoting this likelihood. The basic statistic is

$$p(X_n = S_i / X_{n-1} \ldots X_{n-j} = S) = a$$

Coombs, Dawes and Tversky
(1970, p.235).

That is, a is the proportion of times the sequence S on the j trials preceding trial n is followed by the state S_i on trial n. In fact, rather than employ the proportion statistic, procedures for formulating predictions are best posed as probabilities. Following the analysis of Coombs et al (1970), we may specify the nature of the non- stochastic process in greater detail. The prediction model would for example, assume the sequence of outcomes to be a stationary process where the "probability that S_i follows a given sequence S is independent of the trial numbers on which S occurs" (p.236). For example, we might predict that a particular predication will obtain on a sixth occasion if, and only if, the majority of the preceding five occasions obtained that predication. Moreover, the process is, as we have said, non-stochastic and also path-independent, where the probability that S_i occurs on trial n is dependent not on the sequence of states but their frequency on previous trial?

On the basis of a stationary path-independent process, how might predictions be formulated and revised on the basis of successive outcomes? The ideal procedure for this task derives from a Bayesian approach where:

> "opinions are expressed in probabilities, data are collected, and these data change the prior probabilities, through the operation of Bayes' theorem, to yield posterior probabilities.....Events which have already occurred but whose outcomes are still unknown to us and events that have yet to occur may be the subject of.....predictions or inferences. Will this person commit suicide? Is this person brain-damaged or functionally ill? Will the next toss of the coin result in heads or tails? .....As you can see from these examples, events are a special type of hypothesis, for, after all, I can talk of a patient's committing suicide as either an event that has not yet happened or an hypothesis about the patient's future behaviour."

Phillips (1973, p.5-9).

To develop Level 3 transformations, the first task will be to identify those events which will come to be referred to as hypotheses. The immediate concern will be here to decide whether discontinuous hypotheses (a limited class of outcomes at a nominal level of measurement; for example, an event occurs or it does not occur) or continuous hypotheses (inferences about an uncertain quantity and predictions concerning that quantity; for example, an event measured at an ordinal or interval level of measurement) are to be employed. Secondly, the application of Bayes' theorem for discontinuous hypotheses requires the definition of the following terms:-

1) the prior probability distribution of hypotheses ($p(H_i)$). For example, what probability may be attached to the hypothesis that any predication will be consistent over a series of replications? This comprises Step (vi) in the development of the core grid procedure.

2) the likelihood of an observed datum given a particular hypothesis ($p(D_k/H_i)$). For example, what is the likelihood that the single observation of a given predication on one occasion indicates that the predication will be consistent over a series of replications? This comprises Step (x) in the development of the core grid procedure.

In short, it is necessary to derive estimates of the probability of each hypothesis occurring prior to any observed datum indicating a particular hypothesis as likely. These two terms may then be introduced into Bayes' theorem to derive posterior probabilities, defined as:-

$$p(H_i/D) = \frac{p(H_i)p(D/H_i)}{\sum p(H_j)p(D/H_j)}$$

Phillips (1973, p.63).

To define these terms it will be necessary to collect a sample set of observations of replicated grids and set up operational specifications for:

1) definitions of the hypotheses to be employed (Step (iv)).

2) definitions of grid outcomes to be employed (Step (vii)).

These definitions will then enable the collection of data from the sample observations to obtain :-

1) the observed frequency of hypotheses within the sample (Step (v)).

2) the observed frequency that data classes within the sample are contingent on these hypotheses (Step (x)).

3.2.3.2. The first stage in defining these terms consisted of collecting a sample of grids replicated on a series of occasions, establishing an aggregate operational definition for centrality of predication separately for constructs and elements, and deriving prior probability distributions for these definitions.

(i) <u>Definitions of core and peripheral constructs.</u>

To provide an operational definition of core and peripheral constructs, we may utilise Kelly's original (1955) formulation; hence, a core construct is a predicate that satisfies the following conditions:-

1) that it 'governs a person's maintenance processes - that is, (it is a construct) by which he maintains his identity and existence'.

Rationale; it is a predicate which is instrumental in either identifying the person by seeking similarities between himself and others, or in delineating the person by seeking differences between himself and others. Such a predicate would display satisfactory mapping in the certainty with which this identification, delineation, or both, is made.

Operational Definition; it is a construct which locates the element SELF at either rating position 1 or 5 on a five-point scale. Constructs are identified as +SE if SELF is located at one or other extreme, or -SE if SELF is located at any intermediate position.

2) that it is 'comprehensive but not too permeable .....a person can use it to see a wide variety of known events as consistent with his personality'.

Rationale; it is a predicate that enables the person to subsume a wide variety of personal others, either by identifying or delineating them for himself. This implies that not only is the range of convenience of such a predicate able to embrace a range of personal others, but that mapping is seen as adequate.

Operational Definition; it is a construct which locates all elements in the sample at or near either pole. As very few constructs display complete rating extremity, an average extremity score is derived for each construct by computing the root mean square deviation from the centre of the scale, namely rating position 3. The median average extremity score for each subject may then be found and constructs whose scores for that subject exceeded the median may be denoted as +AE, those below the median as -AE.

3) in contrast to peripheral constructs, core constructs cannot be altered without serious modification of core structure.

Rationale; it is a predicate which preserves its identity from occasion to occasion, but which may or may not display a degree of change in element allotment. That is, the person may relocate himself and a number of personal others between occasions (indicating a dimension of transition) without significantly reinterpreting the predicate's meaning.

Operational Definition; it is a construct which displays stability of interpretation between occasions. Two measures of stability of interpretation are obtained. The first is the exact probability of obtaining observed changes in element allotment given the distribution of element rating scores on the first and second occasions, (computed by the program EXACT in Appendix D). Thus, should a construct display high average extremity on the first occasion but low avaerage extremity on the second, whilst ordinal relationships between elements are unaffected the measure of stability between occasions would remain constant. Secondly, the interpretation of a construct's meaning may remain constant whilst element allotment may vary significantly between occasions. To compensate for this, exact probabilities of association between constructs on each occasion may be ranked from the smallest to the largest probability and Spearman rho correlations computed for each construct between the first and second occasions. Thus, a score may be obtained which reflects the consistency of construct inter-relationships between occasions. Each construct may then be identified as displaying stability of interpretation (+SI) if it obtains an exact probability on replication of .05 or less, <u>or</u> if it obtains a Spearman rho correlation equivalent to a probability of .01 or less. All other constructs which do not satisfy these conditions are denoted -SI.

(ii) <u>Definitions of central and incidental elements.</u>

In defining the centrality of constructs to the user's self-definition, only the predicates of the many declarative propositions that form the grid have been examined.

The subject of these propositions, namely elements, will be defined in terms of their centrality to the user's constructions. That is, elements may be classified as to whether they are central or incidental to the user at the time of completing a grid. Central elements are those persons who are more rigorously described, and who figure more frequently as examples of the distinctions the user makes. Central elements are those that act as descriptive anchors for the meaning of predicates in the course of construction. Because of this anchoring function, central elements are likely to resist changes of allocation on constructs. Incidental elements are those whose allocation on constructs are not instrumental in determining a construct's meaning, or the location of other elements.

To provide an aggregate operational definition a central element was taken as satisfying the following conditions:-

(i) Rationale; that it serves an anchoring function, providing a consistent exemplar for one pole of the distinctions formed by the user's self-defining constructs. Such an element would indicate adequate mapping by the certainty with which it was defined by construct dimensions.

Operational Definition; it is an element which is consistently rated at or near the extremes of self-defining constructs throughout a series of grid replications. Clearly, few elements would be rated extremely on all constructions in any series of grids, and thus an overall root mean square deviation from the midpoint scale rating, 3 may be obtained for each element within a grid series. The median extremity score may then be located, and elements exceeding the median denoted as displaying positive element extremity (+EE), and elements below the median negative element extremity (-EE).

(ii) Rationale; that it is an element which displays stability of interpretation on constructs as they are reapplied throughout a series of grids. However, since construct meanings may be reinterpreted on subsequent occasions, consistency in element allocations may be investigated only for those constructs that display stability of interpretation. That is, although the allocation of elements on a construct dimension may vary, its pattern of relationships with other constructs may remain constant, indicating that the construct has been interpreted on a subsequent occasion as denoting the same implications as it had when originally elicited. In such an instance, a central element would obtain a consistent rating score.

Operational Definition; it is an element that obtains a consistently low overall root mean square difference of rating score on retested constructs that display stability of interpretation. The median element stability score may be identified for all elements in a grid series, and those elements exceeding the median denoted as -ES, and those below as +ES.

3.2.3.3. The classification frame provided by these definitions was then applied to a sample of grids to obtain an estimate of the frequency of occurrence of each of the attributes that constitute core and peripheral constructs, and central and incidental elements. These frequencies will provide the prior probability distributions necessary to implement the Bayesian transformations of grid outcomes.

The grid sample comprised a set of a series of replicated grids from 5 subjects. Each of the five grid series comprised between 3 and 5 grids completed over periods ranging from 6 weeks to 3 months. A fixed element sample of either 9 or 12 elements was used for all grids completed by each subject. The element sample was self-selected in response to a request to write down on 6" x 4" cards the names of acquaintances viewed as significant to the subject's circumstances, and the element SELF was always included. The Full Context method of construct elicitation was employed throughout and having elicited a number of practice constructs, subjects proceeded to produce constructs, to record them on the 6" x4" cards and to apply elements to constructs without intervention by E. A five point rating scale was employed throughout, and subjects sorted element cards and recorded their sorts on their own. Either 4 or 6 constructs were elicited on each occasion, and on every occasion after the first, all constructs from previous occasions were retested. After completion of each grid, the record of subject's element sorts was retained by E.

From the 5 grid series 192 individual element sorts (comprising constructs that had been retested between one and four times, and constructs that had been elicited on the final occasion) and 47 sets of element ratings (omitting the element SELF in each grid) over all constructs were obtained. Each of the 192 element sorts were classified in terms of the three defining attributes of core constructs, and each of the 47 element rating sets classified in terms of the two defining attributes of central elements. (This classification is reported in detail in Appendix E). The frequencies for each attribute are summarised below.

(i) Sample frequencies for constructs.

Table 10 summarises the classification of the 192 sample element sorts. It should be noted that these data derive from 5 subjects and median values for average element extremity were obtained for each subject. Thus, each subject's element sorts were scored in relation to his median, and frequencies summed across subjects. The discrepancy between +AE and -AE was produced by a number of tied scores.

Table 10 Classification of sample element sorts.

	+SE		-SE		
	+AE	-AE	+AE	-AE	Total
+SI	69*	31	19	22	141
-SI	7	16	8	20	51
Totals	76	47	27	42	192

	+	−
SE	123	69
AE	103	89

N.B. SI = Stability of interpretation

SE = Self extremity

AE = Average element extremity

The cell denoted * alone satisfies all three conditions for core constructs. All others denoted peripheral constructs.

It was possible to assess the interdependence of the three measures of core constructs. To compute this interdependence the frequencies obtained were cast into three 2 x 2 contingency tables, and Pearson's index of mean square contingency, or phi coefficient, computed for each table. As the 192 observations were not independent (observations were replicated for subjects and for constructs) the degrees of freedon were calculated as $\sum_{N}^{1}(n_r - n_o)(n_c - 1)$, where N=number of subjects in the sample, n_r = number of replicated construct sets for each subject, n_o=number of occasions on which samples were obtained, and n_c=number of constructs in each construct set. The standard error of the phi coefficient was thus taken as $1/\sqrt{\sum_{N}^{1}(n_r - n_o)(n_c - 1)}$.

(a)

	+AE	-AE	Total
+SE	76	47	123
-SE	27	42	69
Total	103	89	192

which obtained a significant relationship (φ = .218, z = 2.12, p = .034, two-tailed).

(b)

	+SI	-SI	Total
+SE	100	23	123
-SE	41	28	69
Total	141	51	192

which obtained a highly significant relationship (φ = .306, 2 = 2.98, p = .003, two-tailed).

(c)

	+SI	-SI	Total
+AE	88	15	103
-AE	53	36	89
Total	141	51	192

which again obtained a significant relationship (φ = .292, z=2.85 p = .004, two-tailed).

These data clearly indicate that rating extremity of self, average rating extremity and stability of interpretation are highly interdependent measures, and that collectively they provide a powerful method of identifying core constructs. In addition, Bender's (1969) finding that constructs displaying greater rating extremity are those which resist changes in element allotment may be confirmed by inference; that constructs whose interpretations are stable are those on which the subject shows greater confidence and certainty of judgement, and would thus be more reluctant to accept hypothetical or real changes of element allotment.

(ii) <u>Sample frequencies for elements.</u>

Table 11 summarises the classification of the 47 element rating sets in the sample.

	+ES	-ES	Total
+EE	14*	10	24
-EE	9	14	23
Total	23	23	47

N.B. EE = Element rating extremity

ES = Element stability

The cell denoted * alone satisfies the conditions of element centrality. All other cells denote incidental elements.

TABLE 11 Classification of sample elements.

The observations of Table 11 are not independent and the standard error for the phi-coefficient was taken as $1/\sqrt{(N-1)(n-1)}$, where N = number of subjects in the sample, and n = number of observations for each subject. However, it is apparent that the extremity with which an element is assigned to construct scales does not determine its rating stability between occasions (φ = .196, z = 1.11, p = .267, two-tailed), and thus adds rigour to the definition of element centrality.

3.2.3.4. The final step in Stage 2 is to derive from the sample data presented above estimates of the prior probabilities in any grid central or incidental, and core or peripheral constructs.

(i) Prior probabilities for constructs.

Table 10 depicts the observed sample frequencies of classes of construct. Of the 192 element sorts examined 69 satisfied the three conditions of core constructs, and 123 failed to satisfy these combined conditions, To express these data as prior probabilities, two hypotheses concerning centrality of predication must first be established:-

Let H_{cc} = core construct

and H_{pc} = peripheral construct

From the above data we may state the prior probabilities of either H_1 or H_2 obtaining for any construct as:-

$$p(H_{cc}) = 69/192 = .359$$

and $$p(H_{pc}) = 123/192 = .641$$

Thus, the probability of a construct observed in a user's grid being a core construct, prior to any transformation of that construct, is .359, and of it being a peripheral construct, .641.

(ii) Prior probabilities for elements.

Table 11 depicts that of the 47 sample elements examined, 14 satisfied the combined conditions of element centrality, and 33 failed to satisfy these combined conditions. The second set of hypotheses concerning centrality of predication may then be expressed:-

Let H_{CE} = central element

and H_{IE} = incidental element

and prior probabilities for H_3 and H_4 obtained:-

$$p(H_{CE}) = 14/47 = .298$$

and $$p(H_{IE}) = 33/47 = .702$$

Thus, the probability of an element being central, prior to any transformation of that element, is .298, and of it being incidental, .702.

3.2.4. Stage 3; Developing transformations.

3.2.4.1. It is evident that the classification produced in the preceding section was constructed to be applied to a completed series of grids. The task of Stage 3 is to develop transformations compatible with Levels 2 and 3 which may be applied to a single grid produced by a user, and to his subsequent replications of that grid. The application of such a transformation to the user's first grid then enables predictions to be made concerning his subsequent replications, and revised following each of these replications. This stage in the development of the core grid procedure is then to define classes of outcomes deriving from transformations.

The class of transformations appropriate to Levels 2 and 3 are generically termed multivariate analytic models (see Appendix D). Within the class of multivariate analytic models two basic groups are distinguishable, namely, the cluster/typal group of models which locate configurations of items in an undefined space, and the multidimensional group of models, which define the reference coordinates of the proximity space containing the items. What are the relative merits of these models, and which might provide the most appropriate transformation for the core grid procedure?

To answer this question two methods will be examined, namely elementary linkage analysis (ELA; McQuitty, 1957), a cluster/typal model, and principal components analysis (PCA; Slater, 1972), a multidimensional model.

ELA is a method of analysing item interdependence to reveal typal structure, which:

> "is defined as one in which every member of a type is more like some other member of that type than it is like any member of any other type.....In terms of coefficients of correlations between persons, every person in a type would have a higher correlation with some other person in the type than he would with anyone not in the type."

McQuitty (1957, pp.209-213).

In contrast, PCA seeks an underlying set of coordinates by which to account for the obtained dispersion of element ratings on constructs. These coordinates, or components, are linear sums of the original scores, and are thus less removed from the original ratings than, for example, factor analysis. In addition components are identified in an ordered series, producing a set of uncorrelated varieties, chosen such that the first component extracts the maximum variance from the original element ratings, the second the maximum variance subject to being orthogonal to the first, and so on.

3.2.4.2. In order to compare the performance of ELA and PCA the following sections report the derivation of typal and component solutions for the first of a series of grids for one subject, Kenneth, in the preceding sample. Kenneth's first grid comprised 6 constructs and 12 elements (see Appendix E). These typal and component solutions are compared for their compatibility and effectiveness as Level 2 transformations. In addition, procedures for deriving Level 3 core grid outcomes, that is, the identification of central and incidental elements and core and peripheral constructs, are developed.

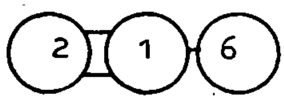
Using the program EXACT (see Appendix D), the following exact probabilities of association were computed for the six constructs of Kenneth's first grid (probabilities are represented as q = 1 - p):-

	C1	C2	C3	C4	C5	C6
C1	1	.987	.789	.720	.676	.645
C2		1	.477*	.554	.765	.912
C3			1	.876	.498*	.635*
C4				1	.802	.515
C5					1	.744
C6						1

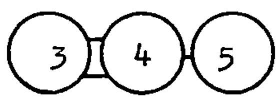
(Note: * indicates the result of an optimising subroutine of EXACT, in which one of the constructs in the pairs indicated obtains a higher degree of association when reversed).

Using the extension of ELA described by McQuitty (1957) to isolate orthogonal types, types were located by the highest entry method and typal relevancies calculated as standardised vectors. This procedure was chosen in order to compare the solution with PCA, since the operations are similar in many respects. Thus, an initial type was located from the original matrix capable of accounting for most variance by the following steps:-

(i) initial types obtained

Type I 

accounting for 52.4% of total variance.

Type II 

accounting for 47.6% of total variance.

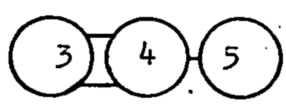
(ii) isolating the first type because it accounts for the greater variance, we obtain the following standardised vector:-

Type I	C1	1.000
	C2	.989
	C3	.647
	C4	.610
	C5	.745
	C6	.974

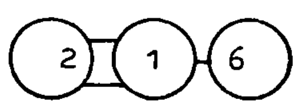
Leaving the matrix of residuals:-

	C1	C2	C3	C4	C5	C6
C1	.410	.404	.403	.360	.236	.370
C2		.423	.099	.198	.330	.343
C3			.753	.643	.213	.263
C4				.780	.534	.164
C5					.672	.315
C6						.439

(iii) Second order types obtained from the matrix of residuals:-

Type II 

Accounting for 26.5% of total variance.

Type III 

accounting for 21. 1% of total variance.

(iv) isolating the second type because it accounts for the second largest proportion of total variance, we obtain the following standardised vectors:-

Type II	C1	.511
	C2	.320
	C3	.822
	C4	1.000
	C5	.727
	C6	.379

leaving a second order matrix of residuals, from which no additional types could be derived without construct repetition between types. The final solution is thus of two types accounting for 78.9% of the total variance. The remaining 21.1% of variance in the original matrix cannot be accounted for by this system, and must be regarded as latent interdependencies which have been screened out by the strict definition of typal membership which McQuitty advocates.

However, there is an obvious anomaly, in that C5 contributes more to the first type than to the second, the latter being its true type by McQuitty's method. A solution to this dilemma is to consider C5 as a third isolate type, accounting for 16.1% of the total variance, with a standardised vector as follows:-

Type III	C1	.108
	C2	.525
	C3	.244
	C4	.392
	C5	1.000
	C6	.432

The final solution can be tabulated as follows:-

Type	Construct	Percent Variance	Vectors I	II	III
I	C1 Self-destructive	18.406	1.000	.511	.108
	C2 Receptive to change	16.898	.989	.320	.525
	C6 Withdrawn	17.100	.974	.379	.432
II	C4 Avoids physical contact	16.078	.610	1.000	.392
	C3 Bitter	15.376	.647	.822	.244
III	C5 Emotional	16.142	.745	.725	1.000
	Variance accounted for ($\%S^2$)		52.404	26.468	16.142

Having identified construct types, a procedure was developed to locate those elements which most defined each type, that is central elements. Each of the twelve elements was scored in the following way:-

(i) deviations from the mid-point rating were summed for each element and for the grid overall, and elements weighted by the proportion of the total variation accounted for by each;

(ii) deviations from the mid-point rating for each element were summed over the constructs of each Type;

(iii) the product of the deviation sums in (ii) and the weights of (i) constituted a measure of the amount of total variation accounted by each element on each Type;

(iv) those elements that accounted for at least the first 50% of variation in each Type were denoted as central elements (see Table 12).

Elements	Construct Types I	II	III
1			
2	.11	-.13	
3		-.14	-.13
4	.11		.12
5		.12	
6			
7			
8	-.11		-.12
9 (SELF)	-.19	-.17	-.16
10			
11			
12			

N.B. Sign denotes direction of deviation from mean rating

TABLE 12 Central element variance scores.

Whilst it is evident in Table 12 that the element SELF is central to all three construct types, we may formulate a definition of a core construct type as that type which delineates the element SELF from other elements to the greatest degree. It may be seen in Table 12 that construct type I achieves this maximal delineation (variance scores; E9 = -.19, E8 = -.11, E4 = .11, E2 = .11). Thus, the three constructs C1, C2 and C6 may be labelled as core constructs.

In summary, the ELA procedure developed here entails the following stages:-

(i) the identification of typal structure for constructs;

(ii) the derivation of element variance scoress for each construct type;

(iii) the identification of elements central to the definition of each construct type;

(iv) the identification of that construct type that maximally delineates the element SELF;

(v) the labelling of members of that construct type as core constructs.

We may now compare this method and the core grid solution obtained with the PCA method.

3.2.4.3. In contrast to ELA, PCA proceeds by identifying a latent variate underlying the variability of the unprocessed grid, rather than the item-specific variates, or types, of the ELA method. A distinctive assumption of this method is that any differentiation the user may make between elements may be represented on <u>all</u> rather than a subset of constructs, and constructs are analysed as to the extent to which their residual variation may account for and contribute to this distinction. This represents a significantly distinct view of mapping, in that constructs are not discrete constructive events but samples of a continuous process of identifying and formulating experienced meanings. Thus, we might expect to find a continuous gradient in distinctions a user formulates during construct elicitation, representing the approximation of successively exteriorised predications to a felt meaning. This view is consistent with Gendlin's (1972) description of the process of 'experiential explication'.

The analysis of Kenneth's first grid by Slater's (1972) program INGRID produces an ordered set of latent components which exhaust the total variance of the unprocessed grid. In fact, the total variance will be accounted for by a maximum of N_e-1 or N_c components (whichever is smaller) where N_e = the number of elements, and N_c = the number of constructs. Six components thus exhaust the variance of Kenneth's grid. An important note is that the normalisation option of INGRID (entailing transforming deviates for each construct to standard scores) was not employed. Morrison writes:

> "should we work with the variances and covariances of the observations, and carry out our analyses in the original units of responses, or would a more accurate picture of the dependence pattern be obtained if each X_{ij} were transformed to a standard score

$$Z_{ij} = \frac{X_{ij} - X_j}{S_j}$$

and the correlation matrix employed?.....if the responses are reasonably commensurable, the covariance form has greater statistical appeal, for.....the ith principal component is that mean compound of the responses which explains the ith largest position of the total response variance, and maximisation of such total variance of standard scores has a rather artificial quality."

Morrison (1967, p.223).

As an important feature mapping is the way in which the user employs rating scales to express 'felt' meanings, and thus normalising responses on these scales destroys this distinctive quality of the grid matrix.

Construct loadings on the six components of Kenneth's grid were examined first (Table 13). To assign constructs to components without replacement and to identify components attributable to error variance, a method for locating significant components was developed, namely the 'method of representation'. This entailed assigning constructs to those components on which they obtained the highest loadings, irrespective of the size of the components eigenvalue or latent root. Thus, in Table 13 the construct most representative of each component, and the component most representative of each construct may be identified (Table 14), This analysis reveals that the greatest representation of constructs is obtained with the first three components, accounting for 82.9% of the total variance. The last three components, accounting for 17.1% of the total variance were discarded as error variance. Whilst this analysis corresponds to the ELA solution, PCA accounts for a smaller portion of the total variance (ELA: Type I + Type II + Type III = 95.0%), which indicates that the PCA method is more sensitive to latent variates than the ELA method.

	Components					
	I	II	III	IV	V	VI
C1	4.543	.010	-1.951	.216	.665	.674
C2	4.474	-1.310	- .081	-2.349	-1.162	- .290
C3	.983	3.267	-2.299	- .162	1.251	- .551
C4	1.874	4.670	1.204	.813	-1.592	.099
C5	2.334	.865	3.318	- .640	1.817	.017
C6	3.773	-2.272	.393	2.558	- .083	- .385
$\%S^2$	42.41	26.25	14.20	8.64	6.02	2.48

TABLE 13 Construct loadings on six components.

Element centrality within the PCA procedure may be defined in terms similar to the ELA definition, namely as those elements which cumulatively account for the first 50% of each component's

	Components					
	I	II	III	IV	V	VI
C1	1					
C2	2					
C3		2				
C4		1				
C5			1			
C6	3					

TABLE 14 Representation of significant components.

variance. For this purpose, the matrix of normalised element vectors coefficients is required. By this procedure, elements central to each component may be identified (Table 15).

	Components		
Elements	I	II	III
E2		-.194	
E4	.245		.193
E6			.209
E7		.17	-.256
E9 (SELF)	-.262		
E11		.21	
$\%S^2$	50.7	57.4	65.8

(N.B. Sign denotes direction of deviation about mean rating).

TABLE 15 Variance accounted for by central elements.

It may be observed that this analysis of element centrality differs from the solution obtained by ELA. We have seen that the typal and component solutions for constructs are identical, yet only slight agreement obtains for the identification of definitive elements in these solutions, namely elements E4 and E9 (SELF) on the first variate, element E2 on the second, and element E4 on the third. In particular, the element SELF is central on the first component of the PCA solution alone, whilst the ELA anlaysis suggests it to be central to all three construct types.

However, both methods locate identical subsets of constructs as core constructs. Since in the PCA solution, the element SELF is definitive of the first component the three most representative constructs of that component, namely C1, C2 and C6, are labelled as core. Differences in the identification of central elements reflect differences in the status of element ratings in the two methods; PCA represents all ratings as deviates from the mean rating on each latent variate, and derives element vectors from these deviates, whilst the method developed for the ELA procedure represents ratings as deviates from the scalar midpoint, and derives element variance scores for each construct type. Thus, the two procedures obtain agreement only in those instances where the mean rating and scalar midpoint are identical (for example, component I and type I, where the rating mean (3.03) is almost equivalent to the scalar midpoint of 3) and obtain different solutions where the two values are discrepant (for example, component III and type III, where the rating mean (2.00) differs from the scalar midpoint).

In conclusion, it was decided that the PCA method was more appropriate as a Level 3 transformation for the following reasons:-

(i) the PCA solution accounts for a smaller proportion of the total variation in the grid. This suggests that PCA is able to detect latent variates with greater rigour. This is, of course, related to the rationale of the procedures in that PCA seeks to account for the total variation with the smallest number of orthogonal latent variates, whilst ELA locates item-specific types <u>before</u> estimating the variance that they subsume. In short, PCA partitions the total variation <u>prior</u> to identifying the contribution to this variation of each raw variate, whilst ELA estimates variance accounted for after locating item types.

(ii) the variance attributable to a latent variate in the grid may be <u>simultaneously</u> partitioned between constructs and elements in PCA, which is not the case with ELA. A development of ELA methods to compensate for this is to obtain typal solutions for <u>both</u> constructs and elements and produce a two-way analysis of the raw grid (Thomas and Shaw, 1976).

(iii) the assumption of continuity in the mapping of 'felt' meanings and grid predicates is more consistent with the rationale of PCA than ELA. That is, assigning items without replacement to types in the ELA procedure firstly assumes the absence of any relationship between item prior to the typal analysis, and secondly that once assigned an item is unequivocally a member of that type. As a result, ambiguities are concealed (for example, tied relationships between items of different types).

3.2.4.4. Having selected PCA as the most appropriate transformation, the procedure for deriving core grid outcomes may be summarised (Fig. 37). An additional transformation developed for serial grids is <u>cumulative principal components analysis</u> entailing the derivation of PCA solutions for the combined serial grid matrices. Thus, if grid t + 1 is a replication of grid t, principal components are derived for both matrices combined at time t + 1 (Fig. 38).

As this figure depicts, components are derived to represent all constructs and element rating up to and including time t + 1, whilst core construct outcomes are derived only for constructs as they are employed at time t + 1. This method has three distinct advantages:-

(i) all constructions the user formulates are equally represented in the solution; significant reinterpretations of retested constructs will be exhibited by comparing loadings on the common set of components;

(ii) cumulative analysis reflects the directionality of ongoing modelling activity; if the user shifts emphasis from one class of predicates to another, this will be evident in comparisons of loadings;

(iii) novel patterns of predication in grid t + 1 are traced to

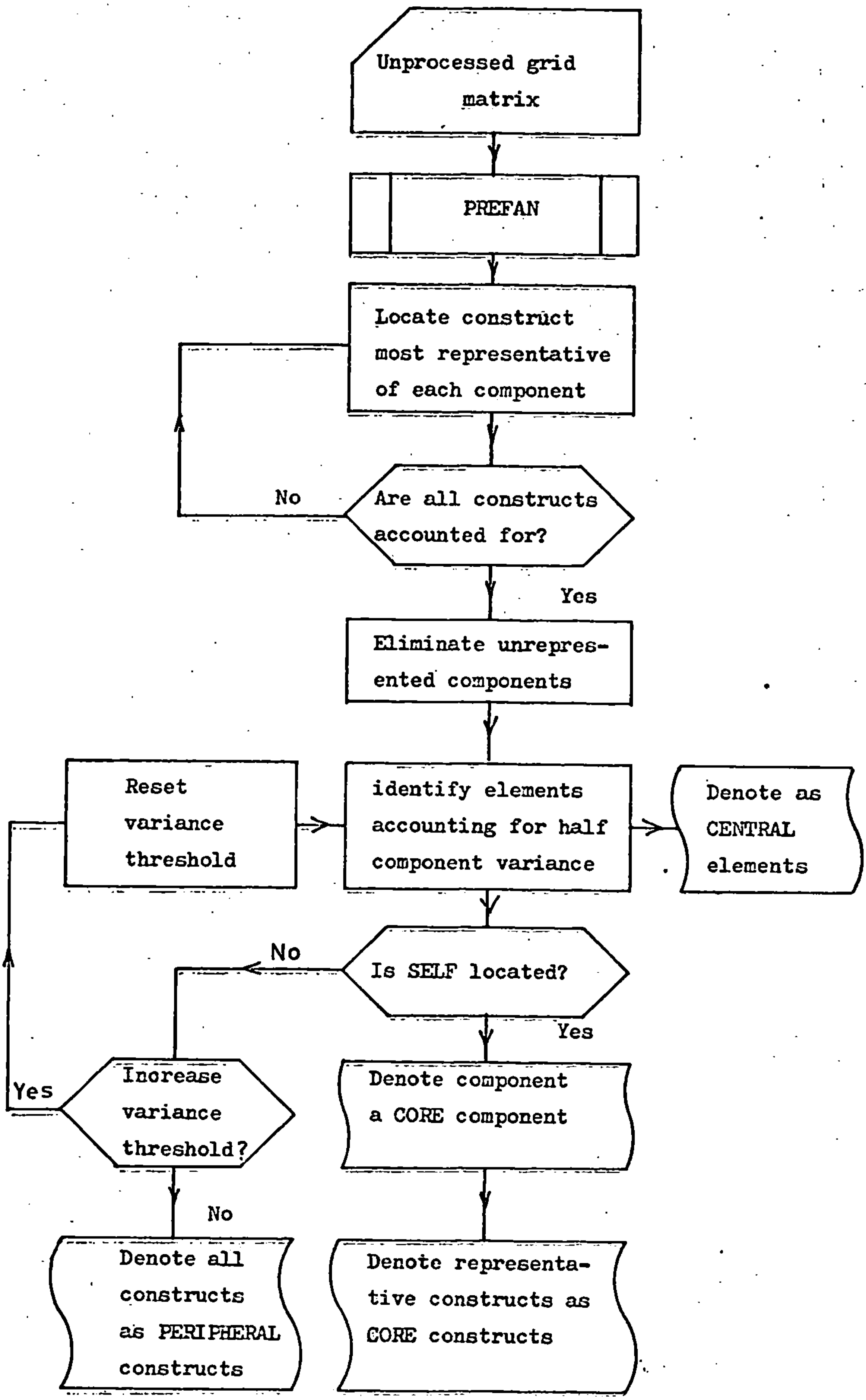


Figure 37 Derivation of core grid outcomes.

