

A Closer Look at Gaze

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ABSTRACT

In this paper, we describe the formatting guidelines for ACM SIG Proceedings.

Categories and Subject Descriptors

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General Terms

Human Factors, Languages, Theory.

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Gaze, Embodied Conversation, Conversation Analysis, Pragmatics, Linguistics.

1. INTRODUCTION

The ‘functions’ of gaze in conversations have been amply discussed in the literature. From these studies one can distill an extensive list of functions. The following list of functions taken from the literature¹ is far from complete, but it shows the variety of factors involved in gaze behaviour. Gaze behaviour has been observed to play a role in indicating addresseehood, the display of attentiveness, effecting turn transitions and in requests for backchanneling. When doing a word search a typical gaze pattern may occur. Gaze behaviour may reflect the social status of the participants. Looking away is often used to avoid distraction, to concentrate, or to indicate one doesn't want to be interrupted. One looks to another person in order to get cues about mood and disposition and to establish or maintain social contact. Gazing away may also reflect hesitation, embarrassment or shyness. Gaze can be used to locate referents in abstract space.

Many of the functions are related to interaction regulation on various levels; from interaction management to interpersonal relation management. Using gaze people establish and maintain contact. The list also shows that both cognitive and social processes play an important role.

The reason we want to take another look at gaze behaviour is not to come up with another function of gaze that has been overlooked but to consider the question how it is possible that the literature on gaze suggests so many functions. How do all these functions come about? The various functions are not unrelated and the aim of this paper is to attempt to show some of the ways in which they are related. We hope to do this by characterizing them in terms of a general framework in which the nature of conversation as a coordination process is taken as basic thereby explaining the functions in a more principled way.

¹ X, y and Z in this case.

One of the factors determining the multitude of function has to do with the way conversation is a type of joint activity that proceeds on multiple levels. On each of these, gaze plays a role as a coordination device. The power of gaze to play a role in ‘engagement/disengagement’, in showing liking or the role it plays in the social “bonding” process is built on the more primitive functions of lower levels. Although the gaze behaviors of participants in a conversation have been studied in quite some detail, it is interesting to take a closer look at the patterns that have been described and to relate those observations to primary processes in conversation explaining in part the relations between the various functions of gaze. In Section 3, we try to show how various functions of gaze are built on top of each other. The analysis is taken up again in Section 4 but now by presenting elements of a general framework in which the behaviours and functions of gaze are shown to find a place. First, we consider some background and motivation for this research, in Section 2.

2. Background

This study on the way gaze functions in communication processes is part of a more general research programme that deals with the simple but intriguing issue why people move their heads in conversations the way they do. In the paper “Challenges Ahead” [REF] a start was made to put the various observations and studies on head movements during conversations in one general framework. In this paper we will look at more detail on one important contributing factor: gaze.

The following pictures (Figures 1a-c) give an idea of what is involved in this question. They show the result of tracking the nose of two persons talking to each other in the context of a multi-party conversation. In the first picture we see the end of the shot showing the host of the TV programme *B&W*, Witteman (W)². If one traces back the white line from his nose to the point where the line started, one can get an idea of the head movements W displayed in this shot, while he was talking. The second picture shows the person whom Witteman is talking to, Blaauw (B), who is listening. This picture shows him at the beginning of the shot which starts immediately after Figure 1a. B will hold his head relatively still for a while. The third picture shows B at the end of the shot. He has started talking at about midway of the shot. One can see how he has swung his head left and right a couple of times and finally ended up with a movement upwards followed by a movement downwards.

² The examples are taken from the programme *B&W* which was shown on October 3, 2003. It showed a discussion about the ethical issues on serving and eating foie gras in restaurants.



Figure 1a



Figure 1b



Figure 1c

Why did Witteman and Blaauw make these movements? Let us start the analysis by looking at the initial and some of the intermediate positions of the head by W. What this reveals is that W both at the beginning (2a) and the end (1a) of the shot is looking towards B. In the starting position (2a), his head is turned to the right³, rotated counterclockwise (say 11 o' clock) and the head is slightly tilted backwards. W's upperbody is bent forward a bit and he has stretched his head slightly in the direction of B.



