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A COMPARATIVE THEORETICAL MODEL OF THE PERSON/PET
RELATIONSHIP

by

© JOSEF PEKAR

A Thesis
submitted to the
Faculty of Graduate Studies and Research
through the Department of
Sociology and Anthropology in Partial Fulfillment
of the requirements for the Degree
of Master of Arts at
the University of Windsor

Windsor, Ontario, Canada

September 1989



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Abstract

The aim in this project was to develop a multi-disciplinary explanation of the person/pet relationship. We examined and validated the theoretical premise that the parent /infant relationship may serve as a model for the person/pet relationship. We examined this proposal from the morphological, behavioral and psychological perspective.

We began the first chapter by developing an ethological description, both empirical and theoretical, of the physical characteristics of the human infant face. Then we determined that the morphology of infant pet animals was ethologically comparable. Their characteristics evoked similar patterns of response in both parents and pet owners.

We noted that adult pet animals display immature facial characteristics, but this finding is in conflict with ethological theory stating that young animals progressively lose their infantile attractiveness as they mature. By introducing the process of domestication we demonstrated how selective breeding was employed to alter the morphological development of pet animals and retain infantile characteristics in the chronologically adult form. We determined that the morphological characteristics of adult

pet animal are ethologically comparable with those of human infants and evoke comparable caregiving responses in their respective partners. The main point of similarity between the two were the stimulus characteristics of that complex of infantile morphological characteristics known as the childhood image.

In the second chapter we examined the comparative premise that attachment theory, a behavioral implementation of ethological theory, may serve as an adequate explanation for both the parent/infant and the person/pet relationship. In Part One we developed a comprehensive empirical and theoretical description of the human infant/parent relationship. Part Two was as an extensive comparative discussion of the person/pet relationship based on the observations of Victoria Voith (1981) in running comparison with material from Part One. We found that the behavioral characteristics of pet animals, and the responses they elicit in their owners, were comparable to behaviors and responses observed in the parent/infant relationship. Voith (1981) proposed that the person/pet relationship was evaluated by the owner in terms of a parent/infant relationship, and this was confirmed. The main point of similarity between the two relationships was the attachment process as described by John Bowlby.

In the third chapter the discussion centered on the comparable features of the talking behavior between parents and infants and between owners and their pets. We developed an "objective" explanation of the process in terms of attachment theory, but we isolated a "subjective" component as well that called for another form of theoretical explanation. In the context of projective theory, we determined that both infants and pets induce idiosyncratic projective responses in their respective partner, thus functioning as projective stimuli in this relatively ambiguous situation. We examined the problem of ambiguity in social interaction and the typical human responses evoked under these conditions. We studied a variety of sense-making strategies including the process of anthropomorphism as forms of meaning-construction in the parent/infant and person/pet relationships. We ended with a discussion of need satisfaction and role-construction in the person/pet relationship and we noted many similarities with the parent/infant relationship. We noted in closing that Sigmund Freud was as guilty as any other pet owner in his anthropomorphised relationship with his pet dog.

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Introduction

The Issue

The practice of pet keeping is as old as human culture. We presume that the first pets were the infants of wild animal species found during hunting or foraging and brought home for amusement and companionship. With the advent of domestication the pet animal was altered dramatically. Through selective breeding we developed the ability to literally "custom design" our pet animals.

Pets have been the subject of anecdotal, literary and artistic interest for thousands of years. However, scientific interest in the person/pet relationship is a very recent development. The history of scientific publishing in the field can be traced back into the last century in the major journals, but the interest was sporadic. The history of intensive and sustained programs of research in the area of person/pet studies is at most forty years old. Scientific organizations dedicated to studying this phenomenon are younger still.

The Problem

Boris Levinson is considered one of the founders of systematic study in the area of person/pet relationships. He was among the first to use a pet animal in the role of "co-therapist" in his practice of child clinical psychology. He also wrote extensively in major journals on the benefits and possibilities of ~~Pet-Oriented~~ Child Psychotherapy (Levinson 1969). When he first presented his findings before the American Psychological Association, his ideas were received with contempt and derision. He was asked if he intended to share his fee with his dog.

His long publishing career culminated with an article assessing the state and direction of activity in the field of person/pet studies, and he commented that the situation had changed remarkably in the twenty years since he first addressed the American Psychological Association. (Levinson 1982). He noted a considerable increase in publishing activity, and greater acceptance on the part of the scientific community regarding person/pet phenomena. But he commented as well that the majority of papers were ad hoc, mission-oriented or descriptive, rather than of explanatory. There was a conspicuous absence of theoretical discussion in the literature. This prompted Levinson to observe that the field would not attain scientific legitimacy until a corpus

of theoretical writing emerged to explain the rapidly accumulating body of facts.

While studies of improving technical quality continue to appear, and a journal has been founded as a vehicle for person/pet studies, (Anthrozoos now listed in Psychological Abstracts), the problem identified by Levinson in 1982 still remains. Kidd (1987) observed that the field is still being criticised for lack of theoretical foundations.

Our aim in this project is to lay the foundation for a comprehensive theoretical explanation of the person/pet relationship. It is based on the proposal that the person/pet relationship can be modelled on the human parent/infant relationship.

The Method

In this project we use various forms of comparative method whose general definition is given below.

Comparative method: Any method that compares the similarities and differences between phenomena or classes of phenomena... with a view to exploring them may be described as comparative... (Mann, 1984, 57)

Comparative method derives its validity from the analogical argument, a basic form of logical reasoning. Shaw and Ashley (1982) discuss this form of reasoning below.

An argument from analogy is in sum, an inference from some points of similarity between two or more objects to other such points. Mill expressed the

traditional formula for analogical reasoning as follows. "Two things resemble each other in some respect. A certain proposition is true of the one: Therefore it is true of the other." (Shaw and Ashley, 1982, 419)

As a guide for our discussion, we use the following comparative observation by Alisdair Macdonald (1981).

the relationship between pet and human shares many features that identify important bonds between humans, such as the mother-child relationship. (Macdonald, 1981, 205)

Applying analogical reasoning, we argue that there are significant points of similarity between the parent/infant relationship and the person/pet relationship, and that knowledge of the former can be used to gain an understanding of the latter. As an aid to comprehension and communication, we take advantage of the following characteristic of the argument from analogy as outlined by Shaw and Ashley (1982).

