

# Empathy, Communication, Deception

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## ABSTRACT

*Empathy is understood as a mode of understanding operating on a subconscious level of mental processing. The cognitive element can only abstractly be distinguished from its affective expression. When recognizing a fellow creature we involuntarily sympathize with it. Recognition of covert motivations of overt behavior is the first step in formation of a communication channel between two (or more) empathizing agents. Yet, since communication evolved in variably complex social environments it was subject to pressure of conflicting individual interests. Deception thus evolved as an adaptive evolutionary strategy. Empathic understanding does not necessarily entail recognition of agent's real intentions. Deception may be achieved on both conscious and unconscious processing levels. A sufficient degree of biopsychosocial maturity must be reached for a child to be able to independently recognize verbal and non-verbal communication fitnesses. Once this level has been attained, the prevailing emotional orientation determines his/her degree of empathizing competence.*

**Key words:** empathy, communication, deception, mirror neurons

## Introduction

There is a growing consensus in the contemporary science of the mind that empathy is a mode of understanding. To be sure, it is a very rudimentary mode of »understanding« occurring typically on a subconscious, »pre-predicative« level of mental processing, and involving not only cognitive but affective states/events as well. The idea of connecting human empathy to understanding and communi-

cation can be traced back to a prominent school of early twentieth century European philosophy (Dilthey, Lipps, Husserl, Scheler, E. Stein, Merleau-Ponty)<sup>1,2</sup>. According to these authors, there exists a special mode of object-oriented (»intentional«) consciousness – called *Einfühlung* or 'empathy' – pertaining only to a particular class of objects of our everyday cognitions/actions: primarily to our

fellow human beings, extendable presumably to some other living creatures too.\* But if we humans really are endowed with a separate mental faculty, enabling us to experience »animate objects« differently from all other things in the world – stones, trees, tea-pots, cars (even artificial minds, for that matter) – what makes the phenomenal difference, and how does it come about?

According to the aforementioned thinkers, the non-voluntary, intuitive »understanding« of an »Other« occurs »through« the observer's experience of Other's physical appearance. Relying on a pre-conscious intuition that the object of our attention possesses mental life similar to our own, we literally *see* his/her/its living body (Germ. *Leib*, in contrast to *Körper*, the purely physical body) *as* a »sign of a mind«. In such an empathic experience the cognitive element can only *abstractly*, i.e., upon reflection, be distinguished from its affective expression. In our every-day encounter with the world, when recognizing a fellow creature we – simultaneously and involuntarily – *sympathize* with him/her/it: we undergo a »feeling for others«, a »fellow-feeling«. However – and this is one of the crucial tenets of »existential phenomenology« – sympathy (also called 'compassion') is not to be thought of as inner-life affair, taking place solely inside our skulls, but rather as an »embodied« type of experience – as a mental event with *bodily manifestations*. It is this feature of empathy that makes it a *prerequisite of both non-verbal and verbal communication*. For, if we wouldn't »wear« our beliefs, desires, and intentions »on our sleeves« – as we typically do – they

would hardly ever be recognized by others.

The mutual recognition of covert mental motivations of overt bodily movements can thus be regarded as the first step in the formation of a communication channel between two (or more) organisms/empathizing agents. My empathizing ability enables me to understand Other's bodily movements *intentionally motivated*, i.e., as »actions« – physical expressions of intentional mind; the same ability enabling the Other to understand my bodily movements in the same manner. It is thereby crucial to note that empathic understanding does not necessarily entail recognition of agent's real intentions. As one can falsely understand a language sentence, ascribing to it false meaning – i.e., false communicative intention(s) of its utterer – so can a piece of behavior be misunderstood too. Moreover, it is sometimes in agent's best interest to *elicit* false understanding of his/her/its actions/intentions, whereby the mechanism of effecting such an interpretation – the *deception mechanism* – does not have to operate on a conscious level. One can deceive unintentionally. Whether such unconscious deception involves a kind of self-deception is another, more complicated matter.