Figure 2a



Figure 2b



Figure 2c

W's left hand that is pointing towards the viewer in 1a was resting on the table at the start of the shot. The start of the pointing gesture occurred right at the point where W also turned his head to the left. The hand and face in 2b are pointing to another participant in the conversation, Cliteur (C). The movements of hand and head start at the beginning of the phrase "that is also what Professor Cliteur is saying". Interestingly, W keeps his hand in this position till the end of his turn. It is more or less abruptly put down on the table at the start of the final phrase of his utterance. Now, if we turn to B, we see that Figure 1b shows B looking at W and in Figure 1c, B is looking at another participant of the conversation, Van Veluwe (V). Based on these observations we can see that functions associated with gaze constitute a major determinant for movements of the head. put forward some first (well-known) principles governing head orientations and head movements. Participants in conversations orient their heads in the direction of other participants, so that they are able to see them. Speakers will typically look at the person they are addressing or the person they are referring to and listeners look at speakers a lot. So head movements are, in part determined, by the necessity to turn one's head in the direction of the person or thing one wants to look at or want to avoid looking at⁴.

³ We will take the viewers perspective on what is left and right, clockwise and counterclockwise.

⁴ The answer to the question why people move their heads the way they do will also have to provide an answer to the question why participants in a conversation look away from each other.

3. How one thing leads to another

Gaze behaviour has been said to reflect the social status of the participants or to indicate interpersonal attitudes such as liking. The question we want to consider is how is it possible that such a simple behaviour can carry these kinds of functions. In the following paragraphs we point out how general semiotic and conversational processes together with some principles of the multi-level organisation of conversations can help us to explain this to some extent.

3.1 Paying Attention

The first, basic determinant of turning one's head in the direction of another participant has to do with optimising *perception*. When listening, turning the head to the speaker allows one to hear and see the speaker better. When speaking, turning one's head to the listener allows one to be better heard and seen. All of the various auditory and visual signals can be perceived better, those related to what is being said as well as those that relate to cues about mood and disposition of the other participant.

As is well known, listeners are not merely passively absorbing signals but are sending out signals themselves as well, mainly through what is called backchanneling [Yngve]. Therefore the same reasons that motivate speakers to look towards listeners – to be perceived better – motivates the listeners to look towards speakers, in addition to the reason mentioned before. And vice versa, the same reason that motivates listeners to look towards speakers – to perceive the signals better – motivates the speakers to look at the listeners to perceive the backchannels better.

1. S looks at L to see L better.
2. S looks at L so L sees S better.
3. L looks at S to see S better.
4. L looks at S so S sees L better.

Of course taking actions such as orienting the head to increase the quality of perception is motivated by an ulterior reason, viz. because as a listener one wants to attend to the signals that one is perceiving and as a speaker one wants the listener to attend to the signals that one is sending out. So it is not surprising that gaze is commonly associated with *focus of attention*. According to Kendon (cited in [Goodwin]), an individual's perceptual activity within interaction functions in two different but interrelated ways: as a means of monitoring and as a means of regulation and expression. So far we have only mentioned monitoring, the other functions derive naturally from these by common semiotic processes.

3.2 Signalling Attention

In the first place gaze functions as a means of monitoring; a way to perceive visual input. But one kind of visual input that participants in a conversation can receive is the gaze of the other itself. "The fact that you are looking at me combined with my knowledge that people look to perceive and attend, I can interpret as a symptom that you are looking at me because you want attend to what I'm saying." Given that you know that I will read your behaviour in this way, you can use gaze, in turn, intentionally, not only to merely attend to me but to signal your attention to me. So from being a symptom of your act of perception your gaze becomes a signal of attention and interest. Semiotically speaking, the behavior gaze first becomes an index for paying attention, as

the two are causally connected. It is because of this mechanism that Goodwin can analyse the function of gaze as follows.

It will be argued that one way in which a nonspeaking party can indicate whether he is acting as a hearer is by gazing at the speaker. Hearer-ship can of course be demonstrated in other ways [...] A speaker can use gaze to indicate that the party being gazed at is an addressee of his utterance. [Goodwin, p. 9]

Important in this quote is the use of the word “indicate” and “demonstrate”. Gazing can be seen as functioning, more or less, in the first stage as a symptom or natural sign⁵ in Gricean terminology. This is a case of a more general strategy: “Signals are deliberate actions. Some are performed as parts of conventional languages [...], but any deliberate action can be a signal in the right circumstances.” [Clark] as we will see next.