Although reduction to the familiar is not necessary for successful understanding, it is an aid to comprehension, and analogy is frequently employed in this way. As a matter of psychological fact, people do seem to grasp the new better when it is constructed in terms of the old. Analogies enable us to think through new phenomena in terms of the old. (Shaw and Ashley, 1982, 416)

We apply our comparative strategy as follows.

The human infant/parent relationship has been extensively studied by workers in many fields and a great deal of factual knowledge has been accumulated. In addition several theories have been developed to explain these facts.

This body of fact and theory is well accepted and widely known. On the other hand from a scientific, and particularly a theoretical point of view, the person/pet relationship is virtually unknown. Arguing analogically, we use our empirical and theoretical knowledge of the "known" condition to explain the "unknown" condition. We use the Macdonald relationship as our empirical guide, and the argument from analogy as our method.

From Description to Explanation

To achieve our goal, we must transcend the "gap" in the literature noted by Levinson 1982 and Kidd 1987. We must progress from the descriptive or empirical dimension to the explanatory or theoretical dimension. To do so we take advantage of another function of analogy as described by Lindesmith et al. 1977.

Significantly, new shifts in perspectives are heralded by new analogies or metaphors. When the world was conceived of as round instead of built in the order of a pancake, the new conception led to a restructuring of behavior and social relations. An extensive new vocabulary is built as a result of acting upon a new abstraction. (Lindesmith et. al., 1977, 163)

The idea of describing the person/pet relationship in terms of the parent/infant relationship is not particularly "new". This analogy has enjoyed artistic and literary appeal for centuries as well as being a mainstay of popular

literature. As a taken-for-granted idea it is well established. However, placing it at the centre of a theoretical construct requires a shift in perspective, and Socrates the ancient Greek philosopher shows us the way. He told us that "the unexamined life is not worth living", from which we may infer that "the unexamined thought is not worth thinking". A proverb tells us that "the truth is often spoken in jest". By analogy we may infer that "the truth is often spoken on art, literature, and popular culture". In that case we may say that there is an element of truth in the taken-for-granted. The Macdonald relationship is a taken-for-granted idea, and we claim that it holds a powerful truth. We place the parent/infant relationship at the center of our theoretical model on the strength of this inference.

Perspective

Our perspective is multi-disciplinary, and we choose this approach because of a conviction that no single discipline can adequately describe a complex process such as the person/pet relationship. Our caution is motivated by the observation of Chandler Washburne (1971) that

each discipline tends to develop and elaborate only those aspects of the concept that bear most directly on its problems. (Washburne, 1981, 2)

This "selective attention" automatically injects a bias.

In choosing the multi-disciplinary course, we face the challenge of communicating with, as well as integrating, the findings of workers in many different fields

where there is a proliferation of conflicting terminology. (Washburne, 1971, 2)

According to Washburne, progress in science involves a process of

linking up the concepts in one discipline with those in another thus allowing the findings of one field to be applied and understood in another. (Washburne, 1971, 2)

This point is critical for our project because we draw insights from anthropology, biology, developmental and cognitive psychology, evolutionary theory, genetics, literary studies, philosophy, psychiatry, sociology, and, finally, social psychology, from both the psychological and sociological perspectives.

The key to success in this project amounts to

locating the conceptual similarities hidden by the different language of each field or by finding more inclusive concepts that include the various sub species found in each discipline. (Washburne, 1981, 2)

In locating these "points of similarity" we rely heavily on comparative method and various forms of the argument from analogy.

Guiding Analogy

A conventional model or analogy for the development of scientific knowledge is the process of forging links in the great chain of knowledge. However the incremental and unidimensional construction of the chain is not appropriate as a model for this project. As an alternative we propose the analogy or metaphor of spinning and rope making.

In the spinning process fibres are collected, cleaned, straightened, and then twisted together to form yarns or threads. The individual fibres in our analogy represent the single facts we encounter in our experiences, thoughts, or investigations like the present one. The frictional force, that is, the "twist" holding the fibres together, (and yielding the thread), represents the grammatical relations and logical methods we use to bind facts in order to form ideas. The argument from analogy is one example.

We begin our process of conceptual rope making by twisting our fibres into yarns, then our yarns into strands. Each strand in our analogy represents one chapter in this project. The first chapter/strand is a biologically oriented examination of the physical (morphological) characteristics of pet animals and the responses they elicit in their owners. The second chapter/strand is a biologically oriented discussion of the behavior patterns of pet animals

and the way their owners respond to them. The third chapter/strand is a socio-psychologically oriented discussion of the processes by which owners assign personality, feelings and motives to their pets, thereby eliciting various psychological responses in their owners.

The strands of a rope are physically separate entities. However, in manufacturing a rope, three or more strands are twisted together to make the final product. The continuity and strength of the rope lie in the interdependent relationship, that is, the twisting together of the individual parts.

In a comparable manner, the various chapters of this thesis are separate entities describing different aspects of the person/pet relationship. We presume that they act together, more or less simultaneously, and support each other in a manner comparable to the way the strands of the rope act together to form and maintain the unity of the whole. We may describe our project as a convergent, multi-disciplinary, and extended comparative analysis of the person/pet relationship.

In Summary

Our discussion will take place in several phases:

1. Statement of the theoretical position
2. Definition of terms

3. Operational definition of concepts
4. Empirical validation of the theory
5. Application of the theory, being the convergent model.

The statement and validation phases will take place within the context of the individual chapters. We present our convergent analysis in a separate section, at the end, by investigating an actual "case".

Finally, we acknowledge that the rope is an artifact and that our theoretical/empirical discussion is an artifact as well. Being artifacts, they reveal the preferences, perspective, and biases of their makers as revealed in the selection of materials, the method of fabrication, and the skill of execution. The strength and soundness of the rope, as well as the strength and soundness of our developing comparative argument, are reflections of their makers. Any defects or shortcomings are reflections as well.

The Morphological Dimension of the person/pet relationship

In this chapter we examine the person/pet relationship from a morphological perspective. We begin by studying the facial characteristics of human infants and the responses they evoke in their parents or caregivers. Using various analogical procedures, we apply our findings about human infants to a discussion of pets, their particular stimulus qualities, and the responses they evoke in their owners.

The Concept of Ethology

Our discussion is grounded in Ethological theory, a sub discipline of biology and the statement guiding our investigation is given below.