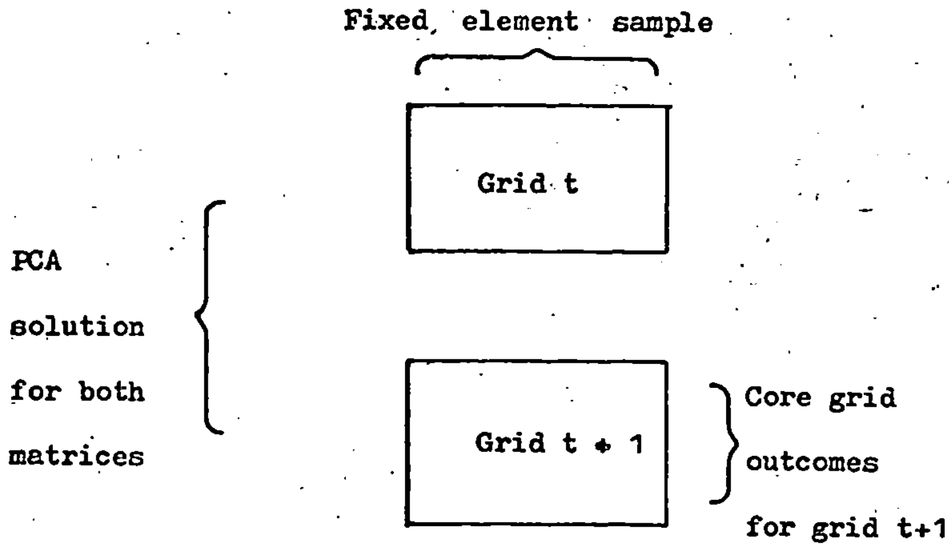


Figure 38

their origin in grid t; if the user introduces a class of predicates for the first time into grid t + 1 the extent to which these predicates are represented in grid t may be estimated.

Step (ix) is now complete, and operational definitions of predication centrality and core grid outcomes have been formulated. As Level 3 transformations involve estimating the probability that may be attached to each of the operational definitions, or hypotheses (H) on observing individual outcomes, or data (D), we proceed in Step (x) to derive estimates of the likelihood that each class of outcomes reflects each class of hypothesis. That is, to what extent does the observation that a particular construct fails to distinguish the element SELF from other elements indicate that construct to be a core construct? Similarly, does the fact that a particular element loads highly on a set of constructs mean that that element is central to the user's modelling activity? The degree to which these statements may be asserted comprise the likelihoods by which observable data classes relate to unobservable hypotheses.

3.2.4.5. Estimating core grid likelihoods.

By utilising the 5 grid samples described in 3.2.3.3. likelihood tables relating core grid outcomes and core grid hypotheses may be constructed for elements and constructs.

(i) Core construct likelihoods.

In section 3.2.3.3. the 192 individual element sorts in the sample were classified according to a set of operational definitions. A second classification, namely the data classes these element sorts obtained on each occasion, may be superimposed over the first. For example, an element sort produced by one of the 5 subjects was classified as 'core' since it satisfied the three conditions for a core construct (extreme rating allocation of the element SELF, an average extremity score exceeding the median, and a high stability of interpretation score). However, applying core construct grid transformations, this construct was classified as 'core' on three out of five occasions, and as 'peripheral' on the remaining two occasions. If this were the only observation made, we would conclude that the likelihood that core grid transformations identify a construct as 'core' when H_{cc} is true is equal to 3/5, or a probability of 0.6. In fact, one observation is insufficient and instead the complete sample of 192 observations was examined. The resulting classification frequencies are listed in Table 16.

	Operational definitions			Core grid outcomes (D_{cc})	(D_{pc})	Total
(H_{cc}) CORE	+SE	+AE	+SI	50	19	69
	+SE	+AE	-SI	1	6	7
	+SE	-AE	+SI	16	15	31
	+SE	-AE	-SI	7	9	16
(H_{pc}) PERIPHERAL	-SE	+AE	+SI	11	8	19
	-SE	+AE	-SI	1	7	8
	-SE	-AE	+SI	10	12	22
	-SE	-AE	-SI	3	17	20
	Subtotal			49	74	123
	Total			99	93	192

TABLE 16 Classification of construct outcomes.

Although the association between the data classes and hypothesis is good (φ = .313, z = 3.05, p = .002, two-tailed) it is desirable to estimate the capacity of the data classes to differentially predict hypotheses. To achieve this the unconditional probability distribution of the hypotheses was eliminated by normalising the observed frequencies for each hypothesis and computing the Goodman-Kruskal index of predictive association (λ) for the conditional probability distributions. Table 16 yielded a moderate index (λ = .327), indicating that the proportional reduction in the probability of an error afforded by specifying a given data class, was 32.7% when the unconditional probability of each hypothesis is known.

However, some features of the previous analysis may differentially predict hypotheses more strongly than other features. To examine this, frequencies were cast into a series of 2 x 2 tables and tested.

1) <u>Rating extremity of element SELF</u>

	CC	PC	Total
+SE	74	49	123
-SE	25	44	69
Total	99	93	192

which obtains a significant relationship (φ = .23, z = 2.25, p = .024, two-tailed) but only a moderate level of predictive association (Goodman-Kruskal λ = .24).

2) <u>Average element rating extremity.</u>

	CC	PC	Total
+AE	63	40	103
-AE	36	53	89
Total	99	93	192

which obtains a significant relationship (φ =.207, z= 2.01, p= .044, two-tailed), but again only a moderate level of predictive association ($\lambda \doteq .207$).

3) <u>Stability of construct interpretation.</u>

	CC	PC	Total
+SI	87	54	141
-SI	12	39	51
Total	99	93	192

which also obtains a significant relationship (φ = .337, z= 3.29, p = .001, two-tailed) but a substantial level of predictive association (λ = .382).

It is clear that core grid outcomes differentially predict stability of construct interpretation to a greater extent than self-extremity or average element rating extremity. The combination of these features thus adds rigour, a core grid outcome for a single construct needing to be observed several times for an hypothesis concerning that construct to be assigned with some certainty.

(ii) Element centrality likelihoods.

A similar superimposition of the element data classes (central elements, D_{ce}, and incidental elements, D_{ie}) on the sample of element observations may be performed, obtaining the frequencies in Table 17.

	Operational definitions		Core grid outcomes (D_{ce})	(D_{ie})	Total
(H_{ce}) CENTRAL	+EE	+ES	10	4	14
(H_{ie}) INCIDENTAL	+EE	-ES	4	6	10
	-EE	+ES	6	3	9
	-EE	-ES	2	12	14
	Subtotal		12	21	33
	Total		22	25	47

TABLE 17 Classification of element outcomes.

Again, although the association between data classes and hypotheses in Table 17 is marked though nonsignificant (φ = .321, z = 1.81, p = .07, two-tailed) it was desirable to estimate the predictive capabilities of the conditional probability distribution. In fact, the level of predictive association is moderate (Goodman-Kruskal λ = .351). In addition, the data were tested against each feature to separately examine their predictive capabilities.

1) Element rating extremity

	CE	IE	Total
+ERE	14	10	24
-ERE	8	15	23
Total	22	25	47

which does not obtain a significant relationship (φ = .236, z = 1.33, p = .184, two-tailed), but does obtain a moderate level of predictive association (λ = .236).

2) Stability of element interpretation

	CE	IE	Total
+ESI	16	7	23
-ESI	6	18	24
Total	22	25	47

which obtains a significant relationship (φ=.446, z=2.52, p=.012, two-tailed) and a high level of predictive association (λ=.446).

It is evident that the core grid transformation for element centrality is more sensitive to 'stability of element interpretation' than to 'element rating extremity'. In the light of this, three options are open; (i) to revise the transformation.procedure to obtain a more satisfactory prediction for both component definition; (ii) to eliminate the 'element rating extremity' component definition; (iii) to retain the transformations and the operational definitions. As it was viewed that solution (ii) distorted the hypothesis that transformations sought to predict, it was decided to retain both the transformation and the hypothesis on the assumption that the derived likelihoods would be more rigorous.

These frequencies may be converted to likelihoods in the following way:-

(a) <u>Construct likelihoods</u>.

Of the 69 defined core constructs, 50 were identified as 'core' by the transformation method, and 19 identified as 'peripheral'. Thus,

$$p(D_{cc}/H_{cc}) = 50/69 = .725$$

and

$$p(D_{pc}/H_{cc}) = 19/69 = .275$$

Similarly, of the 123 defined peripheral constructs, 74 were identified by the transformation method as 'peripheral', and 49 as 'core'. Thus,

$$p(D_{cc}/H_{pc}) \quad = \quad 49/123 \quad = \quad .398$$

and

$$p(D_{pc}/H_{pc}) \quad = \quad 74/123 \quad = \quad .602$$

Likelihoods, together with prior probabilities (in 3.2.3.4.) may then be assembled as a reference table (Table 18).

Hypotheses	Data classes D_{cc}	D_{pc}	Priors
H_{cc}	.725	.275	.359
H_{pc}	.398	.602	.641

TABLE 18 Construct centrality likelihoods.

Of the 14 elements defined as central, 10 were identified by the transformation method as 'central', 4 as 'incidental'. Thus,

$$p(D_{ce}/H_{ce}) \quad = \quad 10/14 \quad = \quad .714$$

and

$$p(D_{ie}/H_{ce}) \quad = \quad 4/14 \quad = \quad .286$$

Similarly, of the 33 elements defined as incidental, 21 were identified by the transformation method as 'incidental', and 12 as 'central'. Thus,

$$p(D_{ce}/H_{ie}) = 12/33 = .364$$

and

$$p(D_{ie}/H_{ie}) = 21/33 = .636$$

These likelihoods, together with prior probabilities were assembled into a second reference table (Table 19).

Hypotheses	Data classes D_{ce}	D_{ie}	Priors
H_{ce}	.714	.286	.298
$\bar{H}_{ie}$	.364	.636	.702

TABLE 19 Element centrality likelihoods.

The tables may be read in the following way:-

> Suppose I observe that construct 1 in a grid is seemingly essential to a definition of the element SELF. I might be tempted to conclude that this construct is core to the person's self-definition. How certain am I that this is the case? Suppose further that the person reproduces his grid at a later date, and on this occasion construct 1 does not seem essential to the definition of the element SELF. Can I assume that construct 1 is no longer core to the person's self-definition? I would proceed as follows. Firstly, I know that before any observation is made or grids collected the likelihood a person's grid will contain a core construct (p = .359) is less than the likelihood that it will contain a peripheral construct (p = .641).

On entering the likelihood table I find that observing a self-defining construct is more likely to indicate a core construct (p = .725) than a peripheral construct (p = .398) and that observing a construct not definitive of SELF is more likely to indicate a peripheral construct (p = .602) than a core construct (p = .275). To be more rigorous I apply Bayes' theorem to the two hypotheses and obtain posterior probabilities for construct 1 of .505 for it being 'core', and .495 for it being peripheral. Because of the low prior probabilities I am still uncertain about how to classify construct 1. After the second observation I may revise these probabilities by reapplying the theorem. I obtain posteriors of .682 for construct 1 being 'peripheral' and .318 for it being 'core'. Thus, after two observations I am 68% sure that construct 1 is peripheral.

In summary, a set of transformations appropriate to Level 3 have been developed for the core grid procedure. In the following section, the manner in which these transformations may be utilised to encourage modelling will be discussed.

3.2.5. Stage 4: Developing reflective strategies.

3.2.5.1. (i) Level 2 displays.

To develop Level 2 displays we will continue to examine Kenneth's grid series as a test case. Kenneth produced four grids over a period of three months, on each testing occasion introducing 6 new constructs into his grid and reapplying all constructs produced on previous test occasions. In all Kenneth produced 24 constructs. Over the four testing occasions, the element sample remained constant. After completing each grid, the data was processed by the cumulative principal components analysis (see 3.2.4.4.). From these analyses on each occasion significant components, and their representation by constructs and elements were obtained by the method of representation (see 3.2.4.3.). As an example of the efficiency of this method, Fig. 39 records component representation in Kenneth's first grid. Constructs and elements have been plotted according to the variance that they contribute to each component. For example, the elements selected (underlined in the figure) to represent component I (E9 SELF and E4) may clearly be seen to be the two extreme cases for this component. Similarly, constructs have been ordered according to their component loadings in the lower graph, and it is evident that the constructs selected as representative of each component (underlined in the figure) exceed the variance accounted for in that component by any other construct.

As a result of this analysis, a Level 2 display may be assembled by the user in the following way. Taking each construct (recorded on cards) the user arranges them in a column in three groups corresponding to the three components. Constructs are ordered within each group from the highest loading at the top to the lowest at the bottom. Taking up the elements (recorded on cards) the user arranges them in a row adjacent to each group of constructs in turn, ordered according to their loadings on each component. Thus, elements to the left are defined by the left hand construct definitions, and elements to the right by right hand definitions. In addition, central elements at each pole may be separated from non-central elements. The element assembly is repeated for each component in turn, and the display will take the form represented in Fig. 40.

A reflective strategy compatible with this display is to request that the user formulate descriptions of each component in turn by referring both to the constructs and to the elements. In addition, the user might be encouraged to furnish an account of the way each component differs from the others by systematically comparing pairs of components. In this example, Kenneth may formulate three accounts for the comparisons between his components.

This activity involves the user in an appraisal of his modelling conversation. To furnish the accounts outlined above, he must take into consideration the functional properties of each component in their capacity to define certain elements in the array. In addition he must develop adequate terms to refer to attributes of components in the array, and this corresponds to a second-level meta-language.

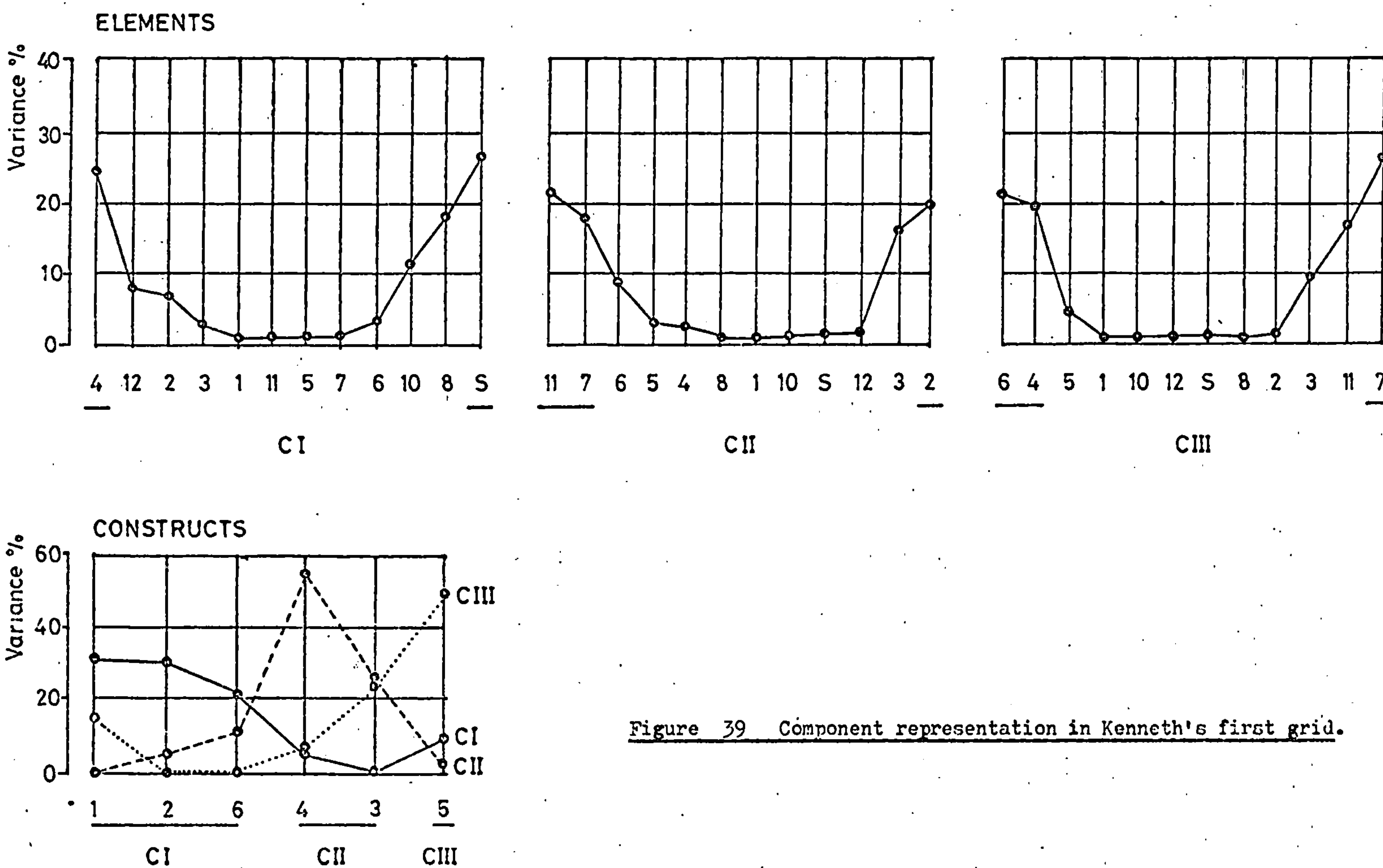


Figure 39 Component representation in Kenneth's first grid.

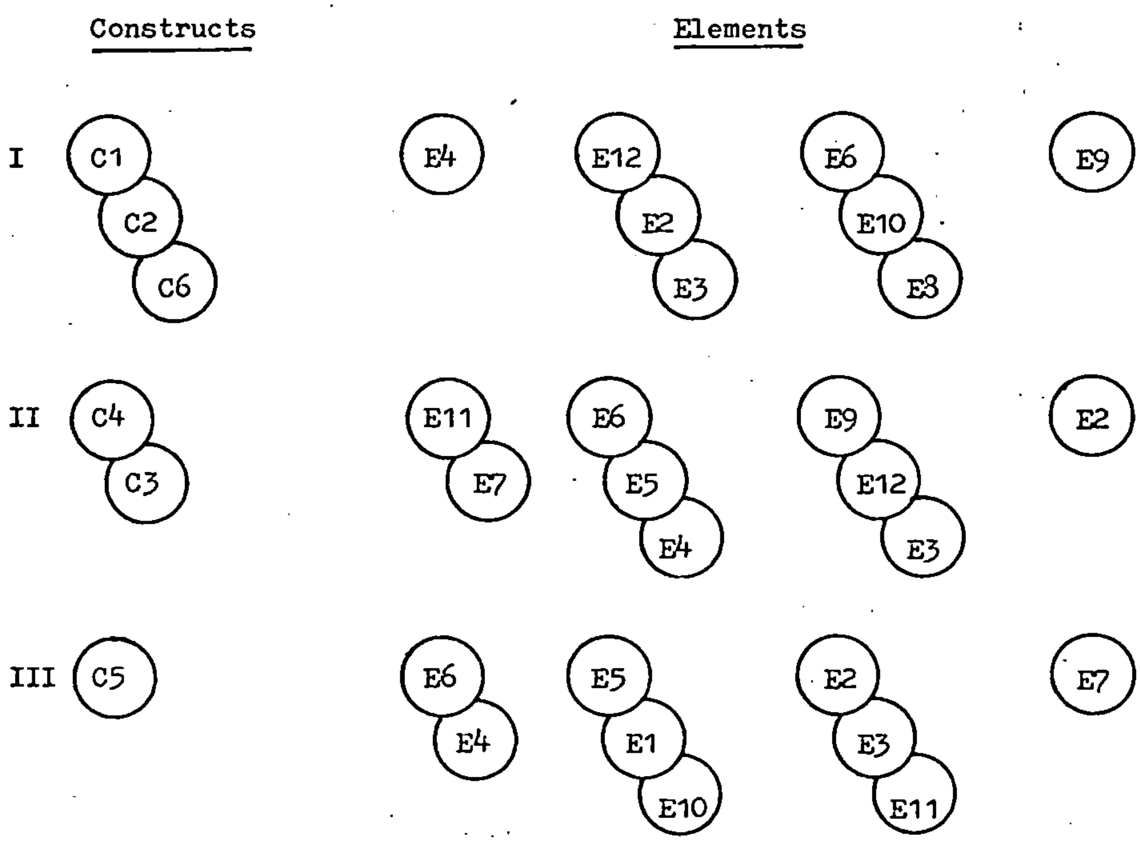


Figure 40 Level 2 display.

3.2.5.2. (ii) Level 3 displays.

To derive displays compatible with Level 3 the Bayesian transformations outlined in 3.2.3.1. are applied. The procedure is as follows:-

1) core grid transformations are applied to the Level 2 display to identify core constructs (D_{cc}), peripheral constructs (D_{pc}), central elements (D_{ce}) and incidental elements (D_{ie}). When applied to Kenneth's first grid the following outcomes obtained:-

(a) Constructs.

C1	SELF-DESTRUCTIVE	D_{cc}
C2	RECEPTIVE TO CHANGE	D_{cc}
C3	BITTER	D_{pc}
C4	AVOIDS PHYSICAL CONTACT	D_{pc}
C5	EMOTIONAL	D_{pc}
C6	WITHDRAWN	D_{cc}

(b) Elements.

E1	ADMIRED MALE FRIEND (1)	D_{ie}
E2	DISLIKED MALE FRIEND	D_{ce}
E3	MOTHER	D_{ie}
E4	DISLIKED FEMALE FRIEND	D_{ce}
E5	GIRLFRIEND (1)	D_{ie}
E6	EX-FLAME (2)	D_{ce}
E7	EX-FLAME (1)	D_{ce}
E8	ADMIRED MALE FRIEND (2)	D_{ie}
E9	SELF	D_{ce}
E10	GIRLFRIEND (2)	D_{ie}
E11	ADMIRED FEMALE FRIEND (1)	D_{cc}
E12	ADMIRED FEMALE FRIEND (2)	D_{ie}

2) The likelihoods and prior probabilities of hypotheses associated with these outcomes are identified from Tables 18 and 19, and posterior probabilities for each construct and element derived using the tabular form of Bayes' Theorem (Phillips, 1973, p.60).

For example, the postrior probabilities for constructs C1, C2 and C6 are obtained as follows:-

Hypotheses	Priors	Likelihoods	P x L	Posteriors
H_{cc}	.359	.725	.260	.260/.515 = .505
H_{pc}	.641	.398	.255	.255/.515 = .495
	1.000		.515	

3) core grid outcomes for Kenneth's four grids are listed in Appendix E, and the posterior probabilities associated with these outcomes tabulated for construct centrality (Table 20) and element centrality (Table 21). On the basis of this transformation core grid statements may be displayed. For example, on the second occasion the following statements might be made:-

> "I am 65% certain that construct 1, SELF-DESTRUCTIVE is a core construct, and that it will be central to your self-definition on the next occasion that you employ it".

and

> "I am 62% certain that element 2, DISLIKED MALE FRIEND, is a central element, and that it will be central to your definition of yourself on the next occasion".

Constructs		Day 1	38	52	102
C1	SELF-DESTRUCTIVE	505*	650*	772*	607
C2	RECEPTIVE TO CHANGE	505*	318	176	089
C3	BITTER	204	105	051	024
C4	AVOIDS PHYSICAL CONTACT	204	105	051	024
C5	EMOTIONAL	204	105	051	089*
C6	WITHDRAWN	505*	318	459*	279
C7	GUILT-RIDDEN		505*	650*	772*
C8	NEEDS EXCITEMENT		204	318*	459*
C9	BORING		505*	650*	459
C10	ALWAYS AGREES WITH ME		505*	650*	459
C11	ASHAMED OF THEIR FEELINGS		505*	650*	772*
C12	AFRAID OF THE FUTURE		505*	650*	459
C13	LIAR			204	318*
C14	AN EMOTIONAL CRIPPLE			204	105
C15	TELLS TALL STORIES			204	105
C16	BLAMES OTHER PEOPLE			505*	318
C17	SEE THEMSELVES AS BAD			505*	650*
C18	OWNS UP			505*	650*
C19	HAS AIR OF CONFIDENCE				505*
C20	EASILY LED ON				505*
C21	PLAN THEIR LIVES				204
C22	PARASITES				204
C23	LIVELY				505*
C24	FORGET THEIR PAST MISTAKES				505*

Note: posterior probabilities marked with * denote core construct outcomes. Decimal point omitted.

TABLE 20 Posterior probabilities of construct centrality (H_{cc}).

Alternatively, these statements may be tabulated as prompts for further modelling activity (Table 22). By comparing Day 1 posterior probabilities (column 1) with outcomes in the following reproduced grid (Day 38, column 2) discrepancies may be noted (column 3), and depending on the magnitude of the discrepancy, prompts of high significance (??) and low significance (?) identified. It may be observed that owing to the low prior probabilities attached to H_{ce} all element outcomes observed in Day 1 (column 1) obtain higher posterior probabilities for H_{ie} than H_{ce}. However, posterior probabilities for H_{ie} vary between 84% and 55%. Consequently, central element outcomes in the subsequent grid are more significant for the former (e.g. E1) than the latter (e.g. E2). When the Bayesian transformation is reapplied to Day 38 outcomes, predictions are obtained for subsequent occasions on which the grid is reproduced (column 4).

The reflective strategy incorporated in this display entails that the user furnish and record an account for the observed discrepancies. That is, he is requested to ask himself questions such as:-

> "My construct RECEPTIVE TO CHANGE does not appear to be as important to my definition of myself now as it used to be. What has happened over the intervening period to bring about this effect?"

or

> "Element 1 seems to be more important to me now than he used to be. What has happened between us that might account for this?"

Elements	Day 1	38	52	102
E1 ADMIRED MALE FRIEND (1)	160	272*	423*	590*
E2 DISLIKED MALE FRIEND	454*	620*	761*	862*
E3 MOTHER	160	272*	423*	590*
E4 DISLIKED FEMALE FRIEND	454*	620*	761*	590
E5 GIRLFRIEND (1)	160	272*	423*	590*
E6 EX-FLAME (2)	454*	620*	761*	862*
E7 EX-FLAME (1)	454*	620*	423	590*
E8 ADMIRED MALE FRIEND (2)	160	079	143*	070
E9 SELF	454*	620*	761*	862*
E10 GIRLFRIEND (2)	160	079	143*	070
E11 ADMIRED FEMALE FRIEND (1)	454*	620*	761*	862*
E12 ADMIRED FEMALE FRIEND (2)	160	272*	423*	590*

Note: posterior probabilities marked with * denote central element outcomes. Decimal point omitted.

TABLE 21 Posterior probabilities of element centrality.

To formulate answers to these questions the user must engage in modelling activity at Level 4, namely to compare and denote the contexts in which his models of himself and element 1 are exteriorised.

3.2.5.3. In summary, this section has examined the application of the transformations developed in 3.2.6. and the nature of the displays that may be derived. Reflective strategies for encouraging the user to interact with and make intelligible the displays have been outlined.

	Day 38 Prediction (1)	Day 38 Outcome (2)	Prompt (3)	Next Prediction (4)
Constructs				
C1 SELF-DESTRUCTIVE	Core 51	Core	-	Core 65
C2 RECEPTIVE TO CHANGE	Core 51	Per.	?	Per. 68
C3 BITTER	Per. 80	Per.	-	Per. 90
C4 AVOIDS PHYSICAL CONTACT	Per.80	Per.	-	Per. 90
C5 EMOTIONAL	Per. 80	Per.	-	Per. 90
C6 WITHDRAWN	Core 51	Per.	?	Per. 68
Elements				
E1 ADMIRED MALE FRIEND (1)	Inc. 84	Central	??	Inc. 73
E2 DISLIKED MALE FRIEND	Inc. 55	Central	?	Central 62
E3 MOTHER	Inc. 84	Central	??	Inc. 73
E4 DISLIKED FEMALE FRIEND	Inc. 55	Central	?	Central 62
E5 GIRLFRIEND (1)	Inc. 84	Central	??	Inc. 73
E6 EX-FLAME (2)	Inc. 55	Central	?	Central 62
E7 EX-FLAME (1)	Inc. 55	Central	?	Central 62
E8 ADMIRED MALE FRIEND (2)	Inc. 84	Inc.	-	Inc. 92
E9 SELF	Inc. 55	Central	?	Central 62
E10 GIRLFRIEND (2)	Inc. 84	Inc.	-	Inc. 92
E11 ADMIRED FEMALE FRIEND(1)	Inc. 55	Central	?	Central 62
E12 ADMIRED FEMALE FRIEND(2)	Inc. 84	Central	??	Inc. 73

TABLE 22 Prompt chart for Day 38.

3.2.6. <u>Summary</u>.

This chapter has focussed on the development of an algorithm (the core grid procedure) for administering, transforming and displaying a repertory grid to exhibit the feature of <u>centrality of predication</u>. The developmental process has been traced through four stages, and the results of each stage may be summarised.

3.2.6.1. <u>Stage 1</u>.

The theoretical background to the notion of predication centrality was discussed and the following conclusions were drawn; (i) that centrality of predication within a conversational domain implied the relevance of statements uttered by the user to the conversational domain as he perceived it; (ii) that relevance was most strongly influenced by the capacity to map 'felt' meanings into external representations; (iii) that a procedure that exhibited the mapping with respect to models of self may be devised; (iv) that constructs central to self-descriptions (core constructs) were inadequately defined in previous research, and that a more rigorous definition was required for the development of such a procedure.

3.2.6.2. <u>Stage 2</u>.

As a preliminary stage to developing transformations compatible with Levels 2 and 3 construct and element centrality were operationally defined in terms of a number of grid features derived from previous research, principally the <u>extremity</u> with which elements were located on constructs, and the stability which those element allocations displayed over grids reproduced on a series of occasions. These two aspects of predication were considered as principal features of adequate mapping. Sample grids were obtained and operational definitions applied to derive prior probability distributions for hypotheses concerning the centrality of individual constructs and elements.

3.2.6.3. Stage 3.

Having identified centrality hypotheses transformations were developed in the following way; (i) a detailed comparison of principal components and typal analysis led to the conclusion that the performance of the former was superior; (ii) a method for identifying significant components was established, namely the representation method; (iii) a method for comparing successive grids was developed , namely cumulative principal components analysis; (iv) a set of 'core grid' outcomes was identified and defined; (v) estimates of the likelihood that core grid outcomes identify centrality hypotheses were obtained.

3.2.6.4. Stage 4.

Applying the transformations to one subject's series of grids enable the development of displays and reflective strategies for two levels of modelling; (i) Level 2 displays entailing the assembly by the user of an array comprising construct and element cards ordered by principal components, and the furnishing of descriptions for components; (ii) Level 3 displays entailing the construction of prompt charts depicting discrepancies between outcomes expected on the basis of previously produced grids, and outcomes observed in subsequently reproduced grids. The appropriate reflective strategy was concluded to be to request that the user furnish accounts for observed discrepancies.

Chapter 3.3.

The reconstruction grid

3.3.1. Stages in the development of reconstruction grid procedures.

3.3.2. Stage 1: Introduction.

3.3.3. Stage 2: Defining predication stability.

3.3.4. Stage 3: Developing transformations.

3.3.5. Stage 4: Developing reflective strategies.

3.3.6. Summary.

3.3.1. Stages in the development of construction grid procedures.

3.3.1.1. The previous chapter developed the core grid procedures for transformations and displays appropriate to Levels 2 and 3. The task of this chapter is to follow through similar developmental stages with respect to the stability of predications in the user's grid matrix. The objective of this second set of procedures is to complement the transformations and displays concerning the centrality of predication in the preceding chapter, and to combine the procedures into an algorithm of activities in chapter 3.4. This chapter, then, traces the following stages in the development of a procedure; henceforward termed the reconstruction grid:-

3.3.1.2. STAGE 1. Theoretical introduction to stability of predication.

Step (i); An outline of conditions underlying predication change in the repertory grid.

Step (ii); An examination of procedures in the 'marital reconstruction grid'. (Ryle & Lipshitz, 1975).

3.3.1.3. STAGE 2. Operational definitions of predication stability and the collection of sample observations.

Step (iii); The construction of operational definitions of predication stability.

Step (iv); The collection of a sample of grids and the classification of sample predications according to the definitions of step (iii).

Step (v); The construction of prior probability distributions for definitions of predication stability.

3.3.1.4. STAGE 3; The development of transformations compatible with Levels 2 and 3.

Step (vi); The development of transformations for identifying predication stability in replicated grids.

Step (vii); The definition of outcome classes deriving from the transformations developed in step (vi).

Step (viii); The estimation of likelihood ratios associated with transformation outcomes.

3.3.1.5. STAGE 4; The development of displays compatible with Levels 2 and 3.

Step (ix); The development of Level 2 displays deriving from step (vi) transformations and application to a case-study.

Step (x); The development of a reflective strategy and display for Level 3 transformations.

3.3.2. Stage 1; Introduction.

3.3.2.1. The following study seeks to develop measures concerned with the degree of subjective uncertainty in grid predications over the course of time. That is, the focus of the reconstruction grid procedures is on change in construction and the role of feedback in alerting the user to areas of potential and actual change in his construction of himself and others.

Such feedback is clearly not independent of outcomes deriving from the core grid procedure . Kelly argues that core constructs are less likely to be influenced by interpersonal events because they are instrumental to the maintenance of identity, and stability of construction was used as an indicator of core constructs in the previous chapter. Furthermore, predicates other than core constructs do vary in their functional properties for the person. Whilst Mischel (1964) cogently argues that all constructs must necessarily be seen as expressions of decisions that the client makes, or "rules for prescribing what should be done" (p.184), and thus be logically invulnerable to refutation by invalidating outcomes, such a sweeping generalisation cannot account for those studies that do show revision of construction as a consequence of invalidating outcomes (Bieri, 1953; Levy, 1954; Newman, 1956). These studies do, however, identify the differential effects of invalidation on functionally different constructs. For example, Levy (1954) investigated the effects of invalidation of 'constellatory' and 'propositional' constructs, as defined by Kelly (1955);

> "A construct which permits its elements to belong to other realms concurrently, but fixes their realm memberships, may be called a constellatory construct.....
> A construct which leaves its elements open to construction in all other respects may be called a propositional construct".
>
> Kelly (1955, p.155).