The ability to make such shifts lies at the foundation of communication in general [Castelfranchi]. The effect that one is showing or signalling that one is attending by paying attention through actions that can be perceived by others is built on what [Castelfranchi] calls *behavioral implicit communication* (BIC).

Usual, practical, even non-social behaviors can contextually be used as messages for communicating. Behavior can be communication without any modification or any additional signal or mark. We will call this form of communication without specialized symbols: Behavioral Implicit Communication (BIC). “Behavioral” because it is just simple non-codified behavior. “Implicit” because – not being specialized and codified – its communicative character is unmarked, undisclosed, not manifest, and thus deniable. [...] A lot of social control and collaboration monitoring and coordination, are in fact based on this form of communication and not on special and explicit messages (communication protocols).

Castelfranchi lists the steps “in the evolution from mere practical behavior to BIC and to a conventional sign”. The first step is (1) just behavior. It is merely an action without any signification or communication. In our case: merely looking to observe. The second step Castelfranchi calls “signification” (2) when an agent (x) is just acting as in (1) but another agent (y) observes this and ascribes some ‘meaning’ to this behaviour (x is looking at me - y). At this point the behaviour becomes a symptom (in Clark’s/Grice’s terminology) for y . At this stage, there are two possibilities: either x involved in behavior (1) is unaware of y observing him and attributing meaning to his actions or he does know that y is monitoring him. In that case the attribution of meaning to the actions of x may be a “known but unintended effect” of this behaviour. This is then a case of “weak BIC”. If, however, x intends his behaviour to be observed by y , this counts

⁵ Language use depends on both natural signs and signals. Take natural signs. The sounds I hear mean that the radio is on. The shape of the object my friend is holding means that it is a book. The pitch of a caller’s voice means that he is a man. A speaker’s involuntary hesitation in uttering a word means that he probably had difficulty thinking of, choosing, or pronouncing it in time. Most things have a natural meaning, and these can be important for language use because they are all natural signs that this or that is true. [Clark, 126]

as a case of “strong BIC”. Note however, that x is not trying to ‘mean’ anything beyond what his practical behavior involves. *With a BIC message x intends that the other recognizes her action, and perhaps that recognizes and understands her practical intention motivating the action.* Applied to the case where a listener is looking at the speaker this stage is where the listener is looking with the intention that y notices that x is looking at y .⁶

Such shifts from pure self-motivated action to symptoms, cues and from symptoms to signals occur again and again⁷. In the case of gaze another function that arises in this way is the “request for backchannelling” that Goodwin writes about. As a listener sees the speaker look at him, he may read this as deriving from a need for feedback.

3.3 Regulation

As we mentioned before, Kendon notes that perceptual activity within interaction functions as a means of monitoring, regulation and expression. The first function we discussed in 3.1, the third in the previous 3.2. The regulation function is very important as well.

These functions account in some measure for the positioning of gaze within interaction. Thus, the places where a speaker gazes at his recipient – utterances endings and phrase boundaries within the utterance – are choice points, places where the future action of the speaker is contingent on the subsequent action of his hearer. By looking at his recipient at these points, the speaker can both monitor the recipient’s response and signal that a response is desired (p. 4).

Mutual orientation of speakers and listeners is important at the initiation of conversations, for instance. [Peters], who is concerned with building computational models of agents that may or may not enter into conversations describes a model “where agents are provided with basic attributes encoding their socialrelations with other agents as well as their goals to engage in conversation. Agents cannot access other agents’ conversational goals directly and therefore they do not know if the other agent wants to engage in conversation with them. Rather, agents are endowed with synthetic senses and perception, and must formulate their own theory on whether the other agent wants to converse, based on their perceived *level of interest* in conversing. Level of interest is determined primarily through gaze and direction of intention.”

Gaze is not just important at conversation initiation but at each starts of a turn [Goodwin]. [Goodwin] investigated the various ways in which speaker and hearer achieve a state of mutual orientation at the beginning of the turn. The patterns of gazing towards interlocutors and looking away have shown a strong connection with several coordination management functions or

⁶ It is important to stress that Castelfranchi does not limit BIC to what are typical, communicative, linguistic behaviours but takes any kind of behaviour into account.

⁷ Another, related semiotic process involves copying and imitation. For instance, as a low voice is associated physically with large individuals it can be used to convey the impression of a large signaller [Ohala, 1996].

dialogue control functions: turn-taking and information structure⁸, for instance [REFERENCES].