Ethologists hold that each species, including the human, has a set of inherited fixed-action behavior patterns designed to ensure its survival, and that these patterns are released by certain specific sign stimuli. Thus, in their view, the human infant's facial features are sign stimuli for caregiving. (Jackson & Jackson, 1978, 6)

Extracting the operative terms, we may derive the following ethological formula.

Infant facial features are sign stimuli. Sign stimuli evoke inherited fixed-action patterns in adults. These patterns consist of caregiving behaviors. These

behaviors have the effect of ensuring the survival of the infant hence the species.

These concepts are important to the discussion in the present and following chapters. Therefore we take time to define them carefully below:

sign stimulus or releaser: "The sign stimulus is some component of a stimulus situation such as an odour or movement, that reliably elicits (releases) a particular unlearned response. Sign stimuli are usually assumed to be species specific which means that they are relevant for a particular species and function without prior training of the animal". (Ratner & Denny, 1964, 11)

Innate Releasing Mechanism: "We must postulate some afferent apparatus that allows the passage of the motor impulses only during the reception of specific stimuli... This afferent mechanism is known as the "Innate Releasing Mechanism" (IRM): the stimuli to which this mechanism responds are called sign stimuli. (Eibl-Eibesfeldt, 1974-5; in Stevenson, Hess & Rheinbold, 1976)

fixed-action pattern: "sequences of actions performed by an animal without specific prior learning or experience. Fixed-action patterns are assumed to be species specific. That is, the particular responses that are identified as fixed-action patterns are assumed to occur for all members

of a species and to occur differently for other species, although the differences may be rather subtle".

(Ratner & Denny, 1964, 11)

Ethology and Facial Morphology

In 1943, the ethologist Konrad Lorenz proposed a relationship between infantile morphology and adult responses. According to Douglas Mook (1982), Lorenz noted especially

the large forehead, short face, and protruding cheeks of infants as compared to adults. He suggested that such facial configurations might "release" parental behavior in the adult of the species. (Mook, 1982, 391)

M.A. Cann (1953) carried out one of the first comparative investigations of Lorenz's proposal in an unpublished Master's thesis. As Hess (1970) commented, she studied

the positive responsiveness of men and women, single and married, parents and childless, to pictures of infant young and adults of several animal species. (Hess, 1970, 20)

The stimuli consisted of 53 individual pairs of images, each pair consisting of one infant and one adult of the same species. The finding was that

significantly more of the "baby" pictures were preferred over adult pictures. (Hess, 1970, 20)

The preference response varied with sex as well as marital and parental status. Women had consistently higher preference scores than men and the preference scores of men varied with their parental status. The results of Cann (1953) lend support to Lorenz's claim that infantile facial features elicit parental responses. Berman (1980) cited Cann (1953) extensively in her review of differential parental responses to infants.

The method of Cann (1953) was adapted for a comparable study by Fullard and Reiling (1982).

Fullard and Reiling compared the response patterns of their subjects to photographs of human and infra-human infants, and Mook (1982) describes their method below

They simply showed their subjects pairs of slides in each of which a human or animal infant was paired with an adult. The subjects were asked which picture of each they preferred. (Mook, 1982, 392)

In ethological terms, the "form" of the infant faces constituted the sign stimulus, and the observed preference behavior was a manifestation of the fixed-action pattern or innate caregiving response.

All subjects over the age of puberty showed a preference for the infant as opposed to the adult images, and they found no significant difference in preference for infra-human as opposed to human infant faces. In other words

the human and infra-human infants evoked comparable patterns of responses. They accounted for this finding by commenting that:

in humans preference for the infant form generalises across species. (Fullard and Reiling, 1976, 1191)

Fullard and Reiling's comparative findings are instructive, but their study has a shortcoming. They did not directly investigate the relationship between facial characteristics and the intensity of subject responses, as Lorenz had specified. As well, there seems to be a contradiction between the comparative findings of these authors and the earlier definition of sign stimulus. Ratner and Denny noted above that sign stimuli are "species-specific" ie. "relevant for a particular species". Fullard and Reiling's finding of cross species "generalization" seems to contradict the idea of "specificity". We examine this further at a later point in the chapter.

In comparison with the general/comparative orientation of the Fullard and Reiling study, Sternklanz, Gray, and Murakani (1977) studied the individual characteristics of facial morphology and the responses they evoke, thus addressing Lorenz's proposal directly. Their stimuli were slides made from line drawings of infant faces in frontal presentation with their features in different sizes and relationships.

The components varied were the vertical position of the features of the face...eye width...eye height, eye width and height varied simultaneously, and iris size. Only one component of the face was varied for any one slide. (Sternolanz et al., 1977, 109)

The subjects responded on a seven point Lichert-type scale indicating their judgement of relative cuteness for each image. Thus they investigated the efficacy of different configurations of an infant face as a sign stimulus and relative cuteness was a measure of the caregiving response.

The highest cuteness scores were evoked by an infant face with a large forehead and small chin with large eyes and irises. The authors converted their results into graphic form by constructing a composite image based on their findings, thereby presenting their numerical results in graphic or visual form.

The profile or lateral aspect of the infant face was investigated by Gardner and Wallach (1955). They were guided by Lorenz's (1943) ethological analysis as well as the observations of Brooks and Hochberg (1960). They noted that:

Such characteristics as small face in relation to the forehead and protruding cheeks are listed as sign stimuli for they are common to the human body, and substitutes that also evoke parental responses, (dolls, adult members of preferred pet species, film caricatures, and absent from unacceptable substitutes. (Gardner and Wallach, 1965, 135)

They drew up a set of human facial profiles covering the morphological range from infant to adult. In addition they included a number of images they selectively distorted or exaggerated to depict what they called a superadult face and a super-baby face. The latter were included to test a theory of the ethologist Nikolaas Tinbergen that:

Such exaggeration yields distorted figures that are more optimal than the accurate presentation of the baby's head. (Gardner & Wallach, 1965, 136)

Tinbergen called this configuration the supernormal stimulus and observed that in infra-human animals (he studied birds extensively) this form of stimulus evoked a more intense response than its normally proportioned counterpart.

The authors presented the images in pairs and the subjects were asked to indicate which one in each pair they considered the more babyish. Thus the prospective sign stimuli were certain features of the infant face in profile, and the caregiving response was expressed as a differential judgement of babiness.

