



# ISAZ'98

9th September 1998  
Prague Hilton Atrium Conference  
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ABSTRACTS

Satellite meeting to:

*The Changing Roles  
of Animals in Society*



Prague 10-12 September 98

**"Human - companion animal communication:  
understandings and misunderstandings"**

*Prague Hilton Atrium Hotel Conference Centre,  
Prague, Czech Republic*

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**Wednesday 9th September 1998**

*Morning session:*

**"Ethology and comparative psychology of animal-human communication."**

*Chair :John W.S. Bradshaw*

- 1015            **Introduction** John Bradshaw
- 1025            **Talking to one of the family: communication with pet dogs**  
Sarah Fifield, Canterbury, NZ.
- 1045            **Regulation of interactions between cats and humans by gaze and mutual  
gaze**  
Deborah Goodwin, Southampton, UK.
- 1105            **Olfactory communication between man and other animals**  
Barbara Sommerville, Cambridge, UK.
- 1125            **Visual communication in horses and the human-horse relationship**  
Nikki Isaac, Southampton, UK.
- 1145            **Discussion**
- 1200            ***ISAZ AGM***
- 1230            ***Lunch***

*Afternoon session:*

*Chair: Marie-Jose Enders-Slegers*

- 1330      **Communication and social understanding between humans and dogs: an ethological view**  
Vilmos Csanyi, Eotvos University, Hungary.
- 1400      **The role of social rules in object permanence tasks: a comparative study on dogs and humans**  
Josef Topal, Eotvos University, Hungary.
- 1420      **Discussion**

**"Assessing the behaviour of individual dogs"**

*Chair: Ian Robinson*

- 1435      **Understanding and misunderstanding guide dogs: reliability of behavioural survey data.**  
James Serpell, Pennsylvania, USA.
- 1505      **A validated test of separation behaviour in kennelled rescue dogs.**  
Justine McPherson, Southampton, UK.
- 1520      **The detection and classification of aggression in dogs housed at animal shelters in the UK.**  
Theresa Morgan, Southampton, UK.
- 1540      **Discussion**
- 1600      *Close.*

# TALKING TO ONE OF THE FAMILY: COMMUNICATION WITH PET DOGS

Sarah Fifield, MSc (dist.)

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Interaction with pet dogs has often been described as a substitute child relationship, and dog owners often describe their pet as a family member, or even their 'baby'. The language and manner of speech used to communicate with pets is often similar in structure to the 'baby talk' used with very young children. Speech patterns such as rising terminal pitch, repetition and a high level of questioning are associated with language used to talk to infants and previous studies have noted similarities in the ways in which people communicate with their pets and children. It is suggested that there exists a type of language used in communicating with dependents, and that speech to pets, young children, institutionalised elderly and the mentally handicapped, all use this reservoir with various alterations made to suit the nature and abilities of the listener. This possibility was explored by comparing the speech made to dogs and to children in similar situations using videotape recordings of participants' interactions with dependents in their home environment. The objectives of the study were to

1. compare the speech directed toward pet dogs with that directed toward infants
2. explore the effects of human-animal attachment on the speech used in communication.

The owners of 19 pet dogs, and parents of 19 infants aged between 6 and 36 months participated in the study. Eight situations were selected as being likely to elicit a high amount of interaction between participants and dependents. Participants were loaned video cameras and given details of the following situations which they were asked to video: a general introduction of the dog or child, leaving dependent for a period of time, greeting after a period of separation, play or active interaction, demonstration of a learned behaviour, bathing or grooming, mealtime routine, and bedtime routine. Dog owning participants completed the Pet Attachment Survey, and all participants answered questions which targeted the level and nature of communication between themselves and their dependent.

Completed video tapes were assessed for sentence type and utterance length, verb tense, repetition, word simplification, terms of endearment, and aspects of questioning. Comparison of speech used to dogs and to children was made using t-test, and correlation analyses. Correlations between speech characteristics and scores on the Pet Attachment Survey and juvenile appearance of the dog were also made.

