

Canine Responses to Familiar and Unfamiliar Humans

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Dogs were observed during controlled approaches by their owners and by strangers. Significant differences between the dogs' responses to their owners and their responses to strangers were found. These results supported the popular belief that dogs respond differently to different persons, and not merely to different situations in which persons are usually encountered.
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Key words: canids, communication, defense, sociality

INTRODUCTION

The literature on dog-human relationships has long assumed that domestic dogs behave differently toward familiar and unfamiliar human beings. To familiar humans, they are thought to direct affiliative behavior patterns, to unfamiliar humans, patterns of aggression or defense. The phenomenon is interesting because it represents the transfer during the course of domestication of aggressive and affiliative patterns from an intra- to an interspecific context [Fox, 1968, 1971; Fuller and Dubois, 1962; Lorenz, 1952; Schenkel, 1967; Scott, 1958, 1967; Scott and Fuller, 1965].

While often described in anecdotes, this difference in the behavior of dogs toward familiar and unfamiliar humans has never been evoked under controlled conditions. Consequently the difference might as reasonably be attributed to the different circumstances under which dogs usually encounter familiar and un-

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the first approach. When the dog had stopped reacting to the first approach and resumed his preapproach behavior, the cameraman signaled the second approach. The order of the approaches — owner first or stranger first — was alternated from dog to dog.

The approach was regulated by tape-recorded instructions played to the approacher through earphones from a cassette tape recorder which the approacher carried over his or her shoulder. Each approach consisted of six movements. During the first movement, the approacher walked from his hiding place to stake No 1 and then along the edge of the yard to stake No 2. At stake No 2, he stopped, turned to face the dog, and said "Good dog," in a neutral tone of voice. During the second movement, the approacher walked from stake No 2 to stake No 3, stopped, repeated "Good dog," and waited without moving for approximately ten seconds. During the third movement, the approacher raised his arm rapidly over his head, took a step forward as if to strike the dog, then immediately returned to his previous stance and position and waited for another ten seconds. During the fourth movement, the approacher knelt, saying "Good dog," and extended one hand forward, palm up and open as if to feed the dog. He then returned to his previous stance and position and waited without moving for about seven seconds. During the fifth movement the approacher turned to face stake No 2. He remained standing thus, with his back to the dog, for about ten seconds, and then walked to stake No 2. During the sixth movement, the approacher passed stake No 1 and walked along the edge of the yard past stake No 1 to the spot where he had started.

Data Analysis

The film record was analyzed using an Angus Dual Eight 2808 editor-viewer. Forty-two behavior categories were scored for each eight frames (one second) of each movement of the approach. Many of the original categories produced data which were either unreliable, unaffected by experimental procedures, or too low in frequency to warrant discussion. On the frequencies of each of the remaining 19 behavior categories, three analyses of variance were performed to determine 1) if the frequency of occurrence differed during the various movements of the owner approach and during the various movements of the stranger approach; 2) if the frequency of occurrence over all movements of the stranger approach was different from the frequency of occurrence over all movements of the owner approach; and, 3) if the pattern of response to the stages of approach differed between the owner approach and the stranger approach. Details of category definitions, reliability figures, and variance analyses may be found in Rappolt [1976], a copy of which may be obtained by writing the authors.

TABLE I. Group Means

Behavior category	Mean proportion of time $\times 100$													
	Owner approach							Stranger approach						
	Far ap- proach, speak	Near ap- proach, speak	Arm raise	Kneel, speak	Back to dog	Exit	Mean	Far ap- proach, speak	Near ap- proach, speak	Arm raise	Kneel, speak	Back to dog	Exit	Mean
Position														
Forward	52	71	54	60	60	46	57	51	56	56	49	40	36	48
Intermediate	27	15	26	20	22	28	23	21	11	19	22	24	26	21
Back	06	06	06	08	08	06	07	12	13	14	16	15	16	14
Motion direction														
No motion	76	67	74	63	81	75	73	70	65	70	66	70	70	69
Moves toward	14	15	04	10	05	08	09	12	17	05	08	04	06	09
Moves away	04	08	13	17	11	00	09	06	08	16	17	12	08	11
Horizontal gaze direction														
Looks toward	67	65	49	60	58	62	60	58	49	43	37	31	39	43
Looks almost toward	22	25	21	17	19	21	21	22	19	19	23	21	21	21
Looks to side	10	07	19	16	09	08	12	11	15	21	22	18	21	18
Looks away	02	01	07	08	12	07	06	07	15	16	16	23	12	15
Tail position														
Up	39	22	16	16	14	28	23	25	26	19	25	27	29	25
Down	55	72	79	78	80	67	72	69	63	70	64	57	55	63
Tail motion														
Moving	14	49	42	33	16	11	28	02	21	19	16	08	05	12
Still	80	47	57	54	78	84	67	92	68	70	73	81	84	78
Ears														
Forward	48	30	29	24	44	46	37	63	35	41	37	47	52	46
Up	32	35	36	34	39	38	36	24	38	32	35	36	32	33
Down	11	14	23	21	08	12	15	05	07	09	08	02	05	06
Back	06	20	11	21	05	02	11	04	17	22	17	08	04	12
Bark rate	01	08	04	04	01	02	03	03	16	28	20	03	03	12

