



Embodied Actions in Interspecies Communication: A Review from Pragmatic and Interactional Perspectives

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DOI: [10.33329/rjelal.14.2.13](https://doi.org/10.33329/rjelal.14.2.13)



Article info

Article Received: 05/03/2026
Article Accepted: 08/04/2026
Published online: 16/04/2026

Abstract

Communication is often assumed to be realized primarily through human language. However, broader perspectives in linguistics and communication studies suggest that interaction may also be achieved through a range of semiotic resources, including gestures, signals, gaze, touch, and animal vocalizations. In recent years, growing attention has been paid to non-human communication and to communication across species boundaries. In such contexts, embodied actions are especially important because animals do not share human linguistic systems and interaction cannot rely on spoken language alone. This paper reviews previous studies on embodied actions in human-animal communication from pragmatic and interactional perspectives. It first discusses changing views of human-animal communication and the emergence of interspecies pragmatics as a research field. It then examines how embodied actions have been studied from the perspectives of conversation analysis and cognitive pragmatics. The review shows that animals are not merely passive recipients of human behavior but active participants in interaction. Through gaze, gesture, posture, touch, movement, and non-verbal vocalizations, both humans and animals are able to organize interaction, coordinate actions, and achieve mutual understanding. The paper argues that communication should be understood as a multimodal and interactional process rather than as a phenomenon restricted to human language alone.

Keywords: interspecies communication; embodied actions; pragmatics; conversation analysis; multimodality.

1. Introduction

When discussing communication, people often assume that it is primarily realized through human language. Language has long been regarded as a defining feature that distinguishes humans from other species and serves as a major medium for expressing and exchanging thoughts, feelings, and intentions. In traditional linguistics, therefore, communication has usually been examined in relation to human speech and writing.

However, the notion of language can also be understood in a broader sense. Communication is not limited to spoken or written verbal forms but may also be achieved through other semiotic resources, such as gestures, signs, sounds, gaze, and bodily movement. With the development of modern linguistics and communication studies, increasing attention has been paid to multimodal communication and to the role of non-verbal resources in interaction.

In recent years, research on animal communication has attracted growing scholarly interest. Early studies often focused on communication among non-human species, especially primates, in order to explore the evolutionary origins of human language (Rossano and Liebal; Mondada and Meguerditchian). More recently, interspecies communication has emerged as an important area of inquiry. Scholars have investigated how humans interact with animals such as dogs, goats, and horses, and how these interactions are organized in everyday life. These studies suggest that animals can participate in meaningful interaction with humans, even though they do not have access to human linguistic systems.

Because spoken language is not equally available to both participants in interspecies interaction, communication relies heavily on embodied actions. Humans often use gaze, gesture, touch, posture, prosody, and non-verbal sounds when interacting with animals,

and animals also respond through bodily conduct, vocalization, movement, and orientation (Mondémé; Simonen and Lohi). These embodied resources are not peripheral to communication; rather, they are central to the organization of interaction across species.

Against this background, the present paper reviews previous studies on embodied actions in human - animal communication. It discusses how embodied actions have been approached in research on interspecies pragmatics and focuses particularly on two influential perspectives: conversation analysis and cognitive pragmatics. By examining existing literature, this paper aims to show how embodied actions function in interaction and how they contribute to the achievement of mutual understanding across species.

2. Human-Animal Communication

For a long time, communication and pragmatic competence were widely treated as uniquely human abilities. Language was often seen as the core criterion distinguishing humans from other living beings, and studies of animal communication were frequently framed in relation to human uniqueness (Pennycook; Tomasello). Within this perspective, communication among or with animals was often viewed as limited, instinctive, or lacking the complexity of human language.

This traditional view has gradually been challenged. More recent work has argued that animals should not be treated merely as beings that fail to meet human linguistic standards. Instead, they should be understood as organisms with their own communicative practices, perceptual worlds, and interactional abilities. In this line of research, animals are no longer regarded as passive objects of human interpretation but as participants capable of meaningful action in context (de Waal; Servais).