It is striking how many of the philosophical insights into empathy, understanding and communication anticipate, and are congruent with, contemporary research in brain and behavioral sciences. It is moreover obvious that full appreciation of the importance of empathy for communication should have consequences for the communication theory. On the other side, in the broad framework of cognitive science, embracing a host of very different

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\* This type of consciousness was considered to be *the* distinctive feature, of human mental life – a fact that, as indicated by some philosophers (e.g., Dilthey), was bound to have methodological consequences for all the disciplines dealing with humans and human products. It is this methodological autonomy of the human sciences or – to use the original term – »mind sciences« (*Geisteswissenschaften*) that served – and still serves – as a justification for their sharp differentiation from the natural sciences.

disciplines, the scientists' efforts are centered on three, mutually related, groups of problems: 1) evolutionary origins of the phenomenon<sup>3,4</sup>; 2) its developmental aspects<sup>5-7</sup>; and 3) its neurobiological underpinnings.<sup>8-14</sup> It should be noted that this research is to a great extent complementary to *ethical approaches to empathy*: to those analyses and explanations that treat empathy as a morally relevant concept – both from a proscriptive (normative) and the descriptive (factual) point of view.<sup>15</sup> This is not surprising since there is growing evidence for the hypothesis that acquiring a »sense of others«, as a principal moral virtue and a cornerstone of social life, is but a higher developmental stage of »primitive« empathic affects encountered both by several mammalian species and human infants. Evolutionary biologists, evolutionary psychologists, ethologists, philosophers of biology, and other students of behavior share a conviction that the study of empathy presents an important appendix to the game-theoretical approach to the notorious problem of altruistic behavior. What these scientists actually hope for is that their research will provide a missing link to the explanation of conditions under which cooperative behavior could have, or perhaps even has, evolved.

Although there are obvious and non-trivial differences between the two mentioned approaches to empathy – starting from the fact that contemporary authors define empathy in much more precise (i.e., empirically verified) terms than the ones employed by the early 20<sup>th</sup> century philosophers – there remains a shared aspect of this notion latently present in both intellectual traditions. In order to capture the common element, we will understand empathy in a rather broad sense:

as a *non-voluntary, sub-conscious process of »affective understanding« of other's mental states/events, in respect to a particular situational/behavioral context*. Despite its vagueness we find this characterization suitable for the purposes of this paper.

There is an apt metaphor that has gained popularity in recent literature – the metaphor of »mind-reading«. Used more or less as a technical term, this expression refers to the *cognitive aspect of empathy*. Our ability to recognize, predict and affect intentions and, *ipso facto*, behavior of others (the »others« not necessarily belonging to our own species) is a fairly universal evolutionary adaptation, a faculty that adult humans share not only with newborns of their own species, but with adult members of certain other species too. While there is little disagreement about the adaptive advantages of possessing mind-reading abilities (the most important advantage consisting in taking up an »intentional stance« in relation to a kin organism, instead of a far more impractical and far more costly »physical« or an intermediate »design stance«), the way this faculty actually works – with special regard to the recently established neuro-anatomic constraints – is a matter of heated debates. Among a host of different attitudes and models, two principal positions can be discerned: the »theory-theory« (TT) and the »simulation-theory« (ST).

TT is based on an assumption that all humans, and presumably some other mammals too, possess a kind of primitive, »naive« conceptual system – a *theory of mind*, as it were, also known as »folk-psychology«<sup>\*\*</sup>. This »theory« is comparable to an analogous implicit »theory« of the

\*\* The basic entities of this »theory« are beliefs, thoughts, wishes, hopes, desires, envies, etc. Since these different »attitudes« can be expressed (represented) through the same representational form – the form of a language-like entity known as »proposition« – they are called »propositional attitudes«.

physical world – the *common sense physics*. As a naive physical theory enables us to understand, and successfully navigate through, the every-day world of material objects, a theory of mind enables us to understand and navigate through a more complex world – the world of social relations. Although the »two worlds«, the physical and the social world, are but two aspects of organism's unique (bio-physical) environment, the later world is impenetrable by exclusive use of principles pertaining to the former one. With regards to the deeper, sub-personal level of mental processing, both »theories«, however, are employed according to the same scheme: the »quasi-theoretical« (and pre-theoretical) understanding and/or prediction of other's mental states is part of a *tacit inference procedure*. The covert mental entities and their relations serve as an implicit logical basis of the inference process, which then – by use of variety of (also implicit) assumptions and principles – advances to overt behaviors. Such an inference procedure is (logically) isomorphic to what happens in typical cases of a scientific explanation or/and prediction – i.e., in cases of explicit inference from invisible entities and principles to an observed or/and expected (physical) event.

