The illusion of the neutral observer : On the communication of emotion

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Early systematic approaches to describe the process of communication, such as expressed in the well known Shannon and Weaver model (see fig. 1) were quite simple and, stemming from the context of telecommunication focussed on three elements only : a *sender*, a *receiver*, and the *message*. While on the one hand there have been many attempts to develop the *message aspect* e.g., in certain schools of linguistics, psychologists on the other hand mostly have concentrated on the sender and receiver aspects respectively. A focus of interest here lies in the parallel communication of emotional state expressed in the voice, the face and other cues and the content of the spoken message. To understand the communication process as a whole, linguistic and nonlinguistic aspects of signals have to be taken into account. Bühler (1933) pointed in his *organon* model already out that most signals serve several functions simultaneously. The meaning of a specific phrase is a function of many factors, particularly the internal state of the sender. The goal of the current paper is to outline some ideas regarding the encoding, as well as the decoding process of affective states. Furthermore, the highly interpersonal nature of emotional processes will be discussed. We will then develop why we think that a) no analysis of discourse can be made without taking the paralinguistic communication of emotional state into account, and that b) in doing so the 'neutral' observer becomes part of an emotional transmission process which will have an impact on her. Thus, the concept of the *neutral observer* becomes untenable.

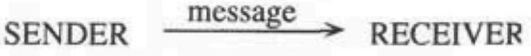

Figure 1. Simple communication model

Emotional Processes

Emotions, as they are mostly understood today, are complex processes which involve several components. We define emotions as *responses to external or internal stimuli which are manifest at several levels*. There are *physiological* elements which are interpreted as being a part of preparation of actions (see Frijda, e.g. 1987). Likewise *skeletal muscle changes* can be observed, such as changes in the *facial expression* and in certain aspects of *vocalizations*. Frequently, there is a certain *subjective feeling* which is typical for an emotional state. We do not consider the subjective feeling itself to be the emotion, nor to be a sine-qua-non of emotional states[1].

Charles Darwin influenced current ideas on human emotions to a great extent with his seminal work "The expression of the emotions in man and animals" (1872). He pointed out the evolutionary continuity in many aspects of emotional expression. Recent empirical studies seem to confirm many of his observations. Ekman and colleagues (for a review see e.g., Fridlund, Ekman & Oster 1987) could show that certain, so called 'basic facial expressions' are shown and are recognized in very different cultures, even in a New Guinea tribe which had almost no contact to 'Westerners' and could not have been influenced by media portrayals of emotions. The same basic expressions are also shown by very young congenitally blind children and are recognized and mimicked by children as young as 36 hours. However, for other communication channels the evidence for specific cross-cultural is as of yet less clear. Scherer and colleagues have recently launched a large cross-cultural study on the recognition of vocal portrayals of emotion, yet the voice, being linked to a specific language, poses more difficulties for cross-cultural studies (see Kappas, Hess & Scherer 1991).

Why is it so important that certain emotions are universal? We believe that communication in general is always happening in the context of the emotional state of the encoder (as well as the state of the decoder as we shall later see). We consider the mechanisms we propose here as universal and thus as very important for all disciplines which concern themselves with communication processes. In the context of vocal communication one has to bear in mind that physiological changes, associated with affective processes influence acoustic aspects of the vocalization mediated e.g., via subglottal

[1] For an introduction into different conceptualizations of emotions see Scherer and Ekman (1984).

pressure, laryngeal tension, supralaryngeal tension etc. These changes are automatic and have to be actively controlled or overridden if they should be masked (see Scherer 1986).

Oftentimes, the notion of the universality of emotional reactions seems strange, as we seem to observe many differences, not only between different countries, but even within a country in different sub-cultures or groups, be it in the *intensity* of the expression shown, or in the *particular affect* displayed. Ekman and Friesen coined the concept of *display rules* (e.g., Ekman, 1973, 1984; Ekman & Friesen, 1969). They believe that while basic emotion displays are universal, there are certain rules in a specific culture, which define what emotions are to be shown, and which are not. The general idea of culturally defined expression rules is of course much older and has, for example, been already expressed by Wundt (1903). :

> "Indem der Culturmensch den Ausdruck seiner Affecte nach den Mitmenschen richtet, von denen er sich beobachtet weiß, sucht er mehr und mehr auch Geberden und Mienen dieser Rücksicht anzupassen. Er sucht gewisse Affecte zu verbergen und andere auszudrücken" (p. 285).[1]

There is some empirical evidence to the existence of display rules and their effects, yet the number of empirical studies is relatively small. The bulk of current research is directed at the acquisition of such rules in childhood and infants' knowledge of these concepts (see Saarni, 1979; Izard & Malatesta 1987). The sociologist Arlie Russel Hochschild has formulated a related but slightly different concept, that of *feeling rules* (1979). She believes that in many instances, not only do conventions govern what to *show*, but also what to *feel*.