This shift is also related to changing views on anthropomorphism. Earlier discussions often treated anthropomorphism as

a methodological problem, assuming that people projected human thoughts and emotions onto animals. Later scholars, however, have argued that anthropomorphism does not necessarily mean falsely attributing human characteristics to animals. It can also reflect humans' sensitivity to the meaningfulness of animal behavior in particular situations (de Waal; Servais). From this perspective, people recognize animals as socially responsive beings whose conduct can be treated as interactionally relevant.

Communication is fundamentally a cooperative activity. This applies not only to human interaction but also to communication between humans and animals. Interaction becomes meaningful when participants orient to each other's conduct and interpret actions as relevant responses to prior actions (Clark). Thus, communication cannot be reduced to language alone. It depends on the coordination of multimodal resources and on the participants' ability to interpret conduct in context.

Empirical studies support this view. Research on baboons, for instance, has shown that greeting behavior is accomplished through gaze, bodily orientation, touch, and other embodied resources. These actions occur in recurrent patterns and are organized in ways that suggest recognizable interactional routines (Mondada). Similarly, studies of human-dog interaction have found that dogs are sensitive to response relevance. When a dog's action is not responded to, the dog may repeat, intensify, or modify its conduct through gaze, touch, barking, or body movement in order to recruit a response (Simonen and Lohi). Such findings suggest that animals do not merely react mechanically to stimuli; rather, they may display sensitivity to the sequential environment of interaction.

Human communicative conduct toward animals is also adapted to the interactional situation. In everyday interaction with pets and other animals, humans often use

simplified syntax, exaggerated intonation, repetition, imitation of animal sounds, and non-verbal vocalizations (Mondémé; Mitchell). In this respect, communication with animals may resemble some features of speech directed to infants, such as higher pitch and repeated forms. However, the two are not identical. Infants are treated as developing language users, whereas animals are not expected to acquire human language in the same way. Accordingly, communication with animals is shaped by the bodily capacities, perceptual orientations, and species-specific affordances of the animal participant.

Studies of pet-directed talk have shown that humans often redesign their communicative behavior to align with the animal's available semiotic resources. For example, owners may imitate pet sounds, repeat particular words or sound patterns, or use prosodically marked utterances to attract attention and guide action (Harjunpää; Mitchell). These practices indicate that communication with animals is not simply a reduced form of human language use. Rather, it is a mode of interaction adapted to a different communicative ecology.

The concept of Umwelt is also relevant here. According to this view, every organism inhabits its own meaningful perceptual world. Different species perceive and engage with the environment differently, and communication must therefore be understood in relation to species-specific sensory, bodily, and ecological conditions (Tønnessen). In interspecies interaction, participants do not share the same Umwelt, yet they may still achieve coordination through repeated interaction, domestication, and mutual adaptation.

Research on dogs is particularly relevant in this respect. Comparative studies have shown that dogs are highly sensitive to human social signals and are able to interpret certain human gestures, attention displays, and emotional cues (Hare and Tomasello; Miklósi

and Topál). Scholars have suggested that some of these capacities developed through domestication and long-term cohabitation with humans. Dogs are therefore often treated as especially suitable for research on interspecies interaction because they occupy a social space close to that of humans and display a high degree of responsiveness to human conduct.

Studies have also examined emotional communication between humans and dogs. Humans can distinguish between different dog barks based on acoustic parameters such as pitch and temporal patterning, and dogs, in turn, appear sensitive to human emotional vocalizations (Pongrácz et al.; Siniscalchi et al.). Neuroimaging research has further suggested similarities between dogs and humans in brain responses to vocal and emotional sounds (Andics et al.; Cuaya et al.). Although such studies do not by themselves explain interactional organization, they support the broader claim that human - animal communication is grounded in cross-species sensitivity to socially relevant cues.

Human non-verbal conduct also plays a structuring role in interaction with animals. In activities such as horse riding, for example, intonation, sound design, rhythm, and bodily movement are used to calm, guide, praise, or direct the horse. Specific prosodic patterns and non-verbal sounds may function as recognizable resources for action (Reed). This again suggests that communication across species depends heavily on embodied and multimodal coordination.

Overall, research on human - animal communication indicates that interspecies interaction should not be understood simply as an imperfect substitute for human language. Rather, it is a distinctive communicative domain in which language, voice, gesture, gaze, movement, touch, and other bodily resources work together to organize action and achieve understanding.