By contrast, the simulation-theory construes mind-reading as a *sub-conscious simulation routine*, whereby the mind-reader (empathizer) understands and predicts the target agent's actions by virtually *simulating* their mental correlates: by »mirroring« agent's intentional experiences as if it were his/her own. The important point is that such simulation does not require any kind of sophisticated conceptual (»representational«) system, as is assumed by the theory-theory. As one of the proponents of this approach to empathy states:

...the implicit, automatic, and unconscious process of motor simulation ena-

bles the observer to use his/her own resources to penetrate the world of other without the need for theorizing about it, without the need to necessarily use propositional attitudes<sup>16</sup>.

After these, mostly philosophical preliminaries we want to take a closer look at the phenomenon of empathy from a psychological and evolutionary perspective. However, as it would be both too ambitious and space consuming to deal with all its subtleties, we will concentrate on the most important developmental and communicative aspects of empathy, with a special emphasis on its relation to deception.

### Developmental Aspects of Empathy

According to Thompson, »there is a large amount of evidence that human infants possess, at birth, interpersonal body schemas for *emotional contagion* and *facial imitation*, and that these schemas underlie the development of more sophisticated emphatic abilities«<sup>1</sup>. Hoffman has proposed a useful »scheme for the development and transformation«<sup>15</sup> of a very primitive, non-voluntary reaction, which he calls »empathic distress«. In particular, he suggests that the development of the reaction »corresponds to the development of a cognitive sense of others«. According to him, there are four stages of this development:

- fusion, or at least a lack of clear separation between the self and the other;
- awareness that others are physical entities distinct from the self;
- awareness that others have feelings and other internal states independent of one's own; and
- awareness that others have experiences beyond the immediate situation and their own history and identity as individuals.

It is interesting that students of animal behavior, primatologists in particular, report a mental/behavioral pattern, called »emotional contagion«, corresponding roughly to early developmental stages of the cognitive sense of others in humans. De Waal for instance, defines emotional contagion as »total identification without discrimination between one's feelings and those of the other«. It is important to add that reaching a cognitive stage of empathy in humans does not imply a loss of its emotive component embodied in »emotional contagion«<sup>4</sup>. In fact, the development of the cognitive aspect of empathy »parallels the occurrence of authentic moral emotions of sympathy and compassion in which we feel genuine concern for the Other«<sup>1</sup>.

Emergence and expression of the cognitive aspect of empathy is related to the *self-concept*. In regard to this kind of conceptual consciousness, it is possible to divide the development of empathy into two major stages. The first stage is the stage of mirroring other's emotional reactions. This stage lasts approximately until the end of the first year of life and is characterized by infant's imitation – mostly on a purely physiological level – of overt emotional expressions of others. The infant »cries« while observing someone else crying, or merely mimics the tear-wiping hand motions. However, children of this age are unable to fully conceptualize the causes of the observed behavior (e.g., crying) – the emotional states experienced by others. A common psychological explanation for lack of such understanding makes use of the fact that infants, before reaching their first year of life, perceive themselves as semi-detached from the environment, and consequently do not possess a full-blown self-concept. The mimicking behavior thus allows them to develop a repertoire of »compassionate reac-

tions« triggered by *perception of others' overt emotional manifestations*.

The onset of the second stage coincides roughly with the end of the first year of life. Acquiring an elementary self-concept enables a child to recognize the tone and the intrinsic causes of emotional reactions of others. This ability facilitates active empathic intervention and potential assistance in dealing with emotions that children of that age discern on a manifest level. One such emotion is sadness expressed through crying which – at this developmental stage – evokes a corresponding »emotional meaning« that may in turn elicit empathic reaction expressed through consolation, support, offering toys, physical contact, etc. Empathizing on this level presupposes a prior experience of similar emotions, which in turn requires a developed self-concept.

In the course of maturation, ever more precise, fine-tuned recognition of emotions, i.e., of cues indicating the inner life of another person, take place. As several psychological and interdisciplinary studies have indicated, the degree of successfulness in recognizing emotions, both one's own and others', is a function of chronological maturation age. These findings are not surprising, since emotion recognition requires higher cognitive skills like introspection, reflection, or (in cases of verbal expression of such experiences) linguistic competence. As results of various other studies suggest, it is difficult to demarcate developmental phases of emotion recognition, on one side, and adjustment to one's social environment, on the other. Already in an early stage, there are significant individual differences regarding the child's ability to recognize and name its own emotional states and relate them to emotional states of others. In addition to the individual's innate cognitive potential, key roles in the development of empathy are played both by upbringing and the environment. According to a