People do not just enter into conversations without a reason, only to be able to pay attention to each other.

3.4 Intimacy

In “Some functions of the face in a kissing round” Adam Kendon analyses in detail how a young woman on a park bench regulates the actions of her amorous partner solely by her head and facial movements. It shows the power of head movements, amongst other signals to control interpersonal attraction. Factors such as dominance, embarrassment, the appropriate equilibrium of intimacy and various emotional characteristics have been said to play a part in gaze behaviour [Goodwin]. How is this possible?

If two people look at each other it does not automatically mean that they want to initiate a conversation. It certainly doesn't mean automatically that they are engaged in a flirting or kissing round. Gaze does not automatically mean that people are busy creating a bond. People look somewhere because they want to see something. But if two people look at each other this will lead them both to think why does the other look at me which may lead to the further question what does the other person want from me? This can be a good thing or a bad thing. This can be signalled by other means, for instance by different kinds of smiles.



Conversation is a form of social action. People initiate conversations because they want to, they don't just happen. People may want to enter into the conversation for various reasons, one being just to talk, but in all cases they have the desire that the other conversational partner does something as well, listening being one of the actions. But in most cases there is other business to conduct as well.

During the encounter itself, A is concerned with eliciting certain responses from B, or with establishing and maintaining some relationship with B. In order to do this, A needs continuous information about B's reactions to his own behaviour, so that he can modify it if necessary. A may simply want B to like him, or he may have other quite personal motivations with regard to B, or A may want B to learn, buy, vote, or respond in terms of mainly professional goals which A has. In either case A needs to know what progress he is making with B. He may be concerned with B's attitudes towards himself, with B's emotional state, with B's degree of understanding, or with other aspects of B's response. [Argyle: Social Interaction]

A conversation as a whole can be seen as a complete project that the person initiating the conversation proposes to the

⁸ Information structure is part of a general concern with audience design.

conversational partner. (“Sorry to bother you.”, “Excuse me, can I ask you a question?”)

According to the social skill model of conversation that is elaborated in [Argyle], “each person in an encounter is trying to manipulate the other person, in order to attain his own goals.” As one is aware of being the object of intentions, perceptions and attitudes of the others present an important goal of interaction is “self-presentation, that is to create certain impressions for others. However, in order to take account of concern with the other's point of view, this use of an imaginative cognitive model of the other, some addition seems necessary to the social skill model itself.” Self-presentation means presentation of the self for someone else and requires the capacity of a person to take another's perspective. Interpreting gaze behaviours, in general, as signal of attention (or interest etcetera) assumes the cognitive ability to understand others as intentional agents. It is therefore not surprising that gaze plays an important role in the ‘reading the mind in the eyes’ test devised by [Baron Cohen, et al. 1997]. This test⁹ is intended to show how well someone can put himself into the mind of another person and tune in to their mental state. This ability is “the main way in which we can make sense of or predict another person's behaviour” [Baron Cohen et al., 2001]. It is clear that it plays an important role in the semiotic processes described in the previous subsections (witness the attention to these concepts in the papers by [Castelfranchi] and [Peeters]).

4. How Conversations Work

Traditional spoken dialogue systems abstract away from many processes found in natural, face-to-face conversations. They are turn-based, task-oriented and make use of limited input and output modalities. The work on Embodied Conversational Agents is trying to move away from these limitations in several ways. First, by extending the communicational signalling to other modalities with an emphasis on facial expressions and gestures but also posture and gaze. Secondly, by not just taking only a task-centered approach to conversation but by also paying attention to emotion and the social context of interaction as is witnessed by the work on rapport, engagement, long term relations, politeness, and social intelligence. A theme that has received some attention as well is moving away from turn-based systems towards continuous interaction. This all points to trying to model more and more of the intricacies of natural conversations. This more detailed and complex view is needed if we want to account for the many functions of gaze. A better understanding of how conversations work allows them to be viewed from one perspective. In Using Language, Clark, presents a fairly comprehensive view on language use that we have found useful as a reference to understand what is the matter with the function of gaze.

There are three aspects of conversational action that need emphasising. The first is that conversation is a form of joint action. The second that it involves actions on many levels where actions on one level constitute an action on a higher level. The

⁹ In the test a participant is presented with a set of 25 pictures of the eye region of faces of actors and actresses and is asked which of two words describes best what the person is thinking or feeling.

third aspect that we need to pay attention to in accounting for gaze behaviour in conversations is that it involves communication using different means among which are body language and natural language.