Reviewing the observed pattern of responses they noted that:

a change from a tall narrow head with large features and a large chin, to a short wide head with small features and a small chin was an effective determinant of judged babiness. (Gardner and Wallach, 1965, 141)

When they presented a normal baby image along with a superbaby image, the superbaby image was consistently chosen as the more babyish. Thus we see that humans as well as infra-humans respond to supernormal stimuli.

The logic of comparative reasoning

In our introduction, Shaw and Ashley (1982) informed us that the argument from analogy can be divided into two parts, being the "known" and the "unknown". To aid in the analysis of analogical or comparative arguments, the philosopher Trudy Govier (1985), gave these two parts formal names, being the analogue and primary subject respectively. Shaw and Ashley (1985) noted that

[a]nalogy enables us to think through new phenomena in terms of the old. (Shaw and Ashley, 1982, 116)

In other words, we explain the primary subject in terms of the analogue. We do this by enumerating the points of similarity between the two. Borrowing an idea from mathematics, we may describe the relationship between the analogue and primary subject as a comparative equation, because an equation implies a degree of similarity between its major components.

In the pages above, we developed an elaborate empirical and theoretical description of human infant facial

morphology. Using the comparative relationship proposed by Konrad Lorenz (1943) as a guide, we may say that this body of knowledge is the analogue of a comparative morphological equation.

In the following pages we investigate this equation by comparing the characteristics of human infants (the analogue) with the characteristics of non-human infants (the primary subject). The comparison proceeds by noting the points of similarity between human and non-human facial morphology.

Comparative morphology of human and non-human infants

Lorenz's original proposal was that all infant animals have similar facial characteristics and would therefore evoke comparable parental responses. Fullard and Reiling (1976) did find that pictures of human and infra-human infants evoke comparable patterns of response. However they did not study the characteristics of their stimuli in detail. In the section above we examined the human infant face in depth and we are now in a position to "test" Lorenz' claim. We do this by comparing our findings about the human infant face with observations about non-human infants made by Eberhard Trumler (1973), a former student of Konrad Lorenz.

Trumler begins with a general observation

A glance at the world of vertebrates, including man, will show that the young animal displays certain features.

implying that the immature members of many species, including our own, have particular characteristics in common. He continues:

The head is very round-quite opposite to that of the full grown animal.

thus affirming comparative observations made by Gardner and Wallach as well as Lorenz. He goes on to say that:

the large round eyes give the face a distinctive expression

which was confirmed empirically by Sternqlanz et al.. In addition:

the little nose is barely in evidence but there are large chubby cheeks and there is a round suckling mouth

In the human infant this facial roundness is due to the Corpus Adiposum Buccae. This is

[the buccal pad of fat...The pad helps to stiffen the walls of the mouth and being relatively much larger in infants than in adults accounts for the rounded fullness of babies' cheeks. (Zukerman, 1963, 406)

This again confirms observations made by Gardner and Wallach. He summarises with the observation that

All this distinguishes the baby's face from that of the adult

a comparative observation that Mook (1982) attributes to Konrad Lorenz.

Trumler continues by noting that when these characteristics are displayed

the optical signal "BABY" is hoisted

For "optical" we may substitute the word "visual", and for "optical signal" we may substitute the expression visual sign stimulus. For "BABY" we may substitute the expression childhood image, used by Lorenz and himself in referring to the "constellation" of facial characteristics we have been discussing above. The childhood image is revealed in the composite image produced by Sternglanz et al., and the images of Gardner and Wallach.

With this comparative argument we demonstrate that the facial characteristics of non-human infants, the primary subject of our comparative morphological equation, have a number of significant points of similarity with the human infant face, the analogue. This constellation of characteristics-in-common is known as the childhood image. Now we may see that the unspecified "form" of the stimuli in the Fullard and Reiling study is in fact the childhood image.

Lorenz's idea of a "universal constellation" of characteristics displayed by infant animals appears to be in conflict with Ratner and Denny's definition of the "species specific sign stimulus" that began our discussion. We are

now forced to either reject this definition or modify it in the light of new findings.

In their definition of fixed-action pattern above, Ratner and Denny stated that these patterns were different in different species but that "the differences may be rather subtle". Using this insight, perhaps we can modify the definition of the sign stimulus taking note of the fact that differences between the facial characteristics of infants of different species are, in a comparable manner, "rather subtle". In that case we may say that the facial characteristics of different animal infants, though not the same, are "sufficiently similar" to evoke comparable responses.

Pets and the Childhood Image

Eberhard Trumler (1973), supporting Konrad Lorenz (1943), declared that all young vertebrates display a common set of facial characteristics that he identified as the childhood image. The set of "all young vertebrates" includes the animals most commonly kept as household pets, and the dog is among the most popular. Below Trumler describes the morphological characteristics of the young dog.

The tiny puppy, with its short legs, silky coat and general awkwardness possesses the same features as those to which we react in the human child.

This affirms our comparative discussion above. As for the response evoked, Trumler observes that

Its appearance touches the same chords of emotion:
with the result that

we want to go up to it and stroke it.

This cross-validates the pattern of comparable responses found by Fullard and Reiling (1976). As for the "source" of this behavior, Trumler points out that

All this happens quite unconsciously: we are simply responding to the evocative mechanism of the childhood image. (Trumler, 1973, 112)

Summarising, we may see that the puppy displays the characteristics of the childhood image. The human infant displays these characteristics as well. The childhood image serves as a sign stimulus. Sign stimuli evoke fixed-action patterns in the form of caregiving behaviors, for example approaching and stroking. We may conclude from this discussion that infant pet animals are ethologically "comparable" to human infants.

Pets and Ethological Paradox

Ethological theory states that infantile sign stimuli serve to:

elicit special care by adults and to evoke maternal solicitude. (Higley and Suomi, 1968, 118)

thereby ensuring the survival of the infant, hence the species.