3. Interspecies Pragmatics

Interspecies pragmatics is an emerging field concerned with how communication is achieved across species boundaries. Early definitions of pragmatics already described it as the study of the relationship between signs and their users, a formulation broad enough to include non-human participants (Morris). From this perspective, pragmatics is not restricted to human speech but can also address how meaning is produced and interpreted in other communicative settings.

In interspecies interaction, language occupies a complex position. On the one hand, language may function as a barrier, since humans and animals do not share the same linguistic system. On the other hand, the limits of shared language make other semiotic resources more salient and therefore more central to interaction (Peltola and Simonen). Embodied actions become crucial precisely because speech alone cannot secure mutual understanding.

A central issue in interspecies pragmatics is intersubjectivity, that is, the participants' ability to orient to a shared interactional environment and to achieve some degree of mutual understanding. In interspecies contexts, this process is particularly complex because humans and animals differ in bodily capacities, perceptual systems, and cognitive organization. Yet research has shown that such differences do not make communication impossible. Instead, they shape the kinds of resources that become relevant in interaction (Mondémé).

Interspecies pragmatics is therefore concerned with how humans and animals coordinate attention, interpret conduct, negotiate meaning, and accomplish social action. It is an inherently interdisciplinary field, drawing on pragmatics, conversation analysis, interactional linguistics, multimodal studies, cognitive science, animal studies, and discourse analysis (Schmid; Panther). This diversity

reflects the fact that interspecies communication cannot be adequately understood from a single theoretical angle.

The rise of interspecies pragmatics is also connected to the broader “animal turn” in the humanities and social sciences. As interest in animal welfare, animal rights, and more-than-human perspectives has grown, scholars have increasingly re-examined the role of animals in social life (Pennycook; Haraway). In this context, interspecies pragmatics contributes to a more nuanced understanding of humans’ communicative relations with animals and of animals’ status as socially relevant participants.

Within this field, two perspectives have been especially productive for studying embodied actions: conversation analysis and cognitive pragmatics. The former focuses on the observable organization of interaction, especially sequence, turn-taking, and social action. The latter pays more attention to inferential processes, conceptualization, attention, and the cognitive dimensions of meaning-making. Together, they offer complementary ways of examining how embodied conduct functions in interspecies communication.

4. Interspecies Pragmatics from a Conversation-Analytic Perspective

Conversation analysis was originally developed to study naturally occurring human interaction. Founded by Harvey Sacks, Emanuel Schegloff, and Gail Jefferson, it is a qualitative, empirical, and inductive approach concerned with the recurrent methods through which participants accomplish social actions in interaction (Margutti et al.). Rather than focusing primarily on abstract grammar or decontextualized meaning, conversation analysis examines how actions are designed, recognized, and responded to in specific sequential environments (Heritage; Schegloff).

At the core of conversation analysis is the idea that interaction is orderly. Participants do not speak or act randomly; they organize talk and embodied conduct through systematic practices. Key concepts include turn-taking, adjacency pairs, sequence organization, turn-constructional units, and the next-turn proof procedure (Sacks, Schegloff, and Jefferson; Schegloff and Sacks; Atkinson and Drew). These concepts have proven highly influential not only for the analysis of spoken interaction but also for multimodal and embodied conduct.

Originally, conversation analysis focused mainly on human talk. However, with the development of multimodal interaction research, scholars increasingly began to examine gaze, gesture, bodily movement, spatial arrangement, and the use of objects as part of the organization of action (Heath; Goodwin; Hayashi). From this perspective, social action is not accomplished through language alone but through the coordinated use of multiple semiotic resources.

This development made it possible to extend conversation-analytic insights to interspecies interaction. If social action is fundamentally multimodal, then the absence of a shared human language does not prevent interaction from being systematically organized. Instead, the analyst can examine how participants use embodied actions to initiate actions, respond to prior actions, establish relevance, and display understanding (Nevile; Mondémé).

Research on primates has been important in this regard. Studies of pygmy marmosets have identified turn-taking-like patterns in vocal exchange, suggesting that non-human communication can exhibit sequential organization (Snowdon and Cleveland). Research on chimpanzees has shown that gesture choice may depend on the attentional state of the recipient: when the recipient is not looking, the chimpanzee may use tactile or auditory gestures; when the recipient is visually

available, visual gestures may be used (McCarthy et al.). Such findings indicate that animal communication can be sensitive to recipient design and sequential contingencies.