Levy was able to show that his subjects altered their constructions in response to invalidating data to a greater extent on constellatory than on propositional constructs. In his experiment the invalidating data was direct and complete, leaving S in no doubt that a particular construction had been refuted. In contrast to real life events, Levy called this experimental procedure "forced reconstruction". Levy's study implies that constructs vary in their functional properties, and are differentially influenced by invalidating events. Combining the core and reconstruction grid procedures is expected to draw the user's attention to this feature.

3.3.2.2. What, generally, are the conditions under which change in construction might occur? A first consideration is that within a personal construct theory definition change need never occur. This is a point that Mischel makes with great clarity:

> "suppose I have construed the boss as hostile, he asks me to work overtime, and I construe this as validation. Was the request in fact hostile? The answer depends on the boss' intentions - his request was not hostile unless he intended (consciously or not) to attack me in making it.....Now when I construed him as hostile I made a

> <u>decision</u> about the kind of person he is; I am, therefore, 'set' to construe whatever he does as an attempt to dominate.... That such 'validation' lacks objectivity is clear. What is not clear is how there could ever be something the boss does that could not be subjectively construed as validation. Is even a subjective invalidation of constructs possible?"
>
> Mischel (1964, p.182)

Mischel is referring to that process defined by Kelly as 'hostility', or "the continued effort to extort validational evidence in favour of a type of social prediction which has already proved itself a failure" (Kelly, 1955, p.510). If such a process were completely successful, we must agree with Mischel that invalidation could not occur. However, the key to this logical dilemma is in Kelly's definition of hostility where he points out that it may occur only when a prediction has <u>proved</u> itself a failure. To consider this definition, we must ask 'what part of the person, or what psychological process, is aware that a prediction is a failure, whilst the rest of the person proceeds as if it were not?' The major implication of Kelly's formulation is that there must exist a superordinate system of construing which, taking every-day interpersonal construing as its object, is open to invalidation of the same kind Kelly refers to as an awareness that a prediction is a failure. This is a crucial consideration for a model of psychological change based on conversational skill, and is ubiquitous in Kelly's formulations of diagnostic constructs. Thus, conversational skill seems to entail the development of an effective coupling between Levels 2 and 3. When adaptive, this coupling would enable measured reconstruction to occur in modelling at Level 2 as a result of reconstruction at Level 3. When non-adaptive, this coupling leads to behaviours intended to validate, by whatever means, interpersonal construing. In Kelly's formulations, this distinction is a recurrent theme, for example:

> "threat is the <u>awareness</u> of imminent comprehensive change in one's core structures.....Anxiety is the <u>recognition</u> that the events with which one is confronted lie outside the range of convenience of one's construct .....<u>Perception</u> of one's apparent dislodgement from his core role structure constitutes the experience of guilt."
>
> Kelly (1955, p.489-502).

3.3.2.3. How might invalidation of Level 2 predicates lead to changes in subsequent grid predications and interpersonal behaviour? To provide a framework for describing changes in construction, Pask's (1975) exposition of subjective uncertainty is useful here. Pask argues that learning takes place within a context of uncertainty; (a) uncertainty regarding the methods for bringing about a relation (or uncertainty regarding a concept), and (b) uncertainty regarding the way a relation may be expressed.

As we have seen Gendlin (1972) views experiential explication as a dialectical process whereby attempts to express a 'felt' meaning 'carry forward' those meanings;

> "Explication is a process of steps. As we describe some directly felt experiential aspect, our felt

experience is thereby released, carried forward..... A moment later, new aspects of this new experiencing can be explicated. The statement which was previously so true may now be contradicted. The next step of explicating may again bring a felt response as experiencing is further carried forward;..... Thus, propositions as such are no longer true or false in themselves. Instead, there is a characteristic role they may have in the explication process."

Gendlin (1972, p. 163).

This process represents the gradual emergence of an effective coupling between modelling at different levels. As modelling preceeds, uncertainty about a relation and uncertainty about the the way in which it might be expressed are mutually modified. These two aspects of uncertainty Pask (1975) refers to as d_1 (doubt regarding methods of bringing about a relation) and d_2 (doubt about how a relation might be expressed), which enables him to define a coordinate space for tracing the process of learning (Fig. 41). Suppose you are requested to formulate and explain an idea, R_i;

"starting from ignorance (no method, high d_1; no idea of what to do, high d_2), you build some model. But as soon as you have any model d_1 becomes low valued though d_2 may still be high (for your one model may not work to bring about R_i and you may be unconvinced that it will do so). As the model is perfected, d_1 decreases and your conviction increases; and learning to explain R_1 through a one clocked modelling facility forces the trajectory through a point (low d_1; low d_2). After that, the value of d_1 may increase as more methods of modelling are learned and these may be listed as alternative models."

Pask (1975, p.418-9).

As models, or expressions, of the relation proliferate, uncertainty regarding the relation again increases, and this corresponds to the 'carrying forward' of felt experience described by Gendlin. As explication proceeds uncertainty regarding the adequacy with which the relation is expressed may again increase, bringing the trajectory back to its starting point. Further attempts at explication thus restart the cycle (Fig. 42).

However, it need not always be the case that modelling activity follows from the invalidation of interpersonal construing. Consider a person aware at Level 3 that invalidation has occurred;

(He) "can accept the evidence philosophically, cut his losses and try another construct to see whether its predictive capacity is better. Or he can argue that there was something unusual about that particular experiment, there was some aspect of the situation that he failed to take into account, so he repeats the experiment. Or he can attempt to alter the events so that they conform to his predictions and thus behave in a hostile way. He can become anxious and so 'loosen' his construct system in the relevant places to incorporate new evidence. Or he may feel threatened by the unpredicted responses and perhaps 'tighten' his system in an attempt to define more clearly exactly what it was he was predicting."

Fransella (1970. p.66).

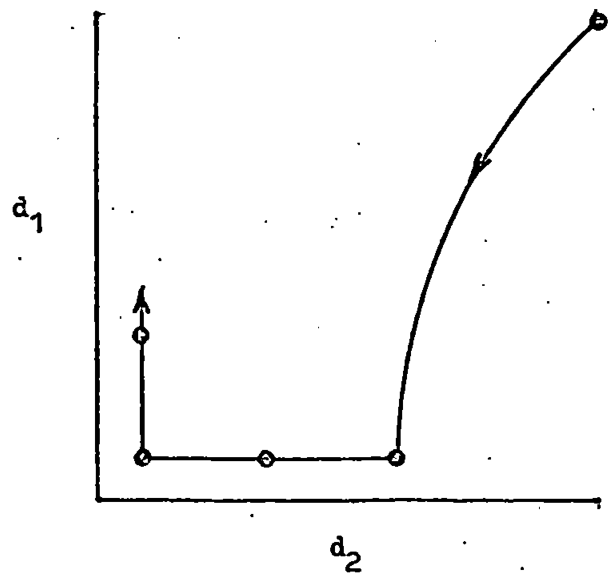


Figure 41 Learning trajectory.

Pask (1975, p.419).

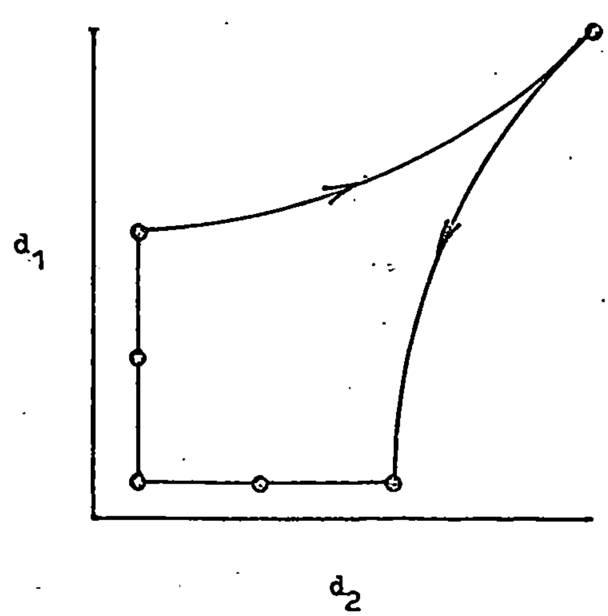


Figure 42 The trajectory of experiential explication.

These outcomes illustrate a range of strategies for coping with uncertainty, each strategy defined by different degrees of coupling between each level of modelling. Consider each outcome in turn:-

(i) He "can accept the evidence philosophically, cut his losses and try another construct to see whether its predictive capacity is better".

Here the person is engaged in reconstruction, formulating new anticipations and predicating them in a new way. Thus, his trajectory may be represented in Fig. 43, where he has expressed an alternative relation and is moderately certain of its implications for him.

(ii) "he can argue that there was something unusual about that particular experiment.....so he repeats the experiment."

Here the person retains his model and the predications that derive from it but is less certain about their appropriateness (Fig.44).

(iii) "or he can attempt to alter events so that they conform to his predictions....."

Here the person retains his model, and the predications that derive from it reducing his doubt by denying that invalidation ever occurred, or by 'cooking the books' so that validation always occurs (Fig. 45).

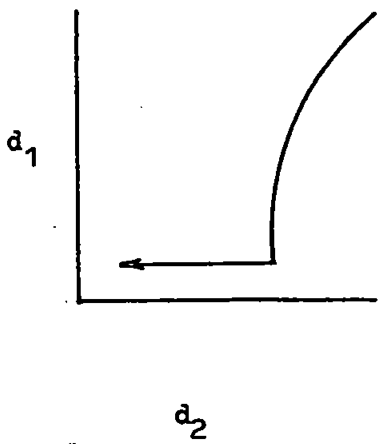


Figure 43.

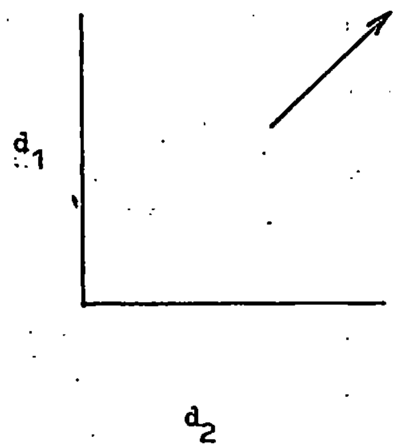


Figure 44.

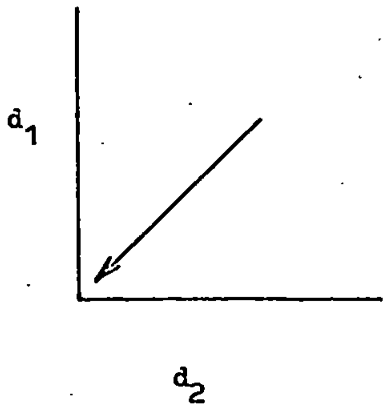


Figure 45.

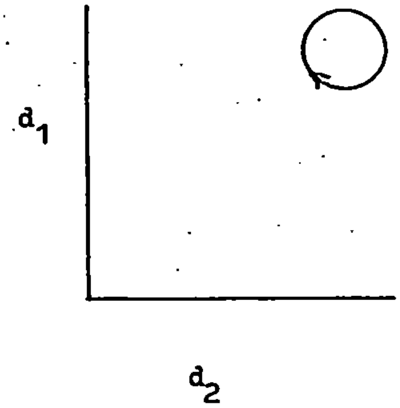


Figure 46.

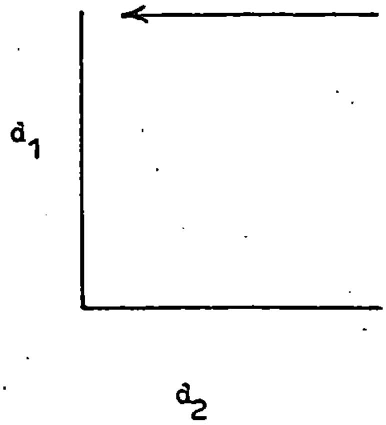


Figure 47.

(iv) "he can become anxious and so 'loosen' his construct system in the relevant places to incorporate new evidence."

The person maintains high levels of uncertainty, both about his models and about the predications he derives from them (Fig. 46).

(v) "or he may.....'tighten' his system in an attempt to define more clearly exactly what it was he was predicting."

The person maintains high degrees of certainty in the predicates he formulates but is uncertain as to whether the model these predicates express is appropriate (Fig. 47).

To summarise, reconstruction in the repertory grid may be viewed as an exteriorisation of changes in the nature of the internal conversation. Whilst it is accepted that not all predications in the repertory grid are predictions, it is argued that to the extent that they are not the coupling between levels of modelling activity is weak. Procedures developed to enhance conversational skill must focus on this coupling and enable the user to elaborate alternative models and to derive predications from these alternatives.

3.3.2.4. Studies of the reliability of predications made in serial grids abound and frequently provide conflicting results (for example, compare Fjeld and Landfield 1961, and Gathercole, Bromely and Ashcroft, 1970). However, Bannister and Mair cogently point out the inconsistency of such studies:

"Kelly once defined reliability as 'that characteristic of a test which makes it insensitive to change'. This shift of emphasis does not mean that we have to become the happy victims of so-called error variance. We can perhaps substitute, for simple general reliability, the idea that within the broader context of assessing the validity of grid scores, we are essentially concerned with predictable stability and predictable change."

Bannister & Mair, (1968, p.156).

There is, nevertheless, a need to establish the basis on which such predictions might be made. This would entail two components:-

(i) an evaluation of the wide variety of indices purporting to measure changes in construction, in order to determine what kind of change is being measured;

(ii) an attempt to relate measured changes in construction to experienced events.

Two approaches to these issues are possible, namely studies investigating change-producing situations (e.g. psychotherapy) and studies of change in construction following experimentally controlled situations. Studies of the latter kind have generally encountered the dilemma of 'ecological validity' (Brunswik, 1956), in that the changes in construction produced by experimental manipulations are either self-fulfilling (e.g. Levy's 'forced reconstruction') or that the manipulations themselves bear little similarity to 'real-life' events. One attempt to reduce the impact of this criticism is that of Bennion's (1959) study involving the self-report by subjects of invalidating experiences. In general, experimental studies of change in construction fail to clearly demarcate the condition under which reconstruction occurrs.

The alternative approach is perhaps more descriptive of change processes as they occur, but generally encounters difficulties in anchoring observed changes in ongoing experience. Major studies of change during psychotherapy have focussed on different aspects of the repertory grid, for example, changes in the range of implications of construct subsystems (Fransella, 1972), changes in the 'intensity' of construct inter-relationships, and the consistency of element ranking on constructs (Fransella & Joyston-Bechal, 1970; Fransella, 1970), and changes in principal component representation of self and partner elements (Ryle & Lipshitz, 1975) and partner-therapist sessions (Ryle, 1975).

In order to establish procedures for exhibiting reconstruction in grid predications, it is useful to examine in detail the methodology and measures used in one of these studies, namely the 'marital reconstruction grid' (Ryle & Lipshitz, 1975). This study reports a method for recording changes in the course of joint marital therapy;

> "A major advantage of grid technique is that it uses the subject's own vocabulary to describe people or relationships, and enables them to demonstrate what they, personally, feel to be important - which may not necessarily coincide with what is held to be

significant by the therpist."

Ryle & Lipshitz (1975, p.39).

At the start of the course of therapy a number of constructs based on dyadic relationships of husband and wife were elicited (Ryle & Lunghi, 1970) and these constructs formed a fixed set for all subsequent occasions. On eleven occasions through the course of therapy, husband and wife each rated two dyad elements on these constructs namely, self-to-partner and partner-to-self. Thus the completed grid comprises 22 elements rated on 33 constructs.

These grids were then analysed by the principal components analysis program, INGRID (Slater, 1972). Three forms of measure and display were derived:-

(i) "the 'occasion-elements' can be plotted on a two-component graph, the reciprocal dyad elements being joined by dyad lines, and the successive positions being numbered sequentially, thus tracing the change through time of the way the relationship was construed".

(ii) "self-to-other and other-to-self can be plotted serially against one principal component".

(iii) "changes in the construct relationships through time can be examined by comparing construct correlations in a grid made up of the early testing occasions with one made up of the later testing occasions". (Ryle & Lipshitz (1975, p.39-40).

The first two measures are presented as figures which chart the process of construction over therapy sessions (Figs. 48 and 49). Using these displays, Ryle & Lipshitz concluded that changes recorded in the reconstruction grid verified their own interpretations of events during therapy. However, this study raises a number of important methodological points, which provide guidelines for procedures for exhibiting change in construction.

3.3.2.5. Firstly, a number of procedural points require clarification:-

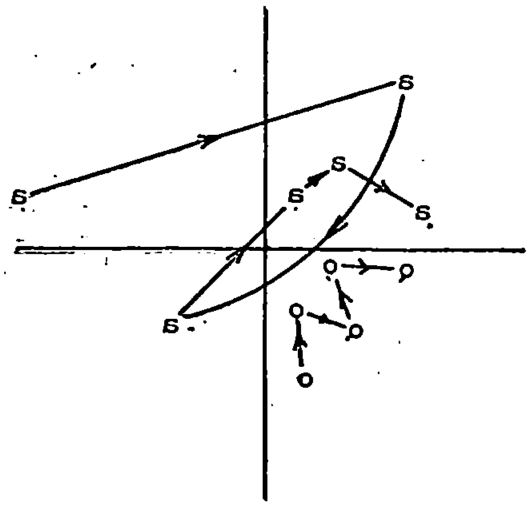
(i) The grid has been used primarily as a recording device, on the assumption that it is relatively sensitive to changes in construction from occasion to occasion. By the same token, such a recording device may also precipitate changes over and above those obtaining from counselling alone. Ryle & Lipshitz do refer to this:

> "Completing the serial ratings of their own relationship may have enabled, or forced, the couple to acknowledge denied feelings, and may have contributed to the relatively rapid change achieved."
>
> (p.45-46).

However, no indication of the extent of change that may be attributed to the grid procedure is given. An alternative approach might be to view the procedure as a source of change and to implement it as such. That is, one objective of repertory grid procedures might be to develop insight into construing processess within the

Component I

(37%)



Component II
(15%)

Figure 48 Wife's reconstruction grid displayed in terms of the first two components.

Ryle & Lipshitz (1975,p.42).

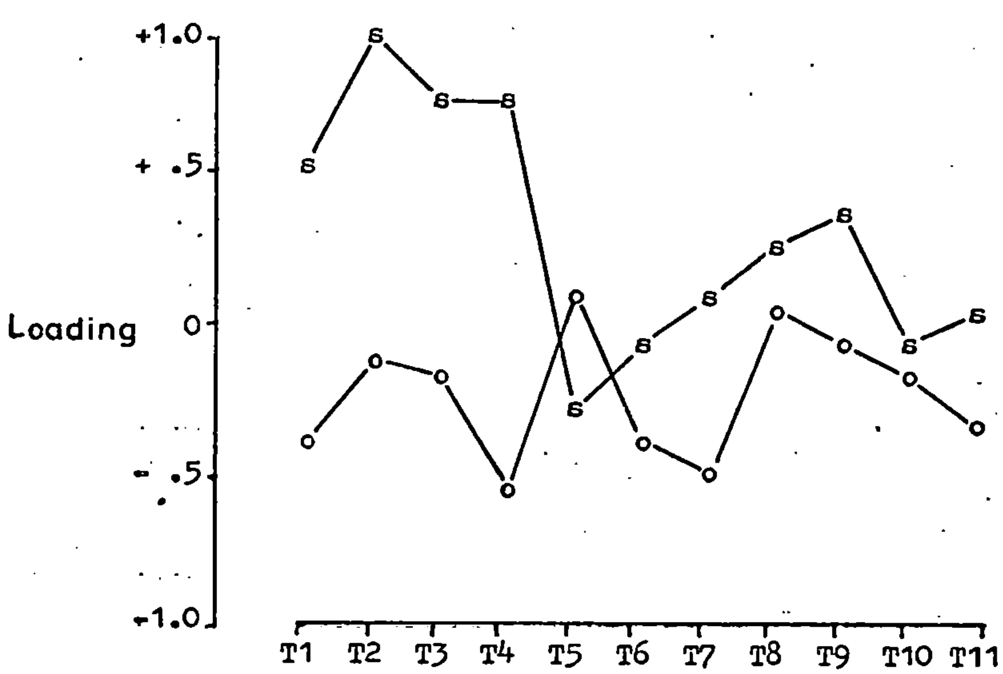


Figure 49 Wife's reconstruction grid; component II.

Ryle & Lipshitz (1975,p.44).

relationship.

(ii) Throughout the grid series, the sample of constructs was fixed, on the assumption that the constructs derived from the preliminary dyad were representative of construing in the relationship. However, this rationale is inconsistent with the application of the procedure, namely to chart changes in construction, which may presumably partly be reflected in changes in the representativeness of constructs over time. An alternative approach is to consider construct elicitation as a sampling process, in which variations in the direction of the client's attention lead to variations in the sample of constructs obtained. To allow for this it would be necessary to elicit new samples of constructs on succeeding occasions, and the studies involving this procedure have indicated that sampling in many cases is stable (e.g. Fjeld & Landfield, 1961), or that changes in sampling reflect significant shifts of the client's attention (Mair & Crisp, 1968).

(iii) A third, but similar, procedural consideration is that the focus of convenience of the grid series is determined by the fixed dyadic element sample (self-to-other, other-to-self) which appears to be unreasonably narrow. Changes in construction through the course of marital therapy may originate in relationships other than the marital relationship. Ryle & Lipshitz do, however, indicate that the focus of convenience might be extended to include the therapist;

"The role of the therapist or therapists could be explored by including the couple's relationship with the therpist(s) on the reconstruction grid, and such a modification would be of interest in studying the course of transference."

(p. 46).

Even this modification seems to be a considerable limitation. An alternative approach is to consider all those persons or relationships instrumental to the marital relationship, or to the client's perceptions of themselves and their partners. In this way, the complete 'life-space' of the client may be studied, and changes of construction in one area related to changes in another.

3.3.2.6. Secondly, a number of statistical and analytical considerations arise:-

(i) These comments concern intractable problems in multivariate analyses, namely the 'number of factors problem', and the 'interpretation of factors problem'. The former problem is, of course, related to the visualisability of the solution, in that a maximum of three coordinates may be readily comprehended. The response to this problem is a simple one, but one which leads to dubious interpretations and conclusions. Ryle & Lipshitz consider representation only in the first two principal components, which in their examples account for only 52% of the total variance in the Wife's reconstruction grid, and 68% in the Husband's. No mention is ever made in their study of lower-order components, and the reader is left to wonder whether 48% and 32% of the total variance has been discarded as error variance. An alternative approach might be to exhaust all variance by accounting for n - 1 (where n = number of elements) coordinates, and to construct a decision matrix for assigning constructs to components.

(ii) This procedure might also reduce the impact of the second hazard of multi-variate analyses, and enable interpretation to be made on a more rigorous basis. Ryle & Lipshitz define components in terms of the ten highest (positively or negatively) loading constructs, and base their identification of the coordinate on these constructs. An alternative might be to incorporate the identification of construct coordinates into the grid procedure. That is, the client might be requested to provide a set of descriptions which distinguish one group of constructs from another, and which thus provide an interpretation of each coordinate.

(iii) As a related consideration regarding the 'number of factors problem', inspection of the two-component and single-component reconstruction grid plots of the Ryle & Lipshitz study reveals that the capability of the first two components to distinguish the two elements falls off rapidly towards the end of the grid series. For example, in both Wife's and Husband's two-component plots the elements self-to-other and other-to-self, whilst widely dispersed on the first few occasions, gradually converge on the origin of the two coordinates over successive occasions. Similarly, on the single-component plots, a component that obtains maximal loadings of $\pm$ .5 to $\pm$ 1.5 early in the grid series obtains loadings at the close of the series of between 0 and $\pm$ .5. This strongly indicates that these components, although accounting for most of the variance of the entire series, are concentrated in the early part of the series, and that lower-order components (not reported in the study) might be emergent in the latter part of the series. In short, the focus of attention of Wife and Husband seems likely to have shifted to different, but unreported, areas of experience as therapy progressed.

However, Ryle & Lipshitz proceed to draw far-reaching conclusions from these observations;

> "By the end of therapy, therefore, they agree in seeing their mutual relationship as much more similar than had been the case when they began treatment."
>
> (p. 42).

In the light of the preceding discussion it is clear that such a claim cannot be justified without an examination of the discarded components of the grids. An alternative approach might seek to identify the shifting of the client's attention through the grid series with respect to all available coordinates derived from the grid.

3.3.2.7. This critique has served the useful purpose of establishing a set of criteria for an adequate procedure for exhibiting change in construction, as follows:-

(i) That grid procedures be viewed as initiating change in construction, providing the user with information concerning construction processes;

(ii) that the user be provided with the opportunity to redirect attention to alternative areas of construction by introducing "additional constructs" into the grid on each occasion;

(iii) that provision be made for the user to revise predications on successive occasions by reapplying constructs produced on previous occasions;

(iv) that the elements comprise a representative sample of those persons or relationships instrumental to the modelling activity under consideration;

(v) that a decision procedure be devised to identify coordinates underlying sample constructs;

(vi) that the user be provided with the opportunity to label coordinates himself.

With these criteria in mind the procedures developed in this chapter are based on a serial 'repgrid cycle' (Fig. 50) which enables the user on successive occasions:-

(i) to reproduce the elicited meaning of constructs in re-applying them;

(ii) to view re-applied constructs as variations of other, perhaps more relevant, current meanings;

(iii) to view re-applied constructs as implying entirely new and independent meanings;

(iv) to revise particular element predications on re-applied constructs;

(v) to elicit constructs that duplicate or amend earlier constructs;

(vi) to elicit constructs expressing new and independent meanings.

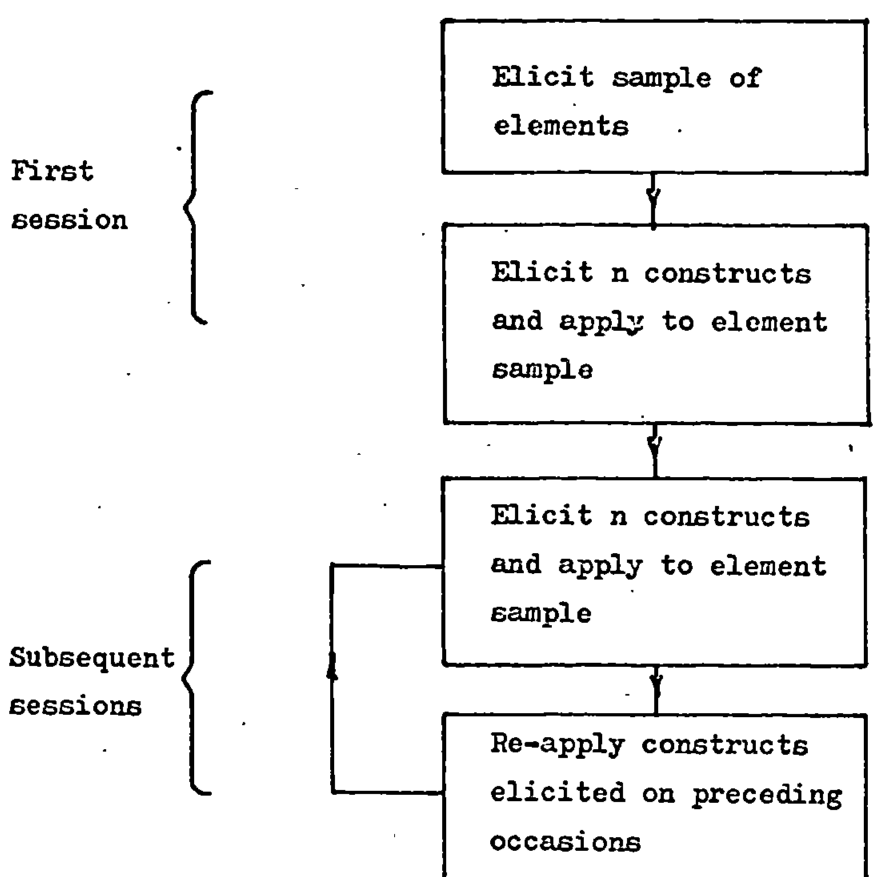


Figure 50 The repertory grid cycle.

3.3.3. Stage 2: Defining predication stability.

3.3.3.1. The preceding section has outlined a serial procedure, the repertory grid cycle, by which a user completes a succession of grids over a period of time. The objective of this procedure is to exhibit to the user those predications that undergo change over the grid cycle in a form that is compatible with modelling activity at Levels 2 and 3. To locate these predications, a set of operational definitions of construct and element stability were established and applied to a sample of serial grids. This sample comprised the 5 grid series employed in the preceding chapter, and an additional 2 grid series which could not be employed in the preceding analysis owing to their use of the ranking method for predicating elements. The conditions under which these grids were produced, however, was identical to the 5 samples reported in the previous chapter.

Thus, the sample comprised the serial grids of 7 subjects providing 80 constructs in all, replicated a maximum of 5 times and a minimum of 2 times. Each subject had completed the grids over a period ranging from 6 weeks to 3 months, and every grid included the element SELF with either 8 or 11 friends and acquaintances. In the 5 grids utilising the element rating method, subjects employed a 5-point rating scale to allocate elements. On each occasion each subject produced a fixed number (4 or 6) of constructs and with the exception of the first occasion all constructs produced on previous occasions were then re-applied. Details of this sample and the classification of constructs and elements may be found in

Appendix F.

3.3.3.2. (i) Definitions of construct stability.

1) Stable constructs (SC).

Rationale; a stable construct was taken as a predicate that replicated to a significant level the element allocations of the preceding occasion between each successive replicated grid. In contrast to previous definitions of stability of interpretation stability of construction entails only that element ratings be replicated from one occasion to another.

Operational definition; to estimate the extent of association between original and replicated rating series for each construct, the observed distribution of ratings was taken into account by employing the program EXACT (see Appendix D), devised for this purpose, the output of which provides an exact probability of association between any two series of ratings given the two observed distributions. A 5 percent level of significance was employed as a criterion of acceptable replication. Thus, a stable construct (SC) was taken as a predicate which obtained an exact probability of .05 or less between every successive replication in the grid series.

2) Transitional constructs (TC)

Rationale; a transitional construct was taken as a predicate which undergoes some change of element allocation through a series of replications, but which change is subsequently replicated on one or more succeeding occasions. That is, it is a construct which at some stage is subject either to reinterpretation of meaning, or to systematic shifts in the allotment of a subset of elements.

Operational definition; a transitional construct (TC) was defined as a predicate which obtained one or more replications with an exact probability of .05 or less throughout the series of replications

3) Unstable Constructs (UC).

Rationale; an unstable construct was taken as a predicate which failed to replicate element ratings on any succeeding occasion in the grid series. Such a construct may be termed 'noisy'. Unstable constructs manifest random patterns of element rating changes and do not maintain consistent inter-construct relationships.

Operational definition; an unstable construct (UC) was defined as a predicate that fails to obtain a replication with an exact probability of .05 or less throughout the series of replications.

Of the 80 constructs examined the class frequencies were as follows:-

a.	Stable constructs	43
b.	Transitional constructs	33
c.	Unstable constructs	4
	Total	80

As can be seen 43 (53.8%) of the predicates satisfied the criteria for 'stable' constructs, a feature which supports the notion that the repertory grid is sensitive both to the effects of consistent predication and to the effects of revision of opinion. Of all replications of the 80 constructs examined here (328) only 23.9% (56) failed to attain an exact probability of .05 or less.

(ii) Definitions of element stability.

1) Stable elements (SE).

Rationale; a stable element was taken as an element which obtained significantly similar rating values on replicated constructs between all successive occasions. A stable element would thus be a figure about which a user manifests considerable certainty in predication. However, such an element is not associated with rating extremity, as was evident in the data of the preceding chapter.

Operational definition; to estimate the degree of association between an element's ratings in the original and replicated grids, the program EXACT was employed to produce exact probabilities of association given the distribution of rating changes on replicated constructs. Thus, should a replicated grid exhibit a good deal of 'noise' in the form of randomly dispersed rating changes, the exact probability is a true indication of association given this base-line of random rating alterations. A stable element (SE) is thus one which obtains an exact probability of .05 or less between all successive replications.

2) <u>Transitional elements (TE).</u>

<u>Rationale;</u> a transitional element was taken as an element which undergoes some change of allotment through a series of replications but which change of allotment is replicated between <u>one or more</u> succeeding occasions. That is, it is an element which at some stage is subject either to alterations in its relationships to other elements, or subject to systematic alterations in allotment along with other elements on a subset of constructs.

<u>Operational definition</u>; a transitional element (TE) is defined as an element which obtained <u>one or more</u> replications with an exact probability of association of .05 or less throughout the series of replications.

3) <u>Unstable elements (UE).</u>

<u>Rationale</u>; an unstable element was taken as an element which consistently failed to replicate rating values on replicated constructs throughout the series of replicated grids. Such an element may be considered 'noisy'.

<u>Operational definition</u>; an unstable element (UE) was defined as an element which does not obtain on <u>any</u> replication an exact probability of association of .05 or less.

These definitions of element stability were applied only to the elements of the 5 grid series which employed the rating method of element allotment. When the element SELF was included in the samples, for each subject 54 elements were obtained. Thus data concerning 54 elements replicated a maximum of 4 times and a minimum of once were classified, and the following class frequencies obtained:-

a.	Stable elements	5
b.	Transitional elements	36
c.	Unstable elements	13
	Total	54

Interestingly, in contrast to stable constructs only 5 (9.3%) of all elements examined manifested complete stability over all replications. This may be attributed to the fact that on each occasion a fixed number of additional constructs were introduced into the grid, and it was on the basis of the set of replicated constructs that the estimate of element stability between occasions was based. Thus, if newly elicited constructs should prove to be less stable than constructs replicated several times, estimated element stability would be adversely affected. The overall effect seems to be to inflate the frequency of transitional elements (TE), which represent 66.6% (36) of the total sample.