Ethology also acknowledges a particular relationship between morphology and physical maturation, which Higley and Suomi (1968) describe as follows:

As long as an infant possesses its infantile [characteristics], it is treated with solicitude, protection, and often a surprising level of tolerance by adults in its social group. However as its distinctive [characteristics] [fade], so does its special treatment. (Higley and Suomi, 1968, 155)

The stimulus effect of infantile morphology, (its "relative infantile attractiveness"), is inversely related to chronological age. Sternqlanz et al. (1977) give this point a more "causal" focus when they state the following:

The available field literature seems to indicate that the ending of intense mothering and social immunity are determined by the disappearance of the infantile characteristics rather than by the choice of the infant. (Sternqlanz et. al., 1977, 108)

Thus the childhood image, primarily a "visual" stimulus, sustains adult caregiving behavior. When infantile characteristics are no longer observable, caregiving behavior is no longer evoked. Adults then revert to adult-oriented forms of social behavior in dealing with their offspring. In summary, we make two observations

- 1 As an animal matures it loses its infantile appeal and no longer evokes adult caregiving responses.

2 An animal cannot be both chronologically adult and morphologically infantile.

The relationship between age, morphology and solicious adult treatment in wild animals has been reported in the person/pet relationship as well. Michael Fox, a widely published American veterinarian, commented as follows

A kitten remains appealing and evokes much attention and affection until it matures. [and then].. its body changes, the more mature conformation evoking fewer feelings of affection and tender loving care than a round headed big eyed fluffy kitten. So the adult is given less attention and may be virtually ignored if not neglected. (Fox:1974,150)

The ethological rule operative among wild animals appears to hold between people and their pets as well.

However there is a conflict between Fox's comments and observations made earlier by Gardner and Wallach (1965). In a passage quoted earlier, they noted that "a small face in relation to the forehead" is one of the characteristics that "evoke parental behavior". This is confirmed by our discussion of the childhood image above. But in the following sentence they note that these characteristics are displayed by "adult members of preferred pet species" (Gardner and Wallach,1965,135). Thus they presented a case in which an animal is both chronologically adult and morphologically infantile. This contradicts our discussion of ethological theory.

The same note of contradiction was struck by the ethologist Konrad Lorenz (1952) in his description of the morphology of the domestic dogs. As he stated

[the] properties of body structure...which in the wild prototypes are marked by some transient stage of youth, are kept permanently by the domestic form. In dogs, short hair curly tail, hanging ears, domed skulls and the short muzzle of many domestic breeds are features of this type. (Lorenz, 1952, 119)

According to Lorenz, the domestic form of the domestic dog keeps permanently. (from infancy to adulthood), certain properties of body structure. (morphological characteristics), that in the wild prototype are associated with transient stages of youth. In other words domestic dogs, as adults, display anatomical features that are seen in the immature life stages of what Lorenz calls the "wild prototype" (more about this later). This affirms the observations of Gardner and Wallach that "immature" morphological characteristics, (small face in relation to the forehead etc.), may be seen in the adult domestic dog. However, it puts the credibility of ethological theory in some doubt. We are faced with a dilemma.

When in doubt, make distinctions! We can ease the difficulty by noting that there do exist a number of wild animals that retain their infantile morphology as adults. For example, Paul A. Zahl (1972), made the following observation about the salamander:

Forever young in appearance, this laboratory reared [salamander] bears the brushlike gills and other characteristics of the larval stage. It will retain its juvenile look, a condition known as neoteny all its life. (Zahl, 1972, 116)

As a biological term, neoteny describes the retention of juvenile characteristics in the adult wild animal. Konrad Lorenz (1976), attempting to explain the immature features of the adult domestic dog, made reference to a process of developmental inhibition that he described as

retardation or foetalization, which fixates juvenile characteristics of the wild form as persistent adult characteristics. I see no reason why we should not employ the term neoteny, which is otherwise used in biology for the described phenomenon. (Lorenz: 1976, 93)

Lorenz demonstrates that neoteny can appropriately describe immature adult morphology in both wild and domestic animals. However there is a caveat.

Although the same word describes the immature morphology of both the adult salamander and the domestic dog, the developmental histories of the two animals are vastly different. We examine these differences below as we discuss the influence of domestication on animals in general, and dogs on particular.

Domestication: The Process Effects and Consequences.

There are many differences, morphological and otherwise, between the salamander and the dog; but the most significant difference is that the salamander is a wild animal and the dog we keep as a pet is a domestic animal. Below Simon Davis (1982) differentiates between the two when he describes a domestic animal as

one whose breeding is largely controlled by man. The evolution of a domesticated species results mainly from artificial selection, with natural selection playing a secondary role. (Davis, 1982, 697)

The evolution of wild animals is under the influence of natural selection while that of domestic animals is under the influence of artificial selection. Below we discuss the concepts of evolution, breeding, natural selection and artificial selection.

Evolution is the process by which all animals originated, and changed, and continue to change over time. According to evolutionary theory, all animals had their origins in preexisting forms and differences over time are due to changes in successive generations.

Breeding is the mating process, the sexual union of male and female that produces successive generations of animals.

Natural selection is the process by which successive generations of wild animals are produced. Of all the individuals born in a particular generation, only those few that make a suitable adjustment to their environment and avoid death by disease or predation will survive to mate (breed) and produce the next generation of animals. This principle is known as the survival of the fittest.

Artificial selection is the definitive mark of domestication, and we examine this process in the pages below.

Ruth Moore (1964) describes artificial selection as man-made evolution and comments that the process

takes place most dramatically when man selects traits he likes and breeds them true in his domesticated plants and animals. (Moore, 1964, 75)

Breeding "true" means that certain traits are reliably passed from parent to offspring through a number of generations.

Artificial selection is implemented through selective breeding, whose earliest and simplest form is called mass selection. In this process

a number of individuals chosen on the basis of appearance are mated, their progeny are further selected for their preferred characteristics, and the process is continued for as many generations as desired. (Enc. Britt., 1986, 616)

Human intervention in the breeding process has had a number of significant evolutionary consequences for domestic animals and Desmond Morris (1967) discusses them below. He observes that

Their numbers are dramatically increased. In terms of world populations they are a tremendously successful. But it is a qualified success. The price they have paid is their evolutionary freedom. They have lost their genetic independence and, although well fed and cared for, are now subject to our breeding whims and fancies. (Morris, 1967, 222)

Below, Charles A. Reed (1959) points to another important consequence of applying our "breeding whims and fancies" and thus "intervening" in the breeding process.

In a very real sense...domestic animals (as well as plants) are a type of human artifact because they exist in a form changed by man. (Reed, 1959, 1638, note 7)

This is the morphological end-product of man-made evolution.