Since, Austin's "How to do things with words" a pragmatic analysis of language in terms of the actions that people perform when using language has become a fruitful field of investigation. The logic of conversational action is quite complex. Austin already distinguished between actions on different levels such as the locutionary act and the illocutionary act. This refers to the kind of constitutive relations that abound in conversational activity: people do something by doing something else (illocution: the act performed "in" locuting). Another important features of conversational activity that was stressed in [Clark] is that conversation is a joint activity, i.e. an activity that people undertake together. Their participatory actions only make sense in relation to each other. For instance, the act of speaking is designed with the complementary act of listening in mind. Jointness occurs on all levels. This has important consequences. The participatory actions of the individual participants need to be coordinated properly in order for the conversation to go smoothly. People have to coordinate on (1) the kind of action, (2) the timing of the action. Another important aspect of coordination and jointness of action is that participants have to find out whether there actions have succeeded. Donald Norman refers to this as the need for closure "agents performing an action require evidence, sufficient for current purposes, that they have succeeded in performing it" [Clark, p. 222]. The nature of conversation as a form of joint action, where actions by participants are intended to effect changes in other participants, the evidence needs to be provided by the others, which requires such actions as backchanneling. Actions may only succeed if the other participant performs a complementary action. If the others do not perform this complementary action this may be taken as a cue that the initial action did not succeed.

[36] *One reason joint activities are complicated is two or more people must come to mutually believe that they are participating in the same joint activity.*

Many of the actions that people undertake are designed for coordination, have a conventional form that allow participants to coordinate with or address the coordination explicitly. Utterances are thus operative on two tracks. [...]

Another aspect of the logic of actions in conversations is that most joint actions are composed out of a sequence of smaller actions. In Coulthard and Sinclair's analysis conversations are made up of exchanges which are made up of moves which are made up of turns ... each of these can serve a specific function.

[36] *Most joint activities get realized as sequences of smaller actions, many of which are themselves joint actions. Playing the quarted divides into sections, or phases, each of which divides into subsections and subphases, and so on. What emerges is a hierarchy of joint actions.*

Synchrony of action requires coordination on the entry and exit times to each phase. To achieve synchrony, the participants must be able to project both times from what went before. They should be helped whenever the times are: (1) good reference points – jointly salient moments in time; and (2) easy to project from the previous phases. The participants achieve continuous synchrony, I suggest by means of three main coordination strategies.

Closer to real-life communication as it has been analysed by conversation theorists. Research has realised this but in many cases diffuse model of conversation. We conceptualise in terms of a more unified model based on a perspective on language as social interaction and particularly [Clark] conceptualisation of language use. Benefit: emphasis on social, interpersonal, pragmatics, use, coordination (=matter of content) and provides terminology.

The many functions and determinants of gaze behaviour that have been described in the literature arise from the complexity of conversational interaction. First of all, language is used for doing things. People enter into conversations to get things done.

{parallelism/participatory actions, directed to another, consider for instance: speech act, joint projects, coordination}. Important: communal, interpersonal, social action: not only on a macro-level but also on a micro-level: in the way a conversation and an utterance is organized.

4.1.1.1 Jointness

Language is used for doing things. People use it in everyday conversation for transacting business, planning meals and vacations, debating politics, gossiping.

The important thesis in Clark's book is that language use is a form of joint action. This is a kind of action that is carried out by a collection of people that act in coordination with each other. Language use thus involves social processes inherently. As the joint action is made up of participatory actions of the individuals involved it also involves, clearly individual processes. Therefore language can be viewed from an individual cognitive perspective as well as from a social, interpersonal perspective.

Participants in a conversation pursue many goals at the same time. Besides the "domain" goals or immediate "task" goals, related to the major purpose of the conversation, there are always procedural goals

(“doing all things quickly and efficiently, making clear moves, attending to what is being done”). Participants have interpersonal goals: self-presentation, increasing liking, impressing people, trying not to lose face, etcetera.

Signals

[84] *Phases are what actually get coordinated. A phase is really a joint action with an entry, a body, and an exit [...]. The entry is the moment the participants believe they have entered the action – the tail of the arrow – and the exit is the moment they believe they have left it – the head of the arrow. The body is what they do between the entry and the exit – the shaft of the arrow. The participants have to coordinate on all three features.*

Level 3: signaling and recognizing.