Data analysis indicated a number of similarities in speech directed to dogs and to infants. Significant differences in speech occurred in the mean length of utterance ( $t(36)=6.21, p<.0001$ ), percentages of imperatives utterances ( $t(36)=3.03, p<.005$ ), yes/no questions ( $t(36)=4.53, p<.0001$ ), and full repetitions ( $t(36)=6.3, p<.0001$ ). Fewer differences were found between speech to dogs and children under 12 months. Attachment to dogs was significantly related to mean utterance length  $r = .42, p<.05$ , percentage of wh-questions ( $r=.39, p<.05$ ), and percentage of diminutives used ( $r=.4, p<.05$ ). In addition, owners of dogs juvenile in appearance used terms of endearment more often than owners of less juvenile dogs ( $t(170)=4.01, p<.001$ ).

The results of this exploratory study indicate that when owners are strongly attached to their dogs, speech characteristics to these pets are similar to the speech used to very young children. Although certain characteristics appear to be related to the level of attachment to the pet and to the physical appearance of the dog, it appears that, in general, the speech pattern afforded to well loved dogs recognises their role as one of the family.

## REGULATION OF INTERACTIONS BETWEEN CATS AND HUMANS BY GAZE AND MUTUAL GAZE.

Deborah Goodwin and John W.S. Bradshaw.

*Anthrozoology Institute, University of Southampton, Southampton, UK.*

Although it is often asserted that cats use eye contact to communicate with people and other cats, there has been little systematic study of the effects of gaze on their behaviour. We began to explore the importance of eye contact during interactions between cats and humans. Preliminary trials showed that the cats' behaviour was largely unaltered if the human subject was familiar or female, so later trials involved only unfamiliar human males. These have shown that human eye contact can significantly affect several aspects of the cats' behaviour.

In the trial reported here, we explored the commonly held belief that cats are attracted to people who dislike them. We tried to determine whether this might be related to the way that such people look at cats and how the cats respond. We observed interactions between 16 unfamiliar men (8 who reported that they liked cats and 8 who disliked cats) and 8 cats (6 female, 2 male; all neutered; 9-10 years). Prior to the start of the trial each person was asked to complete a 10 item attitude questionnaire (Likers scores 48-58; Dislikers scores 31-53;  $P < 0.005$  Mann Whitney U test). Each person met each cat individually but the cats only met one man per day in an order defined by a Latin Square. The men were seated prior to the arrival of each cat and were asked not to talk to or stroke the cat, but were told they were free to watch or ignore the cat as they wished. Sessions were recorded on videotape, observed using the Observer 3.0, and analysed using Statgraphics V5.

There were no significant differences in latency or frequency of approach by the cats to Likers and Dislikers. However, there were differences in the way that the two groups of men behaved and also in the way that the cats reacted to the two groups. Men who disliked cats looked away from the cats more frequently (Nested ANOVA  $F = 10.4_{(1,14)}$   $P < 0.01$ ) and for longer ( $F = 9.3_{(1,14)}$   $P < 0.01$ ) than the Likers. Likers tended to watch the cats even if the cat was ignoring them. Dislikers generally watched the cat if it was active or approaching them, but would look away from the cat if it was inactive, or grooming itself. Mutual Gaze was less common than predicted by chance for both groups, but was more likely to occur with Likers than Dislikers ( $F = 4.1_{(1,14)}$   $P < 0.1$ ). The cats looked at Likers more frequently ( $F = 6.7_{(1,14)}$   $P < 0.05$ ) and for longer ( $F = 9.6_{(1,14)}$   $P < 0.01$ ) than Dislikers, even when they looked away. The cats were also more likely to sit facing Likers ( $F = 3.3_{(1,14)}$   $P < 0.1$ ) but sat facing away from Dislikers more quickly ( $F = 4.1_{(1,14)}$   $P < 0.1$ ). These results, plus a non-significant trend for cats to perform Tail Up more frequently in association with looking at Likers than Dislikers, suggest that the cats were more likely to attempt to establish affiliative contact with Likers than Dislikers.