Some scholars have explicitly adopted conversation-analytic concepts in analyzing animal interaction. Comparative work on requests and offers in great apes and human infants has suggested that certain forms of sequential organization may predate human language (Rossano and Liebal; Pika et al.). For example, begging gestures can function as recognizable first actions that make a relevant response conditionally relevant. Responses such as giving, withholding, ignoring, or rejecting can then be examined as second-position actions. Although the forms differ from human language-based interaction, the sequential logic is interactionally consequential.

In human - animal interaction, the conversation-analytic perspective has yielded especially rich findings. Studies of dogs interacting with humans have shown that animals can occupy both initiating and responding positions in interaction. Dogs may recruit attention through gaze, touch, vocalization, or movement. Humans may respond with talk, gesture, bodily repositioning, touching, or other embodied actions. These responses, in turn, display an understanding of the dog's prior conduct (Simonen and Lohi; Lohi and Simonen).

The notion of adjacency is particularly relevant. Human summonses to animals, such as calling a dog's name, producing clicking sounds, or making inviting gestures, can function as first actions that project a response. A dog's gaze, approach, or bodily orientation may then count as a relevant second action. Conversely, animals can initiate interaction by approaching, touching, staring, barking, or moving in ways that recruit human attention. Human responses may then display recognition of these actions as requests, summonses, or

invitations to further interaction (Mondémé; Kendrick and Drew).

Conversation analysis also highlights the importance of sequence expansion and repair. If an initial action does not receive the expected response, humans may elaborate their conduct by repeating, explaining, encouraging, or redesigning the action. Animals, similarly, may intensify or modify their behavior when no response is forthcoming. This suggests that both parties orient to response relevance and to the need to sustain or repair interaction when mutual understanding is not immediately achieved (Schegloff; Simonen and Lohi).

Multimodal transcription has been essential for this line of work. Since animals cannot be represented simply through verbal transcript lines, researchers need transcription practices that place human and animal conduct on an analytically comparable footing. Gaze, gesture, touch, movement, positioning, timing, and vocalization must all be represented in ways that make their sequential organization visible (Mondada; Goodwin). This methodological point is crucial: the analysis of interspecies interaction requires a transcription system that does not privilege speech over embodied action.

Conversation-analytic studies have also shown that objects and the material environment can be central to the organization of interspecies action. Dogs may use bowls, leashes, toys, or other objects as interactional resources, and humans orient to these objects in coordinating action with animals (Goodwin; Simonen). In such cases, communication is distributed across bodies, objects, and the surrounding environment rather than residing in isolated signals.

Another important contribution of the conversation-analytic perspective is its treatment of animals as interactional participants rather than as mere stimuli or background objects. In veterinary settings, for example, professionals may address animals

directly, speak for them, or orient to their pain or distress as interactionally relevant (Roberts; MacMartin, Brown, and Anderson). Such practices show that animals are treated as socially meaningful participants even in institutional contexts.

Overall, the conversation-analytic perspective demonstrates that interspecies interaction can be examined as organized social action. Embodied actions are central not because they replace language in a deficient way, but because they are fundamental resources through which participants accomplish actions, manage sequences, and achieve forms of mutual understanding across species.

5. Interspecies Pragmatics from a Cognitive-Pragmatic Perspective

While conversation analysis emphasizes the observable organization of interaction, cognitive pragmatics focuses more directly on the cognitive and inferential processes involved in meaning-making. It is an interdisciplinary field drawing on pragmatics and cognitive science to examine how interlocutors interpret utterances, infer intentions, construct context, and derive meaning in communication (Schmid; Bara).

Traditionally, cognitive pragmatics has dealt mainly with human interaction. It has addressed topics such as intention recognition, context dependence, deixis, metaphor, irony, and the inferential basis of communication. However, as interest in animal communication has grown, cognitive-pragmatic perspectives have also been extended to interspecies settings.