Evolution of the Domestic Dog

In his discussion of domestic dog morphology (reproduced above), Konrad Lorenz (1952) commented on the similarities between the characteristics of the adult domestic dog and the immature form of the "wild prototype". This raises a question about the "ancestry" of the domestic dog. According to Reed (1959) and other authorities, the direct ancestor of *canis familiaris* is some form of wolf, now

extinct. As this wolf was progressively "civilised" over the course of many canine generations, the pressure of selective breeding brought about a great expansion in the range of body size among domestic dogs. Below the geneticist and animal breeder Frederick Hutt (1964) comments on this range of morphological variability.

To get some idea of how much selection breeders have made from the genes affecting size and conformation (ie. physical structure or morphology), one should go to any good dog show...It is sometimes difficult to believe that the entries on exhibit could all belong to the same species, but they have all been differentiated by mass selection. (Hutt, 1964, 352)

Hutt illustrates the range of this variability in a photograph of a Chihuahua sitting between the forelegs of a reclining St. Bernard, with the caption reading as follows

The St. Bernard and the Chihuahua show what has been done to dogs through mass selection. The St. Bernard seems not amused. (Hutt, 1964, 353)

The St. Bernard is one of the largest of the domestic dog varieties or breeds and the Chihuahua is one of the smallest with approximately 200 distinct varieties in between (based on a count of the articles in A Standard Guide to Purebred Dogs (Glover, 1977)).

If all the breeds of domestic dog listed in Glover (1977) were placed along the morphological scale developed by Gardner and Wallach (1965), they would cover the range from baby to adult. We may note that the smallest of the domestic dogs, for example the Chihuahua, are also the most

baby-like. In kennel club terminology, they are designated as the TOY breeds, and we discuss their particular evolution and morphology below.

Morphology of the TOY Dogs

Some dogs were bred for pulling loads, guarding property or herding. However the toy dogs had no such "useful" purpose. As Angela Sayer (1982) explains

They were [selectively] bred for diminutive size and unusual appearance. (Sayer, 1982, 32)

In our discussion of selective breeding we learned that the process "could be continued for as many generations as desired". The Chinese have had a long history of expressing their "breeding whims and fancies" through the art of selective breeding. One example is the goldfish, highly prized, and extensively "modified" by them over time. Below Zahl (1973) describes the man-made evolution of the goldfish, noting that

[t]he first fancy goldfish were nature's creations produced by unknown factors that triggered chromosome variation. The Chinese with their traditional interest in dragons and mythical monsters segregated these deviants and mated them with similar sorts to produce living freaks, wild and outlandish. (Zahl, 1973, 318)

We see that the Chinese have applied mass selection to goldfish with a result comparable to what Hutt (1964) observed above in the dog.

In addition to goldfish, the Chinese have also demonstrated interest in dog breeding, and the Pekinese is a prime example. According to Glover (1977)

They were the Royal Dog of China and their history goes back at least to the T'Ang dynasty. [AD 618-907] ... [and] remarkable lengths were gone to to encourage desirable features of stunted growth, short nose and exaggerated front. (Glover, 1977, 365)

The application of artificial selection over many canine generations has had distinct morphological effects in the TOY dogs. As reported by Desmond Morris

[the] body is more rounded and less angular than that of the human adult's, and it is softer to the touch. It's face is flatter and its eyes are proportionally bigger. (Morris, 1986, 90)

Morris' description recalls the characteristics of the childhood image that we discussed earlier. This demonstrates that neoteny attains its ultimate expression in the morphology of the TOY dogs.

Below we compare the morphology of the toy dog with that of another human creation, the doll.

Dogs, Dolls, and Supernormal Stimuli

In the pages above, we learned how certain "breeding whims and fancies" were implemented through a programme of selective breeding to yield the characteristic morphology of the Pekinese and other Toy dogs. Describing these "motives"

and physical "characteristics" in ethological terms, we may arrive at a conclusion similar to Desmond Morris (1986) when he noted that

To arouse maternal feelings in the owners, dogs must transmit a special set of signals and this is where the smaller dogs come into their own. (Morris, 1986, 90)

As for this "special set of signals".

The toy breeds are neotenous, they have large infantile heads, big eyes and little jaws, and they retain through life the dependency of infants. (Tudge, 22)

We see that through the application of selective breeding, we have produced a domestic animal with highly evocative morphological characteristics.

From Reed (1959) we learned that the domestic dog may be considered a kind of human artifact "because it exists in a form changed by man". Another human artifact has been produced "to arouse maternal feelings in the owners", this being the doll. Commenting on the motive behind their manufacture, Eberhard Trumler (1973) notes that

The makers so design their dolls that the features liable to evoke maternal responses are pronounced if not exaggerated. They are often "sweeter" than real children. (Trumler, 1973, 112)

We note that the makers of dolls have successfully applied the theory of Nikolaas Tinbergen, as well as the "method" of Gardner and Wallach. By exaggerating "normal" facial

features, they produced an artifact with supernormal characteristics.

Comparing the features of dolls and toy dogs, the ethologist Eibl-eibesfeldt (1967) came to the following conclusion

If we look at animals or dolls that we find cute, we realise that all of these objects have at least some of the characteristics... [of the childhood image]. These characteristics are especially true of pets kept by elderly ladies. (Eibl-Eibesfeldt: 1967, 142-3)

We have learned that dolls are among the most "babyish" of human representations and we know that the Toy dogs are the most "babyish" of domestic dogs. We see that their appeal derives from the evocative power of the childhood image; as revealed by their supernormal facial characteristics.

Dolls are not the only human artifacts with appealing features. Gardner and Wallach (1965) observed infantile characteristics in "film caricatures", including cartoons. Studying the cartoon character Mickey Mouse, Gould (1979) found that the appeal of the character lay in its baby-like facial characteristics. Hinde and Barden (1985) came to a similar conclusion in their study of teddy bears.

We conclude our discussion with the following account of the motives, processes, and outcomes of selective breeding as applied to toy dogs.