In conclusion, the cats in this trial were able to discriminate between unfamiliar people who liked and disliked cats; however, the belief that cats are attracted to people who dislike cats was not upheld. There were significant differences in the way that the two groups of men looked at the cats, and in the way that the cats responded. There were no other visual signals associated with the establishment and maintenance of gaze and mutual gaze and so it is suggested that gaze and mutual gaze can regulate interactions between humans and cats independently of other signalling systems.

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# **OLFACTORY COMMUNICATION BETWEEN MAN AND OTHER ANIMALS: A REVIEW**

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When an animal communicates with another, it transmits a signal in such a way that the sender usually benefits from the response of the receiver. A signal may be sent in one direction by a signaller with no awareness of the receiver at all, for instance, the calling pheromone of a bitch in oestrus. In most human/companion animal situations, the word "communication" is used to describe a dialogue, the human assuming that each participant has some awareness of the other. By "awareness" we mean a state in which complex brain analysis is used to process sensory stimuli or constructs based on memory. Most people would contend that their companion animal is capable of a degree of "assessment awareness" (the ability to assess and deduce the significance of a situation in relation to itself over a short time span) if not "executive awareness" (the ability to assess, deduce and plan in relation to long term intention). This presentation examines evidence supplied by olfactory communication in dogs, cats and rats which indicates that they can use human odour to gain relevant social information. It discusses how far the evidence supports claims for high levels of awareness in these animals when they interact with humans.

We wish to stress that man is a relatively anosmic species and may not notice a lot of the olfactory signals used by dogs and cats. The care devoted to sniffing scent marks and the enormous olfactory acuity of dogs suggest that much information is potentially available although its precise nature is still uncertain. Considering the close relationship between dog and man, this lack of information is surprising. It emphasises the way our poor sense of smell limits our intellectual curiosity about olfactory matters. Our house pets are required not only to conform with our domestic arrangements but to use our visual and auditory repertoire to communicate with us. To mammals whose major communication repertoire is olfactory, this must limit their apparent efficiency. The dog for instance, can easily distinguish humans by smell and will recognise most at a subsequent encounter. Rats have a similar capacity to recognise humans by odour and to respond differentially to those it remembers to be associated with reward or threat. Rats are capable of making distinctions between and appropriate adaptations in behaviour to genetically related, socially related, dominant and unknown rats on the basis of odour alone. Dogs can also do this with conspecific odour and it is likely that they can do this with human odour. It has yet to be proved that humans emanate odours indicating social dominance or fear but wild boars respond to men as they would to an adult male conspecific. Most domestic animals respond differently to confident experienced handlers and diffident nervous ones even if strangers. Is there an olfactory component to the body language which communicates these differences?

In conclusion, the limited olfactory acuity of humans may cause them to falsely interpret a companion animal's response to be derived from deductive thought processes. The classical example of this is 'Clever Hans', the horse that could count. The horse did show amazing sensitivity to human body language as it used its eyes and ears to note cues imperceptible to another human but it could not count. Human vision is excellent and hearing good so how much more fallible might we be when confronted with the nuances of odour?

## VISUAL COMMUNICATION IN HORSES AND THE HUMAN-HORSE RELATIONSHIP.

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Horses are primarily visual communicators and use body postures and gestures to communicate and coordinate group activities. These signals are also used during interspecific communication; however, interpretation of some signals as submissive may reflect human attitudes to the horse-human bond, rather than the nature of the signals themselves. This is prevalent in equestrian traditions where the human-horse bond is seen as a master-servant relationship. Like many social animals, horses show escalated warnings of aggression; however, there are few obvious signals of submission which is often expressed simply by moving away from a threat, or desired resource. In addition to the generally accepted submissive signals of Tail Clamping and rapid Head Withdrawal, some signals have been claimed to indicate submission, but on closer examination may not. For example, Snapping was originally considered to be submissive, but previous studies have shown that it may have multiple meanings dependent on context, or may simply be a displacement activity derived from nursing behaviour. Licking-and-chewing (which some trainers consider to be the adult version of snapping) and Headlowering are also claimed by many trainers to be submissive signals. At present there is no published account of their appearance during social interactions in either domestic or free ranging horses.