study Barnett, King and Howard<sup>17</sup>, the strength of empathic reaction depends on whether a child was instructed to pay attention to the emotional reaction(s) that his/her actions elicited in another child (»look, you were naughty to him and now he is crying«) as opposed to being subject to a commentary of his/her action (e.g. »that was naughty«). It is thereby critical to measure the intensity and the mode of induction, and to be sure that the caretaker's/experimenter's comment does not turn into overall criticism (»you are a bad boy«) or threat (»next time you do such a thing you will be punished«). For, as results of a study performed by Radke-Yarrow et al.<sup>17</sup> suggest, in cases when inadequate induction modalities like criticism or threat are applied, the desired reaction (empathy) could be overshadowed, or even eliminated from the mental/behavioral repertoire, by feelings of fear, sorrow or remorse.

However, there are certain controversial findings related to the development of empathy. Most interdisciplinary and cross-cultural studies indicate that empathy functions as a facilitator of altruistic and as an inhibitor of aggressive behavior. On the other side, there are studies<sup>18,19</sup> suggesting a positive correlation between aggression and pro-social and empathic behavior in kindergarten kids. According to one interpretation, aggressive behavior of kindergarten children (especially boys) is a phase in development of assertiveness and a positive self-concept, in terms of taking one's place in the society of peers, and cannot therefore be identified with the usual type of aggressive behavior in the sense of a voluntary and planned infliction of pain or injury. This interpretation is corroborated by results of studies performed on pre-school children showing a negative correlation between aggressive and pro-social behavior. As it is assumed, a higher level of social sensitivity and recognition

of negative aspects of aggressive behavior have already been internalized by this age. Additional support for this explanation comes from children's own verbal reports: children claim to have recognized their own aggressive behavior, and/or the aggressive behavior of others, labeling it as »inappropriate reaction«.

So, generally speaking, regardless of individual differences within each developmental phase, for a child to be able to independently recognize communication finesses in both verbal and non-verbal communication, i.e., to exhibit an adequate degree of empathic skill, sufficient degree of physical and psychological maturity must be reached. Once this level has been attained (typically about school age), it is the prevailing emotional orientation that determines the degree of empathizing competence. In another study<sup>20,21</sup> school children were confronted with two sets of videotaped emotions – one set consisting of expressions of euphoric (e.g., happiness, pride), the other of disphoric emotions (e.g., fear, anger, sorrow). Children who empathized more with the euphoric set were the ones who were described by their parents and teachers as less socially adapted and non-emphatic, and by themselves as aggressive. On the other hand, children who empathized more with the disphoric set were the ones who generally exhibited a higher level of understanding and tolerance, and a lower level of aggression towards their peers, teachers and parents. In this study, special attention was given to »less empathic children« who were subsequently trained to develop social skills and methods of peaceful resolution of conflicts. The results, corroborated by a number of independent studies, indicate that through appropriate training it is possible to achieve a significant and constant progress in all measured values over a relatively short time period (from few weeks to several months). We can thus conclude



that empathy is learned and acquired through positive reinforcement. Children who exhibit higher levels of empathy as we defined it are generally better accepted by their peers as well as their social environment – parents, teachers and others.

As to the expression of empathy in adults, research findings are rather controversial. They suggest the existence of significant individual differences in functional conditions and contexts that elicit pro-social behavior. Empathic potential may be studied either directly: through situational field research, or indirectly: by measuring personality dimensions that are negatively associated with empathic ability. The same applies to those dimensions of personality that elicit empathic behavior, or at least provide situational contexts for expression of such a behavioral pattern. In a study conducted in three different settings: in a city, a smaller town, and a village, respectively, traits such as rigidity, inadaptability, deriving pleasure from mocking and insulting others – a set of traits generally referred to as »psychoticism« – have been negatively correlated with empathic ability. Extraversion or sociability, on the other hand presuppose a pro-social and cooperative behavior: increasing the number of social contacts increases the likelihood of empathic reaction. In addition, it has been shown that cognitive abilities are a significant differential factor related to expression of pro-social behavior in boys. It seems plausible to expect people living in smaller communities to be more sociable and extraverted than those living in cities or towns, since the former are considered to be less alienated from each other and more integrated into the social matrix. However, a recent pilot study conducted by one of the authors (2001/2002) of male population ranging from 16 to 60 years of age conducted in several villages, in a small town, and a city, respectively, found no significant difference, neither in

extraversion nor in intelligence, in respect to subjects' dwelling place.