*Joint[A signals to B that p, B recognizes that A means that p]
Subsumes Austin’s locutionary acts and illocutionary acts.*

Level 2.

I signal something to you, in t run, by getting you to identify by behavior as a particular signal – as an act by which I mean a specific thing for you.

Joint[A presents signal s to B, B identifies signal s from A]

Level 1

I present a signal for you to identify, in turn, by executing a bit of behavior specifically for you to perceive – by articulating ...

Joint[A executes behavior t for B to perceive; B attends perceptually to behavior t from A]

Level 4

What am I doing in asking you to sit down – by performing an illocutionary act? I am proposing, suggesting, posing, or putting forward a project for us to carry out jointly – namely, that I get you to sit down.

Joint projects have two parts. In my terminology, the speaker proposes a joint project, and the addressees take it up.

Levels

[149] The proposal here is that in ordinary conversation we have at each moment an action ladder of at least four levels, each level consisting of a joint action.

Coordination & Phases

Conversation: joint action + action ladder + cognitive & social + speakerhood/listeninghood ratification.

Secondly, within conversations actions take place on different levels and on different tracks. This refers to a constitutive relation between actions: one action is made up by another action or group of actions on another level.

Another, related, analysis of these signalling behaviours can be performed in terms of action ladders as they are defined by [Clark]. Clark distinguishes four levels. At level 1 a speaker (A) is *executing some behaviour* for an addressee (B) which involves *presenting a signal (s) that is meant to be interpreted in a particular way (p)*.

And finally, conversation involves the use of a multitude of signifying actions.

Reasons for gaze in the literature that are now explained:

4.1.1.1.1 This involved a number of processes...

Jointness Entering into joint projects/activities.

Roles Ratification of roles.

4.1.1.1.2 Cognitive/Social

Action ladders Attention is needed for the lower levels.

Semiotics.

However, the story does not end here:

More things than mutual gaze are going on in this extract from the discussion, for instance: looking at Cliteur as a way of pointing which can be interpreted as drawing the attention to person to something (see Baron-Cohen: joint attention looking).

If there are good reasons to establish eye-contact during conversations the harder question to answer is then why do participants break eye-contact?

5. Turn away

One can group the reasons for this into two categories (1) there may other things to attend to as well (object, participants, ones own thoughts); or (2) there may be completely other determinants for these movements that overrule the “attention” determinant.

We need to explain the reasons for turning towards and turning away. And we must explain the specific patterns. Hoping that explaining the reasons for turning a way gives us the reasons for the patterns.

Hearers give speakers fairly long looks broken by comparatively brief glances away, whereas speakers alternate looks toward their recipients with looks away from them of about equal length (pp. 27,33).

The looks of the speaker toward the hearer occur at the ends of phrases (p. 40).

At points of hesitation, the speaker looks away from his recipient, gazing back at him when fluent speech is resumed (p. 41); for more extensive analysis of the relationship between gaze and hesitation and the possible relationship of such phenomena to underlying processes of speech production, see Beattie (1978b, 1979).

5.1.1.1 Conclusion

Our analysis of head movements and other actions that people display during conversational interactions are framed in the terminology and conceptualisation of conversations that Clark proposes in “Using Language” and other writings of his hand. The various aspects related to the organization of conversations are worth keeping in mind not only in the analysis of communicative (and partly non-communicative) actions in conversations but also during implementation of conversational agents and their general architecture.

It is not surprising that gazing behaviour carries so many functions. The nature of conversations as a joint activity in which different people have to attend to each other and coordinate their actions performs the basis for the importance of gaze. People engaged in a conversation have to look at each other to monitor each other’s actions. By a common semiotic process these simple behaviours become communicative in their own right. Given that jointness of action operates on several levels, from the presentation of signals to the social and interpersonal actions that are carried out through the more basic levels, the importance of gaze permeates to these higher levels as well.

In this study, gaze will be investigated in terms of specific tasks posed in the construction of the turn at talk. A great many other factors – such as dominance, embarrassment, the maintenance of an appropriate equilibrium of intimacy, various emotional characteristics, and distance between the participants – have, however, also been found relevant to gaze.

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[Castelfranchi]

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[Peters]

[Yngve]

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