3.3.3.3. Finally, these frequency data enable the construction of prior probabilities for each class of event concerning construct and element stability.

(i) . <u>Prior probabilities for constructs.</u>

To express the data as prior probabilities, hypotheses concerning stability of predication must first be established for constructs:-

Let H_{sc} = stable construct

H_{tc} = transitional construct

and H_{uc} = unstable construct

From the above data the prior probabilities for each hypothesis prior to any datum being observed are as follows:-

$$p(H_{sc}) = 43/80 = .538$$

$$p(H_{tc}) = 33/80 = .412$$

and

$$p(H_{uc}) = 4/80 = .05$$

(ii) <u>Prior probabilities for elements.</u>

Similarly for elements, hypotheses concerning stability of predication may be established:-

Let H_{se} = stable element

H_{te} = transitional element

H_{ue} = unstable element

With the following prior probabilities:-

$$p(H_{se}) = 5/54 = .093$$

$$p(H_{te}) = 36/54 = .667$$

$$p(H_{ue}) = 13/54 = .24$$

3.3.4. Stage 3: Developing transformations.

3.3.4.1. In contrast to the core grid, the reconstruction grid procedure focusses on comparisons between grids over two or more occasions. We have provided operational definitions and prior probabilities of reconstruction based on complete grid series. It is now necessary to identify those features of a single comparison between serial grids which might be identified as indicating reconstruction. That is, we must explicitly define the transformations by which reconstruction grid outcomes compatible with Levels 2 and 3 may be derived.

Reconstruction grid outcomes fall into two classes: (i) construct reconstruction outcomes; (ii) element reconstruction outcomes.

3.3.4.2. Construct reconstruction outcomes.

Clearly, construct reconstruction cannot be taking place if on a subsequent occasion constructs replicate the element allotments of the original grid. But to the extent that element allotments do undergo change, how may these changes be partitioned between constructs and elements, and within constructs? In particular, the effects of revision of opinion about element predications must be teased out from the effects of alterations in construct interpretation. If the domain of the conversation on any occasion is considered as demarcated by the predicates that the user formulates to define the element sample, this domain might be examined for changes of two kinds:-

(i) contraction, in that the user may abandon or coalesce previously distinct predicates as a result of the shifting of his attention towards an alternative area of meaning. Operationally, contraction may arise from the failure of any construct in grid t + 1 to reproduce a pattern of element predications in grid t, or from the appearance of constructs in grid t + 1 which provide a linkage between two or more previously discrete constructs in grid t;

(ii) elaboration, in that the user may extend the conversational domain by introducing new attributes into his grid. Operationally, elaboration may arise from the appearance of two or more discrete patterns of element predication in grid t + 1 deriving from and related to a single predicate in grid t, or from the introduction into grid t + 1 of element predications which are completely unrelated to any predication in grid t.

As principal components analysis (PCA) was selected as the basis for transformations in the core grid procedure, the same method will be employed in the reconstruction grid to reveal the following changes in the conversational domain:-

(i) emergence; the appearance in grid t + 1 of a class of predicates not represented in grid t;

(ii) replication; the appearance in grid t + 1 of constructs which exactly replicate a class of predicates represented in grid t:

(iii) duplication; the introduction of additional constructs into grid t + 1 to represent a class of predicates already represented in grid t;

(iv) displacement; the representation by re-applied constructs of a class of predicates in grid t + 1 other than the class represented by those constructs in grid t;

(v) abandonment; the disappearance in grid t + 1 of a class of predicates represented in grid t.

To test the feasibility of these five operational definitions of alterations in the conversational domain, the sample grids for Kenneth utilised in the preceding chapter were examined. PCA enables a series of grids to be analysed as a single matrix with the following advantages:-

(i) components derived in the analysis account for sources of variation in all constructs formulated by the user, irrespective of the occasion on which they were recorded;

(ii) these components thus reflect the directionality of the user's ongoing modelling activity. For example, should the user introduce a novel class of predicates into his grid on any occasion the analysis will evaluate the extent to which that class is represented in constructs from all previous occasions;

(iii) these components provide a common referent for all constructs the user formulates, and enable comparisons to be made between occasions.

Following this procedure, an exhaustive PCA solution was obtained for Kenneth's first and second grids combined (see Appendix F), and the representation method applied to locate significant components. Figure 51 records the representation of components by constructs, and it is evident that whilst five components are required to represent all constructs in the combined grids, only two are represented in the first grid. Applying the definitions above enables the 12 constructs in the second grid to be labelled. Of the six re-applied constructs only two (C1 and C2) replicate the components represented in the first grid, two are displaced to other components (C3 and C4), and two represent emergent components (C5 and C6). Of the six constructs elicited in the second grid four duplicate components present in the first grid, (C7, C10, C11 and C12), whilst two represent emergent constructs (C8 and C9). As the fifth class of outcomes, namely 'abandonment', is applicable only to constructs in the first grid, this outcome will not be employed in further analyses. In addition, 'duplication' is a feature of constructs elicited on each occasion only, and as the transformation is to be applied to all constructs irrespective of their source, this class of outcomes was also eliminated.

3.3.4.3. Element reconstruction outcomes.

As the element sample was to be fixed over all grids in the series, element reconstruction outcomes were derived from a comparison between successive grids by obtaining exact probabilities associated with a deviation as large as that observed between the ratings obtained by element i in grid t and grid t + 1, given the observed

Figure 51 PCA construct reconstruction map.

		Common Components I	II	III	IV	V	Construct Reconstruction outcome.
Grid 1	C1	✓					
	C2		✓				
Elicited	C3	✓					
Constructs	C4	✓					
	C5	✓					
	C6		✓				
Grid 2	C1	✓					Replicate
	C2		✓				Replicate
Reapplied	C3		✓				Displaced
Constructs	C4		✓				Displaced
	C5				✓		Emergent
	C6			✓			Emergent
	C7	✓					Duplicate
	C8			✓			Emergent
Elicited	C9					✓	Emergent
Constructs	C10	✓					Duplicate
	C11	✓					Duplicate
	C12	✓					Duplicate

alterations in element allocation on replicated constructs. These probabilities were obtained from the output of program EXACT (see Appendix D). Exact probabilities provide a measure of the extent of association between original and retested ratings of each element in the grid given the extent of change in the grid as a whole. Thus, if a large number of minor alterations in element allotment occur the measure of element association is adjusted to compensate for this 'noise'. An example of the extent of difference in the cumulative probability density functions is charted for the comparisons between Grid 1 and 2 and Grid 1 and 6 in one subject's grid series (Fig. 52), and as can be seen the cumulative probability density function of the former is displaced to the left of the latter. As we would expect there to be a larger number of 'noisy' differences between element ratings on a set of constructs replicated at the end of a grid series compared with the same elements replicated on constructs immediately after their elicitation, this displacement of the density function is in the expected direction. Thus whilst a deviation between Grid 1 and 2 of $\Sigma d^2 = 15$ would be considered a significant alteration in element allotment, between Grid 1 and 6 of $\Sigma d^2 = 19$ would be required.

Element reconstruction outcomes are thus derived by denoting those elements as Inconsistent which fail to replicate with an exact probability of $\leqslant .05$. Thus for Kenneth's two grids, the following outcomes may be derived:-

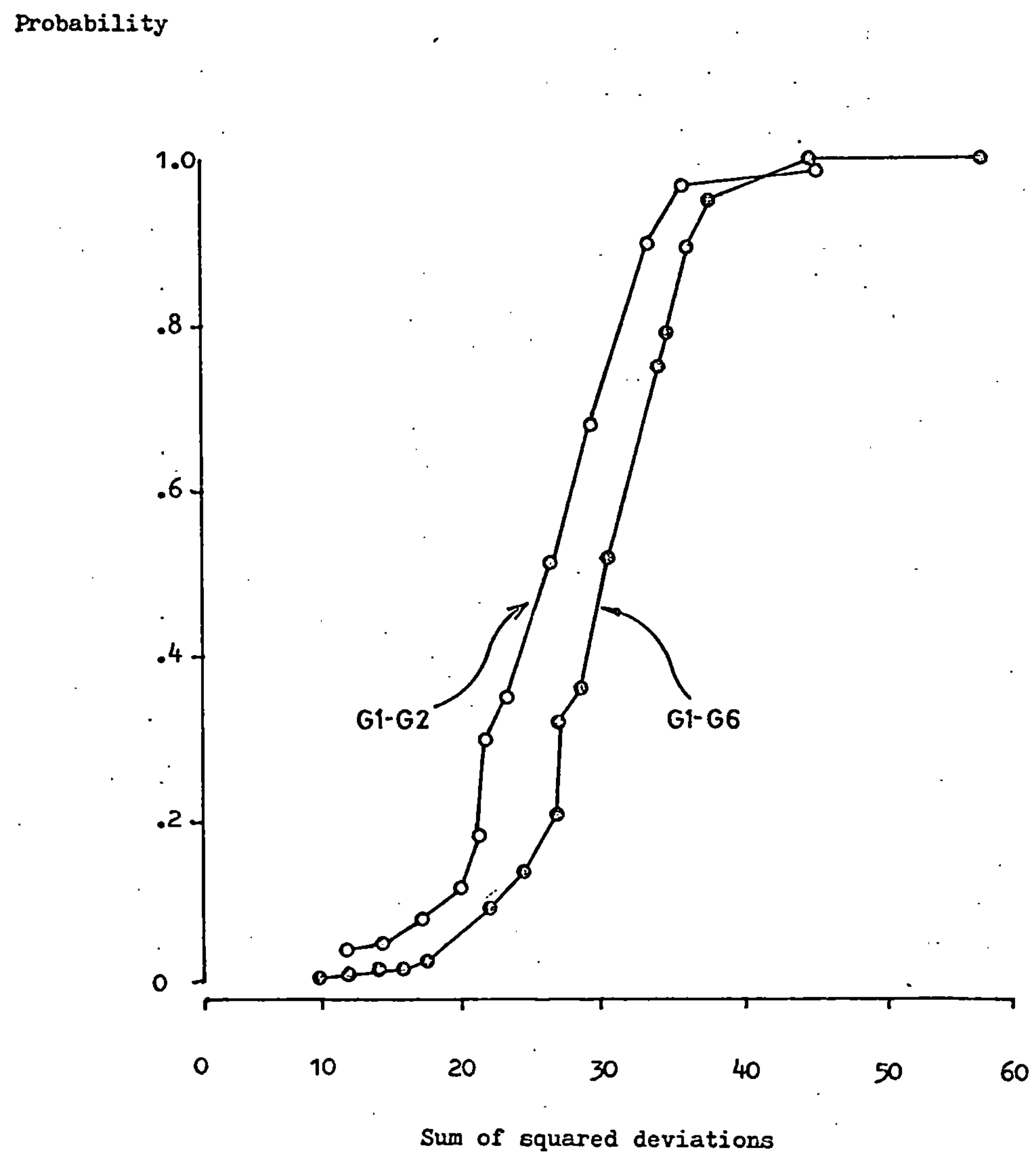


Figure 52 Cumulative probability density functions for sums of squared deviations between elements in replicated grids.

Element		Exact p of Association	Element Reconstruction outcome
E1	Admired male (1)	.126	Inconsistent
E2	Disliked male	.203	Inconsistent
E3	Mother	.001	Consistent
E4	Disliked female	.081	Inconsistent
E5	Girlfriend (1)	.006	Consistent
E6	Exflame (2)	.009	Consistent
E7	Exflame (1)	.865	Inconsistent
E8	Admired male (2)	.735	Inconsistent
E9	SELF	.770	Inconsistent
E10	Girlfriend (2)	0	Consistent
E11	Admired female (1)	.058	Inconsistent
E12	Admired female (2)	0	Consistent

In summary, Steps (vi) and (vii) have been completed, and operational definitions of predication stability and reconstruction grid outcomes have been formulated. Level 3 transformations entail observing construct and element reconstruction outcomes in a sequence of grids and estimating for each construct and element the likelihood that such an outcome reflects the occurrence of a class of events, or hypotheses, defined in Step (iii). Outcomes, or data (D), and associated hypotheses (H) may be listed for the reconstruction grid as follows:-

Reconstruction grid hypotheses		Reconstruction grid outcomes	
Constructs			
H_{sc}	stable construct	D_r	replicated component
H_{tc}	transitional construct	D_d	displaced component
H_{uc}	unstable construct	D_e	emergent component
Elements			
H_{se}	stable element	D_c	consistent element
H_{te}	transitional element	D_i	inconsistent element
H_{ue}	unstable element		

The task of Step (vii) is to derive estimates of the likelihood that any of the hypotheses above is reflected by each of the data classes when they are observed to occur. That is, to what extent does the observation that a particular construct replicates an existing component suggest that the construct is stable? Similarly, does the fact that a particular element fails to obtain similar ratings on constructs in a replicated grid imply that element to be unstable? The degree to which these statements may be asserted comprise the likelihoods by which observable data classes relate to unobservable hypotheses.

3.3.4.4. Estimating reconstruction grid likelihoods.

By utilising the 7 grid samples described in 3.3.3.1. likelihood tables relating reconstruction grid hypotheses to data classes may be constructed for constructs and elements.

(i) Constructs reconstruction likelihoods.

In section 3.3.3.1. the sample of 80 constructs were classified according to a set of operational definitions. We may superimpose over this classification a second classification, namely the data classes these 80 constructs obtained on each of their replications in the 7 grid series. For example, construct 2 in one subject's grid series of five replications was identified as 'transitional'. However, on three of the five replications construct 2 was identified as a 'replicate' (D_r), since it represented the same component, whilst on one occasion it was identified as 'emergent' (D_e), and on another as 'displaced' (D_d). When the replication of the 80 constructs in this sample were pooled (totalling 238 replications) and classified in this way the frequencies tabulated in Table 23 were obtained.

To test whether the data classes differentially predicted hypotheses an index of predictive association was computed and found to be moderate when the unconditional probability distribution of the hypotheses was assumed to be indeterminate (Goodman-Kruskal λ = .226), and marginally improved when the distribution is known (λ = .282). In other words, when the prior distribution of hypotheses is known, the proportional reduction in the probability of an error is assigning a construct to an hypothesis on the basis of an observed data class is 28.2%.

Hypotheses	Data classes D_r	D_d	D_e	Total replications
H_{sc}	98	21	4	123
H_{tc}	52	32	19	103
H_{uc}	3	7	2	12
Total Replications	153	60	25	238

TABLE 23 Classification of construct replications.

Hypotheses	Data classes D_r	D_d	D_e	Priors
H_{sc}	.797	.171	.032	.538
H_{tc}	.505	.311	.184	.412
H_{uc}	.250	.583	.167	.050

TABLE 24 Construct reconstruction likelihoods.

These data enable the construction of a likelihood table (Table 24) which may be read in the following way:-

> Suppose I observe that construct 1 on a second grid occasion belongs to the same component as does construct 1 on the first grid occasion. I would conclude that construct 1 is a replicate. Which of the three classes of reconstruction grid hypothesis is this single observation most likely to represent? And what degree of certainty may I attach to my decision? Firstly I know that without observing any datum stable constructs are more likely ($p = .538$) than transitional ($p = .412$) or unstable constructs ($p = .05$) and entering the table I find that the data class 'replicated' is more likely to indicate a stable construct ($p = .797$) than either a transitional ($p = .505$) or unstable construct ($p = .25$). To be more rigorous, I apply Bayes' theorem to the three hypotheses, and obtain posterior probabilities for a decision to label the construct stable ($p = .661$), transitional ($p = .32$), or unstable ($p = .019$). Thus, whilst I was only 54% sure that construct 1 was a stable construct before this observation I am now 66% sure it is. Subsequent observations may either confirm or refute this assertion.

(ii) Element reconstruction; in a similar way having identified elements falling into each of the three hypothesis classes, each element may be scored on the basis of how many of its replications were consistent (D_c) or inconsistent (D_i). However, should any replication be consistent, then by definition (3.3.4.3.) that element cannot be classed as unstable. Similarly, should any replication be inconsistent, by definition that element cannot be classed as stable. Thus, the only uncertainty is for transiitonal elements, which when classified according to the data classes obtain the following frequencies:-

	D_c	D_i	Total replications
H_{te}	58	64	122

Because of the impossibility of obtaining D_i for stable constructs and D_c for unstable constructs, the derivation of likelihoods is simplified (Table 25), and the index of predictive association substantial (Goodman-Kruskal λ = .50).

TABLE 25 Element reconstruction likelihoods.

Hypotheses	Data classes D_c	D_i	Priors
H_{se}	1	0	.093
H_{te}	.475	.525	.667
H_{ue}	0	1	.240

In summary, Stage 3 has been completed in that a set of transformations employing PCA methods have been developed and outcome classes deriving from these transformations defined, and likelihood estimates obtained for the relationship between these outcome classes and the operational definitions of construct stability. The objective of the final stage is to develop displays and reflective strategies compatible with Levels 2 and 3 employing these transformations.

3.3.5. Stage 4: Developing reflective strategies.

3.3.5.1. Level 3 displays.

To develop reflective strategies for the reconstruction grid procedure, a further analysis of Kenneth's grid series will provide a brief case study. This grid series was chosen since we intend to superimpose core and reconstruction grid procedures to provide the user with feedback of greater significance. Kenneth completed a series of four grids over four months, referred to as Day 1, Day 38, Day 52 and Day 108. Applying the operational definitions of the data classes established in preceding sections the reconstruction grid outcomes for each of Kenneth's constructs and elements may be obtained for each occasion. These outcomes are listed in Appendix F, and the posterior probabilities obtained listed for constructs (Table 26) and elements (Table 27).

3.3.5.2. As an example, consider the outcomes obtained for Kenneth's grid series by Day 38. Since these data are based on changes occurring between replicated grids, they could not be observed before the second grid had been transformed. The application of the transformation produced the following outcomes firstly, for constructs, and secondly for elements:-

(i) Construct reconstruction outcomes:

C1	SELF-DESTRUCTIVE	REPLICATED
C2	RECEPTIVE TO CHANGE	REPLICATED
C3	BITTER	DISPLACED
C4	AVOIDS PHYSICAL CONTACT	DISPLACED
C5	EMOTIONAL	EMERGENT
C6	WITHDRAWN	EMERGENT

Given these data classes, the Bayesian transformation was applied as follows:-

(a) identify construct reconstruction outcomes and their associated prior probabilities as:-

Outcome	Prior Probability
Stable construct	$p(H_{sc}) = .538$
Transitional construct	$p(H_{tc}) = .412$
Unstable construct	$p(H_{uc}) = .050$

(b) locate for each observed datum the associated likelihoods by referring to Table 23. Thus for C1 SELF-DESTRUCTIVE, the datum is that C1 on the second occasion replicates C1 on the first. The likelihoods for D_r are then:

TABLE 26 Kenneth: Posterior probabilities of construct reconstruction.

Constructs	Day 38		Day 52		Day 108	
	H_{sc}	H_{tc}	H_{sc}	H_{tc}	H_{sc}	H_{tc}
1	660	320	502	444	150	766
2	660	320	759	234	837	163
3	416	579	502	444	150	766
4	416	579	502	444	627	351
5	168	752	251	712	055	903
6	168	752	094	755	064	922
7			416	579	502	444
8			416	579	280	709
9			416	579	094	755
10			416	579	280	709
11			660	320	251	712
12			660	320	502	444
13					416	579
14					660	320
15					168	752
16					168	752
17					660	320
18					660	320

(Note: Figures given to three places, decimal point omitted).

Elements	Day 38			Day 52			Day 108		
	H_{se}	H_{te}	H_{ue}	H_{se}	H_{te}	H_{ue}	H_{se}	H_{te}	H_{ue}
1	0	593	407	0	433	566	0	286	714
2	0	593	407	0	1	0	0	1	0
3	227	773	0	382	618	0	565	435	0
4	0	593	407	0	433	566	0	286	714
5	227	773	0	0	1	0	0	1	0
6	227	773	0	0	1	0	0	1	0
7	0	593	407	0	433	566	0	286	714
8	0	593	407	00	1	0	0	1	0
9	0	593	407	0	1	0	0	1	0
10	227	773	0	382	618	0	0	1	0
11	0	593	407	00	433	566	0	1	0
12	227	773	0	382	618	0	0	1	0

(Note: Figures between 0 and 1 given to three places, decimal point omitted).

TABLE 27 Kenneth: Posterior probabilities of element reconstruction.

$p(D_r/H_{sc}) = .797$

$p(D_r/H_{tc}) = .505$

$p(D_r/H_{uc}) = .250$

(c) using the tabular form of Bayes' theorem (Phillips, 1973, p.60) with the terms as defined above the following posteriors obtain:-

Hypotheses	Prior probabilities	Likelihoods of datum	Prior x likelihood	Posterior probabilities
H_{sc}	.538	.797	.4288	.4288/.6493 = .660
H_{tc}	.412	.505	.2081	.2081/.6493 = .321
H_{uc}	.050	.250	.0125	.0125/.6493 = .019

Thus, the following reconstruction grid statement may be expressed:-

> "I am 66% sure that the first construct, SELF-DESTRUCTIVE is a stable construct, and that you will produce a similar set of element ratings on the next occasion that you use it".

In similar fashion, the most likely proposition, and its posterior probability, may be derived for the remaining constructs in the sample:-

C2	RECEPTIVE TO CHANGE	66%	Stable
C3	BITTER	58%	Transitional
C4	AVOIDS PHYSICAL CONTACT	58%	Transitional
C5	EMOTIONAL	75%	Transitional
C6	WITHDRAWN	75%	Transitional

Note that because D_e and D_d differ in their respective likelihoods, both outcomes may indicate a transitional construct, as in C3, C4, C5 and C6, although with varying degrees of certainty.

(ii) Element reconstruction outcomes.

E1	ADMIRED MALE (1)	Inconsistent
E2	DISLIKED MALE	Inconsistent
E3	MOTHER	Consistent
E4	DISLIKED FEMALE	Inconsistent
E5	GIRLFRIEND (1)	Consistent
E6	EXFLAME (2)	Consistent
E7	EXFLAME (1)	Inconsistent
E8	ADMIRED MALE (2)	Inconsistent
E9	SELF	Inconsistent
E10	GIRLFRIEND (2)	Inconsistent
E11	ADMIRED FEMALE (1)	Inconsistent
E12	ADMIRED FEMALE (2)	Consistent

Given these data classes, and applying the same procedure as outlined in (i) with element reconstruction priors and likelihoods, the following propositions and posterior probabilities may be obtained:-

E1	ADMIRED MALE (1)	59%	Transitional
E2	DISLIKED MALE	59%	Transitional
E3	MOTHER	77%	Transitional
E4	DISLIKED FEMALE	59%	Transitional
E5	GIRLFRIEND (1)	77%	Transitional
E6	EXFLAME (2)	77%	Transitional
E7	EXFLAME (1)	59%	Transitional
E8	ADMIRED MALE (2)	59%	Transitional
E9	SELF	59%	Transitional
E10	GIRLFRIEND (2)	77%	Transitional
E11	ADMIRED FEMALE (1)	59%	Transitional
E12	ADMIRED FEMALE (2)	77%	Transitional

Although all propositions take the form of transitional elements, it is important to note that the propositions do have varying degrees of certainty attached to them. This level of certainty is equivalent to the prior probabilities for predicting the outcomes in the succeeding grid, and thus influences both the posterior probabilities ensuing from that grid, and the significance for the user of discrepancies between posterior probabilities and outcomes. Thus, should E1 not meet the criteria of a transitional element following the subsequent grid, very little significance may be attached to the discrepancy. But if E3 should not meet those same criteria, the level of significance attached to the event would be greater, and the user would be alerted to the fact that he had revised his opinion regarding E3. Thus the following reconstruction grid statement might be formulated:-

"I am 77% sure that the third element, MOTHER, is a transitional element, and that you are likely to revise your opinion concerning this element by the next occasion."

3.3.5.3. These propositions correspond to feedback at Level 3. That is, information is presented to the user which directs his attention to the context in which modelling activity occurs. To provoke the user to engage in further modelling activity a reflective strategy may be developed to enable the user to <u>denote</u> the contexts in which his models of self and personal others vary.

Such a Level 3 reflective strategy would involve the following steps:-

(i) derive posterior probabilities for reconstruction grid outcomes in the first replication of the user's grid;

(ii) derive reconstruction grid outcomes in the second grid replication;

(iii) construct an array in which predictions (step i) are mapped against outcomes (step ii) in such a way as to display classes of disjuction between predictions and outcomes;

(iv) request user to consider each disjunction (if any) in turn and to furnish and record an explanation for its occurrence.

The requests of step (iv) may be considered as prompts to encourage further modelling rather than test questions to be answered directly.

The condition that the user record any explanation he might formulate encourages the development of a third-level metalanguage. For example, the first set of prompts for Kenneth were obtained on Day 38, and are listed in Table 28. The first column lists the highest posterior probability derived from the Day 38 observations, and are presented as predictions with degrees of certainty (percent) attached. The second column lists outcomes observed in the Day 52 grid, transformed into statements about hypotheses as if no other observation had been made. Thus, the Day 38 predictions and Day 52 outcomes are directly comparable. Where outcomes are consistent with predictions (C2 and C6) no prompts obtain. Where outcomes are not consistent with predictions, however, varying degrees of prompts arise, depending on the size of the discrepancy between prediction and outcome. For example, the discrepancy observed for C5 (predicted, transitional, 75%; outcome, stable, 66%) has greater significance than the discrepancy for C4 (predicted, transitional, 58%; outcome, stable, 66%).

Rather than present predictions and outcomes to the user in the form of a table, an array may be constructed, depicted in Fig. 53. As constructs are recorded on individual cards, the user may locate each card in the appropriate cell. Discrepancies may then be readily identified (namely, C1, C3, C4 and C5).

Similarly, element reconstruction predictions are listed in Table 29.

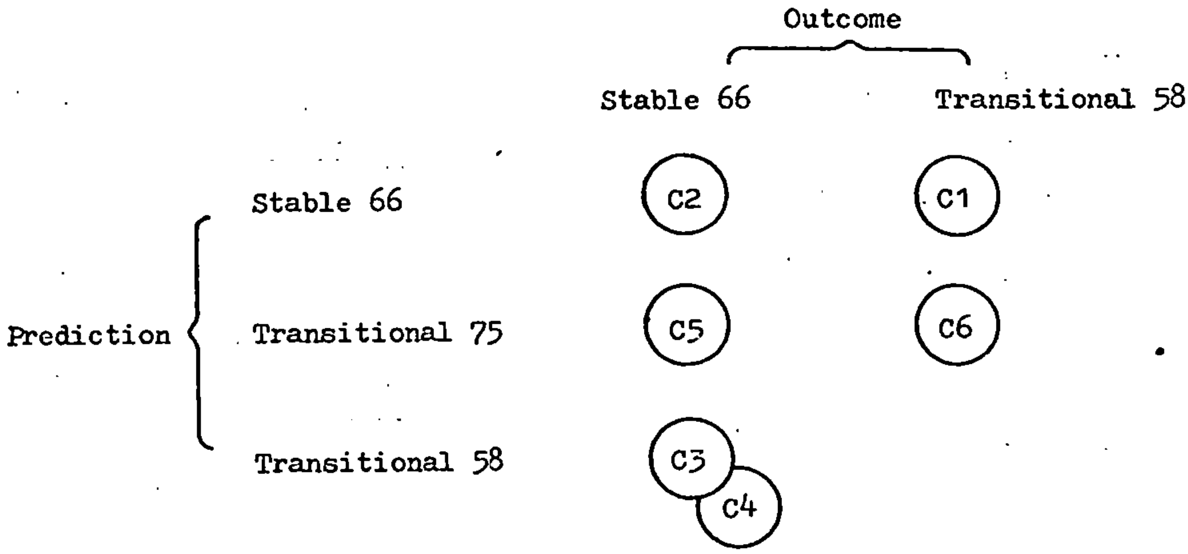


Figure 53 Level 3 construct reconstruction display.

An important point to note here is that as a result of the high prior probability of transitional elements (.667) and the likelihoods of zero and one for two of the data classes, observing one inconsistent and one consistent replication leads to the 100% prediction of transitional elements (e.g. E2). Clearly, such an element satisfies the operational definition of H_{te} completely after two observations. In addition, although E3 obtains a transitional outcome over both observations, the prior probability of it being transitional in the third observation has fallen. This is because the probability of it being a stable element is slowly rising after two observations, though not to the level (because of the biassed priors) of the transitional proposition. As a result, no query prompts may properly derive from these observations in this example.

3.3.3.4. Level 2 displays. It is now possible to superimpose reconstruction grid outcomes onto those of the core grid. The

TABLE 28 Kenneth: Construct prompt chart for Day 52.

Constructs	Prediction for Day 52	Outcomes Day 52	Prompt	Next Prediction
C1	Stable 66	Stable 41 Trans. 58	?	Stable 50
C2	Stable 66	Stable 66	-	Stable 76
C3	Trans. 58	Trans. 32 Stable 66	?	Stable 50
C4	Trans. 58	Trans. 32 Stable 66	?	Stable 50
C5	Trans. 75	Trans.32 Stable 66	??	Trans. 71
C6	Trans. 75	Trans. 58	-	Trans. 76

TABLE 29 Kenneth: Element prompt chart for Day 52.

Elements	Prediction Day 38	Outcome Day 52	Prompt	Prediction Day 52
E1	Trans. 59	Trans. 59	✓	Unstable 57
E2	Trans. 59	Trans. 77	✓	Trans. 100
E3	Trans. 77	Trans. 77	✓	Trans. 62
E4	Trans. 59	Trans. 59	✓	Unstable 57
E5	Trans. 77	Trans. 59	✓	Trans. 100
E6	Trans. 77	Trans. 59	✓	Trans. 100
E7	Trans. 59	Trans. 59	✓	Unstable 57
E8	Trans. 59	Trans. 77	✓	Trans. 100
E9	Trans. 59	Trans. 77	✓	Trans. 100
E10	Trans. 77	Trans. 77	✓	Trans. 62
E11	Trans. 59	Trans. 59	✓	Unstable 57
E12	Trans. 77	Trans. 77	✓	Trans. 62

resulting display is amenable to several analyses depending on the focal areas of interest that the user formulates. Firstly, a Level 2 display for Kenneth's Day 38 grid may be constructed which integrates Level 2 and 3 transformations in the manner discussed in the preceding chapter (see Fig. 54). Here, however, reconstruction and core grid outcomes have been combined. On the left are listed components of decreasing variance, within each component representative constructs in order of relevance. Thus, C 12 obtains the highest loading on component I, C3 the highest on component II and so on. Across the top of the matrix are the elements in numerical order. At the foot of the matrix ticks represent core grid (central and incidental) and reconstruction grid (stable, unstable and transitional) element outcomes. To the right of the matrix, ticks represent core grid (core and peripheral) and reconstruction grid (stable, unstable and transitional) construct outcomes.

In the body of the matrix itself may be entered the original ratings recorded on the second occasion. However, for simplicity in this display only ratings for central elements have been entered.

With the display so organised, a number of additional analyses may be made by the user:-

(a) <u>Identifying central elements on core constructs;</u> this analysis yields those predications which are most central to the user's modelling conversation. That is, it will consist of those constructs on which the element SELF is most meaningfully

Components	ELEMENTS 1	2	3	4	5	6	7	8	9	10	11	12	OUTCOMES Core	Peri	Stable	Trans	Unst
I C12				5					1			5	✓		✓		
C11				5					1			5	✓		✓		
C7				5					1			5	✓		✓		
C10				5					1			5	✓		✓		
C1				4					3			5	✓		✓		
II C3		1	1			5								✓		✓	
C2R		2	1			4								✓	✓		
C4		3	1			5								✓		✓	
III C8	1				5		1							✓	✓		
C6R	1				4		1							✓		✓	
IV C5					1						1	4		✓		✓	
V C9	5	5							1				✓		✓		
Central		✓		✓		✓	✓		✓		✓						
Incidental	✓		✓		✓		✓			✓		✓					
Stable Trans. Unstable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					

Figure 54 Kenneth: Level 2 display, Day 38.

defined, and those elements most crucial to that definition. For Kenneth, the central areas of his grid are:-

Component I

AFRAID OF THE FUTURE
ASHAMED OF THEIR FEELINGS — SELF
GUILT-RIDDEN
ALWAYS AGREES WITH ME
SELF-DESTRUCTIVE

COMPLACENT
SELF-SATISFIED — DISLIKED FEMALE
BLATANT
REFUSE TO AGREE
PROTECT THEMSELVES

Component V

BORING — SELF

INTERESTING — DISLIKED MALE

A reflective strategy appropriate to this Level 2 display would entail requesting that the user furnish an explanation of the difference between core constructs grouped in this way and other construct groups.

(b) Identifying core-transitional constructs; as core constructs will be those most likely to represent an area of personal reference or definition, great significance may be attached to reconstruction occurring on these dimensions, since this may indicate fundamental change in the user's construing of himself. However, in Kenneth's Day 38 display, core constructs are those most likely to be stable.