How powerful the childhood image is in producing the reaction 'attractive' or 'sweet' is shown by those curious breeds of dog in which the features

that activate this emotional mechanism have been turned into permanencies. Take, for instance, the much abused pug: in this case as with pekinese, toy terriers, griffons, maltese and so forth, the breeder's art has turned the childhood image into a breed characteristic. 'oh, if only he could stay so small and sweet and not grow into a St. Bernard'-how many dog-lovers have said something like this and thousands of years ago the breeding speculator took note of it and has bequeathed us these 'living dolls'. (Trumler, 1973, 113)

The result has been that

The little puppy muzzle does not grow and so there appears a pug-faced dog; the brain however is not dwarfed and so the head remains round with large eyes like a puppy's. (Trumler, 1973, 113-4)

in other words, neoteny. These characteristics induce vocal, behavioral and especially tactile caregiving responses, for example

The 'puppy-fat' of the silken coated pug is an invitation to cuddling and the maltese, with his long soft silky coat, is also a natural object of stroking and cuddling. (Trumler, 1973, 114)

The supernormal infantile facial features of the Toy dog, being components of the childhood image, serve as sign stimuli. They evoke fixed action patterns in the form of "stroking" and "cuddling" that serve as caregiving behaviors.

Chapter Summary

The comparative argument in this chapter proceeds in two distinct stages. In the first stage, we used the guidance of

Konrad Lorenz (1943) and Fullard and Reiling (1976) as well as the contributions of Trumler (1973) and other authors to establish the comparability of morphology between human infants and the infants of non-human animal species. Then we established the morphological comparability of human infants and the infants of pet animal species, with the contributions of Trumler and Fox (1974). However we encountered a problem. Gardner and Wallach (1965) revealed that infantile morphological characteristics are displayed not only by the juveniles but by the "adult members of preferred pet species"(p. 165). But this is in conflict with ethological theory stating that the characteristics and appeal of the childhood image diminish with maturity (Higley and Suomi 1968, Sternglanz et al. 1977). We resolved the conflict by introducing domestication as a factor in the morphological equation.

Intervening in the evolution of selected animals by way of selective breeding, we have produced pet animals that are in effect living artifacts (Reed 1959). They display endearing morphological characteristics that are comparable to other human artifacts including dolls, cartoon characters and teddy bears.

In the last stage of the argument, we concluded that certain pet animals have been bred to retain infantile

morphological characteristics throughout their lives. They serve as sign stimuli and evoke caregiving behaviors that include "stroking" and "cuddling". By including the neotenising influence of domestication as a correction factor, we are able to preserve the integrity of the ethological formula as it pertains to the morphological dimension of the person/pet relationship.

In the next chapter we consider caregiving in greater detail as we study the behavioral component of the person/pet relationship.

The Behavioral Dimension: The Process of Attachment

In the last chapter we studied the morphology of the human infant and the responses evoked in human caregivers. This was the analogue of our comparative morphological equation. The primary subject was pet animal morphology and the responses elicited in pet owners. The main point of similarity was the childhood image and the ethological theory (formula) that explains its morphological characteristics and their power to evoke caregiving responses in both parents and pet owners.

The analogue of the present chapter is a discussion of human infant behavior patterns, the parental responses they elicit, and the theory that explains the relationship between the two. This will take up the first Part of the chapter.

In the second Part, we apply this accumulated empirical and theoretical knowledge to a comparative discussion of the person/pet relationship. This is the primary subject of our comparative behavioral equation.

We begin the chapter by substituting behavioral values in our ethological formula, deriving the following statement

Certain infant behaviors are sign stimuli. They evoke or release inherited fixed action patterns in the form of caregiving behaviors that serve to ensure the survival of the infant, hence the species.

This ethological "proposal" was investigated by John Bowlby and fully articulated in the form of Attachment Theory.

Ethology and Attachment Theory

Heatherington and Parke (1979) outline attachment theory as follows

Bowlby has suggested that attachment is a result of a set of instinctual responses which are important for the protection and survival of the species. These infant behaviors - crying, sucking, smiling, clinging and following - elicit necessary parental care and protection for the infant and promote contact between mother and infant. (Heatherington and Parke, 1979, 222)

Applying the ethological definitions given in the first chapter, we see that infant behaviors such as crying, smiling, etc. are sign stimuli that elicit fixed action patterns in the form of "parental care and protection". The infant behaviors and adult responses are innate and they assure the survival of the infant by "promoting contact between mother and infant".

Attachment theory calls for an expansion of our initial definition of the sign stimulus in the first chapter. Hence we include the following statement.

A special group of sign stimuli is formed by those signals that release a social response, be it in a conspecific or a symbiont. The signalling patterns which we call 'social releasers' are special morphological structures and/or movements (expression movements)." (Eible-Eibesfeldt, 134-5; in Stevenson, Hess & Rheinbold, 1976)

A conspecific is a member of the same species. A symbiont is a member of a different species that has some kind of functional or dependent relationship with another organism. In the following pages we will examine the conspecific relationship between human infants and their adult caregivers.

In a concise resume of attachment theory, John Bowlby (1975) discussed the ethological concepts presented by Heatherington and Parke above, as well as several other features of attachment including specificity. As he notes

Attachment behavior is directed toward one or a few individuals, usually in clear^s order of preference. (Bowlby, 1975, 294)

Another feature is duration, and as Bowlby comments

An attachment endures, usually for a large part of the life cycle...early attachments are not easily abandoned and they commonly persist. (Bowlby, 1975, 294)

One other significant feature is what Bowlby calls the engagement of emotion.

Many of the most intense emotions arise during the formation, the maintenance, the disruption and the renewal of attachment relationships: hence the term affectional bonds... The unchallenged maintenance of a bond is experienced as a source of security and the renewal of the bond is a source of joy. (Bowlby, 1975, 294)

He also observed that the threat of a loss may elicit anxiety, and that an actual loss can result in sorrow and grief.

In the previous chapter we saw that the causal movement in the morphological relationship was essentially unidirectional, with the caregiver responding actively to the more or less static or passive character of the infant's morphological characteristics. The attachment relationship has a more complex pattern of stimulus and response, and as Diony Young (1979) explains below

A delightful, reciprocal pattern of responses synchronizes between parent and baby, in which a signal from one turns on a response in the other. (Young, 1979, 25)

Attachment is an interactive social relationship between infant and parent. Young continues, noting that

As time goes on, the baby's and parent's responses and exchanges increase and become more complex, establishing ever more strongly the mother's commitment to her baby. (Young, 1979, 25)

In the section below we consider the form and content of the infant's "responses and exchanges", collectively known as infant attachment behavior.