According to folk wisdom emotions are something from *deep inside*, something *uncontrollable*, yet it is known from everyday experience, as well as from empirical research that expressions, as well as the underlying feeling state can be and are in fact often controlled (see Kappas & Hess 1991). We want to outline briefly the current state of knowledge concerning the basic principles of expression control. Recent research on (facial) expression leads us to the distinction of spontaneous and voluntary expressions. Spontaneous expressions are direct consequences of an emotional process triggered by an (external or internal) event. Voluntary expressions are used to modify the intensity of a

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[1] "As the cultured person decides to direct the expression of his affects towards his fellow beings, knowing that they are watching him, he tries more and more to match gestures and facial expressions to that purpose. He attempts to hide some affects and to express others." Translation AK

spontaneous expression, alter or mask it, or to display something while no spontaneous innervation is present. The distinction between those two groups seems to be justified by anatomical and neurological evidence (see Rinn 1991). There are, for example, case histories of patients which loose as a function of particular damages to their brain the ability to control voluntarily their expressions. If someone tells a joke, however, they will laugh heartily and express the same patterns other people do in the same situation. There are also cases which show the inverse pattern. The faces of these patients appear strangely waxen and unemotional. It would be unrealistic to assume that in real life one is likely to encounter instances of purely voluntary and spontaneous expressions, as if there were only 'true' and 'fake' expressions. It is more reasonable to assume that the two concepts form opposite poles of one dimension and each expression tending more towards one or the other side. It is a logical consequence of the concepts of display- and feeling rules, that our expressions are most of the time somewhat controlled. It might well be that only in interaction with small children, or under the influence of very intense situations, or the influence of drugs, we really experience completely voluntarily uncontrolled expressions! A useful concept has been proposed by Scherer, Helfrich and Scherer (1980). They have coined the terms *push* and *pull* effects. On the one hand there are the automatic, 'built-in' or 'hard wired' reactions, which are considered to be push factors (as in pushing a ball over a hill, so that it starts to roll and follows its own course). Pull effects, on the other hand are controlled attempts to direct an emotional reaction into one or the other direction as a function of intention, social, and cultural rules and norms. The push/pull concept is useful in that it expresses important features of each of the two extremes - one being goal directed, the other being less predictable and spontaneous. We thus postulate, that most expressions are subject to concurrent push and pull effects.

Is expression of emotion really so important in everyday life? We probably do express emotions much more often than we realize. Very often we ourselves have little insight into the intensity of our own facial reactions. Furthermore, it could be shown, that merely thinking about an emotional event will elicit muscular reactions at those facial sites, which are typical for the corresponding emotional display. Yet, the expression might not be visible with the naked eye, but can be detected using electromyographic techniques. The low level of muscular activation might be a consequence of low levels of emotional arousal, or already the product of expression attenuation. Very little is known about frequencies and intensities of expressions outside of the laboratory. To be able to analyze the communication of emotion we have to distinguish explicitly

between the encoding and the decoding of emotions. As we will later see, there are not only many expressions which are there, but not perceived, but also those which are perceived, but which are not really there! Clinical studies have shown (e.g., Krause, Steimer, Sänger-Alt & Wagner 1989; Steimer-Krause, Krause & Wagner 1990) that in dyadic discussions a great variety of facial expressions are shown, some of which occur rather rapidly. Of particular interest is the concept of micromomentary movements (Ekman 1985, Bänninger-Huber, Steiner & Moser 1988a, 1988b) which last only small fractions of a second. These expressions are not necessarily at a low intensity level, yet they occur so fast, that an observer will usually not recognize them. Using complex measuring systems, such as Ekman and Friesen's Facial Action Coding System (FACS, 1978) and modern video technology these expressions can be described and analyzed. While the movements themselves are not reported by observers, they seem, nevertheless, to have an impact on the observer. There are few experimental investigations on the effect of micromomentary movements on an observer, so I would like to illustrate the complexity of emotional attribution processes, i.e., the inferences drawn from perceiving expressions of others with a related study which focussed on the integration of *facial* and *vocal* cues to emotion.