We decided to investigate Headlowering and Snapping during social interactions between free-ranging New Forest ponies *Equus caballus* (16 adults: 15♀, 1♂, 14 foals: 7♀, 7♂). Licking-and-chewing was not studied due to the difficulty of distinguishing this from ingestive behaviour in a free-ranging population. Observations took place on 19 days in the period May to August 1997, at a study site in the New Forest, Southern England. A total of 135 interactions between dyads was recorded during 30 hours of daylight observations. Continuous video-recordings of the study group were made in the field for later observation. Interactions between pony dyads were divided into approach, interaction and response phases and behaviour patterns exhibited during each phase were recorded using a check sheet, entered into a Lotus 123 spreadsheet and analysed using SPSSPC.

Headlowering was associated with approach during interactions between free-ranging mares and foals (Kruskal Wallis  $\chi^2 = 115$ ,  $P < 0.001$ ). In foals under 2 weeks of age Headlowering was seen during approach to both foals and adults, but as the age of the foal increased, Headlowering was progressively reserved for approach to the mother ( $\chi^2 = 12.3$ ,  $P < 0.05$ ). Frequency of Headlowering during affiliative approaches was significantly higher than in aggressive interactions (Mann Whitney  $U = 1253$ ,  $P < 0.01$ ). There was no significant difference in the exhibition of Snapping by foals initiating interactions during the approach, interaction or response phases, but foals approached by both adults and foals Snapped significantly more frequently ( $\chi^2 = 8.2$ ,  $P < 0.01$ ) during the interaction phase than during the approach or response phases. Snapping was observed at equal frequencies during both aggressive and avoidance behaviour, an ambiguous response which agrees with earlier studies. No Snapping by adults was recorded during the study.

These results suggest that Headlowering is an affiliative rather than a submissive signal as it appeared as a precursor to affiliative interactions, and was never seen as a response to aggression. Whether Snapping can be considered as submissive, or a displacement activity remains unclear. The horse is a prey animal which can increase its chances of survival by forming and maintaining alliances. This would suggest some adaptive significance in demonstrating affiliative behaviour both inter- and intraspecifically. Human preoccupation with dominance and submission in the horse-human relationship may, therefore, represent a source of misunderstanding for the motivation of equine behaviour signals.

# **COMMUNICATION AND SOCIAL UNDERSTANDING BETWEEN HUMANS AND DOGS: AN ETHOLOGICAL VIEW**

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The natural environment of the dog is the human family or other human social settings. During the domestication of the dog only those individuals were selected as breeders who were attracted to humans, who understood some of the human communication, who could fit into the human social relations and those who had some social understanding in the human sense.

Dogs have diminished aggression and enhanced social attraction to humans; dogs are interested in the emotional and intentional content of the human minds and they are able to learn, to imitate and maintain the rules of human social settings. They are able to apply these rules to others than themselves, they can participate in rituals and in complementary cooperation with humans and other dogs, and are able to understand simple linguistic communication.

We have many reasons to suppose that there is a functional analogy between some aspects of behavioral evolution of the human species and the domestication of the dog. Some of our experiments supporting these assumptions will be discussed.



# **THE ROLE OF SOCIAL RULES IN OBJECT PERMANENCE TASKS: A COMPARATIVE STUDY ON DOGS AND HUMANS.**

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Throughout tens of thousands of years of domestication, in parallel with the appearance of modern *Homo sapiens*, dogs have been selected by humans to fulfil the needs and desires of their own species. This process has resulted in several behavioural by-products, which could serve as a basis for advanced forms of interspecific communication between dog and human.

According to our hypothesis, there is a functional analogy between the evolution of the human species and the domestication of the dog. The persistent and close relationship with people led to special selection pressures which may have resulted in a human-like social kind of intelligence such the ability to identify and follow social rules.