(c) Identifying central-transitional elements; a central element is one which is likely to be instrumental to the definition of one or more class of predicates. Thus, great significance may be attached to central-transitional elements since they reflect an increasing uncertainty within the client's construing. In Kenneth's Day 38 display, all elements are most likely to be transitional because of low prior probabilities and extreme likelihoods. However, those elements that are 77% likely to be transitional are of interest, and only one of those is also 62% likely to be central:

E6 EXFLAME (2)

(d) Identifying stable elements on stable constructs, and transitional elements on transitional constructs; these two analyses provide distinct submatrices:-

Submatrix A: Consistent and stable predications

Submatrix B: Reconstructed and transitional predications.

SUBMATRIX A

Consistent and stable predications

	(rating value 1)	E1	E2	E4	E9
	AFRAID OF THE FUTURE	2	1	5	1
	ASHAMED OF THEIR FEELINGS	1	1	5	1
I	GUILT-RIDDEN	1	1	5	1
	ALWAYS AGREES WITH ME	2	2	5	1
	SELF-DESTRUCTIVE	3	3	4	3
V	BORING	5	5	2	1

SUBMATRIX B

Reconstructed and transitional predications

	(rating value 1)	E3	E5	E6	E12
II	BITTER	1	1	5	3
	AVOID CHANGE	1	1	4	1
	AVOID PHYSICAL CONTACT	1	2	5	1
III	NEED EXCITEMENT	1	5	4	4
	OUTGOING	1	4	4	1
IV	EMOTIONAL	1	1	5	4

These predications represent detailed highlights of Level 2 information, and combined with a reflective strategy that encourages the user to furnish and record accounts which may be formulated only through modelling activity at Level 3. For example, for the user to account for the observation that his constructions of MOTHER are uncertain and unchangeable, he must appraise the views he holds of her, and the nature of his relationship with her, and formulate predicates at this level.

3.3.6. Summary.

3.3.6.1. In developing the reconstruction grid procedure, this chapter has reproduced the same stages as were followed for the core grid procedure in the preceding chapter. However, this chapter has focussed on a second feature of repertory grids, namely stability of predication. The development of transformations and displays to exhibit this feature involved four discrete stages, the results of each of which may now be summarised.

3.3.6.2 Stage 1.

The theoretical background to the concept of predication stability was discussed, and the following conclusions drawn; (i) that any theoretical formulation of the process of change in construction processes must incorporate discrete levels of control, and that invalidation of predicates at one level may only be compensated for by the intervention of higher-order construct system; (ii) that the objective of reconstruction grid procedures may be expressed as the enhancement of coupling between levels of control; (iii) that strategies of coping with uncertainty may be reflected in the degree of coupling between levels and the quality of learning that takes place; (iv) that from an examination of the 'marital reconstruction grid' (Ryle & Lipshitz, 1975) a set of methodological criteria may be established for reconstruction grid procedures; (v) that a serial procedure, namely, the 'repgrid cycle', may be designed to meet these criteria.

3.3.6.3. Stage 2.

As for the core grid procedure, Level 3 activities entail that the reconstruction grid algorithm incorporates prior probabilities concerning reconstruction hypotheses, a class of transformations and defined outcomes deriving from grid observations, a set of likelihoods that relate outcomes to hypotheses, and the means for deriving posterior probabilities for these hypotheses. Stage 2 comprised: (i) establishing reconstruction hypotheses describing performance in time, namely whether predicates are stable, transitional, or unstable; (ii) deriving operational definitions for these hypotheses; (iii) applying the definitions to a sample of serial grids to obtain the frequencies with which each hypothesis may be observed; (iv) deriving from these frequencies prior probability distributions associated with each hypothesis.

3.3.6.4. Stage 3.

Stage 3 was concerned with developing transformations that may be applied to the user's grids to predict the performance of individual predications in subsequent reproductions; (i) by adapting principal components analysis to define a class of construct reconstruction outcomes; (ii) by utilising exact probabilities of association between element rating replications to derive a class of element reconstruction outcomes; (iii) by applying these transformations to the sample observations to obtain estimates of the likelihood that reconstruction grid outcomes identify stability hypotheses.

3.3.6.5. Stage 4.

Finally, the transformations were applied to one subject's grid series to establish the nature of Level 2 and 3 displays and reflective strategies. Although a similar strategy as developed for the core grid procedure was suggested, the Level 3 display was adapted to involve the user in the assembly of an array which mapped observed outcomes onto predicted outcomes to exhibit discrepancies. Similarly, Level 2 displays were developed to incorporate both core grid and reconstruction grid outcomes, and additional analyses involving comparisons between the two sets of outcomes were outlined.

Chapter 3.4.

The insight grid

3.4.1. Level 1 reflective strategies.

3.4.1.1. The two preceding chapters reported the development of procedures for deriving displays and reflective strategies compatible with Levels 2 and 3 in Fig. 35. The task of this chapter is to incorporate these procedures into a single algorithm, and to evaluate its performance in two case-studies. To complete the algorithm, however, activities appropriate to Level1 must be specified.

Level 1 feedback was outlined in Chapter 3.1. as information concerning individual predications, the display of which would lead the user to model the process of construction. That is, by classifying constructs and elements in the user's grid to display their salient features (namely predication centrality and predication stability) the procedure would be providing augmented feedback concerning the user's construction processes. With repeated presentations, the user may come to identify and associate intrinsic cues with this feedback, enabling him to anticipate the feedback classification. The reflective strategy appropriate to this level, then is to incorporate the activity of anticipating Level 1 outcomes into the procedure. For example, after completeing a grid the user may be asked to examine his constructs and to separate core constructs, as he perceives them, from peripheral constructs, central elements from incidental elements, stable constructs from unstable constructs, and so on. To distinguish the combination of core and reconstruction grid displays at the three levels from the preceding chapters, this algorithm has been termed the insight grid procedure.

3.4.1.2. A point to note about the nature of Level 3 feedback is that it was necessary, for simplicity and clarity, to construct the procedures on a discontinuous hypothesis basis. That is, a single criterion was established to distinguish the hypothesis of 'core construct' from 'peripheral construct', 'incidental element' from 'central element', and so on; and two criteria to distinguish 'stable' from 'transitional' from 'unstable constructs', etc. However, there are drawbacks involved in employing discontinuous scale transformations in Level 1 feedback. This consideration is termed 'scale grain', and represents the coarseness of the transformation between the response score (R) and the displayed results or information feedback (IF). Transformations of scale are significant because:

> "they make IF independent of the value of R, separating IF's effect on R-change from the value of R itself: different IFs can follow the same R in different treatments and the same IF can follow different Rs.....Rate of acquisition or limit of accuracy varies with the function converting R-error to IF, and if one R-IF relation can establish an R, another can as readily steer one away from the R."

Bilodeau (1969, p.264).

As it was considered that centrality and stability of predication were continuous variables underlying modelling activity, and as the Level 1 reflective strategy requires the user to anticipate outcomes on the basis of hypothetically continuous intrinsic cues, it bacame necessary to refine the IF scalar grain. Thus, whilst

Level 3 transformations might succeed in encouraging modelling activity through the use of discontinuous hypotheses, Level 1 outcomes were seen as requiring at least an ordinal measure of predication stability and centrality.

The significance of this for modelling is now clear; discontinuous hypotheses represent 'targets', and provide coarse-grained feedback, 'hit' or 'miss' for Level 3 displays, directing the user's attention to the contexts in which his modelling varies. Continuous hypotheses represent gradients, providing fine-grained feedback enabling the user to receive sufficient information to discriminate intrinsic cues arising out of his construction processes. To clarify this distinction, Level 1 outcomes may be seen as tested against a gradient of hypotheses, whilst Level 3 outcomes are tested against an 'either-or' hypothesis, as represented in the Fig. 55.

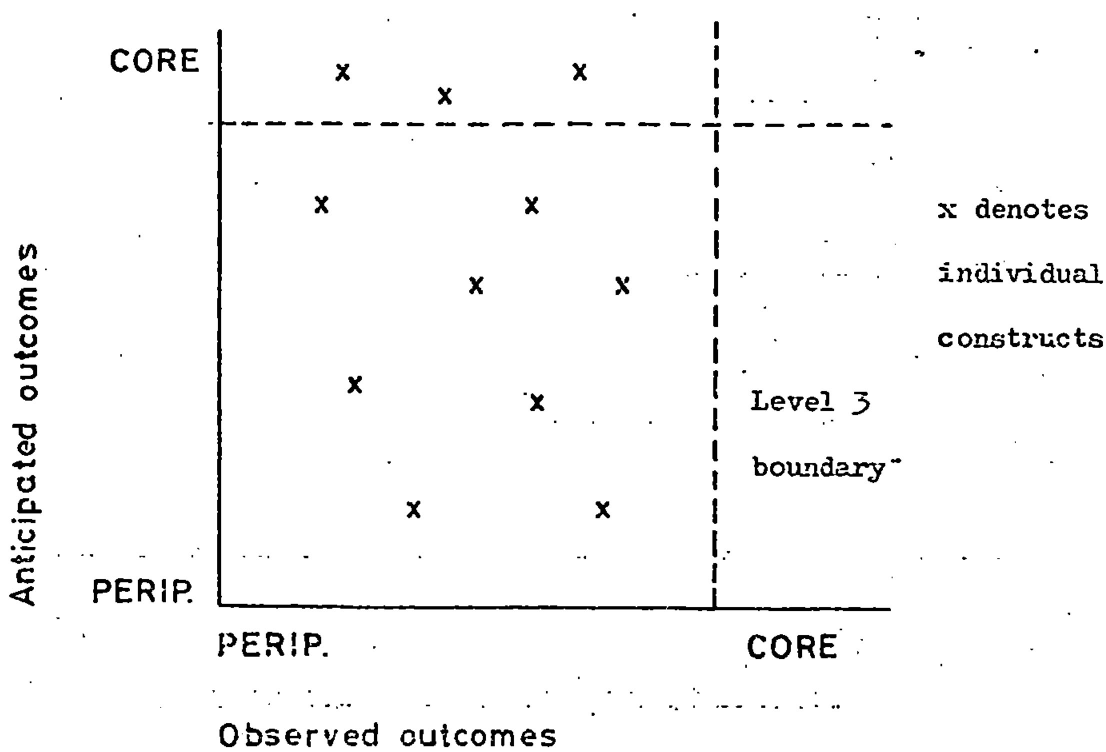


Figure 55.

Thus, in the event of no construct attaining the Level 3 criterion of 'core construct', information would still be available to the user regarding degrees of 'core-ness'. As a result, a series of grids may reveal learning taking place (Fig. 56).

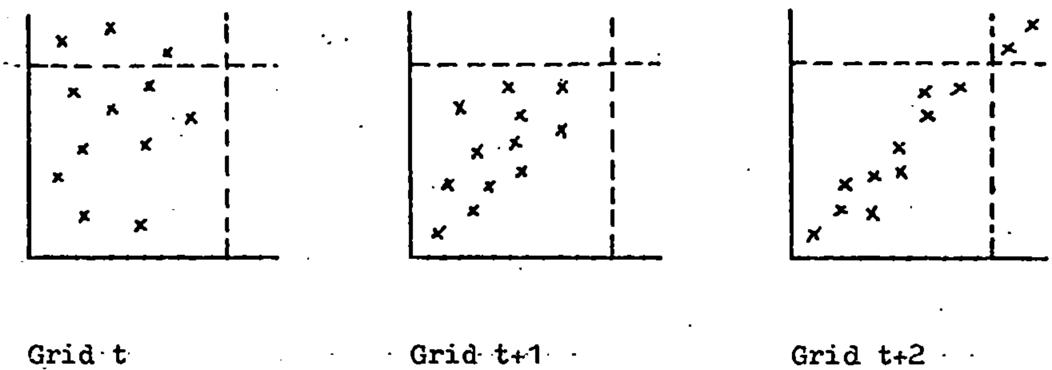


Figure 56.

3.4.1.3. As a result of this assumption, continuous measures for the following outcomes were developed: (i) element centrality, (ii) core constructs, (iii) element reconstruction, (iv) construct reconstruction.

(i) An element centrality score was obtained from the sum of each element's loadings on all significant components. In greater detail, the operational steps were as follows:-

a. by the method of representation (Chapter 3.2.) constructs were assigned to those components that they most represented. The components thus represented were taken as significant, the remaining components discarded as attributable to error variance.

b. for each element, the sum of its loadings on the significant components was obtained, disregarding sign.

c. these sums were ranked from the highest, representing the most central element, to the lowest, representing the most peripheral element.

The rationale of this measure was that an element which was most defined by the user's constructs (i.e. located at the extremes on all significant components) would be that element which was most central to the user's grid.

This continuous measure and the nominal categories of CENTRAL and INCIDENTAL elements described in previous chapters are not unrelated. In the two case studies reported in this chapter, for example, those elements identified as nominally CENTRAL tended also to be those elements which obtained higher ranks on the element centrality score, as may be seen in Table 30.

S	Grid	Mann-Whitney U	n_1/n_2	p
Tom	1	7	6/6	.047
	2	3	6/6	.008
	3	6	8/4	.055
Brenda	1	0	9/3	0
	2	6	6/6	.032
	3	1	8/4	.004

TABLE 30 Tests of relatedness of element centrality outcome measures.

(ii) A core construct score was obtained from the sum, over all significant components, of the product of each construct's loading and the vector of the element SELF. The operational steps were as follows:-

a. constructs were assigned to components by the method of representation to identify significant components.

b. each construct's loading on each significant component was multiplied by the vector of the element SELF on that component.

c. the products for each construct were summed over significant components.

d. the sums were ranked from the highest, representing the most core construct, to the lowest representing the most peripheral construct.

The rationale of this measure is that constructs that load highly on these components which are instrumental in delineating SELF from other elements, or in identifying SELF with other elements, obtain higher core construct scores. Clearly, more than one component in a client's grid might be self-defining, and that in addition the larger the latent root, the greater the salience of such a component. The core construct score represents both the salience of the component (its latent root), the centrality of the element SELF (its vector) and the lower order components $(\sum_{m=1}^{n} (\text{loading}_{im}) (\text{vector}_{jm}))$.

Again, this continuous measure and the nominal categories of CORE and PERIPHERAL constructs are strongly related; in the following case studies, constructs designated as CORE obtained higher ranks on the core construct score (Mann-Whitney U (7/11) = 6, p=.001).

(iii) An element reconstruction score was obtained by rank ordering the exact probabilities of element association computed by the program EXACT. Since the discontinuous measure reported in Chapter 3.3. was also based on this statistic (STABLE elements taken as those replicated at the 5% level), the two outcome scales are comparable.

(iv) A construct reconstruction score was obtained by rank ordering exact probabilities of construct association computed by the program EXACT. The discontinuous categories of construct reconstruction reported in Chapter 3.3., namely REPLICATION, DISPLACEMENT and EMERGENCE are related to this score in the following way: that DISPLACEMENT and EMERGENCE when taken as cases of construct instability, and REPLICATION as the instance of construct stability, obtain a significant association with the exact probabilities of construct association ($\chi^2 (1) = 63.12$, $.001 > p$; Table 31).

3.4.1.4. In summary, the four outcome measures described above provide an ordinal referent against which the user may articulate his anticipated outcomes. Level 1 reflective strategies thus entail that user making a series of ordinal judgements concerning

	DISPLACED & EMERGENT CONSTRUCTS	REPLICATED CONSTRUCTS	TOTAL
EXACT PROBABILITY .05	26	110	136
EXACT PROBABILITY .05	46	12	58
Total	72	122	194

(N.B. This table is derived from the data reported in Chapter 3.3., and is based on pooled constructs from the replicated grid series of 5 subjects).

TABLE 31 Interaction between construct reconstruction measures.

his constructs and elements and incorporating these judgements into a display along with ordinal outcome measures. In assembling this display, the user may readily identify discrepancies between anticipated and observed outcomes. In a similar fashion to the Level 3 strategy, the user may then be requested to furnish an explanation for the observed discrepancies.

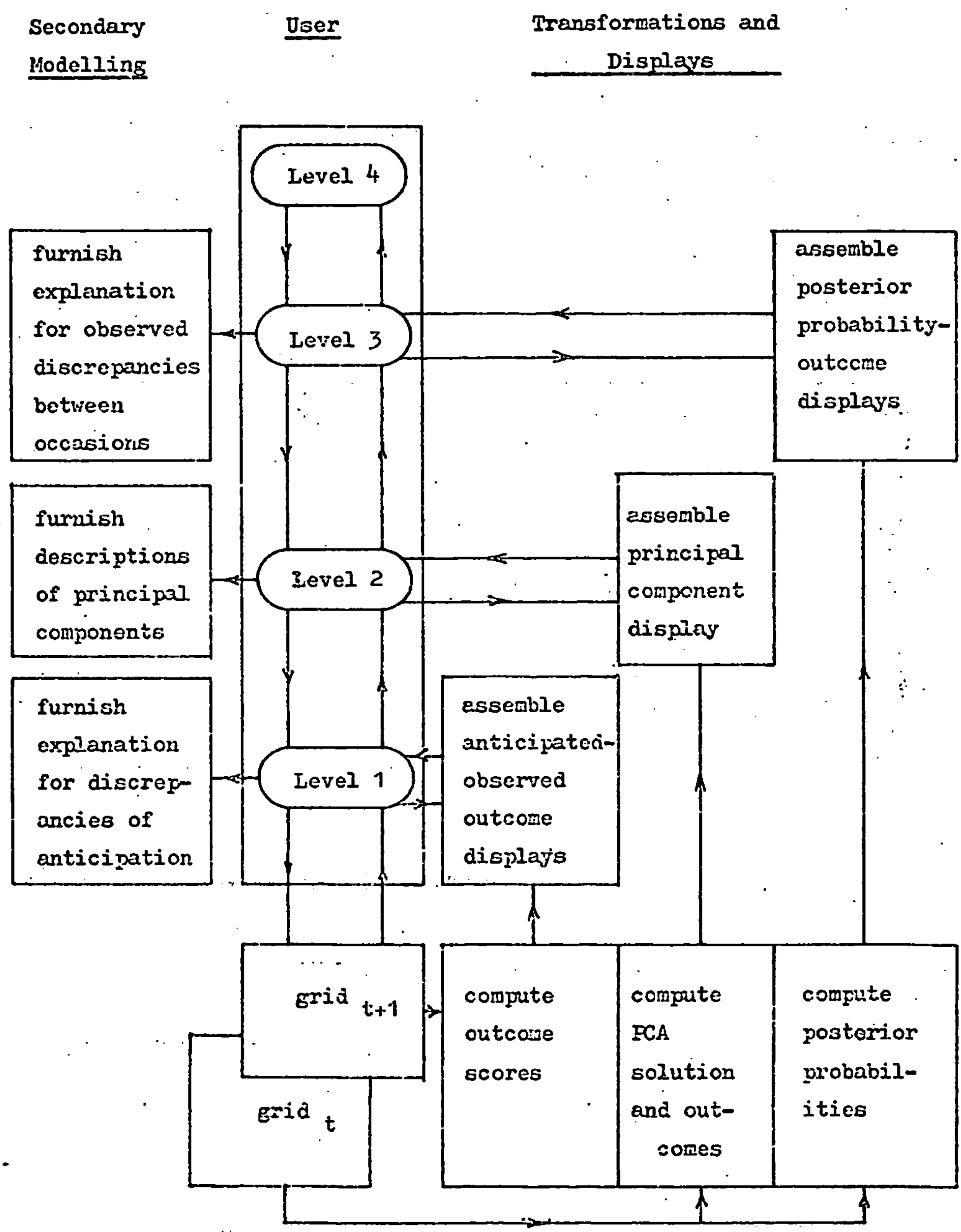
3.4.2. The insight grid procedure.

3.4.2.1. The activities involved in the insight grid procedure may now be summarised (Fig. 57) to illustrate activities and secondary modelling at each level. In operational terms the insight grid procedure comprises two major components, an elicitation session, and a feed-back session. The duration of each session varies but is generally between 2-3 hours. In the case studies that follow, three grids were produced by two subjects, and thus their involvement averaged between 12-18 hours. The insight grid cycle may be schematised from the subject's point of view in Fig. 58 as six modules.

3.4.2.2. Module A; element elicitation proceeded by requesting that the user identify the area of greatest personal concern by listing as many persons involved in this area as possible. The first list often produced more than 20 names of acquaintances and relatives. However, the user selected only 10 names from this list on the basis that they were those persons most important to the user and his concerns. These 10 names were finally recorded on separate 6" x 4" cards, shuffled and numbered from 1 to 10. In addition to the 10 names three extra element cards were introduced: MYSELF AS I APPEAR TO OTHERS; MYSELF AS I REALLY AM; MYSELF AS I WOULD LIKE TO BE.

Completing the grid matrix entailed the production of 6 constructs by the Full-Context elicitation method. After each construct was elicited and recorded on a numbered 6" x 4" card, element cards were immediately sorted into five piles in an ordered series, pile

Figure 57 Insight grid procedure.



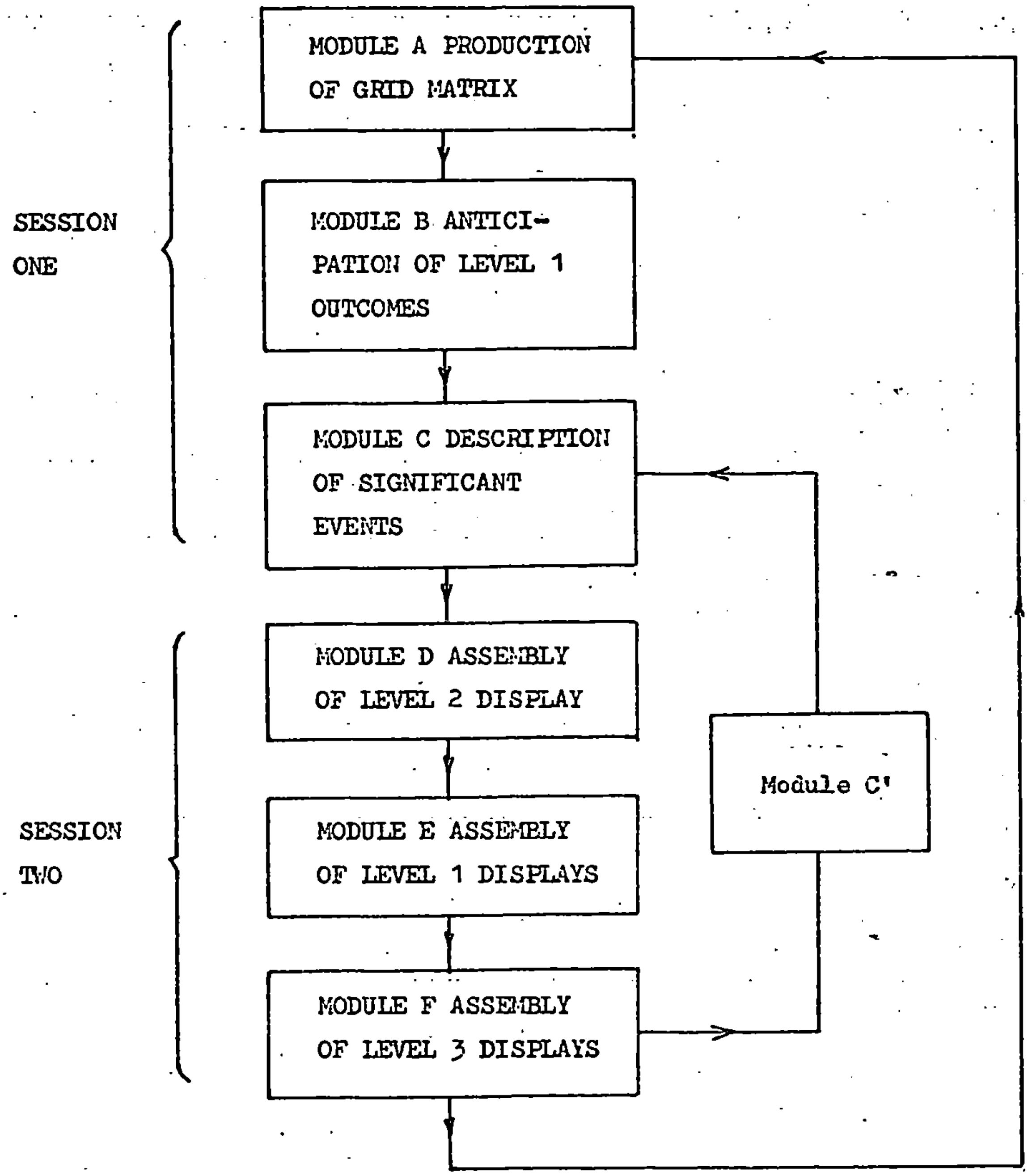


Figure 58 The sequence of operations of the insight grid procedure.

labelled '1' denoting the left hand-pole of the construct, and the pile labelled '5' denoting the right-hand pole.

It was suggested to the subject that he may reorder his element cards as many times as he wished until their ordering conveyed the idea he wished to express. When he was satisfied with the ordering, he was asked to check the wording on the construct card to ensure that it clearly represented the idea embodied in the element ordering. Care was taken to ensure that the subject did not feel obliged to describe his constructs such that they were necessarily comprehensible to the experimenter.

This procedure was all that was required on the first occasion. On subsequent occasions, however, the subject proceeded by taking up the construct cards of all constructs produced on previous occasions, and re-applying them to the element cards. All element sorts produced in this way were numerically recorded by the experimenter on blank grid forms. The subject was given a personal file in which he retained his element and construct cards. The experimenter was not informed of the content of these cards until after the grid series was completed, and only then with the consent of the subject.

3.4.2.3. Module B; subjective anticipations of grid outcomes were formulated in 4 areas in the insight grid, namely, (i) central/incidental elements; (ii) core/peripheral constructs; (iii) element reconstruction; (iv) construct reconstruction.

Anticipations were formulated by requesting that the subject rank-order element and construct cards, in response to the following instructions:-

(i) "Lay out all the person cards face up. From the cards pick out that person whom you think is most important to you as you have described him/her in your grid. That is, pick out that person whom you think is best defined by the constructs you have just used. Place that card on the extreme left of the table. Now from the remaining cards pick out the next most important person and put that card to the right of the first. Continue until all the cards have been arranged in a row".

(ii) "Lay out all the construct cards face up. From the cards pick out that construct which you think is most important to your definition of MYSELF AS I REALLY AM as you have described yourself in your grid. Place that card on the extreme left and from the remaining cards pick out the next most important and place that to the right of the first card. Continue until all the cards have been arranged in a row".

On the second and all subsequent occasions, (i) and (ii) were completed, but in addition the following instructions were given:-

(iii) "Lay out all the person cards face up. From the cards pick out that person about whom you think you have changed your mind about most as you have described him/her in this and your last grid. That is, pick out that person whom you think has moved most along the constructs in your grid. Place that card on the extreme left and from the remaining cards pick out that person whom you think that you have next changed your mind about and place that to the right of the first card. Continue until all the cards have been arranged in a row".

(iv) "Lay out all the construct cards face up. From the cards pick out that construct along which you think you have most changed your mind about the people in this and your last grid as you have described them. That is, pick out that construct which you think displays the greatest amount of movement of persons between this and your last grid. Place that card on the extreme left and from the remaining cards pick out that construct which you think displays the next most greatest change. Continue until all the cards have been arranged in a row".

Each of these four rankings were recorded by the experimenter on blank Prediction/Outcome forms (see Appendix G).

3.4.2.4. Module C and module C'; on the first occasion, this module comprised a set of brief characterisations of each of the persons selected as elements, recorded on separate sheets of paper, and retained in the subject's personal file. These characterisations were made in response to the following instructions:-

"Take a sheet of paper and write the name of the first person you have selected at the top. Now write a brief sketch of this person to cover the following areas: How frequently do you meet this person? What sort of relationship do you have with him/her? How important is he/she to your present concern? Make a similar brief sketch for each of the people you have chosen".

On the second and subsequent occasions the subject was requested to make notes about events which he considered to be significant and then to consider each element in turn in relation to each construct in the preceding grid, as follows:-

"Take up the first of your person cards in one hand, and the first construct you produced in the other hand. Think about the events you have just noted. Has your opinion of that person in terms of that construct changed as a result of those events?"

If the subject considered events did have implications for his opinions of an element in terms of each construct, E recorded a tick in the appropriate cell of a blank grid form (Module C). Following each of the module F displays this procedure was repeated, (Module C'), and E recorded any additional implications and their source (i.e. the outcome class represented in the module F display) on the same grid form (see Appendix G).

3.4.2.5. Module D; Level 2 displays were derived from the cumulative principal components analysis described in Chapter 3.2. This analysis provided the basis for the assembly of a display consisting of the two segments; (i) construct/element components displays; (ii) construct/element outcome displays.

(i) Component displays; from the cumulative principal component analysis of each successive grid, it was possible, by using the method of representation described in Chapter 3.2., to assign constructs to those components which they most represent. After all constructs had been accounted for by this method, the remaining components were discarded as error variance. This method invariably succeeded in accounting for between 75-95% of the total variance. Thus as little as 5% and at the most 25% of the total variance was discarded as error variance. Within each component, representative constructs were ordered from the highest to the lowest loading on that component, and each construct was labelled as loading positively on that component.

Having identified significant components, it was possible to order elements from the highest positive to the highest negative vector. When the analysis had been accomplished, the subject was invited to assemble the display by arranging his construct and element cards on the table as in the Fig. 59.

In the column representing component 1 were arranged constructs from the most representative (C5) to the least (C4), Where constructs obtained negative loadings, new construct cards were substituted in the array with the construct pole descriptions reversed. Thus the subject, simply by reading down the left and right hand sides of the construct cards, obtained a description of the first component. Similarly, all left hand descriptions refer to the left hand cards in the element array, and the right hand side to the right hand element cards. To the right of the construct cards were the elements from, on the left, the highest negative vector to, on the right, the highest positive vector. Within this sequence, however, the elements were arranged under three heading cards, namely CENTRAL (-), INCIDENTAL, CENTRAL (+). Occasionally, all CENTRAL elements were of the same sign; this indicated to the subject that that component was essentially one-sided, and that no element consistently represented the opposite pole.

This procedure was followed for all components until all constructs

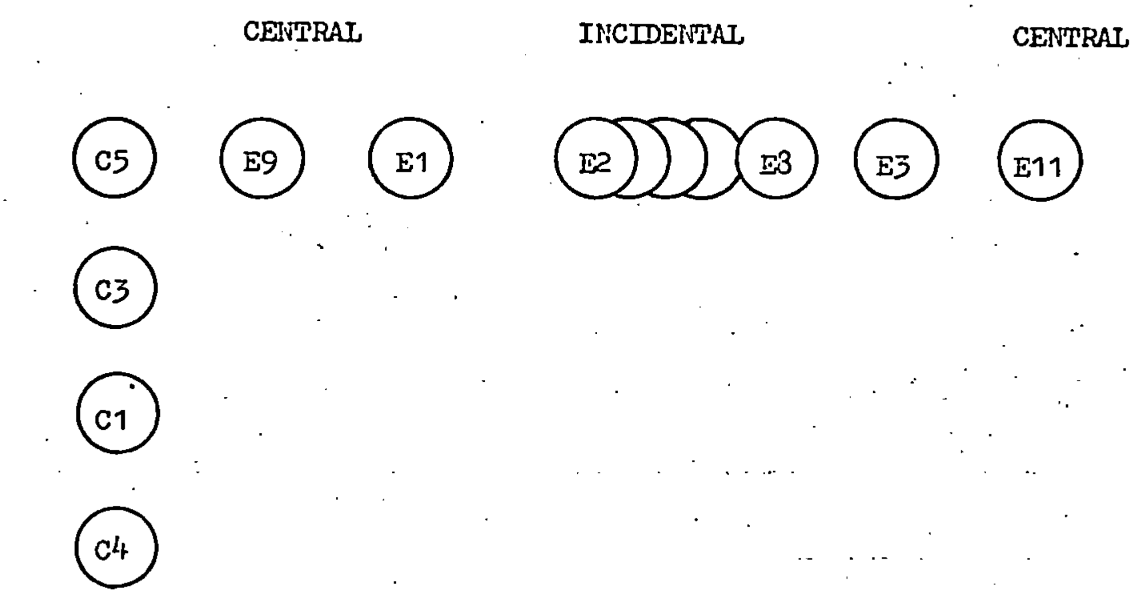


Figure 59 Level 2 display.