Decoding discrepant facial and vocal cues of emotion

Hess, Kappas and Scherer (1988) produced a set of short video clips, supposedly showing an individual interacting with someone using a picture phone. The observer saw the actor face-on and heard only his part. Three different 'conversations' existed, suggesting different contexts (business, casual, private). The texts were selected before in a separate study to be as (emotionally) neutral as possible. Based on a study by Wiggers (1982) specific patterns of facial expressions were selected (operationalized using Ekman and Friesen's FACS 1978), that were shown to elicit in observers the impression of happiness or anger respectively. These facial expressions were positioned at particular points in the script to allow the production of different versions of the video clip. The positive and the negative version were produced to be completely lip synchronous to the neutral version. The text was actually spoken and lip-synced by another actor. In a pre-study the relevant excerpts of the text were spoken in different versions so as to appear angry or happy. Using computerized digital analysis, the intonation contours of the neutral, a happy, and an angry version, that is versions, which were judged (audio versions only) to contain these qualities, were determined. Using resynthesis, different audio

versions were produced of the neutral version. These versions would then carry the intonation of the 'happy' or 'angry' stimulus, yet would not differ from the neutral one in any other way. Duration, loudness, pauses, were held constant[1]. Thus, it was possible to create different combinations of VOICE POSITIVE / NEGATIVE and FACE POSITIVE / NEGATIVE, including the interesting mixed versions, where face and voice are expressing different states.

The results of the study indicated that people relied even more systematically on facial information in the presence of vocal cues tu judge the emotional state and the attitudes of the actor, compared to those subjects who only saw the actor, but did not hear him. However, in the case of the inconsistent messages (face and voice expressing different emotions) the importance of vocal cues increased, suggesting that the subjects used a weighted average model to integrate facial and vocal cues differently for the attribution of emotional state and attitudes, depending on wether they seem consistent or not.

Context effects on the perception of emotion

A related phenomenon refers to the effect of the context on the interpretation of emotion facial expressions. Wallbott could show in a series of studies (1986; 1988 a-c), that emotion attributions are to a large degree influenced by context information available to the observer/decoder. In one case different groups of judges saw actors/actresses with different emotional expressions with and without seeing a short scene, supposedly eliciting the affective display. Judgments were dominated by the context given through knowledge regarding the context under which a particular expression was produced. In another study Wallbott (1988a) could show that the relative weights for context and expression information for the attribution of emotional state are a function of their discrepancy. While little is known regarding the impact of context information on the decoding of affective vocalizations we have to assume that here too context knowledge plays a large role. Speech has a particular role insofar that the content sets a context for the paralinguistic cues expressing emotions and attitudes.

[1] There was an additional factor, namely, acoustical changes due to emotion specific facial expressions (smiles), which was modified, but will not be discussed here.

Physical/environmental effects on the perception of emotion

So far I have shown effects of discrepant emotional displays, as well as the effects of the context to the interpretation of emotional expressions, yet, there are even simple environmental effects, such as the vertical viewing angle of a face, which distort the emotion perceived. In a group of studies Kappas, Hess, Kleck & Barr (1991) could show that even neutral faces will be perceived as showing a specific emotion when seen from below or above. The effect could be shown using actors which were filmed straight on, from above or below with a 30° angle respectively. In another study a computer generated schematic face was rotated in increments of 5° between -30° and +30°. While the expression on the 'face' never changed, the interpretation of the meaning of this expression changed as a function of the vertical viewing angle. The distortions are emotion specific and might differ with specific morphological features of the sender's face. While it is unlikely that these distortions have a large impact on emotion judgements of senders well known, they might be more relevant if the senders are strangers. Furthermore, there do exist facial stereotypes linked to specific morphological cues which might also interact in the decoding of facial expressions. However, little is known regarding environmental effects on vocal stimuli. Microphones used for voice transmission or recording are known to bias the frequency response and can change characteristics of voices. A few years back the microphones in the German Bundestag had to be changed, as some female representatives complained about the effects of the public address system. They felt that their voices were distorted as higher frequencies were unproportionally boosted and thus being perceived as piercing and unfriendly.

The Brunswikian lens model

The different notions presented so far shall be summarized using a modified version of the Brunswikian lens model (Brunswik 1956) as proposed by Scherer as a conceptualization useful in guiding research on the communication of emotion (1978, 1982; also Wallbott & Scherer 1986) Initially, the main features of the lens model and its extensions with regard to the basic communication model shown in figure 1 will be presented (see figure 2). Following, some phenomena which are not taken into account by the model, yet are important for our understanding of the communication process will be outlined. I want to propose a set of extensions to the lens model as shown

above including a) within-individual expressive feedback processes and b) between-individual feedback processes.