### Communication and Deception

It has already been assumed that communication should not be modeled exclusively according to its linguistic guise; the concept should rather be extended to cover a whole spectrum of different types of behavior, both verbal and non-verbal, of different kinds of systems. If this approach is sound – if »communication that can be achieved by use of language is not a typical but a limiting case«<sup>22</sup> – what is then the common denominator of various types of communicative interaction, both linguistic and non-linguistic?

According to one of the most influential theories<sup>7</sup>, for behavior to be described as 'communication' it is not only necessary that some effect in the addressee be produced (by her/his/its understanding of the content of the message), but also that the *communicator's intention to produce this effect be recognized*. (These two necessary conditions *taken together* are assumed to be sufficient for communication to take place.) It is thus irrelevant whether the intention is produced by verbal or non-verbal means.

Bearing this in mind, and endorsing the above definition of empathy as affective understanding of other's behavior *as action*, i.e., *as intentionally motivated*, we will take empathy to be a necessary condition for understanding intentions in general, and *communicative intentions* in particular. As some authors argue, there is a straightforward evolutionary pathway leading from recognition of other organism's actions – intentional modes of behavior – to recognition of a particular subclass of actions – those with *communicative intent*<sup>23</sup>. In the early stages of this (phylogenetic) development, overt bodily movements – gestures – were presumably the most efficient ways of expressing

such intentions. Later, in the course of evolution of human brain, the role of gestures was supplemented, and eventually almost entirely substituted by, systems of oral signs with special syntactic properties enabling an unprecedented expansion of individual's expressive capacities. However, the occurrence of speech had no consequences for the basic functioning of the communication process. For understanding of both gestures *and* speech the recognition of gesturer's/speaker's (communicative) intentions is unavoidable. Such recognition in turn requires corresponding mind-reading (empathizing) abilities. For, as it can aptly be illustrated by a variety of examples, our understanding of »objective meaning« of the used signs (in typical cases) does not suffice for efficient decoding of a gesticulatory or a verbal message. It is the »gesturer's/ speaker's meaning« – what he/she intends us to understand – what we have to recognize – i.e., empathize – in order to get the message right (especially in cases of highly ambiguous messages).

In short, empathy should be viewed as a prerequisite of communication. The intricate neurophysiological pathways involved in empathic evaluation of the observed, preempt communicative behavior and provide it with an initial set of evaluations regarding the probabilistic intentions of the observed entity. Thus, it aims to provide active advantage to its user, enabling it to respond to another's intention before overt action.

Citing Grammer, Filova & Fieder, communication is »[...] the transfer of information between two communicative units«<sup>24</sup>. The basic element of this process – information – is the smallest semantically significant data set. As the sender – any entity that sends and encodes a signal – prepares to send the information, it opens a communication channel or medium for sending signals<sup>25</sup>. The channel may be a single medium, or several media

operating simultaneously. Communication may thus occur through any single, or a combination of auditory, visual, tactile, olfactory or gustatory channels. Once selected for sending, information is encoded and sent through the channel as a signal (i.e., message). As it detects the signal, the receiver decodes it by adding information to it. Through the process of decoding, the receiver extracts the information contained within the signal. However, as signals are exchanged between the sender and the receiver, the reception and decoding processes depend on the amount of noise – stimuli interfering with the reception of a signal<sup>25</sup> – present in the communication channel. It is important to note the difference, as well as interdependence between the semantic content of a signal and its contextual meaning. While semantic or content level of communication refers to the explicit meaning of the signal (i.e., the meaning of encoded information), the relationship (i.e., contextual) level of communication is the implied or inferred meaning of the signal influenced by physical, psychological, social, and temporal factors.

The role inter-organism communication played through evolution is probably matched in importance only by the inherent principle of genetic variation creating the variety of life on the planet. Indeed, one cannot overlook the fact that communication, in one form or the other, is present in, and constitutes an essential element of, most psychological, physical and/or sociocultural processes. In humans, communication generally refers to sender(s) stimulating meaning in the receiver(s)<sup>24</sup> while in a broader ethological context; it refers to inter-organism exchange of information, using evolved purpose-specific signals that influence organisms' behavior<sup>24</sup>.