Our study was designed to demonstrate that such social rules may have an independent influence on the behaviour of both human and dog subjects. The behaviour of adult and preschool humans and adult pet dogs were compared in a Piagetian object hiding and search task (invisible displacements), considered by cognitive psychologists as a test for estimating mental representational capacity. Subsequently, subjects were observed in a similar task in which however, the location of the target object was well known by the subjects and thus could be referred to not a real search task but a "social game".

Results demonstrate that during the successive invisible displacements most of the humans and dogs performed a full and systematic search of all potential hiding places, fulfilling the criteria for representational understanding of object permanence. However results in the "social game" indicate that Piagetian object permanence tests may be interpreted by both dogs and humans not only as an object hiding and finding task, but alternatively as social games of different kinds which may contribute to the systematic search.

Our study suggests that during their domestication dogs may have been selected for certain human-like capacities, such as recognizing and following social rules in the context of interaction with humans.

## **UNDERSTANDING AND MISUNDERSTANDING GUIDE DOGS: RELIABILITY OF BEHAVIORAL SURVEY DATA.**

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Many guide dogs are rejected for behavioral reasons either before, during or after training. Such losses represent a considerable waste of resources, and would be greatly reduced if reliable methods could be found to assess guide dog temperament and performance traits early in development. Unfortunately, early evaluation of puppies before they are fostered out to puppy-raisers at 6-8 weeks provides few reliable predictions of adult behavior, and by the time the pups are older and established in puppy-raising households, detailed observation and performance-testing becomes prohibitively time-consuming and expensive. The present study describes the development of a 40-item questionnaire survey that allowed guide dog puppy-raisers to evaluate the behavior and temperament of their dogs at 6 and 12 months of age. A slightly modified version of the same questionnaire also allowed guide dog trainers to evaluate the same dogs at 14-18 months using the same or similar criteria. To determine the reliability of these questionnaire assessments, test-retest and inter-observer reliability estimates were made between puppy-raisers' and trainers' assessments.

The results, based on a sample of over 400 dogs belonging to four different breeds, indicated that puppy-raisers' test-retest evaluations were significantly correlated (Spearman's  $\rho = 0.50$  or better) for all 40 behavioral measures. Relatively low levels of correlation were found, however, between puppy-raisers' and trainers' evaluations. The possible reasons for this discrepancy between observers is discussed in the light of (a) maturational changes in the dogs, (b) differences in puppy-raisers' and trainers' experience of observing and evaluating dogs, and (c) differences in the contexts in which the dogs are observed and evaluated. The implications of these findings for the interpretation of behavioral data derived from questionnaire surveys will also be considered.

The design of the study also made it possible to investigate the relationship between puppy-raisers' age and experience and their perception of canine behavior, and to examine individual differences in how guide dog trainers evaluate their canine students. This material is currently undergoing analysis, and the results will also be presented.

# A VALIDATED TEST OF SEPARATION BEHAVIOUR IN KENNELLED RESCUE DOGS

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Dogs homed by rescue centres are particularly prone to displaying excessive separation behaviour, and it would therefore be beneficial to identify the most susceptible dogs prior to rehoming. We have designed a test of behaviour to assess dogs whilst in kennels in terms of their relative sociability towards a single tester and their reaction to a brief period of complete social isolation. 115 dogs (65 male and 50 female) were duplicate tested at the Blue Cross Animal Welfare Centre, Southampton, of which 101 could be followed up post-homing. Interviews were conducted by telephone four to eight weeks after adoption, during which details of the dog's behaviour, particularly during separation, were gathered.

The test comprised two main parts, one conducted whilst the dog was in the kennel, and one in a room away from the kennels. The main body of the test was performed in the room and consisted of spending approximately 15 minutes directly interacting with the dog, encouraging the development of an affiliative relationship with the tester. Following this period of "bonding", the dog was left alone in the room for a period of 5 minutes and its reaction to social isolation recorded on video.