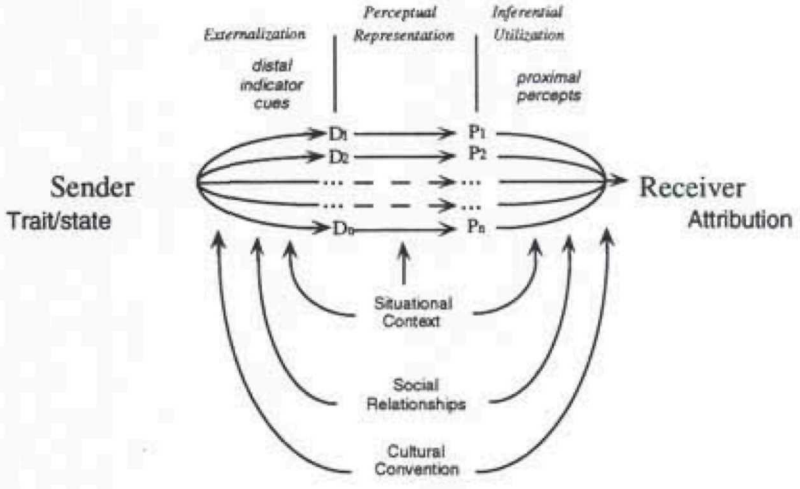

Figure 2. Modified brunswikian lens model

The model indicates that sending and receiving a message implies actually the translation of some internal state or trait into a group of external signals, which are then transmitted across different channels of communication, which have to be perceived and then interpreted to form some kind of attribution regarding the other individual's trait/state. The following notions, all off which we have discussed above are consistent with this conceptualization : (1) A particular state/trait will be encoded in more then one channel. (2) The externalization of states/traits is modulated by situational context, social relationships, and cultural conventions. (3) Different channels might be subjected to different levels of voluntary modulation, as a function of their enervations. (4) Different communication channels are subject to specific environmental distortions or modifications. (5) Some cues might not be perceived, whereas other will. (6) The attribution of an individual's state/trait is modulated by the situational context, social relationships, and cultural conventions. (7) Factors other than perceived cues might lead to attributions of an individual's state/trait.

The lens model is useful, not only as it guides research towards specific questions, but also, as it serves as a blueprint for an empirical causal model of emotion attribution (see Scherer 1978; Hess 1989). For the interpretation or analysis of a communicative process the model highlights the complexity of the attribution process. It is obvious, that the affective state of an individual might be interpreted differently as a function of context knowledge, shared social and cultural norms, previous knowledge of the sender, physical aspects, such as viewing angle, distance, etc. A 'third' person[1], trying to assess objectively the internal state expressed by the sender is subjected to the same processes as the 'second' person. How objective can such an analysis be? How can one assess the perception of the 'second' individual?

The intra- and interpersonal regulation of emotion

Recent research in the intra- and interpersonal regulation of emotion suggests the necessity to revise our understanding of the emotion communication process. Darwin already suggested (1872) that the expression of a particular emotion has a modulating impact on the underlying emotional state. Particularly in the context of facial expression there have been studies to investigate such feedback processes. Space limitations prohibit an extensive review of the current state of the discussion. Suffice it to say that different conceptualizations of the feedback hypothesis have been brought forward. Tourangeau and Ellsworth (1979) have attempted to systematize the notions expressed by different authors and have classified them into three different versions of the facial feedback hypothesis. The *monotonicity hypothesis* states that the relation between internal state and expression is monotonous. Consequently, an inhibition of facial expression will lead to an attenuation of the underlying state. Conversely, an amplification of the expression will bring about an intensification of the underlying state. The *sufficiency hypothesis* states that a facial expression suffices to elicit a particular emotional state. The *necessity hypothesis* states that a facial expression is necessary for the presence of the respective emotional state. In general, there has been repeatedly support for the *monotonicity hypothesis* (see reviews in Izard, C.E. 1990; Manstead 1988; Matsumoto 1987). In a recent study Kappas, McHugo & Lanzetta (1989)

[1] Using the terms encoder and decoder becomes difficult, as a person attempting to analyze the communication process becomes a decoder as well. In this context I refer to the primary interaction partner as the 'second' individual and the person attempting the analysis the 'third' individual.

could show that the inhibiting effects of facial inhibition on subjective experience, as well as on physiological parameters were stronger, then distraction or respiration effects, two popular alternative explanations for findings consistent with the *monotonicity hypothesis*. Support for the *sufficiency hypothesis* is mixed at best and for the *necessity hypothesis* virtually no support could be found. Feedback from posture has been postulated, but no conclusive evidence could be gathered. Vocal feedback has been discussed by different authors, yet due to methodological difficulties no test has been conducted.