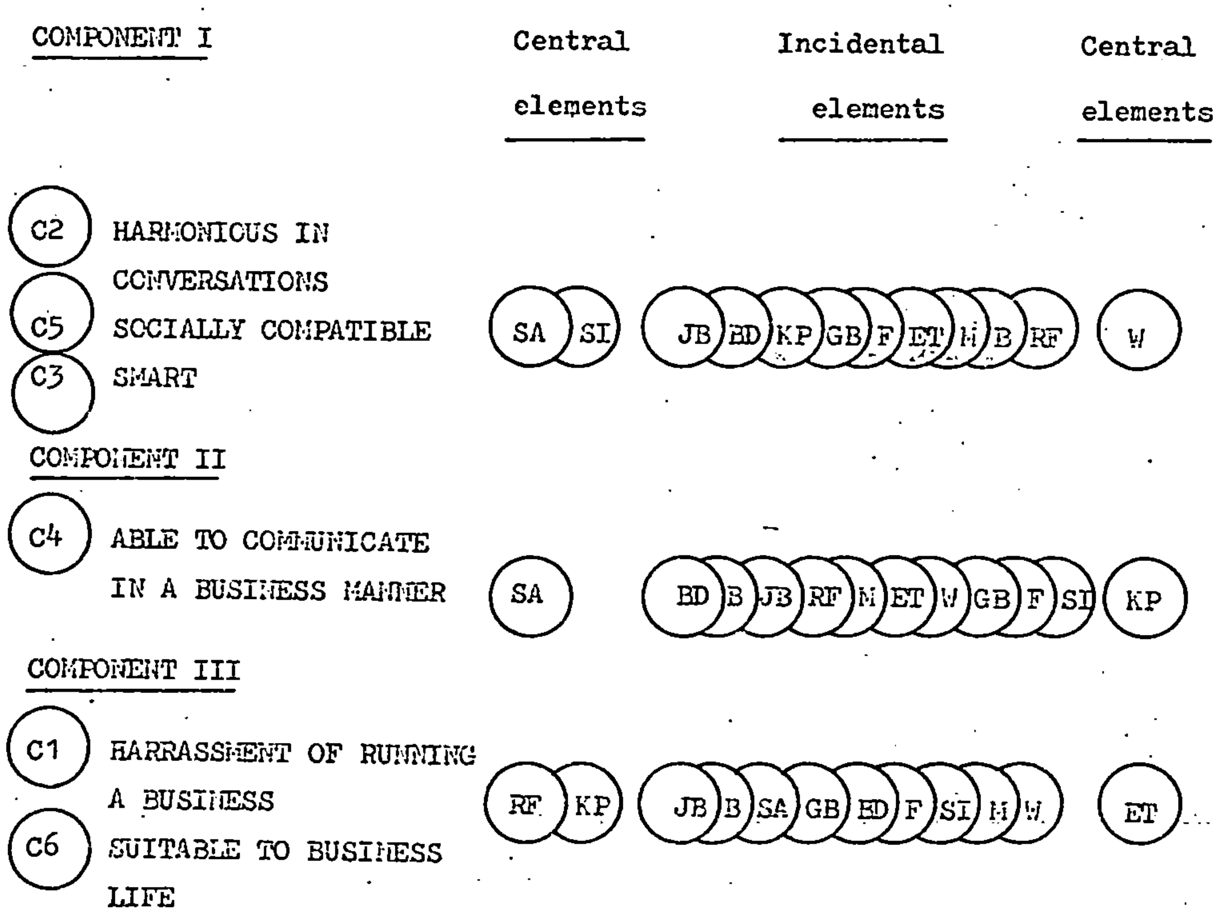


Figure 60 Module D display: Day 1.

had been located. The full module D display for a subject's (Tom) first grid is represented in Fig. 60.

When the array was complete, the subject was asked:-

> "Can you now look at each column in turn, and decide what the constructs in that column have in common, and what distinguishes them from the constructs in other columns. That is, can you think of a word or phrase to describe each column. If you can, note this word or phrase down on a blank card".

This part of the exercise was intended primarily to direct the subject's attention to the construct groups in such a way as to form a higher-order description of the principal components.

(ii) Outcome displays; by employing the four scores reported in 3.4.1., two principal outcome displays were assembled:-

a) Core construct score x construct reconstruction score,

b) Central element score x element reconstruction score.

These displays each comprised construct and element cards arrayed in a two dimensional space formed on the surface of the table by a set of numbered cards representing rank positions on each of the scales. Fig. 61 indicates the layout of the cards.

Figure 61.

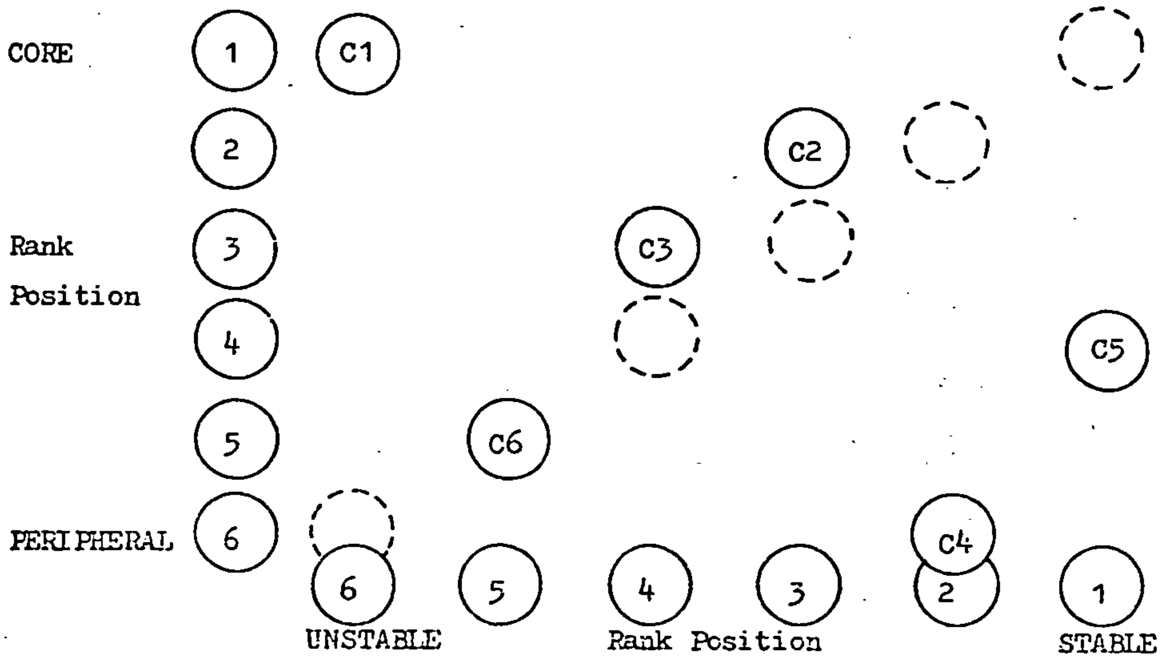
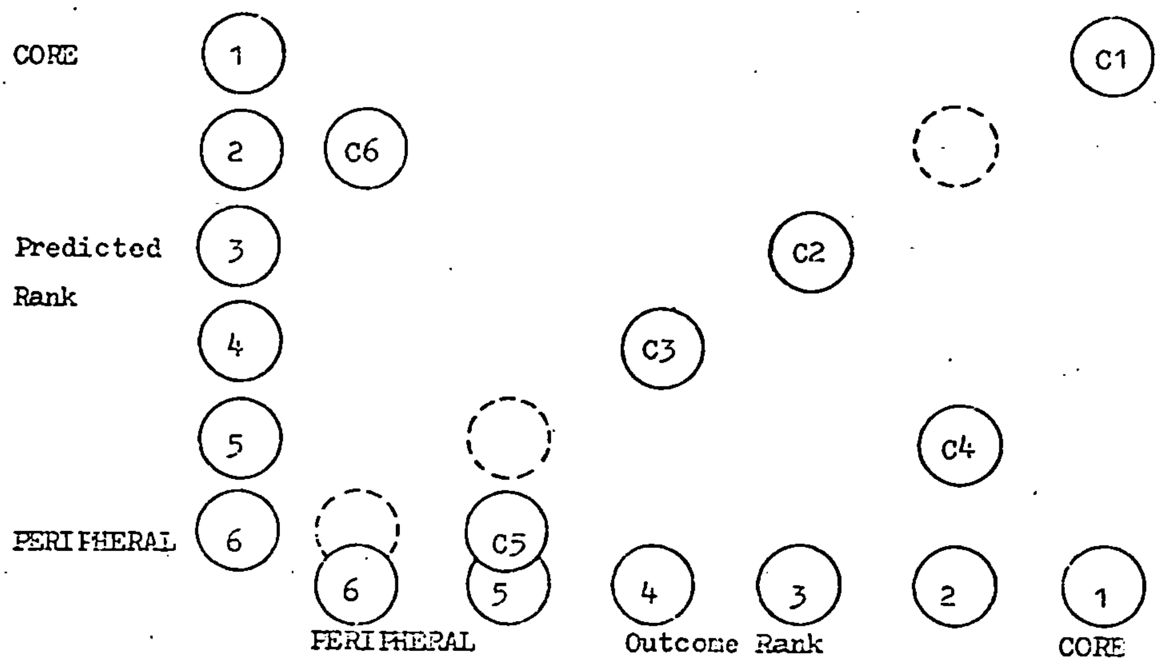


Figure 62.



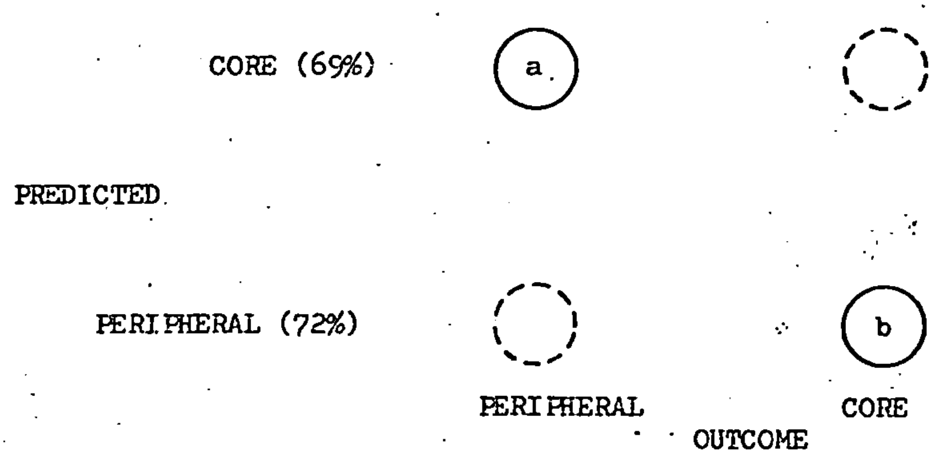
On the basis of the outcome measures, construct or element cards were located in this space. Of interest in these displays were deviations from the main diagonal running from bottom left to top right. That is, it would be expected that CORE constructs would be STABLE (and CENTRAL elements would be STABLE) if the subject was not undergoing significant change. Departures from these diagonals would thus be of interest to the subject, and although it was not requested in the following case studies, may become a basis for prompting the subject to furnish explanations of these discrepancies.

3.4.2.6. Module E; Feedback displays were assembled to reflect the match-mismatch between the subjective anticipations obtained in module B and the grid outcomes of module D. These displays took a similar form to the outcome displays of module D in that a two-dimensional matrix formed by the subject's rank ordering of constructs and elements and the obtained outcome rankings was arrayed on the surface of the table. Four displays of this kind were produced on the first feedback session: (a) central element display; (b) core construct display; and in addition on the second and subsequent feedback sessions: (c) element reconstruction display; (d) construct reconstruction display.

Each display took the form represented by Fig. 62, where the dotted diagonal was obtained if the subject's anticipations were completely accurate. Once again, deviations from this diagonal represented areas of interest to the subject, and these deviations provided 'query prompts'. After presentation of each display, the subject was provided with a Query Form (see Appendix G) on which was noted those construct or element numbers that showed large deviations from the diagonal. Adjacent to these numbers was a blank space in which the subject could note down comments and explanations in reply to the question or Query Prompt:-

> "Can you think of any reason why you thought construct/element.....might be core/central? That is, can you describe why this construct/element seemed so important/unimportant to you at the time? If you can, jot down your reasons in the space provided on the Query Form".

3.4.2.7. <u>Module F</u>; following the same procedure for module E, Level 3 displays were assembled to reflect the match or mismatch between posterior probabilitiies obtained from previous grids and the grid outcomes of module D. Two-dimensional arrays were assembled comprising the nominal categories of CENTRAL vs. INCIDENTAL, CORE vs. PERIPHERAL, STABLE vs. UNSTABLE and TRANSITIONAL, to which were attached the degree of certainty (posterior probability) with which any construct or element was assigned to each category. The arrangement of the display was as represented in Fig. 63.



<u>Figure 63</u>.

In this example, notable discrepancies between predicted outcomes and observed outcomes would be those constructs located in cells (a) and (b). The subject was provided with a Query Form on which these discrepancies were noted and was requested to furnish an explanation by the following instructions:-

"Can you think of any reason why construct/element..... is no longer core/central in your grid? In particular has anything of note occurred in your relationships with these people that might have led to this unexpected outcome? If you can identify an event(s) of this sort, jot down a brief note of what occurred in the space provided on the Query Form".

3.4.2.8. This procedure was employed in two case studies comprising three grids (i.e. six sessions), taking place over periods of two and four months. Each of the three grid matrices consisted of ratings on six elicited constructs, and, with the exception of the first grid, those constructs produced in preceding grids. Thus, in each of the series a total of 18 constructs were produced, with the total of 36 element sorts, (constructs 1-6 replicated twice, constructs 7-12 replicated once).

The purpose of reporting the following case studies is twofold; first, to review the applications of the techniques outlined above, in order to explore their feasibility; second, the value of the techniques for promoting modelling competence may be examined by analysing examples of the responses to the various prompts arising from the feedback displays, and their effect on subsequent modelling.

However, within the three grid cycle, a limited number of Level 1 and 3 displays were possible, (Table 32).

TABLE 32 Displays available in a three-fold grid series.

GRID	LEVEL 3 DISPLAYS			LEVEL 1 DISPLAYS		
	1	2	3	1	2	3
Central Elements		✓	✓	✓	✓	✓
Core Constructs		✓	✓	✓	✓	✓
Element Reconstruction			✓		✓	✓
Construct Reconstruction			✓		✓	✓

3.4.3. Tom: an illustrative case-study.

3.4.3.1. Tom, a recently married publisher's representative in his mid-twenties, was experiencing some dissatisfaction with his job and felt that it was time to explore the possibilities of alternative employment. However, he admired and respected a number of his colleagues, and having been employed by the same firm for some years found great difficulties in formulating his frustrations. In volunteering for the experiment he wished to clarify his relationships to his working colleagues in a way that would enable him to identify those aspects of these relationships that he valued, and to articulate his own personal ideals against these relationships. Tom completed three grids (Day 1, Day 24, Day 108).

Module A

In the first session, Tom named ten colleagues with whom he met frequently; some were purely business relationships whilst others were in Tom's words "the kind I can have a beer with". In addition to these ten colleagues, the elements MYSELF AS I REALLY AM, and MYSELF AS I WOULD LIKE TO BE were included, and all elements were noted on numbered 6" x 4" cards.

In order to introduce the procedure of eliciting a construct to Tom, a number of practice elements were produced (names of Prime Ministers) and trial constructs elicited and applied to the practice elements. This enabled Tom to proceed on his own, without intervention by the experimenter. It was also made clear to Tom that he would retain possession of all construct cards and any notes he might make, and thus he was able to record his impressions with complete confidentiality.

Tom then elicited six constructs using the Full Context elicitation method, which entailed laying out all element cards face up and selecting two cards to exemplify the pole of a construct that he considered "most important and most immediately evident". Tom's description of each construct was noted on a numbered 6" x 4" card, following which five numbered cards were arranged on the table to represent a five-point scale running from pole to pole of the construct. Taking up the twelve element cards Tom then ordered the five numbered cards in accordance with his view of the extent to which each person displayed the features he had named. The allotment of cards was then read off numerically to the experimenter who recorded them on the Grid Form.

<u>Module B</u>

After completing his grid, Tom laid out all his element cards on the table and ranked them, following the instructions of 3.4.2.3. (i). The rank positions of each element were recorded by E on a Prediction/Outcome form. This process was immediately repeated for constructs following the instructions of 3.4.2.3. (ii). This completed module B on the first occasion. In addition, on subsequent occasions Tom preceded to rank order constructs and elements following the instructions of 3.4.2.3. (iii) and (iv).

Module C

On the first occasion, Tom briefly characterised the people that he chose to construe, and it was evident that his relationships fell into three groups:

Group A: colleagues he perceived as "one of the lads" with whom he socialised and enjoyed stable relationships;

Group B: colleagues whom he perceived as "approachable", but "not the type I can have a beer with";

Group C: colleagues with whom he perceived he had less in common and with whom he had an ambiguous relationship, and greater difficulty in meeting on a social level.

The following extracts from Tom's characterisations confirm these groupings:-

Group A

(E1) G.B. "typical Londoner..... started at the bottom and hasn't changed an iota.....spends most lunch hours in the pub.....doesn't give a damn about how people see him, he's just himself".

(E3) Mr. B. "typically cockney.....a real curser and blue language .....makes lots of money".

(E6) B.D. "he's the kind I can have a beer with.....we have similar attitudes and interests.....I see him often and he's one of the first I met".

(E7) J.B. "we went through all the business routine and then we met socially a couple of times.....I think I'm likely to see him often".

Group B

(E2) R.F. " a good friend.....but is on edge about his business .....not really able to keep it all together".

(E4) K.P. "approachable fellow, but not initially.....he's at the top of the organisation structure.....still a serious client-customer relationship, but friendly.....not the type I can say 'let's have a quick pint'to".

(E5) Mrs. W. "approachable motherly person.....I get on well with her, but there are some things you can say to her, and some things you can't".

(E8) Mr. F. "on the first occasion we met we talked and talked about things other than business.....very interesting person, but a very busy man".

Group C

(E9) Mr. M. "of Polish extraction.....owns his own business and is doing well.....but he's a bit pedantic".

(E10) E.T. "he's about 40 but wears natty suits.....not a middle-aged hippie just likes to wear long hair.....gentle fellow, possibly homosexual and effeminate".

On days 24 and 108, module C comprised a set of statements in which Tom indicated whether significant events had occurred in his relationships with these persons. In addition, Tom considered each element in turn in relation to each construct, and E recorded a tick in the appropriate cell on a blank grid form if the events that he had identified had any implications for his view of that element in terms of each construct. Following each Level 3 feedback display, this procedure was repeated and additional ticks were introduced where he considered he had identified implications originally ommitted or overlooked. The modifications to module C were termed module C'.

To illustrate the functioning of the procedures, the following sections will concentrate on Level 1 and 3 displays in terms of the main features of Tom's grids, namely predication centrality and stability. The functioning of Level 2 displays will not be examined, however, as the procedures and outcomes involved have been discussed by other authors (Thomas, 1976). The results of transformations performed on Tom's grids are listed in Appendix G.

3.4.3.2. Element centrality.

(i) Module E: Level 1 displays.

To illustrate the module E display, Fig. 64 represents the subjective anticipation outcome display as it was assembled by Tom.

It was explained that complete accuracy in prediction would result in element cards lying along the dotted diagonal, and that the further element cards were from this diagonal the greater the discrepancy between Tom's anticipations and the observed outcome. However, it was pointed out that overall accuracy was good (Spearman rho = 0.294) but that the three off-diagonal cards (W, F and ET) required further inspection in order to identify the source of the error. These cards were selected by the arbitrary rule that the discrepancy equalled or exceeded half the number of elements in the sample.

From this example it may be seen that in this first comparison, three Query Prompts were produced. Table 33 records the data from which displays of this sort were produced throughout the grid series. The three blocks represent the feedback session for each of Tom's three grids. Within each block, the first column (Mod. B) records Tom's anticipations concerning the importance of each element to that grid, these judgements recorded as ranks, with rank 1 indicating that element that Tom expected to be "most important". The second column (Ob) represents observed centrality ranked from the most to the least central in terms of the outcome measures described in 3.4.1.

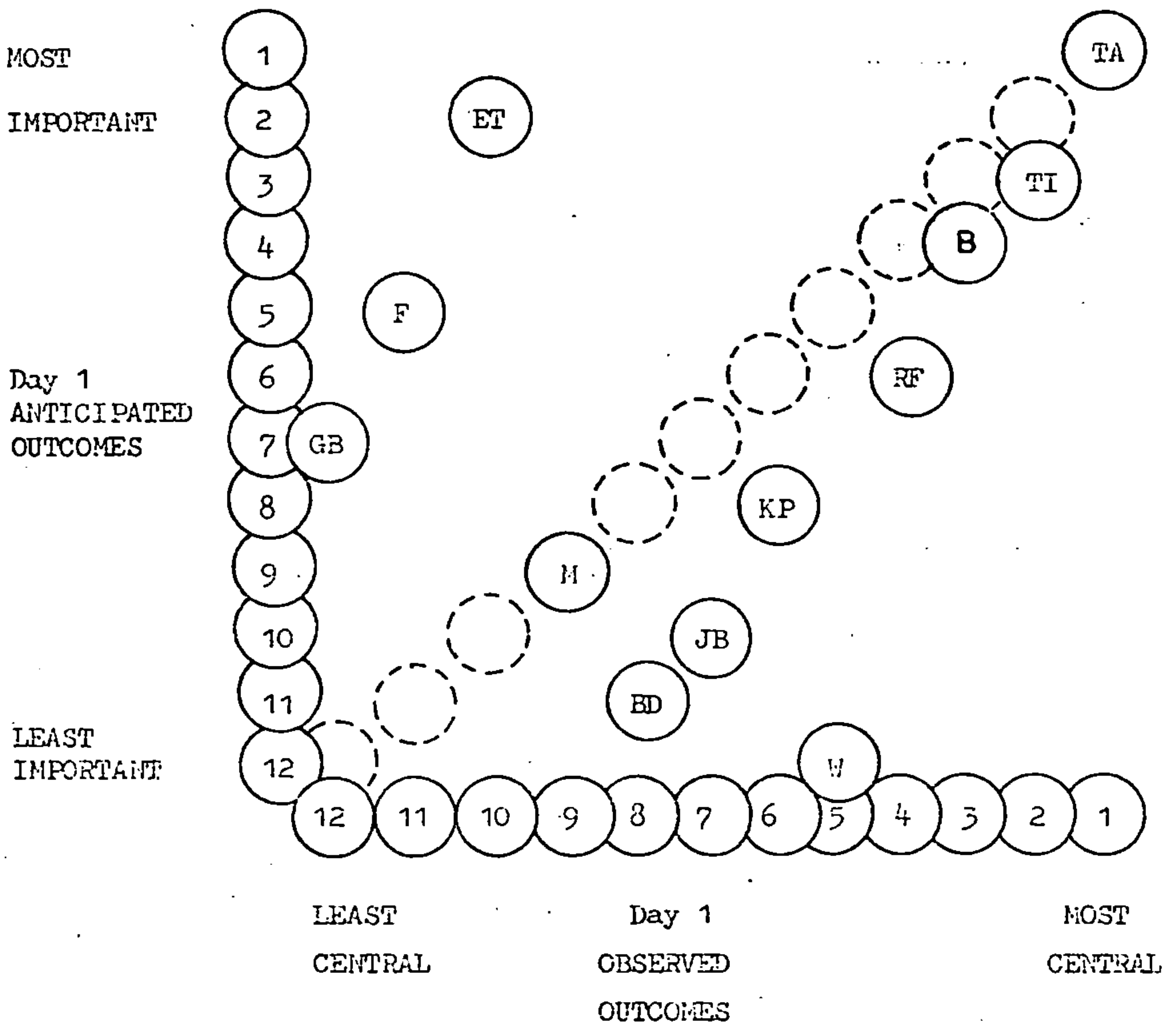


Figure 64 Day 1 Module E display.

The third column (D) denotes the discrepancy between the two sets of rankings, those exceeding the arbitrary deviation rule providing Query Prompts, (column 4, ?). To assess the consequences of this feedback, subsequent reconstruction of elements is indicated in those columns interpolated between feedback blocks, (ER), recording an X if the exact probability of association between ratings for any element on the two succeeding grids fails to attain the 5% level of significance.

	DAY 1					DAY 24					DAY 108			
	E					E					E			
EL	B	Ob	D	?	ER	B	O	D	?	ER	B	O	D	?
1	7	12	5		x	6	8	2			2	1	1	
2	6	4	2			7	9	2		x	12	11	1	
3	4	3	1			12	3	9	d	x	3	4	1	
4	8	6	2			2	4	2		x	11	10	1	
5	12	5	7	a	x	8	10	2		x	4	7	3	
6	11	8	3			5	7	2			5	5	0	
7	10	7	3		x	4	5	1			6	6	0	
8	5	11	6	b	x	10	11	1			7	9	2	
9	9	9	0		x	9	6	3		x	8	8	0	
10	2	10	8	c	x	11	12	1			10	12	2	
11	1	1	0		x	1	1	0		x	1	2	1	
12	3	2	1			3	2	1			9	3	6	e

Notes

EL elements

B module B

E module E

O observed outcomes

D discrepancy

ER element reconstruction

TABLE 33 Level 1 prompt chart - element centrality.

To indicate the nature of the responses to the Query Prompts, examples of Tom's explanations are listed below corresponding to the letters in column 4 of Table 35.

(a) "Yes. I've changed my mind about her (W). She placed an urgent order but something didn't arrive so she phoned the office and as I wasn't there she gave a rollicking to whoever answered. Now I'm wondering if she's two-faced as when I saw her after that she was as nice as pie".

(b) "I thought he (F) would be important because I have just met him, but he's a busy fellow, brash, and I don't think I would have formed a strong opinion about him after all. It's because he is new to me".

(c) "Last time I saw him (ET) he seemed more relaxed, a bit more time on his hands. He seemes to have taken a liking to me. He has a tendency towards being slightly effeminate, but is probably just a sensitive kind of person. I suppose it's because he took a liking to me. He sent an order to me instead of head office and I appreciate that".

Here, it is evident that Tom is appraising not only his constructions of these persons, but also identifying events in his relationships with them that might throw light on discrepancies in his predictions. For example, "She (W) gave a rollicking to whoever answered the phone", and "he (ET) sent an order to me instead of head office" are both examples of events perceived by Tom to be possible explanations for under or overestimating the importance of these persons to his grid. Indeed, in all four cases in Table 33 in which discrepant elements are retested in subsequent grids (Prompts a, b, c and d), these elements do display significant rating changes. Interestingly, the greatest discrepancy on Day 108 was in estimating the importance to Tom's grid of the element MYSELF AS I WOULD LIKE TO BE, to which prompt Tom replied:-

> "I had the feeling for once that I was talking about things as they were rather than as I would like them to be; I was saying that I felt harassed, but I have changed my mind. At that time lots of things were happening and since then I've found my sales are up by 10%; we have busy times and not so busy times. There are peak times as far as problems are concerned, and I have to go dashing round to sort them out, which means I don't get a chance to socialise with customers and I see them in a different light, a total businessman's view. At present I'm not harassed as I have no problems and I am a bit more relaxed".

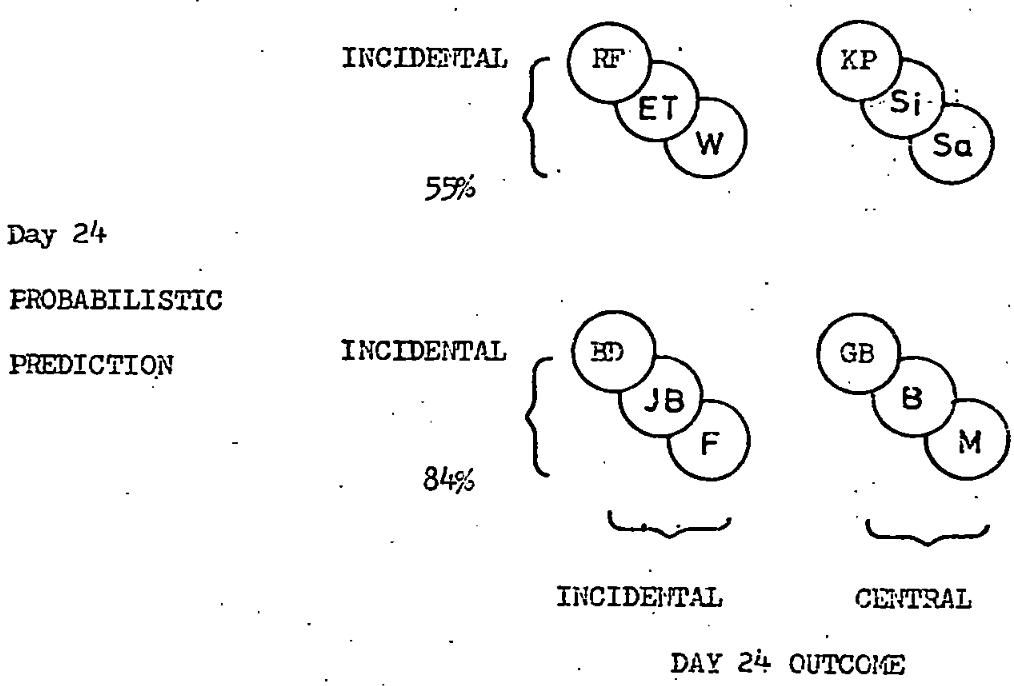
In contrast to the explanations Tom had furnished for other prompts, in analysing his self-ideal Tom is analysing his immediate constructions (e.g. feeling 'harassed', 'a total businessman's view', etc.), but even here cannot dissociate this conversation from events which he considers to be significant ('at that time lots of things were happening').

It is evident that Tom's anticipations improved in accuracy (Day 1, Spearman rho = .294; Day 24, rho = .584; Day 108, rho = .937) and that this was not achieved simply by learning a fixed ordering of elements, since the outcome measures of Day 1 and Day 108 are only weakly related (Day 1 x Day 108, rho = .259). In other words, Tom appears to have acquired the ability to analyse his construing behaviour to detect the occurrence of a particular grid outcome which is extremely difficult to contrive, and to employ this ability in circumstances that vary considerably over long periods of time. Although it cannot be asserted that Tom's analysis of these discrepancies directly led him to reformulate his perceptions of particular relationships, there is evidence that on subsequent occasions his construction of these persons involved underwent some alteration.

(ii) <u>Module F: Level 3 displays.</u>

As the assembly of a Level 3 display required an initial observation in order to derive posterior probabilities, the first Module F display occurred in the Day 24 feedback session. The form of display on this occasion is represented in Fig. 65.

<u>Figure 65. Day 24 Module F display.</u>



It was explained that the percentage values on the left indicated the degree of certainty with which the predictions could be asserted. As the prediction 'central' could not be asserted with a degree of certainty exceeding 50% (owing to low prior probabilities) all elements were expected to be incidental with different degrees of certainty. Thus, those elements (GB, B and M) in the lower right gradient represented sizeable discrepancies, and Tom's attention was directed to these elements alone.

Similar discrepancies for Day 108 are listed in Table 34. Within each feedback block, the first column (Mod. C) indicates those elements in relation to whom Tom identified significant events (/), the second column indicating discrepancies between posterior probabilities and observed outcomes (Mod. F). These discrepancies (D) give rise to Query Prompts (?), which in turn enable Tom to redefine the significant events of Mod. C or to identify previously unidentified events (Mod. C'). Again, the column iterpolated between feedback blocks (ER) indicates those elements that fail to attain an exact probability of association of 5% between Day 24 and Day 108.

Again, to indicate the nature of Tom's responses to Query Prompts arising from these displays, examples of his explanations are listed below:-

(a) "That's odd. He's (GB) one of the most established of my relationships. We have a few pints every time we see each other, and I would have thought that for that reason he would be important to me. I have two categories for this fellow, in business we are different to when we are in the pub. It depends on where I meet him as to how I see him. But I'm beginning to wonder whether people who stay in this business end up by being like him".

(b) "Lately my relationship with this fellow (B) has been on the up and up. His language is awful, he is in a different world from me, but I now admire he doesn't pull his punches".

(c) "I've spoken to this fellow (M) once since last time. He's trying to con us out of something, so since then I've spoken to someone who knows this fellow and who said he's that sort of person. Which means that now I'll treat him with some suspicion".

Query Prompts arising from discrepancies in the Level 3 displays more directly orientate Tom to events in his relationships. Although in several cases Tom succeeds in identifying events prior to this display (Mod. C), it may be seen that Query Prompts (a) and (c) do extend the list of events following the display (Mod. C'). In both of these cases, the explanations furnished by Tom comprise fragments of behaviour ("in business we are different to when we are in the pub"; "I've spoken to this fellow once since last time. He's trying to con us out of something") and Tom's interpretations of these fragments. Similarly, on Day 108, Tom again extended the module C record of events following this display:-

(g) "I've seen him (F) a couple of times, but he's a brash sort of fellow, as if he were selling from a market stall. It's a bit off-putting and an aspect of business that I'm not happy with".

	Day 24 Module F							Day 108 Module F					
El	C	Ex	Ob	D	?	C'	ER	C	Ex	Ob	D	?	C'
1		I84	C	D	a	✓			I73	C	D	d	
2		I55	I				x		I73	I			
3	✓	I84	C	D	b	✓	x	✓	I73	C	D	e	✓
4		I55	C				x		C62	C			
5	✓	I55	I			✓	x		I73	I			
6	✓	I84	I			✓		✓	I92	C	D	f	✓
7		I84	I						I92	I			
8		I84	I						I92	C	D	g	
9		I84	C	D	c	✓	x	✓	I73	C	D	h	✓
10		I55	I						I73	I			
11		I55	C				x		C62	C			
12		I55	C						C62	C			

Notes

El - elements

C Module C

Ex Expected outcome

Ob Observed outcome

D discrepancy

? Prompt

ER element reconstruction

C' Module C'

I Incidental

C Central

Figure denotes percent certainty

TABLE 34 Level 3 prompt charts - element centrality.

In reply to several prompts, Tom was able to acknowledge and repeat events that he had already identified (b,e,f and h) a procedure that provided Tom with positive confirmation that his identification of events was associated with alterations in grid outcomes. On one prompt, however, Tom was unable to furnish an explanation, (d), claiming that this outcome was unaccountable since his view of this person seemed to him to be unchanged.

In summary, the displays described above were readily interpreted by Tom, and the Query Prompts derived did provoke some reappraisal of his relationships. Of the eight prompts, three provided additional insights into interpersonal events, four confirmed Tom's initial event identification, and one was unaccountable.

3.4.3.3. Core Constructs.

(i) Module E: Level 1 displays.

The module E display for constructs took a similar form to that for the element displays of 3.4.3.2. Table 35 records Tom's anticipations of the importance of constructs for his self-definition, the observed grid outcomes, and the Query Prompts that derive from significant discrepancies.