Overall reliability between the duplicate tests was good; 26 of the original 41 measures generated scores of kappa  $>0.5$  or Spearman's rho  $>0.5$ . Principal factor analysis with varimax factor rotation on the average of each of these 26 measures over the two tests generated ten factors, subsequently converted to composite measures. Two of the composite measures pertained to behaviour during separation; one encompassed frequencies of barking, howling, and jumping on the furniture (measure 9), the second related to destructive behaviour and the number of escape attempts the dog made (measure 10).

Post-homing interviews revealed that 45% of the dogs were displaying or had displayed some degree of separation behaviour. All dogs were allocated a post-homing separation score on a scale of 0 (none) to 3 (persistent). This score was compared to the ten composite measures of behaviour in the kennel together with several variables pertaining to the new household environment (*i.e.* the number of people in the household, the presence or absence of children, the presence of additional conspecifics, permitting the dog to sleep in the owner's bedroom, the nature of the owner's pre-departure routine, and whether or not the dog was gradually introduced to periods of separation) using multiple linear regression analysis. The behaviour of the dog during the period of 5 minute separation in the rescue centre was found to predict similar behaviour in the new home: significant associations with the post-homing separation score were found to occur with measure 9 ( $t=2.29$ ,  $p=0.02$ ) and measure 10 ( $t=2.11$ ,  $p=0.04$ ). The symptoms and severity of the separation behaviour in the home were not predictable - those scoring highly on measure 9 were likely to be vocal but may also have been destructive, those scoring highly on measure 10 were vocal or destructive. None of the variables describing the household environment had any discernable effect on the exhibition of separation behaviour.

In conclusion, this test predicted vocal and destructive behaviour in the new home with 60% accuracy, and may be useful as a tool in facilitating dog-owner matching and owner education.

# THE DETECTION AND CLASSIFICATION OF AGGRESSION IN DOGS HOUSED AT ANIMAL SHELTERS IN THE UK.

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Many of the dogs in shelters have behaviour problems either as a cause of, or as a result of, their abandonment. These include inappropriate aggression. Canine aggression is a multifactorial concept and is therefore difficult to define or classify. A multistimulus experiment was designed to detect several types of aggressive behaviour in kennelled dogs. The aim of the investigation was to categorise aggressive behaviours. This would be of use to rescue shelters as it is often necessary to admit dogs with no prior, or an unreliable character history. An aggressive temperament can adversely affect a dog's chances being re-homed. If such a test was standardised it could assist re-homing to suitable owners and/or direct the correct treatment of aggressive temperaments.

A random sample of dogs (n=106) was tested at two charitable rescue shelters. A series of multistimulus tests were presented to each dog while it was confined to a kennel. The behaviours exhibited by the dogs were noted on checksheets. Tests 1-4 examined a dog's response to environmental and human stimuli while test 5 examined the effect of another dog in close proximity. The five tests were as follows: Squatting outside the kennel; making eye contact with a dog; attempting to remove a toy from the dog's kennel; opening and closing a multicoloured umbrella aimed directly at the dog, and lastly walking a standard unfamiliar dog past the kennel.

Pearson's correlation was used to analyse the repeatability of the results and 47 reliable measures were found ( $p > 0.4$ ). Average scores for each of the reliable measures were calculated for each dog, and Principal Factor Analysis was used to simplify the data. Six Factors were found: Position, threat, tail flag, whimper, dog confidence, and dog threat, and were used to construct composite variables. The values were either between 0 and 1 or -1 and 1, the further away from 0 or -1 indicating an increased probability of the dog showing that particular type of behaviour. With further developments this method could be used to assess the aggressive temperament of an unknown dog by comparison with this reference sample. Mann Whitney U-tests discovered some significant relationships between tail flag with sex, whimper with shelter, position with age and shelter.

Canine aggression can be classified on the basis of behavioural outcomes of these tests, with the exception of dominance and predatory aggression which are not likely to be seen in a kennel situation. The main difference in aggressive responses lies in a dog's response to another dog, and in the response it exhibits to any other form of stimuli. The kennel environment and husbandry systems play an essential part in the behaviour of the dog and may well affect the dog's chances of being re-homed.