The findings pertaining to the facial feedback hypothesis suggest that a model concerning the externalization of emotions should include feedback from these externalization effects. The role of social and cultural norms on expression for the underlying emotional state has been suggested before (e.g., Kleck & al. 1976) and should be explicitly stated in the emotion communication model.

Of more interest to the question of content and discourse analysis are empathic effects, i.e., the transmission of emotional state from one individual to the other. In a series of classical studies Lanzetta and Orr (1981, 1986) and Dimberg and Öhman (Dimberg 1982; Öhman and Dimberg 1978) could show the effects of facial expressions on observers. They could demonstrate observers' tendencies to show facial expressions congruent with those of the observed. Lanzetta and Orr could also show that emotional facial expressions seem to have innate stimulus properties which facilitate or inhibit the acquisition of fear conditioning. These findings are very important in that they make a direct, perhaps, preattentive treatment of emotional expressions plausible. In this case one would expect parallel treatment of observed emotion expressions, once at a preattentive level, and also at a conceptual conscious level. As one is preattentive we might not always be able to understand our reactions to another persons emotional display! In a recent study Kappas, Hess & Banse (1991) could show that making judgements of another persons emotional state lead to increased physiological synchronization. The better subjects were at decoding the stimulus subject's internal state, the higher the correlation between the skin conductance responses of stimulus person and observer. In this study only the facial expression was available to the observers, no sound or context information was given. Higher coincidence of similar facial expressions for trials which were more successfully decoded are consistent with the notion of facial mimicry as a means of emotional synchronization (for a review on empirical research on emotional contagion see Hatfield, Cacioppo & Rapson 1992). If it is true that watching a person's

emotional expressions and trying to decode that person's state leads to an automatic emotional transfer process, then the notion of the 'neutral observer' is questioned. While the analysis of transfer and countertransfer has been a tool to assess a patients emotional state for almost hundred years in the context of Psychoanalysis, this process has no tradition in the context of discourse analysis. Moreover, it seems impossible to objectify such a self-analysis. Rather, it becomes obvious that expressions of emotions might have the power to influence and thus bias the 'third person'.

To summarize the various notions put forward we propose an extended communication model which includes ongoing feedback between two conversation partners, externalization feedback, a direct link between the perception of a sender's emotional state and the state of an observer, in addition to ongoing attribution processes (see Figure 3 below p. 164).

We believe that emotional states are highly communicative and have a direct influence on all interaction partners. This basic mechanism is likely useful in facilitating communication in that it helps to synchronize subjective states and promotes mutual exchange and the 'bonheur conversationnel.'

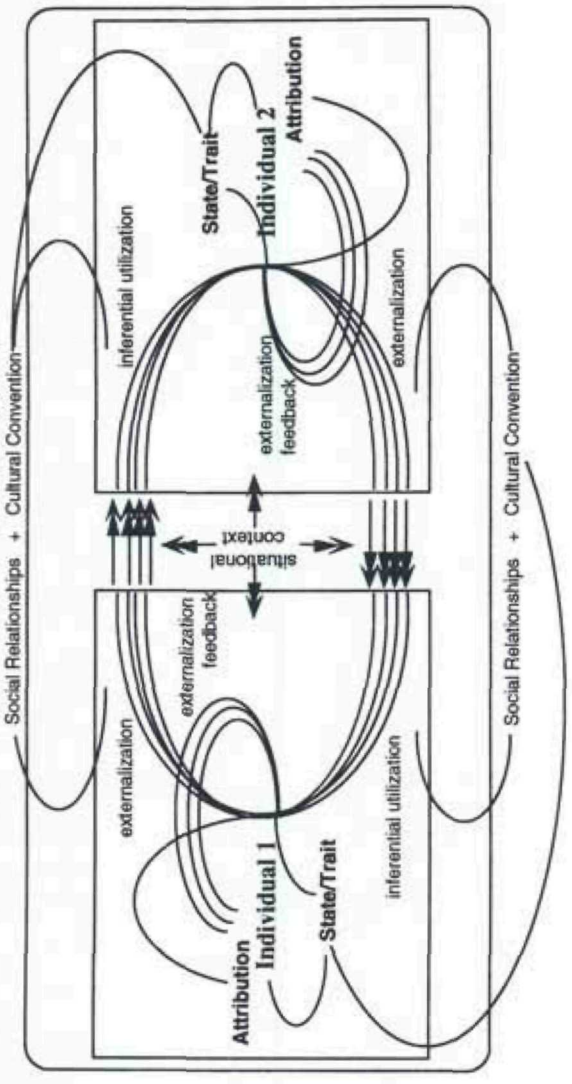

Figure 3 Super lens model

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