Examples of Tom's replies to Query Prompts are as follows:-

(a) C1: HARASSMENT OF RUNNING A BUSINESS
"I assumed that that was something I did not want to be. Most of the people who run their own businesses are harassed,

	DAY 1 Module E					DAY 24 Module E					DAY 108 Module E			
C	B	Ob	D	?	CR	B	Ob	D	?	CR	B	Ob	D	?
1	2	6	4	a	x	12	7	5			8	6	2	
2	5	3	2			9	6	3			5	8	3	
3	3	1	2			11	4	7	c	x	13	17	4	
4	1	5	4	b	x	8	2	6	d	x	14	16	2	
5	4	2	2			5	1	4			4	5	1	
6	6	4	2			2	3	1			9	11	2	
7						3	8	5			7	10	3	
8						10	12	2			11	4	7	
9						7	11	4			12	14	2	
10						4	9	5			15	12	3	
11						1	10	9	e		16	13	3	
12						6	5	1			1	3	2	
13											6	9	3	
14											18	7	11	f
15											17	18	1	
16											2	1	1	
17											3	2	1	
18											10	15	5	

Notes

C construct

B module B

Ob observed outcomes

D discrepancy

? prompt

CR construct reconstruction

TABLE 35 Level 1 prompt chart - construct centrality.

difficult to get on with socially, messed up and often inefficient".

(b) C4: ABLE TO COMMUNICATE IN A BUSINESSLIKE WAY.
"Most of the people who are harassed don't have enough time to go through normal procedures. They don't seem to have enough time to cater for you. That was what seemed important. That they weren't able to be efficient and businesslike seemed less important".

(c) C3: SMART.
"This has to do with being socially compatible. I used to think being presentable was important, but, for instance, BD is scruffy but is socially compatible to me".

It is evident once again that in appraising his constructions, Tom found it necessary to draw on persons and interpersonal circumstances to qualify his interpretations (e.g. "most of the people who run their own businesses are harassed"; "for instance, BD is scruffy but is socially compatible to me"). Moreover, of the four constructs that manifested significant reconstruction between grids (C1, C4 on Day 24; C3 C4 on Day 108) all of them were associated with Query Prompts in the feedback sessions.

However, the accuracy with which Tom identified constructs relevant to his self-definition does not improve between Day 1 and Day 24 (Spearman rho, -.371, -.007, respectively) but does show considerable improvement on Day 108 (rho = .711). However, when predictive accuracy on those constructs introduced into successive grids is examined, a more gradual improvement is apparent (Day 1, rho = -.371; Day 24, rho = .486; Day 108, rho = .657). This suggests that

Tom may on successive occasions, have been basing his anticipations on constructs which were core on preceding grids, rather than identifying the way in which he employed constructs to define himself at that time. That is, he may have been distracted by a construct's previous relevance whilst assessing its current relevance, (and relevance does fluctuate between occasions; Day 1 to Day 24, rho = .314; Day 24 to Day 108, rho = .042). Clearly, newly introduced constructs would not be affected by this interference.

(ii) Module F: Level 3 displays.

Table 36 records for Day 24 and Day 108 the constructs of module F displays for constructs, and the Query Prompts arising from those displays. Examples of Tom's replies to these Prompts are as follows:-

(b) C4: ABLE TO COMMUNICATE IN A BUSINESSLIKE WAY.
"Being able to communicate affects my efficiency; that's not strictly true, rather than efficiency, it affects my ambition".

(c) C6: UNSUITABLE TO BUSINESS.
"This has become very important. I'm beginning to examine these fellows, asking are they suitable to what they are doing. Of course I'm asking the same question of myself".

Again, this procedure enables Tom to extend the list of significant events he produced in module C, not by introducing new events he had previously overlooked, but apparently by discovering new relevancies of familiar events for his constructs. For example, Tom found that his appraisal of persons who do or do not "communicate

	Day 24 Module F							Day 108 Module F					
Co	C	Ex	Ob	D	?	C'	CR	C	Ex	Ob	D	?	C'
1	✓	P80	C	D	a	✓			P63	C	D	d	✓
2		C51	C						C65	C			
3		C51	C				x		C65	P	D	e	✓
4		P80	C	D	b	✓	x		P68	P			
5		C51	C						C65	C			
6	✓	P80	C	D	c	✓		✓	P68	P			✓
7									C51	P			
8									C51	C			
9									C51	P			
10								✓	C51	C			✓
11								✓	C51	P			✓
12									C51	C			

Notes

P peripheral

C core

Figure denotes percent certainty

TABLE 36 Level 3 prompt charts - construct centrality.

in a businesslike manner" had implications for business efficiency and "suitability to business life". Of eight similar relevancies identified by Tom in response to the display, three were additionally those identified in module C, whilst five confirmed relevancies previously identified.

3.4.3.4. Element and construct reconstruction.

(i) Level 1 displays.

Tables 37 and 38 depict prompt charts for Days 24 and 103 for element and construct reconstruction outcomes. As outlined in Table 32, Level 1 displays for these outcomes were available on the second and third occasions alone, as the outcomes exhibited are a function of change in predication between reproduced grids. Tom assembled these displays in the same manner as preceding displays, and discrepancies were identified between constructs and elements that he expected to have undergone change, and those that were observed to have changed. Prompts based on these discrepancies were phrased in the following terms:-

> "What made you think that your views of this construct/element had/had not changed when we can see that it has not/has?".

Prompts are listed in column 4 of Tables 37 and 38. Examples of Tom's replies to the prompts of Table 37 are given below:

	Day 24 MODULE E					Day 108 MODULE E			
E1	Mod.B	O	D	?	ER	Mod.B	O	D	?
1	11	4	7	a		7	11.5	4.5	
2	9	11	2		x	6	6	0	
3	8	8.5	.5		x	1	3	2	
4	12	12	0		x	2	1	1	
5	10	1	9	b	x	3	2	1	
6	4	10	6	c		9	9.5	.5	
7	6	2	4			8	8	0	
8	1	6.5	5.5			11	7	4	
9	3	5	2		x	10	4	6	e
10	5	6.5	1.5			4	9.5	5.5	
11	7	3	4		x	12	5	7	f
12	2	8.5	6.5	d		5	11.5	6.5	g

TABLE 37 Level 1 prompt charts - element reconstruction.

(a) "It depends where and when I meet this fellow. If I meet him in the pub he's entirely different to when we talk about business. But I don't use business acumen with him, I'm very straight with him".

(b) "I know why this is. It's because of that order mix-up and my suspicions about her being two-faced. I will have to be wary of her".

(c) "I expected to see him differently because he's becoming more of a friend than a client".

It is evident that once again the explanations offered by Tom are a mix of discrete events which Tom identifies as the source of the revised opinions ("It's because of that order mix-up") and of the rationalisations that Tom makes for the outcome ("I expected to see him differently because he's becoming more of a friend than a client"). This mix was also produced in reply to Query Prompts deriving from Level 1 construct displays (Table 38):-

(a) HARASSMENT OF RUNNING A BUSINESS
"I saw him as harassed, what with running his own business. I've been thinking whether these people are really suitable to what they're doing, asking myself if they would be happier being a farmer or labourer. This fellow he'd be happier being a pig-farmer. So I suppose I'd be happier being a pig-farmer too".

(b) SOCIALLY COMPATIBLE
"They (BD,B) certainly don't seem efficient, but they get where they want to go. They don't speak the right way, but they get what they want".

	Day 24 MODULE E					Day 108 MODULE E			
Co	B	Ob	D	?	CR	B	Ob	D	?
1	4	1	3	a		5	8	3	
2	2	3	1			3	6	3	
3	6	6	0		x	1	2	1	
4	3	2	1		x	2	1	1	
5	1	5	4	b		11	9	2	
6	5	4	1			12	12	0	
7						8	7	1	
8						9	10.5	1.5	
9						7	4	3	
10						4	5	1	
11						6	3	3	
12						10	10.5	.5	

TABLE 38 Level 1 prompt charts - construct reconstruction.

Table 37 reveals that very little improvement in Tom's predictive accuracy of element reconstruction occurred over the two occasions (Day 24, rho = .203; Day 108, rho = .301). Thus, it appears that Tom experienced some difficulty in estimating whether the ratings obtained by elements on replicated constructs had varied between occasions.

This was not the case for constructs, (Table 38). Tom's predictive accuracy for construct reconstruction improved considerably, both over the entire set of constructs (Day 24, rho = .200; Day 108, rho = .837) and for constructs introduced into his grid on Day 24 (rho = .814). The ability to detect construct reconstruction may be a function of reapplying constructs produced on earlier occasions; should Tom have difficulty in interpreting a particular construct he may be certain that his element allotments in a subsequent grid will differ from those in his original grid.

(ii) Level 3 displays

Tables 39 and 40 depict prompt charts for Level 3 displays on Day 108. As is evident in Table 32, these displays became available on the last occasion only as they are based on posterior probabilities that derive from observing construct and element reconstruction occurring between Days 1 and 24. Tom assembled these displays in a similar fashion to Level 3 centrality displays, identified discrepant outcomes, and furnished explanations by responding to prompts phrased in the following terms:-

"Can you think of any reason why you have revised your opinion about these people in terms of this construct between Days 24 and 108 when you did not revise your opinion along it between Days 1 and 24?".

Tom was able to utilise discrepancies deriving from these displays to suggest possible sources of element reconstruction (Table 39):-

(a) "I've seen RF since. Much like B, he is harassed with running his business. With him I can joke within accepted limits. Very straight fellow, slightly absent-minded, I've realised since last time. But he's changing for the better, gradually I'm getting to know more about him, it's a little bit more free and easy".

(c) "He (KP) has written to me and his letters seem to be softening towards me".

and construct reconstruction(Table 49):-

C3 SMART
"Smart people were, I thought, people I can get on with. I'm not so sure I believe that now, but my ideal customer would have all these properties. Collapsing them all together makes my ideal customer".

3.4.3.5. Since the completion of this study Tom has remained with the same firm, but has become more established and successful. He still appears to be surveying alternatives, but is more contented with the relationships he has formed through his work. Although dissatisfied with the work that he does, he appears to be happy with the fact that he has achieved mastery of the challenge that

	Day 108					
		Module F				
	C	EX	Ob	D	?	C'
1		T59	C			
2		T77	I	D	a	✓
3	✓	T77	I	D	b	✓
4		T77	I	D	c	✓
5		T59	I			
6	✓	T77	C			
7		T59	C			
8		T59	C			
9	✓	T59	I			
10		T59	C			
11		T59	I			
12		T77	C			

Notes

C consistent

I inconsistent

T transitional

TABLE 39 Level 3 prompt chart - element reconstruction.

	Day 108					
		Module F				
Co	C	Ex	Ob	D	?	C'
1		T58	R			
2		S66	R			
3		S66	E	D	a	✓
4		S66	Dis	D	b	
5		S66	R			
6	✓	S66	R			✓

Notes

T transitional

S stable

R replicated

E emergent

Dis displaced

TABLE 40 Level 3 prompt chart - construct reconstruction.

the job presented. In short, he appears to have separated the tasks that his job entails from the relationships he has formed with colleagues.

3.4.4. Evaluating the procedures.

3.4.4.1. What do these procedure achieve? To attempt to answer this question a number of prior considerations are important. Firstly, an evaluation of the effectiveness of the transforms and displays embodied in the procedures constitutes an investigation at a higher level of discourse to the case-study considered in the preceding sections. That is, whilst the case-study focusses on the content of operations performed by the user (e.g. particular constructs and element outcomes) an assessment of the procedures seeks to discover whether particular general classes of outcome are achieved. Secondly, as the procedure is a conversational technique, these classes of outcome cannot be unequivocally defined without recourse to the purposes and objectives of the user who interacts with the procedure. Although it may be formally stated that the procedures are intended to enhance the modelling capabilities of the user, satisfactory criteria of modelling competence are extremely difficult to formulate. In the following sections, some examples of such criteria are applied to two case-studies, and their limitations discussed. Thirdly, unless it may be assumed that the purposes of the user are known and invariant (e.g. the contractual role of 'student' of the user of the CASTE tutorial system; Pask, 1975) even an explicit 'contract' negotiated with the user at the outset may be insufficient to establish criteria for assessing the procedural outcomes. The user may, for example, implicitly redefine the goals of his interaction with the procedure after the first occasion. Alternatively, he may express goals that are at variance with other, perhaps implicit, purposes.

In short, attempts to establish a methodology for assessing counselling procedures without recourse to the content of counselling conversations present considerable problems, and the formulation of evaluative criteria should be regarded as an attempt to approximate to the user's purposes. In the following sections a number of evaluative criteria are derived from the stated objectives of the procedures, and their limitations may be discussed to highlight these methodological considerations.

3.4.4.2. To assess the procedures we will draw on the case-study of Tom reported above, and a second case-study of Brenda, not reported in detail here, whose area of concern was very similar to Tom's. Brenda was an employee of a personnel agency and was seeking to clarify her role in relation to her colleagues at work and her clients. Like Tom, Brenda enjoyed the challenge of dealing with a great variety of people, but was uncertain whether the job she was doing was consistent with the views she held. Brenda completed the same set of procedures (with the exception of module C and C') as Tom, and produced three grids over a period of two months.

Three criteria may be derived from the stated objectives of the procedures, ostensibly without reference to the content of the user's modelling conversations, namely that interaction with the procedures:-

(i) leads to an improvement in the quality of modelling activity in which the user engages;

(ii) leads the user to elaborate and extend the domain of his modelling conversations;

(iii) leads to the emergence of higher-order control functions in the user's modelling activities consistent with the model of conversational skill outlined in previous chapters.

Firstly, an improvement in the quality of modelling might be expected to equate with an increase in the diversity and subjective relevance of modelling activities as interactions with the procedures progressed. That is, if the user comes to express more varied, whilst at the same time more personally significant, statements concerning himself and his relationships then the quality of modelling may be said to have improved. An increase in the variety of expressed statements may be defined in terms of the diversity of constructs introduced by the user into his grid on each of the three testing occasions. Similarly, an increase in the subjective relevance of modelling activity may be defined in terms of the centrality of the constructs the user introduces into his grid on those occasions.

Secondly, extending the range of convenience of the modelling conversation may be manifested in two ways; prospectively by the user shifting his attention to emergent areas of concern as the interactions progress and retrospectively by identifying novel significances in familiar past events. Transitions of attention through the course of the interactions may be revealed by the relative emphasis of constructs introduced over successive occasions on underlying dimensions of variation common to all occasions. The extent of re-categorisation of past events may be assessed by examining users' responses to the reflective strategies associated with the feedback displays.

Thirdly, the emergence of higher-order control functions implies that the user acquires the capacity to direct his modelling activity independently of the procedures. An example of this independence may be equated with the ability to discriminate between and make use of intrinsic cues arising during modelling activity. An increase in the ability of the user to anticipate the outcomes of his modelling activity exhibited by the procedures would reflect this growth of autonomy.

3.4.4.3. (i) Improvement in the quality of modelling.

If interaction with procedures enhances coupling between levels of modelling activity, Level 1 predications may arguably become more diverse as the user constructs and reconstructs procedures at that level. To test this hypothesis exact probabilities of association between the six constructs introduced by Tom and Brenda into their grids on each occasion were obtained. Thus, for each of the three occasions 15 probabilities reflecting the inter-relationships of the 6 additional constructs for each subject were available for comparison. If diversity of predication increased over the sessions we would expect to find fewer low and mid range probabilities on the second and third occasions compared with the control sample of the first occasion. A median test was applied to the 45 probabilities

	Occasions 1	2	3
Tom	.302	.118	.095
Brenda	.106	.215	.146

TABLE 41 Median probabilities of association between constructs introduced on each occasion.

for each subject. Exact probabilities ranged from .001 to .511 for Tom (median .215) and from .006 to .534 for Brenda (median .146). The median probabilities for each occasion are listed in Table 41, and it is evident that strength of the inter-relationships between Tom's constructs significantly increase when compared with the first occasion rather than decrease (χ^2 (2)=8.21, .02>p). Although the strength of inter-relationships between Brenda's constructs appears to decrease, especially on the second occasion, this decrease is not significant (χ^2 (2)=0.13). We must therefore conclude that not only did diversity of predication not increase as predicted, but that for one subject diversity diminished over successive interactions with the procedures. Does this finding contraindicate the claim that procedures enhance modelling capabilities?

		Occasions 1	2	3
Tom	M	1.453	1.969	1.690
	S	.297	.215	.284
Brenda	M	.684	1.285	.944
	S	.122	.315	.101

TABLE 42 Mean (M) and standard deviation (S) core construct scores for constructs introduced on each occasion.

Some clarification of this dilemma may be obtained by enquiring whether the observed reduction of diversity of predication is associated with any change in the relevance of the predications to the user's modelling conversations. Although Tom may, for example, be focussing his attention to a limited area of his experience as the interactions progress, perhaps this area of experience increases in personal significance. To test this prediction of centrality of the six constructs each subject introduced over the three occasions was obtained by computing a core construct score in the following way:-

1) a PCA solution was obtained for each subject for <u>all</u> element sorts produced over the three interactions;

2) significant components were isolated by applying the method of representation (Chapter 3.2.);

3) for each subject the vectors of the element MYSELF AS I REALLY AM on each significant component were multiplied by the loadings obtained on that component by the 18 constructs introduced on the three occasions;

4) the vector-loading products were summed over the significant components for each of the 18 constructs for each subject.

Thus, the scores obtained were comparable between occasions, but not between subjects, because they were derived from common dimensions of variation. Table 42 lists the means and standard deviations for core construct scores for both subjects. By comparison with the control sample of the first occasion it is evident that the construct centrality increases over the three occasions, both for Tom (Kruskal-Wallis $H(2) = 7.345$, $.05 > p$), and Brenda ($H(2) = 12.877$, $.01 > p$). Interestingly, the second occasion appears to draw constructs of greater centrality for both subjects, and the decrement on the third occasion may be associated with the knowledge that the third grid was the last in the series of interactions with the procedures. If the series had been longer, therefore, we might expect construct centrality to continue increasing.

We may conclude that whilst diversity of construing does not improve or deteriorate, construct centrality increases for both subjects. These contradictory findings appear to suggest that the criteria for assessing improvement in the quality of modelling are only partly achieved. It is impossible at this stage to decide whether the criteria are satisfactory but the procedures are at fault, or whether the criteria are not coincident with the objectives of the activities as perceived by the subjects. If Tom were to be systematically interrogated to reveal his objectives as the interaction progresses, we may, for example, find that he had discovered a particularly important idea concerning himself that he wished to concentrate on, qualify and elaborate through the constructs he introduced into his grid. In other words, it cannot be assumed that Tom viewed the interactions in the same way as did Brenda or the experimenter. The experimental task could, of course, have been expressed to Tom as "I want you to produce as many divergent constructs as possible", and the information that

Tom drew on to achieve this goal might have been recorded. However, such a prescriptive experimental contract was viewed as inconsistent with the objectives of the procedures.

3.4.4.4. (ii) Elaboration of the conversational domain.

Estimates of change in the boundary of the conversational domain over the series of interactions may be obtained in two ways; firstly, by examining the domain of successive grids, and secondly, by examining changes in the implications of past events for the subjects. The domain of a subject's interest in successive grids may be revealed in the cumulative principal components analysis of his grid series. That is, we may ask to what extent do constructs in each of a series of grids contribute to the components derived from constructs from all grids combined? The partitioning of the total variance between grids is thus a useful indication of the locus and nature of shifts in the subject's focus of attention in construction. After deriving cumulative PCA solutions Tom's and Brenda's grids were analysed for the loadings obtained by the additional constructs introduced into each grid on the components significant to the grid series overall. If Tom or Brenda divert their attention to areas of emergent importance, this will be manifested in the production of constructs which load highly on a previously unrepresented, or less strongly represented, component. Figures 66 and 67 depict mean loadings of introduced constructs on significant components, and although none of these changes attain significance (see Appendix G), it is evident that some change has taken place in the focus of Brenda's construing. On the first two occasions her focus was clearly in the area of whether the persons she worked with were APPROACHABLE, whilst on the third occasion this focus is shared with the question of whether those persons were ABLE TO CONTROL OTHERS. On this last occasion, these two areas exclude the consideration of the minor components PLAYFUL, CONTROLLED and SPIRITUAL. In contrast, Tom's focus of interest was consistently in the area of SOCIAL COMPATIBILITY, and all other components are occluded by this focal area of interest. The comparison of changes in component representation for the two subjects suggests different conversational strategies. For Tom the increasing representation of the first component (SOCIAL COMPATIBILITY) appears to confirm the hypothesis that he sought to define himself in relation to his work-mates exclusively in these terms, and to articulate the implications of this self-definition throughout the interactions with the procedures. Thus, the centrality of introduced constructs increases because they are variants of this single self-defining theme.

In contrast, the course of Brenda's grids is marked by the emergent emphasis on a second component (ABLE TO CONTROL OTHERS), so that by the third occasion two components simultaneously achieve a high level of representation. This suggests that Brenda sought to elaborate her definition of herself and her work-mates by introducing additional discriminating attributes. Thus, whilst Tom focusses on elaborating a single attribute, Brenda formulates divergent attributes. Whilst the diversity of Brenda's constructs display some, though not statistically significant, increases over the three occasions, (see Table 41), Tom's constructs become significantly less diverse.

Figure 66 Component representation: Brenda.

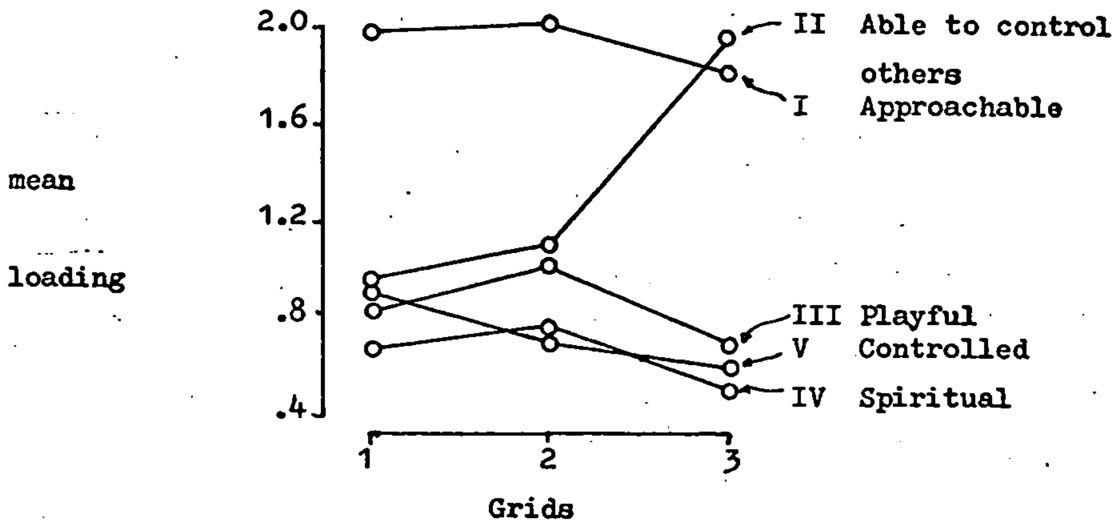
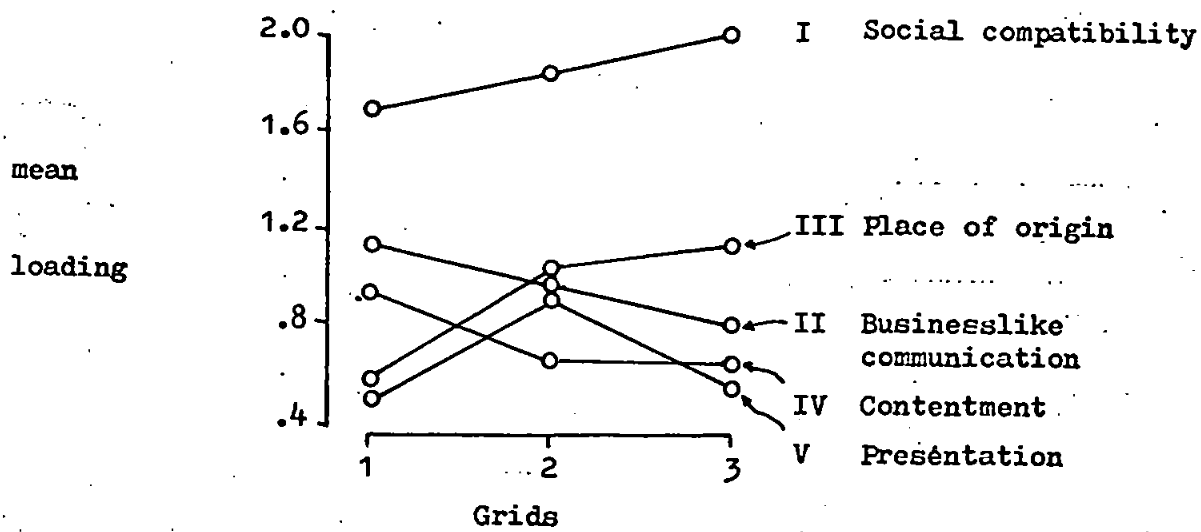


Figure 67 Component representation: Tom.



Following each of the Level 3 feedback displays Tom was requested to consider the implications of any discrepancies that had been observed for his opinions concerning each element in relation to each construct. Where he perceived there to be implications for his opinions, a tick was recorded in the appropriate cell on a blank grid form, (module C'). Prior to these displays Tom had completed this procedure without any guidance, simply by identifying significant events and pursuing their implications for each element and construct (module C). A comparison between these two sets of implications reveals the development of the capacity to identify additional implications of events as a result of provocative feedback displays. Table 43 depicts this comparison, and it may be seen that following every Level 3 display Tom was able to identify at least one additional implication of events for his construing of his colleagues. Of a total of 18 prompts arising from Level 3 displays, 9 led to the introduction of implications into module C' which were not present in module C. Although inadequate to treat statistically, these data are suggestive of the efficiency of the reflective strategies incorporated in the procedures for elaborating the subject's conversational domain.

3.4.4.5. (iii) The emergence of higher-order control.

We have argued that the growth of higher-order control over modelling processes entails the capacity to distinguish between intrinsic cues arising during modelling activity and the development of control functions based on these cues. Initially, the procedures are viewed as assisting in this control function by

Module C	Module F		Module C'	
Number of implications recorded	Source	Number of prompts	Number of implications added	Number of implications repeated
Day 24	Element centrality	3	2	3
3	Construct centrality	3	1	2
Day 103	Element centrality	5	1	3
3	Construct centrality	2	2	3
	Element reconstruction	3	2	1
	Construct reconstruction	2	1	1
	Total	18	9	

TABLE 43 Implications recorded in modules C and C'.

providing feedback displays augmented by the transformations developed in preceding chapters. It follows that to the extent that the user develops higher-order control, the coordination of modelling activity becomes less dependent on extrinsic feedback. This autonomy would be reflected in the user's ability to anticipate accurately transformation outcomes.

As a component of Level 1 reflective strategy, the procedure required the user to predict the classification of constructs and elements in terms of their centrality and stability. In both case studies here Spearman Rho correlations were obtained between subject's predictions of outcomes and observed cutcomes for construct centrality and reconstruction, and element centrality and reconstruction. To test whether predictive accuract for these features improves over successive trials Fisher's z transformation was applied to the rho values and the significance of differences obtained by approximation to the normal distribution with a standard error of $\sqrt{(1/N_1 - 3)+(1/N_2 - 3)}$. Whilst this test was intended for use with Pearson's r, in the absence of tied ranks in the data the sampling error for rho does not differ from r.

For both Tom and Brenda, predictive accuracy for element centrality (Fig. 68) shows a monotone increase over the three occasions from near-chance correlations (rho = .294 and .075) to extremely high correlations (rho= .937 and .927).

Applying Fisher's z transformation, both these gains are highly significant (Tom, z=2.94, p= .002, one-tailed; Brenda, z =3.32, p = .0005, one-tailed). Whilst Tom improves significantly in predictive accuracy for construct centrality (Fig. 69; z = 2.02, p = .022, one-tailed), Brenda does not learn as rapidly or gain as high a level of accuracy as Tom (z = .996, p = .161, one-tailed). In addition, Brenda appears less able to transfer predictive accuracy to constructs introduced into her grids on occasions 2 and 3. Although she improves on these additional constructs, this improvement is not significant (z = .427, p = .334, one-tailed).

This suggests that rather than learn intrinsic cues, Brenda simply learned which constructs from previous grids obtained high core outcome scores. This was possible because very little element rating changes occurred when Brenda reproduced her constructs in subsequent grids. In contrast, Tom is slightly, though not significantly, more accurate on the second occasion on his additional constructs than he is on the entire set of constructs (z = .807, p = .209, one-tailed), suggesting that he had begun to learn to distinguish intrinsic cues but suffered from the interference of previous core construct outcome scores when estimating the centrality of constructs reapplied in his second grid.

In contrast to the gains in predictive accuracy of construct and element centrality, predictions of element reconstruction (Fig. 70) are markedly inferior. Whilst Tom shows a slight but non-significant improvement over occasions 2 and 3 (z = .255, p = 397, one tailed), Brenda displays a near-significant decline in predictive accuracy over the same period (z= -1.57, p= .058, one-tailed). This

Figure 68 Predictive accuracy: element centrality.

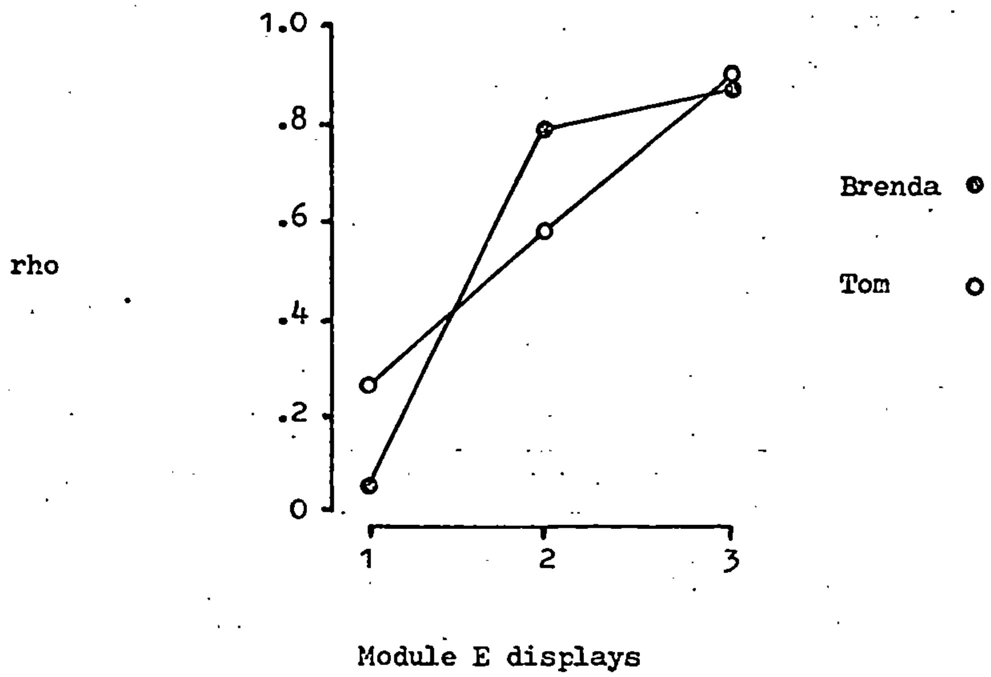
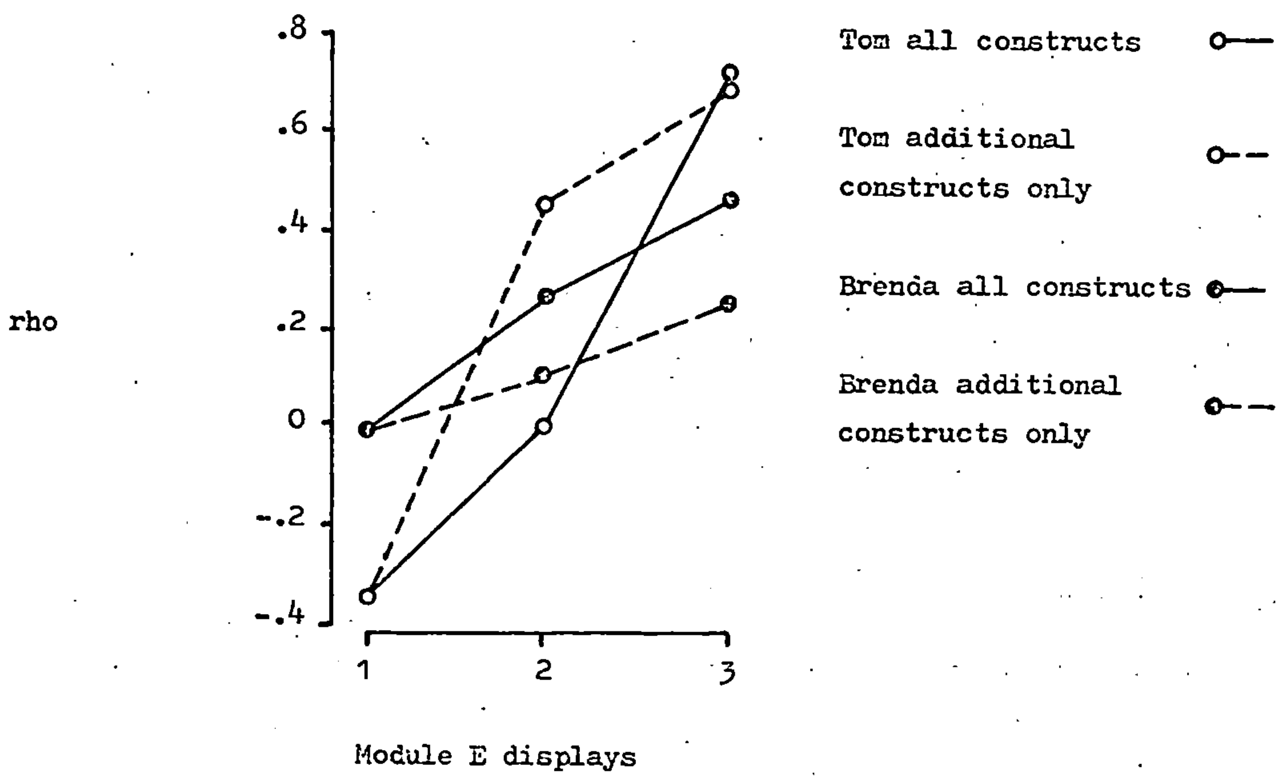


Figure 69 Predictive accuracy: construct centrality.



is difficult to account for as very little element rating change occurred over this interval. However, one explanation for low predictive accuracy of element reconstruction may be as follows;- in recording predications in the grid matrix, elements are systematically arrayed along separate construct dimensions. This provides subjects with a clear picture of the implications of each construct dimension, but very little information regarding element allocation over the complete set of constructs. Only the more obvious features of element allocation ever become apparent (e.g. elements rated at extremes on all constructs) and thus detailed information concerning the pattern of allocations of a single element over a number of constructs is not available to the subject during the production of the grid. If the alternative method is employed to assist the identification of element allocation (e.g. rating a single element vertically over a set of constructs), the converse effect, namely a loss of information regarding the patterning of elements on a single construct, would undoubtedly appear.