TABLE II. Significance Levels, Analyses of Variance

Behavior category	Between movements within each approach		Between owner and stranger approaches	Patterns of response over stages of approach
	Owner approach	Stranger approach	Approach totals	
Position				
Forward	—	—	P < 0.10	—
Intermediate	—	—	—	—
Back	—	—	—	—
Motion direction				
No motion	—	—	—	—
Moves toward	P < 0.05	P < 0.01	—	—
Moves away	—	P < 0.10	—	—
Horizontal gaze direction				
Looks toward	—	P < 0.01	P < 0.01	—
Looks almost toward	—	—	—	—
Looks to side	P < 0.05	—	P < 0.05	—
Looks away	P < 0.10	P < 0.10	P < 0.01	—
Tail position				
Up	P < 0.01	—	—	P < 0.10
Down	P < 0.05	—	—	P < 0.01
Tail motion				
Moving	P < 0.01	P < 0.01	P < 0.01	P < 0.05
Still	P < 0.01	P < 0.01	P < 0.10	—
Ears				
Forward	P < 0.01	P < 0.01	—	—
Up	—	—	—	—
Down	—	—	P < 0.10	—
Back	P < 0.01	P < 0.01	—	—
Bark rate	—	P < 0.01	P < 0.05	P < 0.01

RESULTS

The most frequent response of the dogs during the procedures of the experiment was to stand motionless and silent, with head up and tail down and still, orienting in the direction of the approacher. Frequent alternative patterns included tail wagging and raising, barking, averting the gaze, and alternately coming toward and rushing back from the approacher.

Some behavior patterns were clearly more common during the close movements of the approach than during the distant movements, others less common. Tail wagging, putting the ears back, looking away, lowering the tail (owner approach), and barking (stranger approach) were all more frequently observed when the

approacher was within the boundaries of the yard (movements 2–5) than when he was outside the boundaries (movements 1 and 6). Holding the tail still, putting the ears forward, and holding the tail up (owner approach) were all more frequent when the approacher was outside the boundaries.

Some systematic differences were observed in the patterns of response of dogs to their owners and to strangers. The dogs gazed at their owners more than at strangers, particularly in the early phases of the approaches. They spent more time close to their owners, wagged their tails more for their owners, and barked at them less. Although the overall frequency of tail raising was comparable in the two approaches, the temporal course of this response differed. During the stranger approach, the frequency of tail raising remained at a stable, moderate level. During the owner approach, however, the response was more frequent when the owner was at a distance and less frequent when the owner was near.

A surprising feature of the dogs' response to the stranger approach was the combination of barking and tail wagging. Both responses occurred more frequently during the closest movements of the stranger approach than during the distant movements. Direct study of the film record showed that dogs often barked and wagged their tails at the same time. A correlation coefficient computed across dogs shows that those dogs which barked at the strangers most were also the dogs which wagged their tails most ($r = 0.569$, $P < 0.01$).

DISCUSSION

The results lend some support to the idea that dogs differ in their responses to familiar and unfamiliar humans. The owner-approached dogs, by moving toward the approacher, lowering and wagging their tails and retracting their ears conformed to the pattern of "active submission" which several authorities agree characterizes the response of dogs to dominant, familiar conspecifics. [Schenkel, 1967, describes the pattern most clearly]. The stranger-approached dogs behaved more ambiguously. In some respects their response seemed a less vigorous form of active submission. They too tail wagged, approached, and ear retracted, to some degree. But in at least two respects, their response seemed a different kind of pattern. When the stranger was close, the dogs did not lower their tails and they did bark. Barking has been characterized as belonging to a pattern of defensive threat [Scott and Fuller, 1965]. If this characterization is appropriate, then the dogs in our study were simultaneously giving out appeasing and defensive communications toward the stranger.

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