From this point of view, interspecies communication is not simply a matter of exchanging observable signals. It also involves the interpretation of actions in relation to attention, expectation, perspective, and contextual knowledge. Because humans and animals do not share language, successful interaction depends heavily on the ability to draw inferences from embodied conduct and from the immediate environment.

Cognitive-pragmatic approaches therefore pay special attention to shared attention and joint orientation. Embodied actions such as gaze, pointing-like movements, orientation, and sound production can function to direct attention and establish a common interactional focus. These processes are especially important in interspecies contexts, where verbal clarification is limited or unavailable (Diessel; Stukenbrock).

Research in this tradition has also examined how humans represent animal minds in discourse. For instance, studies of reported “animal inner speech” have shown that humans sometimes verbalize imagined animal perspectives in storytelling and everyday talk (Peltola). Such practices do not necessarily provide direct evidence of animal cognition, but they are revealing in how humans construct animals as sense-making beings with perspectives, perceptions, and goals. In this sense, cognitive-pragmatic research sheds light not only on animal conduct itself but also on human interpretive frameworks for making sense of animals.

Another important topic is deixis and pointing. Models of human deictic interaction have described how pointing actions are organized through stages such as attracting attention, establishing a relevant interactional space, and indicating a target (Stukenbrock; Knoblauch, Tuma, and Schnettler). Research on interspecies interaction suggests that animals may also engage in functionally similar forms of deictic action, though they do so through species-specific bodily resources. For example, cats or dogs may use body orientation, ear movement, gaze direction, paw movement, or vocalization to draw a human’s attention to a relevant object, location, or event.

From a cognitive-pragmatic perspective, such conduct is significant because it indicates that interspecies communication involves not only reaction but also the management of shared attention and relevance.

Animals may monitor whether humans are attending, and humans may interpret animal actions as attempts to indicate, request, or highlight something in the environment. These processes depend on contextual inference rather than on conventional linguistic coding alone.

At the same time, cognitive-pragmatic research reminds us that the meaning of embodied actions cannot be fully specified in advance. An action acquires meaning in context, through the interaction of perceptual cues, prior experience, and inferential interpretation. Thus, cognitive-pragmatic studies complement conversation-analytic work by highlighting how participants may arrive at interpretations of conduct that are not linguistically explicit.

Still, this perspective also faces challenges. Because animals' mental states cannot be directly accessed, researchers must be cautious not to over-attribute intentions or meanings. For this reason, cognitive-pragmatic interpretations are most persuasive when grounded in detailed observation of actual interactional contexts. In practice, then, conversation analysis and cognitive pragmatics can be productively combined: the former offers tools for showing how actions are organized in sequence, while the latter helps explain how those actions become meaningful to participants.

Overall, the cognitive-pragmatic perspective contributes to the study of interspecies interaction by drawing attention to inference, shared attention, context construction, and the interpretive work involved in communication across species. It shows that embodied actions are not merely physical movements but resources through which participants orient to each other's attention, intentions, and understanding.

6. Conclusion

This paper has reviewed previous studies on embodied actions in human-animal communication from pragmatic and

interactional perspectives. The literature shows that communication should not be restricted to human language alone. In interspecies contexts, where spoken language is not equally available to all participants, embodied actions become especially important.

Research on human - animal communication has demonstrated that animals are capable of participating in meaningful interaction. Through gaze, gesture, posture, movement, touch, and vocalization, animals can recruit attention, respond to prior actions, and contribute to the organization of interaction. Humans, in turn, redesign their own conduct in ways that accommodate animals' communicative resources and bodily capacities.

The review has also shown that interspecies pragmatics is a valuable framework for understanding communication across species. It emphasizes that meaning is not transmitted through language alone but is collaboratively achieved through multimodal resources in context. Within this field, conversation analysis has contributed a detailed account of the sequential organization of embodied action, while cognitive pragmatics has highlighted the roles of attention, inference, and context in meaning-making.

Taken together, these studies suggest that embodied actions are not secondary to communication but central to it. They are fundamental resources through which humans and animals establish relevance, coordinate action, and achieve forms of mutual understanding. Future research may further develop this field by integrating insights from linguistics, cognitive science, anthropology, biology, and animal studies, and by examining a wider range of species and interactional settings. Such work will deepen our understanding of communication as a multimodal, relational, and more-than-human phenomenon.

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