Yet, since it evolved in variably complex social environments, communication was subject to pressure of *conflicting in-*



*dividual interests*. The most adaptive strategy of reaching a disputed goal was »going around«, rather than against opposing individual(s) since it involved reduced risks of injury. *Deception* – an organism's ability to disguise its underlying intentions through creation of misleading content in a given context of communication, resulting in generation of a misleading neuronal template<sup>\*\*\*</sup> by the receiver – is what transfigured mere information transfer into a powerful tool of *cognitive-behavioral manipulation*. Deception thus evolved as an adaptive evolutionary strategy. In order to be successful, the sender had to minimize the expression of deceptive cues to reduce the chance of receiver's recognition of deception and potential counter-deception<sup>26</sup>. Furthermore, since accusation of deception (based on receiver's recognition of the sender's deceptive cues) was inherently hazardous<sup>27</sup> while deception as a means of cognitive-behavioral manipulation was highly beneficial, self-deception developed as a means of reducing the expression of deceptive cues based on the sender's cognitive awareness of the act<sup>28,29</sup> thus shifting the emphasis of deceptive communication to the *unconscious level*.

Communication occurs on both conscious and unconscious level. On the latter level, senders manipulate psychophysiology of the receiver by means of deception. Affect responses are triggered by minimal stimulus inputs and involve almost no cortical-cognitive processing<sup>30</sup>. Deception may therefore take place on the unconscious level of communication –

i.e., bypassing potentially conflicting cognitive content and reducing cortical-cognitive leakage cues – while being swiftly and more directly communicated through unconscious affect display cues governed by the limbic system. The less deceptive stimuli are cognitively processed (i.e., the stronger they are attached to phylogenic limbic affect display cues), the stronger will the deceptive effects be. Deception is more successful if communicated via unconscious affect display cues governed by the limbic system since it does not invoke the expression of potentially revealing cues associated with cognitive processing of deceptive information, e.g., stuttering, fidgeting, pupil dilation etc<sup>28</sup>.

In evolutionary terms, an organism's ability to manipulate others' behavior enhances the organism's adaptive problem-solving ability and increases its fitness.<sup>28,29</sup> Ability to deceive therefore carries significant adaptive value. Thus, we hypothesize that the use of evolved psychophysical mechanisms of deception operating on unconscious (i.e., limbic-affective), rather than conscious (i.e., cortical-cognitive) level presents the basis for value inculcation. The significance of unconscious communication lays in the fact that it stimulates meaning on a subliminal level, allowing for potential inculcation of values without the cognitive awareness of the receiver.

Thus, not only does ability to deceive carry adaptive value, but so does the capacity to be (self-) deceived. Furthermore, psychopathologies marked by unusually high (e.g., anxiety disorders) or unusually

\*\*\*For the purposes of this overview, the term *neuronal template* will be used to denote a reactive nerve cell assembly created through repeated presentation of trigger stimuli, and providing the basis for neurophysiological and behavioral activity. *Dogmatic neuronal template* denotes a neuronal template allowing exertion of only highly limited neurophysiological and behavioral activity. The definition of dogmatic neuronal template is based on *dogmatism scale* developed by M. Rokeach (1956) intended to measure closed, »authoritarian« or »anti-democratic« attitudes expressed in various social groups, based on the wording most commonly used in their communication. Dogmatic (i.e., indoctrinated) neuronal templates are closed in a sense that they allow exertion of only certain specific neurophysiological and behavioral activity. Dogmatic neuronal templates are neurophysiological basis of indoctrination.

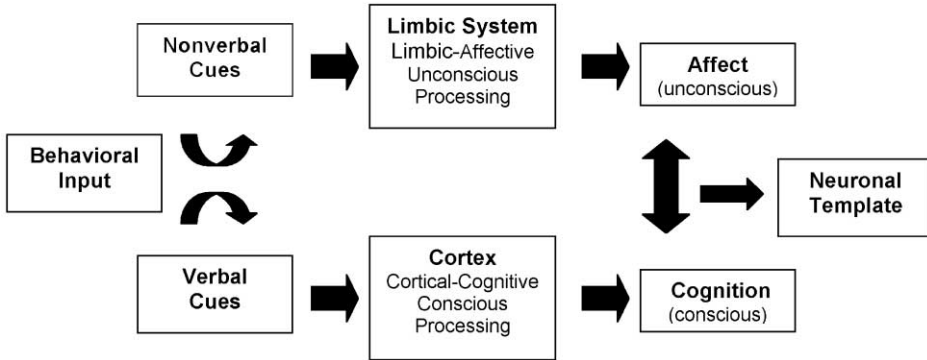


Fig. 1. Schematic representation of the two-pathway theory of communication through empathic understanding of Other's behavior.

low (e.g., depressive disorders) capacity for self-deception should account for increased ability to deceive and decode deception, respectively.