This finding is corroborated in Tom's near-significant gains in predictive accuracy on construct reconstruction (Fig. 71) on all constructs ($z = 1.512$, $p = .066$, one-tailed) and a marked but non-significant gain on additional constructs only ($z = 1.146$, $p = .125$, one-tailed). Also Brenda's level of predictive accuracy is high for additional constructs (both occasions, rho = .6), although over the entire set of constructs there is a slight but non-significant decrement by occasions 3 ($z= .327$, $p= .371$, one-tailed).

In summary, there is evidence for gains in predictive accuracy of grid outcomes in the two case studies reported, but for particular

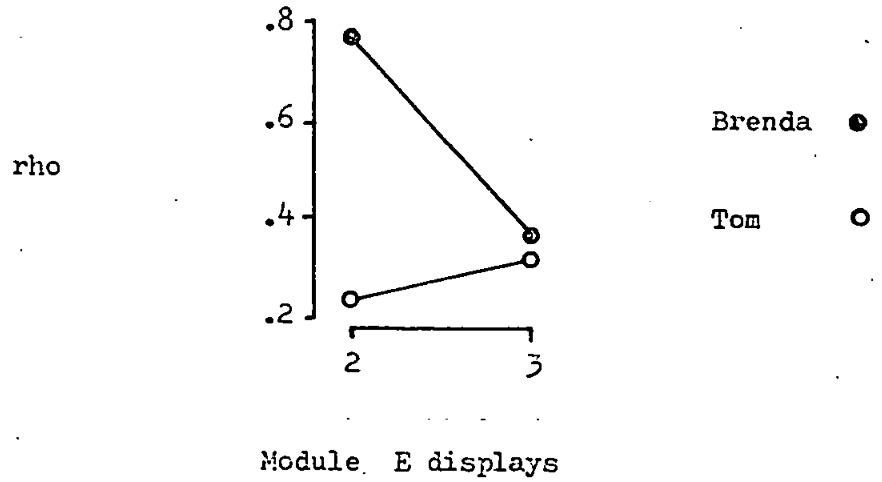


Figure 70 Predictive accuracy: element reconstruction.

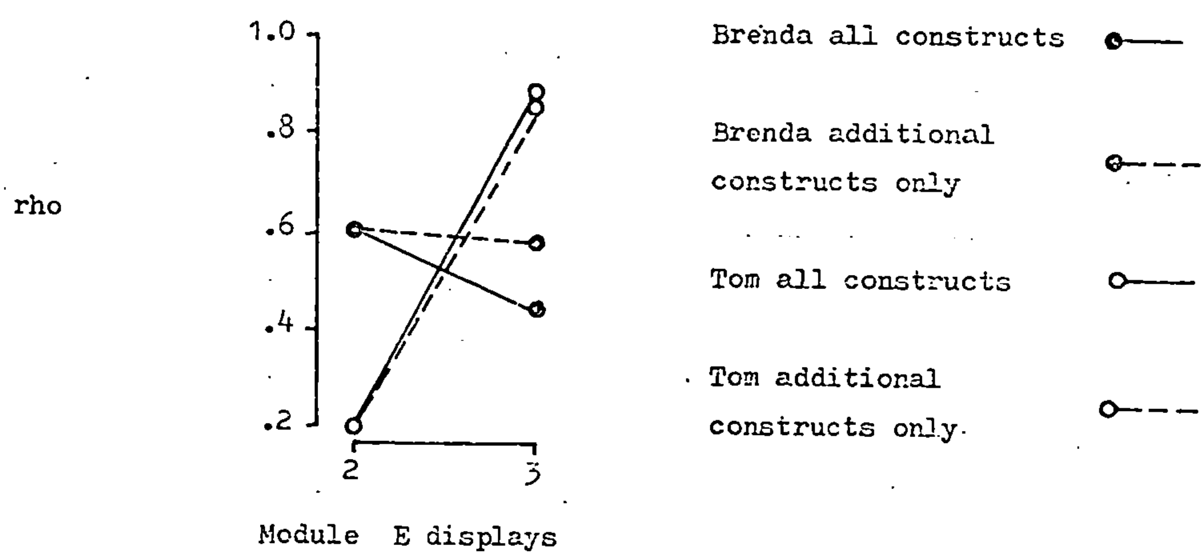


Figure 71 Predictive accuracy: construct reconstruction.

outcomes only. Outcomes that show improvement seem to be those which are based on information readily available to the client during grid production. One implication of this finding for the procedures is that reflective strategies must be examined for the availability of information relevant to anticipating transformation outcomes. That is, the more concealed are the intrinsic cues during the task, the more haphazard is the development of discriminative control.

Three criticisms may be levelled against the use of gains in predictive accuracy to assess the procedures; the nature of the cues that acquire discriminative control, the problem of transfer of control, and the question of response and anticipation strategies. Firstly, speculations on the nature of the cues that acquire discriminative control lead to the conclusion that two classes of cues may be involved to different degrees. One class of cues arises during modelling operations in the production of the grid, and entail the subject identifying the distinctive features of ideas and feelings as they occur to him. The second class of cues are associated with the manner in which these ideas are exteriorised and recorded as constructs and elements in a grid matrix. Clearly, cues of the latter kind are specific to the grid as a modelling facility rather than to modelling competence, and it is impossible to determine the extent to which each class of cues is involved in learning to predict the classification of constructs and elements.

Secondly, with what certainty may it be said that discrimination of cues of either class will lead to transfer from one activity to the other? If a sufficient number of trials are involved cues arising from features of the grid matrix may come to be associated with particular classes of thoughts and feelings and vice versa. However, in the case-studies only three trials were required to attain, in some instances, very high levels of accuracy, clearly insufficient for transfer to occur. Moreover, subjects frequently inquired about, and were informed of, the nature of the transformations performed on their grids, suggesting that features of the grid matrix are discriminated soonest. In short, we may infer that the high levels of predictive accuracy were more closely determined by features of the grid that are more readily distinguishable and that transference to modelling operations cannot be said to occur with certainty.

Thirdly, subjects may have employed hypothesis testing strategies that varied over the three trials. However, only one class of cues is likely to be manipulated in this way, namely those arising from modelling responses. Should the subject decide to introduce a construct felt to be self-defining, his prediction will automatically follow from this intention. The emergence of modelling response strategies are thus likely to appear only when the discrimination of cues has progressed to modelling activity. As it is difficult to infer the nature of strategies from the series of grids it cannot be determined whether performance in predictive accuracy is affected by user strategies.

3.4.4.6. In this section we have attempted to establish a number of evaluative criteria deriving from the stated objectives of the procedures. Some of these criteria have indicated an improvement in modelling activity, an elaboration of the conversational domain, and the emergence of one class of higher-order control functions. Many of the criteria employed, however, display inadequacies which are related to the conversational nature of the procedures. As the aim of procedures centre on the acquisition of mastery over modelling activity, measures based on modelling performance are suspect.

3.4.5. Summary.

3.4.5.1. This chapter has reported the insight grid procedure in four stages: (i) the integration of core and reconstruction grid methods into a unified procedure, and the development of Level 1 transformations and reflective strategies to be incorporated into this procedure; (ii) a detailed account of the activities involved in the procedure, divided into 6 discrete modules over two sessions; (iii) a report of a case-study application of the procedures to illustrate Level 1 and 3 reflective strategies; (iv) an attempt to evaluate the procedure by constructing and applying a number of assessment criteria. Each stage may be separately summarised.

3.4.5.2. Firstly, a class of transformations and reflective strategies compatible with Level 1 modelling activity were developed. As it was considered that discontinuous hypotheses were inadequate for Level 1 feedback owing to the postulate that intrinsic cues associated with predication centrality and stability were continuous, four ordinal measures of element and construct centrality, and element and construct reconstruction were developed. Classifications obtained by these measures were tested where necessary against classifications arising from Level 3 transformations, and were found to be satisfactorily commensurable. An appropriate reflective strategy was felt to be a variant of the Level 3 strategy, in which a display comprising the user's anticipated classification of items and the observed classification (derived from the application of the measures) were juxtaposed. Significant discrepancies were then to be identified, and reflected back to the user as prompts requiring explanation where possible. Incorporating this technique into the insight grid procedure completed the procedure by providing transformations and displays compatible with Levels 1, 2 and 3.

3.4.5.3. The structure of the insight grid procedure was presented as a recursive set of six modules spread over separate production and feedback sessions. Each of the six modules and their associated instructions and activities were described in detail.

3.4.5.4. The application of these procedures to a case-study was reported, and illustrated the form of Level 1 and 3 displays, and the nature of user responses to the reflective strategies. It was observed that these responses were rarely confined to the level of modelling to which the display was directed, indicating that furnishing explanations for Level 1 and 3 discrepancies frequently entailed activity at several levels. For example, explaining a Level 3 discrepancy between an element outcome expected on the basis of prior observations and a currently observed outcome may entail inquiring into the nature of the transformations by which the outcome was classified, comparing it with outcomes for ostensibly similar elements, and drawing comparisons between the circumstances surrounding the predication of that element on previous occasions. The user is then simultaneously seeking information concerning the subjective correlates of the observed outcome and correlates associated with the way responses are recorded and classified in the grid matrix, in addition to his perception of interpersonal events concerning the element in question.

3.4.5.4. Finally, methodological problems associated with evaluating the procedures are discussed. Three evaluative criteria are developed to estimate the extent to which modelling activity was enhanced through interactions with the procedures; (i) improvements in the quality of modelling activity; (ii) elaboration of the conversational domain; (iii) the emergence of higher-order control of modelling activity. It was argued that the growth of modelling competence would be reflected in two ways; in an increase in the variety of constructs introduced into the user's grids over successive interactions, and in an increase in the self-defining properties of these constructs. Whilst the latter prediction was found to hold, the former was contraindicated in the two case-studies examined. These findings were viewed as reflecting the possibility of a mismatch between definitions of the purpose of the procedures as embodied in the evaluative criteria, and the purposeful strategies of the subject. Secondly, it was argued that elaboration of the conversational domain would be reflected in the emergence of salient principal components over the series of grids, and in the capacity of the subjects to redefine the implications of interpersonal events for their construing following the feedback displays. Although evidence of the emergence of salient components was found for one subject, attributing this effect to the feedback procedures was considered unjustified. Comparisons between the two subjects in terms of component representation in their three grids suggested that different modelling strategies might have been employed. In addition, there was some evidence for one subject that the feedback displays led to an increase in the number of identified implications of interpersonal events for construing, although the data obtained was not amenable to statistical treatment. Finally, it was argued that the emergence of higher-order control might be indicated by improvements in subjects' ability to anticipate Level 1 classifications of constructs and elements. Of the four classifications employed in Level 1 displays, both subjects achieved high levels of predictive accuracy for element and construct centrality alone. Predictive accuracy improved for one subject for the construct reconstruction classification, but neither subject displayed gains for the element reconstruction classification. These findings were interpreted to indicate two classes of discriminative cues, namely those arising from modelling activity, and those arising from the method of recording that activity in the grid matrix. As performance improved in some cases over very few trials, it was concluded that subjects had learned the distinctive features of the grid matrix rather then intrinsic cues arising during modelling activity.

5.4.5.5. Methodological problems arising from these attempts to evaluate the procedures clearly merit further consideration. These problems centre on the nature of the procedures as conversational techniques in which the expressed goals are to enhance the conditions in which the user chooses between different modelling activities. As a result, the nature of the user's objectives are variable and frequently unspecified. However, there are indications that the procedures enabled the subjects to achieve some of their objectives, as the following extract of a letter from Brenda received some time after the experiment indicates:-

> "More than anything else the experiment highlighted for me aspects of my relationships with different people and so in this sense reflected my own character. I felt, because it was concerned with my job, that I was characterising certain people into areas which I saw mirrored the whole spectrum of business life, such areas as 'leader' vs. 'led'. However, real differences appeared, in as much as, although I was interested in these aspects I also began characterising my relationships in terms of those who, for the sake of business and career, would cut people's throats and those who wouldn't. This led me to a clearer understanding of myself in this situation as I grouped myself amongst those who were 'successful in business', 'leaders' and yet not prepared to cut throats. Unfortunately, I began to see my boss as one who though kind, understanding and successful was prepared to undermine his integrity in order to succeed. This I could not handle and it led to a greater breakdown not only of our relationship but also between myself and the world he represented".

As a result, Brenda resigned from her job. The question posed here is clear; although the procedures appear to have led Brenda to a "greater understanding of myself in this situation", is her resignation to be viewed as a satisfactory outcome, or were the objectives of the procedures achieved at the expense of Brenda's own purposes?

Chapter 3.5.

Summary

3.5.1. The design of procedures

3.5.2. Methodological problems in evaluation

3.5.1. The design of procedures.

3.5.1.1. The chapters that comprise Part 3 have focussed on deriving a set of operationally defined algorithms from the theoretical discussions of modelling conversations in Chapter 1.2. To develop algorithms consistent with the specifications for procedures outlined in 1.2.3., however, the processes involved in the acqisition of modelling skill had first to be clarified. This was achieved by a structural analysis of the hypothetical nature of modelling skill in Chapter 3.1., and the definition of counselling activity as provoking modelling by the client through the use of reflective strategies. Thus, the counsellor may be viewed as reflecting back to the client his impressions in a form that might become intelligible to the client only if he engaged in modelling activity. The level of abstraction of the counsellor's responses were seen as determining the primary focus of modelling in the client; for example, the counsellor may comment that it was his impression that the client described his mother in similar terms to his description of his wife, inviting the client to compare and contrast his feelings towards his mother and his wife. Alternatively, the counsellor may remark that he thought that the client's current description of his wife was at variance with an earlier description, encouraging the client to compare and contrast his feelings towards his wife in different contexts or at different points in time.

3.5.1.2. The analysis of modelling skills was based on the repertory grid technique, as this was viewed as a systematic method for formulating statements within a nominated domain. Moreover, the grid technique is amenable to explicitly defined transformations performed without reference to the content of statements. Such transformations refer instead to the functional properties of the statements to the conversational domain. Whilst they might embody arbitrary criteria, they do not impose an evaluative frame of reference, and this distinguishes them from the frequently prescriptive procedures of interpretation in orthodox psychotherapy.

Modelling activity involved in the repertory grid was conceived as structured as a hierarchy, and four levels of modelling were identified, ranging between operations involved in formulating individual predications in the grid, to operations involved in the comparison of the contexts in which the user formulates models of persons and events. To encourage modelling at each level in this hierarchy transformations of different orders of abstraction were necessary. Subsequent chapters developed transformations compatible with each level of modelling,

3.5.1.3. Chapters 3.2. and 3.3. developed reflective strategies consistent with the analysis of modelling skill to highlight two functional properties of predications in the repertory grid, namely their stability over a series of replications, and their centrality to the conversational domain. As the emphasis throughout has been on the modelling of self, predication centrality was equated with the self-defining qualities of constructs and elements in the grid. The conversational domain for which the procedures were developed was thus specific to the modelling of self and personal others. However, the procedures that were developed have relevance to other conversational domains where centrality and stability of modelling processes are of interest to the user.

3.5.1.3. Both the core grid (Chapter 3.2.) and reconstruction grid (Chapter 3.3.) procedures were developed to fulfil some of the basic functions of the counsellor. That is, they provided a context in which a class of operations might be executed to produce an external record of modelling within a defined domain, particular transformations applied to this record, and the outcomes of these transformations displayed to the user. In both cases, the reflective strategies incorporated in the procedures aimed at involving the user by requesting that he account, wherever possible, for the transformation outcomes. That is, the attempt was made not to present the user with a transformed record of his modelling conversation, but rather to use the transformation outcomes as a point of departure for further modelling activity.

This consideration was prevalent in the development of transformations appropriate to each level of modelling. For example, Level 3 transformations displayed significant changes in the functional properties of the user's predications in a way which required the user to formulate the conditions which might have produced this change. To achieve this, it was necessary firstly to design a procedure that entailed that the user re-use constructs produced on a series of accasions, and to develop a transformation capable of detecting significant alterations of function in the random fluctuations that inevitably occur in replicated grids. Similarly, Level 1 transformations were intended to promote the ability to identify functional features of predicates as they were formulated by the user. This required that a more sensitive method for qualifying the functional properties of grid predications be developed, and that the user attempt to anticipate the subsequent classification of predicates from the intrinsic cues that arise during their formulation. Again, Level 2 displays were developed to exhibit the patterning of responses in the grid matrix, with the request that the user identify and denote the underlying parameters of the grid that the pattern reflected.

This rationale was pursued throughout the development of the procedures. Displays, for example, were devised such that they involved the user in their assembly; as constructs and elements were recorded on cards the user became accustomed to manipulating them and arranging them in diverse ways.

3.5.1.4. Integrating the reconstruction and core grid into a unified procedure, the insight grid procedure, enabled it to be used in two case studies, one of which was reported in detail in Chapter 3.4. A number of issues concerning the design of the procedures were highlighted in the application of the insight grid.

Firstly, developing the procedure for use in the case studies revealed that one of the specifications for interactive procedures outlined in 1.2.3. had not been met, namely the <u>supportive</u> function.

Throughout the insight grid activities every attempt was made by E to minimise any form of evaluative commentary. That is, E considered his role to be simply to mediate between the algorithm of activities and the user. Thus, requests for information concerning the nature of the transformations, or requests for clarification of the displays, were responded to immediately with explanations by E.

However, E fulfilled a supportive role which could not be achieved by the algorithm of activities. It was pointed out in 1.2.3.4. that a noteworthy aspect of counsellor participation was supportive dialogue, entailing that the counsellor identify and respond to the state of the client and coordinate his participation on that basis. This specification could clearly not be independently achieved by the procedures in their current form, and should the automation of these procedures be desired, the incorporation of supportive dialogue would present considerable problems. It would be necessary, for example, either to accurately predict user states of readiness and select transformations and feedback displays on the basis of these predictions, or to interrogate the user in order to determine his state of readiness. The latter alternative appears more feasible, and suggests that procedures may be developed to be self-administered.

Secondly, it became apparent that although transformations and displays were to provoke modelling at specific levels, the effect of the reflective strategies frequently led to simultaneous modelling activity at several levels. This suggests that modelling activity would be improved by coordinating the reflective strategies and displays at each level. As it was observed that users frequently requested information concerning the distinctive grid features associated with predication outcomes at all levels of display (e.g.

what characteristic pattern of ratings led to an element being labelled 'central', what features of constructs determined whether they be 'core' or 'peripheral', etc.), it may be inferred that modelling activity progresses from lower to higher levels, or from the 'tactical to the strategic' (Miller, Galanter and Pribram, 1960). Coordination of the reflective strategies of different levels may then entail that each item classified at Level 1 be immediately pursued through Level 2 and 3 displays.

Thirdly, and related to the preceding consideration, some difficulty was experienced in mapping outcomes at each level of display. In particular, Level 1 outcome scores were occasionally found to be at variance with a similar classification at Level 3, although overall the fit between the two classifications was good (3.4.1.3.). For example, a construct obtaining a high construct score at Level 1 might occasionally be classified at Level 3 as 'peripheral'. It would clearly be desirable to rationalise the classification throughout all displays, enabling the coordination of outcomes at different levels. If the Level 1 outcome score were taken as the basis for all outcome classifications, however, Level 3 transformations would have to be adapted to continuous hypotheses. Thus, prior probabilities would take the form of continuous distributions, and Level 3 outcomes be expressed as scores with associated credible intervals. Discrepancies may then be identified if scores assigned to constructs and elements in subsequent observations fell to the left of the credible interval.

Fourthly, problems were experienced with the timing of the present-ation of feedback displays. As the interactions were not continuous, the duration of the interval between grids varied considerably, from as little as a few days to as much as one or two months. Clearly, the relevance of predications over such an interval may be subject to alterations which cannot be attributed to the procedures. Moreover, convenience rather than user readiness determined the timing of successive interactions. Incorporating a support component into the procedures would entail developing a means to classify user states of readiness, and coordinating intervention on that basis.

Fifthly, the complexity of the transformations frequently made it difficult for the user to model the processes by which particular outcomes were classified. This may be viewed as simultaneously detrimental and beneficial. It was detrimental to the extent that the user was baffled by the ostensible arbitrariness of the outcome classifications, or felt deliberately mystified by computer analyses. Although attempts were made by E to mediate and explain the trans-formations, one user found it difficult to challenge the outcome classifications, whilst another found it difficult to accept them. Of course, neither complete acceptance nor rejection of the outcome classifications was intended, and on some occasions discussion centred on the rationale of the procedures. In contrast, a desirable consequence was that the user was frequently prevented from accoun-ting for outcome classifications in terms of transformation operations. This had the effect of encouraging a form of secondary modelling activity that centred on the nature of the thoughts and feelings embodied in a grid predication, rather than the manner in which that predication response was recorded and operated upon in the grid matrix. Modelling emphasis was then shifted from the representation to the process of modelling.

In the following chapters, some of these design considerations lead to adjustments and modifications to the procedures. However, a second class of problems was encountered in attempting to evaluate the procedures, and the following section seeks to clarify the issues that surround these problems.

3.5.2. Methodological problems in evaluation.

3.5.2.1. In applying the insight grid procedure in the two case studies reported in Chapter 3.4. attempts were made to derive a set of evaluation criteria from the stated objectives of the procedures. These criteria, namely, improvement in the quality of modelling, the elaboration of the conversational domain, and the emergence of higher-order control, were evidently met in part by the procedures, but it is to the failure of some criteria and the interpretations placed on others that concern us here.

All the criteria employed in the evaluation of procedures comprised forms of 'before and after' comparisons, principally between the first grid produced by the user (the 'before' control) and subsequent grids produced. However, the 'after' measures obtained were unusual in that in many cases they comprised information which was fed back into ongoing modelling activity in the form of displays. As a result, the user was continually interpreting his own performance on the basis of this data in ways which, in many cases, could not be determined. Subsequent performance was, in an experimental sense, biased by the nature of the measurement procedures.

A second departure from the traditional experimental approach lies in the purposes of the procedures themselves, namely to enable the user to exercise greater choice and control in his modelling activity. As this control is not immediately visible, it could only be inferred from the nature of the user's subsequent modelling activity. As the measures employed to enhance choice and control are identical with those employed to assess the extent of control achieved, ambiguities in the use of 'before-after' measurement are unavoidable.

3.5.2.2. These distinctions between conversational techniques and experimental methodology may be clarified by examining the user's objectives in the two situations. Fig. 72 depicts the use of 'before-after' measurement (m_1 and m_2) in conjunction with an experimental treatment (t).

The event datum is sampled prior to and after the application of the treatment, and a test based on the comparison of the two measures is carried out. In most physical science contexts this methodology is entirely adequate. However, its use in social science contexts is problematic, as subjects attempt to infer the nature of the experimental hypothesis by developing strategies that seek to influence the 'after' test measurement (Rosenthal & Rosnow, 1969). Confining the subject to a fixed strategy by committing him to an experimental contract in which his purposes are assumed to be invariant (e.g. by instructing him to work as quickly and as accurately as possible when completing tests), or deceiving the subject as to the nature of the hypothesis embodied in the measures are familiar experimental strategies devised to eliminate or reduce this effect. Conversational techniques contrast with this methodology (Fig. 73) by feeding back to the event datum the information obtained through measurement. Thus, the 'treatment' in this case is the effect on the event datum of the measurement outcomes. In Chapter 3.4. the evaluation consisted of tests based on the comp-

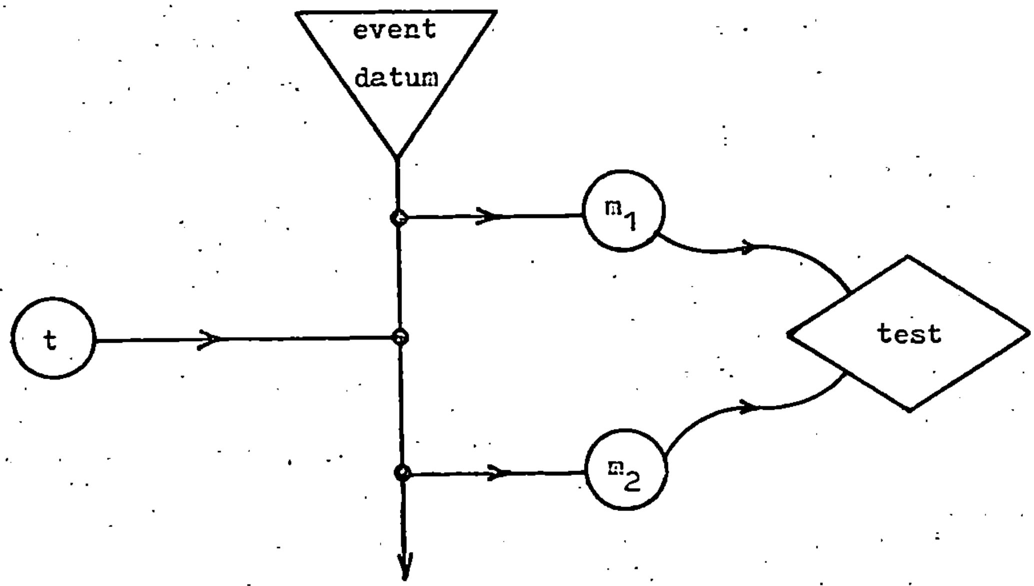


Figure 72 The 'before and after' experiment.

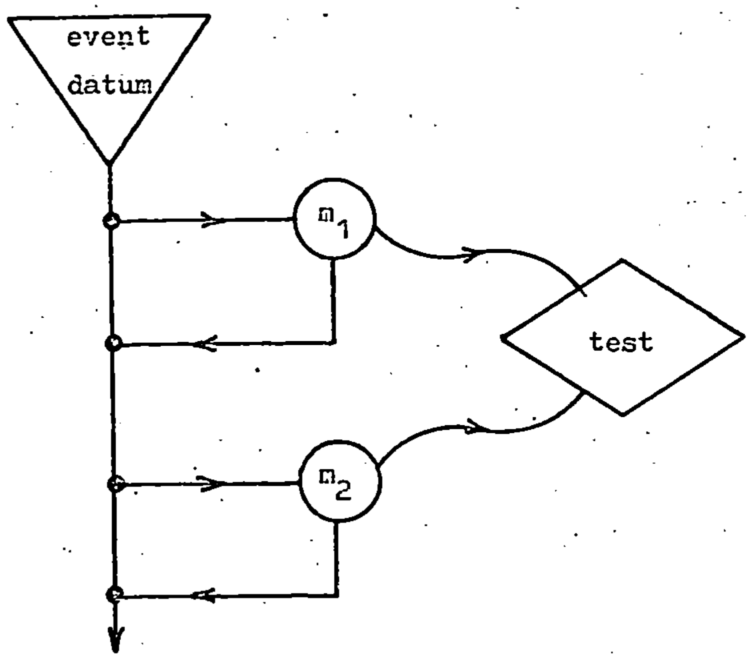


Figure 73 Measurement in conversational techniques.

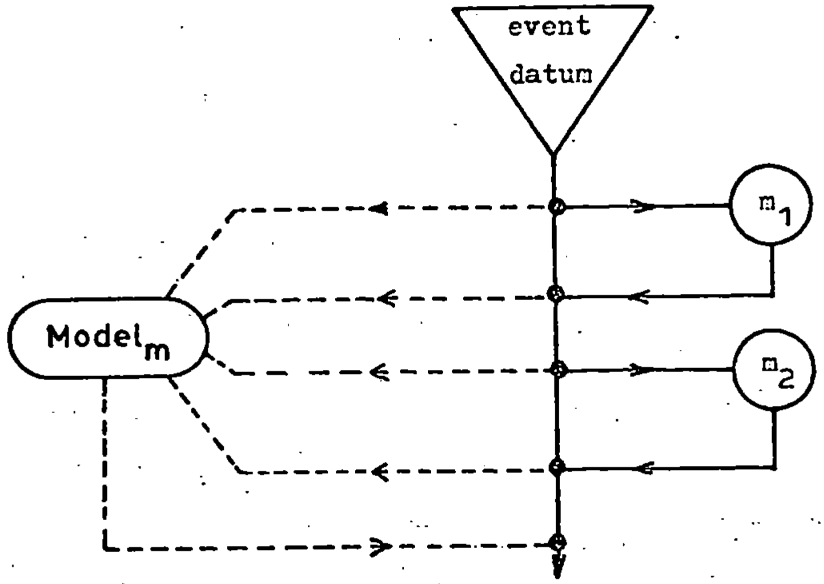


Figure 74 The development of control.

arison between measures m_1 and m_2. Whilst the experimental situation is characterised by the subject accurately, or inaccurately, inferring the experimental hypothesis, conversational methods make measurement outcomes explicit to the subject, and the development of strategies for manipulating and modelling these outcomes (Model$_m$) becomes the objective of the methodology (Fig. 74). In the grid procedures m_1 and m_2 have been termed transformations, as the act of classification of events (grid responses) translates events into an alternative reference frame.

3.5.3.3. What are the implications of conversation methods for their evaluation? It should be borne in mind that the processes in Fig. 74 are not side-effects, but are intentionally provoked through the use of reflective strategies. Consequently, the relationship between m_1 and m_2 reflects more than simply the treatment effect of feeding back measurement data, it also indicates the nature of the user's modelling of his interactions with the procedures. Several possible outcomes may thus be identified in relation to attempts to evaluate the procedures.

Firstly, the user may not attempt to model the feedback he receives. For example, he may acknowledge certain m_1 outcomes but respond to the reflective strategies, or prompts, by paraphrasing them. When requested to formulate an explanation as to why a particular construct has altered its function from 'peripheral' to 'core', he may respond with the statement "it is more important to me now than it was then". In the absence of further modelling activity, the relationship between m_1 and m_2 is likely to be random.

Secondly, the user may be unable to interpret m_1 for a number of reasons, the most significant being that he is not in a state of readiness to make use of m_1 information. This is a familiar consequence of terminal and delayed feedback (Holding. 1965). Whilst terminal feedback encourages reliance on self-generated or intrinsic feedback (Annett, 1959), the timing of this feedback in relation to preceding and subsequent responses is critical. Holding suggests that the delay between responses and knowledge of the results (KR) of that response is less important than a delay between KR and the following response, provided KR is unequivocally related to distinctive features of the first reponse. That is, KR information is most relevant during or immediately prior to subsequent modelling activity than it is following modelling activity. For example, the observed non-responses to prompts in the case studies examined may be associated with the user not anticipating modelling activity at that time.

Thirdly, the user may not model the transformations at a level that enables the transfer of learning to other contexts. For example, it was observed that to anticipate classification outcomes users generally requested information concerning the mechanics of the measurement procedure. Thus, whilst they maximise predicitive accuracy in m_2, they may encounter difficulty in anticipating similar outcomes derived from other transformations.

Fourthly, in attempting to model the transformations the user may develop strategies that lead to varying m_2 outcomes. For example, it was inferred from the two reported case studies that the subjects differed in their modelling strategies; whilst one subject converged on a particular class of predicates, the other increased predicate variety. Thus, the relationship between m_1 and m_2 for the two subjects differed. In addition, the user may vary his strategy through the course of interactions, such that the relationship between m_1-m_2 differs from the relationship between m_2 and a third measurement occasion, m_3. For example, a user who diverges in m_2 may locate a class of predicates worthy of convergent attention in m_3.

These considerations influence the conclusions that may be derived from the attempts to evaluate the procedures in Chapter 3.4. The comparisons that met the evaluative criteria (e.g. increasing centrality of predication, elaboration of the conversational domain, etc.) suggest that those criteria coincided with the purposes for which feedback was utilised by the user.

3.5.3.4. In the following chapters the procedures developed in that section are adapted to function within an interpersonal context. That is, the procedures are extended to parallel the marital counsellor's role in mediating between two or more participants. In this context a number of the issues discussed above are clarified or redefined. The problem of supportive dialogue, for example, is fundamentally altered when participants interact with each other during modelling conversations. Similarly, the reflective strategies embodied in procedures are augmented by ongoing interactions between participants. Before applying procedures in this context, however, the implications of modelling processes within relationships requires discussion.