Since adaptive value of deception depends on it not being discovered and counter-acted, deceptive cues should be faster and more successful if communicated via phylogenically hard-wired, unconscious affect display cues governed by the limbic system. The advantage of communicating deceptive signals unconsciously is that it avoids expression of leakage cues stemming from cortical-cognitive (i.e., conscious) processing of deceptive information. As Ekman and Friesen<sup>31</sup> argue, affect displays constitute primary means of social interaction. The importance of affect in communication lay in its phylogenetic predating of verbal communication observed in higher primates (e.g. chimpanzees) and further supported by findings of Ekman and Friesen of universal, basic facial affect displays (sadness, anger, disgust, fear, interest, surprise, happiness)<sup>32</sup>. Affect displays include a range of nonverbal behaviors such as proxemics, oculosics, kinesics, vocalics, etc. where kinesics (i.e., gestures and movements) has been shown to be related to

intent and physiological parameters of communication<sup>24</sup>.

Communication process gives rise to deception as an important element in generating and maintaining one's *adaptive communicational advantage* over his/her potential competitors. As Dawkins and Krebs propose, presenting intentions in a communication may be a costly mistake, since the intentions of one organism may be diametrically opposite from the intentions of another organism<sup>34</sup>. Thus, a conflict situation may arise from presentation of these conflicting goals. In describing the importance and role of deception, one must bare in mind that both natural and social setting are structural elements constituting the *environment of evolutionary adaptedness (EEA)*<sup>34</sup>. As Cosmides and Tooby define it:

*EEA is not a place or time. It is the statistical composite of selection pressures that caused the design of an adaptation. Thus, EEA for one adaptation may be different from that for another.*<sup>34</sup>

Thus, in evaluating the evolution of inter-organism communication, one is confronted with the single functional principle – EEA. Communication and deception should, due to their great adap-

tive value, be highly determined by the EEA. This point is taken a step further when discussing social environments marked with conflicting interests of individual organisms inhabiting them<sup>35</sup>. Therefore, an adaptation to the social aspect of the EEA, in which a great deal of the organism's well-being and prospects of maintaining favorable contingencies for survival and reproduction, depending on its communication with other members of the group, would be a necessity. These organisms would therefore need to develop a means of concealing their intentions or any psychophysical features that might negatively reflect on (a) the achievement of a short-term goal and (b) the chances of reproduction in the long run. Having the EEA principle in mind, deception is merely an adaptive response to the demands set upon an individual organism by the environment. Just like various species (e.g. *Hyla arenicolor*, or the canyon free frog)<sup>36</sup> develop highly adaptive cryptic coloration allowing them to blend with the environment and thus escape the predator, the rules of social interaction and communication produce avid examples of deceptive behaviors allowing the organisms applying them to conceal their intentions and thus bypass potential goal-inhibiting social-interactive obstacles (e.g. the *Head Akimbo*)<sup>24</sup>. Deception therefore creates an obvious adaptive advantage for the sender (e.g., misleading a potential foe), connecting it directly to the probability of the organism's goal achievement, successful reproduction and survival. As Grammer and others propose, situation in which communication is a function of deception defines the *communication paradox*:

*The manipulative component of a signal has to force the receiver into a certain state where he is willingly accepting the goals of the sender, preferably without recognizing that he was manipulated.*<sup>24</sup>

As the EEA logic dictates, the ultimate goal of deception is to misinform the organism's potential foe(s). Ultimately, that would mean that the more an organism deceives its potential foes or rivals, the lower the probability of the foes' or rivals' endangering the underlying intentions of the organism, and the greater the organism's adaptive gain from deceptive behavior. We may thus conclude that the ultimate goal of deception could be the *generation of a dogmatic neuronal template through persistent exposure to deceptive signal(s)*. Emergence of complexity in social relations – from individual, over family, to population levels – invariably dictates the emergence of strategies and counter-strategies aimed at increasing individual/group adaptation to a new social matrix. Furthermore, developing complexity of socio-cultural relations, the resulting adaptive strategies and the summary influence these will on the environment form a system wherein manipulation of a single or a set of variables will influence the yield of the system<sup>37,38</sup>. In very much the same way, these trends will be manifested in inbreeding within populations as well as prevalence of various diseases within isolated populations<sup>39</sup>.

As Nesse and Lloyd argue, deception and self-deception (i.e., psychodynamic mechanisms) are highly adaptive strategies that evolved as a response to the need for maintaining reciprocity and long-term relationships<sup>40</sup>. They argue further that psychodynamic mechanisms (e.g., repression) developed as means of reducing the relative importance of perceptions that could have negative effect on the maintenance of reciprocity or long-term relationships. Thus, one may summarize this perspective in three lines: people deceive each other, deception can be detected, and self-deception (e.g., repression) assists in deceiving others<sup>40</sup>. In other words, if one is able to deceive oneself to

the point of believing (i.e., repressing maladaptive cognitive material), one will be more successful in deceiving others since he/she will display fewer nonverbal leakage cues.

## Discussion

Leaning on both historical and contemporary theories, we have assumed that empathy is a mode of pre-conscious understanding – understanding of an agent's intentionally steered behavior. In fact, mutual recognition of covert mental motivations of overt bodily movements can be regarded as the first step in the formation of a communication channel between two (or more) empathizing agents. Empathic understanding does not necessarily entail recognition of agent's real intentions. As one can falsely understand a language sentence, ascribing to it false meaning – i.e., falsely understanding what the communicator has intended us to understand – so can an agent's behavior be misunderstood too. Moreover, it is sometimes in agent's best interest to elicit false understanding of his/her/its actions/intentions, whereby the mechanism of effecting such an interpretation – the deception mechanism – does not have to be consciously controlled. Based on empirical evidence reported in the current literature, we have shown how deception may be achieved on both conscious and unconscious processing levels. While conscious processing requires information to be repeatedly presented to the host, until it becomes »rationalized« as the »most important«, referential instance of information, unconscious processing makes use of evolved affect display cues. Pairing affect

display cues with communicated information allows it to be processed unconsciously by the limbic system.

The emergence and expression of the consciously controlled empathic ability is related to the *self-concept*. In regard to this kind of conceptual consciousness, it is possible to divide the development of empathy into two major stages. The first stage, the stage of »mirroring« other's emotional reactions, lasts approximately until the end of the first year of life and is characterized by infant's imitation – mostly on a purely physiological level – of overt emotional expressions of others. The mimicking behavior thus allows them to develop a repertoire of »compassionate reactions« triggered by perception of others' overt emotional manifestations. The second stage coincides with the end of the first year of life and entails acquisition of an elementary self-concept enabling a child to recognize the tone and intrinsic causes of others' emotional reactions. Generally speaking, regardless of individual differences within each developmental phase, a sufficient degree of physical and psychological maturity must be reached for a child to be able to independently recognize communication finesses in both verbal and non-verbal communication. Once this level has been attained (typically about school age), it is the prevailing emotional orientation that determines the degree of empathizing competence.

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## **EMPATIJA, KOMUNIKACIJA, OBMANJIVANJE**

### **S A Ž E T A K**

Empatiju shvaćamo kao način razumijevanja koje se odvija na podsvjesnoj razini mentalnog procesiranja. Spoznajni elementi empatičkog razumijevanja mogu se tek apstraktno odvojiti od emotivne reakcije za koju su vezani. Prepoznavanjem srodnog nam bića mi ga nesvjesno prepoznamo tj. suosjećamo s njim. Prepoznavanje skrivenih motiva promatranog ponašanja prvi je korak u otvaranju komunikacijskog kanala između dvije (ili više) jedinki. No, budući da se komunikacija evolucijski razvijala u složenim društvenim okolišima, bila je izložena selekcijskom pritisku međusobno suprotstavljenih pojedinačnih interesa. Tako je nastalo obmanjivanje (decepcija) kao evolucijski adaptivna strategija ponašanja. Empatijsko razumijevanje, dakle, ne podrazumijeva prepoznavanje stvarnih namjera jedinke – varati se može svjesno i nesvjesno. Ontogenetski gledano, važno je postići potrebnu razinu biopsihosocijalnog razvoja koji već u dječjoj dobi omogućava neovisno prepoznavanje finesa verbalne i neverbalne komunikacije. Nakon postizanja tog stupnja biopsihosocijalnog razvoja, empatijski potencijal pojedinca ovisit će ponajviše o njegovoj/njezinoj dominantnoj emotivnoj orijentaciji.