Human-Infant-to-adult Attachment Behavior

Bell and Ainsworth (1972) make a distinction between two forms of infant attachment behavior. As they say

Attachment behaviors are of two main classes, active behaviors through which an infant himself achieves proximity or maintains contact once it is attained, and signalling behavior that stimulates his mother to come into close proximity with him. (Bell and Ainsworth, 1972, 1171)

Mary Ainsworth, second only to John Bowlby as a pioneering student of infant attachment, compiled the following list of infant attachment behaviors, which include

(1) crying (2) smiling (3) vocalization (4) visual-motor orientation (5) crying when the attachment object leaves (6) following (7) scrambling (8) burying face in lap (9) exploration from a secure base (10) lifting arms in greeting (11) clinging (12) clapping hands in greeting (13) approach through locomotion. (Lamb, 1974, 379, footnote)

In our discussion of infant morphology, we learned that the childhood image served as a "visual sign stimulus" hence a rudimentary form of communication. Taking a "communication" perspective on infant behavior, the ethologist S.A. Barnett (1981) pointed out that in the first year of life the infant is limited almost completely to non

verbal means by which to communicate. Adopting the "communication" perspective, Ronald Illingworth (1980) discussed infant behavior under the heading of "non verbal communication", noting that

Infants communicate with their mothers by crying, watching her, smiling, laughing, playing, showing affection, clinging to her, kissing her, vigorous welcoming movements, frowning, pushing her away, and vocalizations leading to speech. (Illingworth, 1980, 5)

Bell and Ainsworth (1972) would describe these as "signalling behaviors".

Illingworth also noted the infant practices of reaching and grasping, pulling on a parent's clothing, coughing and holding up his or her arms to a caregiver.

As the child develops, s/he is able to point to objects, wave "bye bye" and play clap hands. These actions serve to attract adult attention, maintain adult proximity, and communicate the infant's needs. Comparing these observations with Ainsworth above, we may conclude that "infant attachment behavior" and "infant non-verbal communication" are functionally equivalent.

Caroll Izard (1979) framed her discussion of infant attachment in affective terms, defining the attachment relationship as

a set of emotion ties that create a strong bond between two individuals. (Izard, 1979, 39)

This demonstrates John Bowlby's concept of the "engagement of emotion".

Izard goes on to discuss the ways an infant may transmit the messages that establish and maintain these emotional ties, noting that

[i]n infancy the establishment and maintenance of these [emotional] ties depends in large measure on emotional communication via the facial visual system. (Izard, 1979, 39)

In the last chapter we studied the infant facial visual system in the "passive" context of the childhood image. In the present chapter we attend to the movements of these infant facial features as revealed in various gestures or expressions. In this vein, the ethologist Eibl-Eibesfeldt (1967) makes an addition to our understanding of the sign stimulus with the following observation.

There are indications that certain facial expressions are... signalling structures to which an innate releasing mechanism has been adapted ... (Eibl-Eibesfeldt; 1967; 142-3)

The smile has been mentioned several times above as an infant "signalling" behavior, and W.H. Thorpe (1974) gives the following ethological analysis of the infant smile. As he noted

we can say that a baby's smile acts as a social releaser, the predictable outcome of which is that the mother responds in a loving way which prolongs social interaction between them and increases the likelihood of her exhibiting maternal behavior in the future. (Thorpe, 1974, 221)

The smile is a social sign stimulus, and its primary function is to maintain proximity between infant and mother, a major purpose of attachment behavior as noted by Heatherington and Parke (1979).

In addition, Izard (1979) comments that vocal behavior is an important mode of infant communication, saying that

The vocal expression of emotion (cooing, babbling, crying, screaming) also plays a significant part in this special interpersonal relationship. (Izard, 1979, 39)

Izard identifies one further mode of non verbal communication involving

the sense of touch and the exercise of this sensory modality through bodily contact. (Izard, 1979, 39)

The tactile dimension of infant behavior was examined by Ashley Montagu (1978) who commented as follows

The manner in which the young of all mammals snuggle up to and cuddle the body of the mother as well as their siblings or any other introduced animal suggests that cutaneous stimulation is an important biological need for both their physical and behavioral development. (Montagu, 1978, 27)

Montagu includes our own species in his discussion of "mammals" and indicates that tactile gratification is a universal need. We may summarise by noting that infant attachment behavior is the ethological counterpart of the childhood image we discussed on the previous chapter. We see that features of both infant morphology and behavior can serve as sign stimuli.

In the pages above we discussed infant attachment behavior under "normal" or adaptive conditions. However when the child feels discomfort, or is threatened for any reason, a different set of reactions are evoked. John Bowlby (1980) explains that the goal of attachment behavior is to maintain the affectional bond. Any threat to the bond releases behaviors intended to preserve it, and the more serious the threat the more intense the reaction to preserve the balance.

In such circumstances all the most powerful forms of attachment behavior become activated -clinging, crying and perhaps angry coercion. This is the phase of protest and one of acute physiological stress and emotional distress. When these actions are successful the bond is restored, the activities cease and the states of stress and distress are alleviated. (Bowlby, 1980, 42)

Thus we see that the child is able to perceive, respond to, and exercise control over his or her social environment by effective non verbal means. Using our ethological terminology, we note that these infant behaviors are sign stimuli and that they act as social releasers. In the pages below we consider the parental behavior patterns released by these infant behaviors, defining what Diony Young (1979) referred to as "a mother's commitment to her baby".

Human-Adult-to-infant-Attachment-Behavior

The parental aspect of the attachment relationship has not been studied as extensively as infant attachment, but significant contributions to the field have been made by Klaus and Kennel (1976).

They define attachment as a "unique relationship that endures through time", has recognisable "partners", and is relatively stable, thus repeating comments made by John Bowlby. They go on to note that

we have taken as indicators of the attachment such behaviors as fondling, kissing, cuddling and prolonged gazing, behaviors that serve to maintain contact and to exhibit affection towards a particular individual. (Klaus and Kennel, 1976, 2)

Below Diony Young (1979) describes a number of ways a mother may transmit what she calls "messages of affection" to her baby. They include

kissing, fondling, touching, soothing, smiling, prolonged gazing, cuddling, and talking in a high-pitched voice. (Young, 1979, 25)

We may take note of a number of similarities between infant and adult attachment behavior. First, we see that both infant and adult attachment behaviors are non verbal. Second, we see that both have a communicative function. Third, affect or emotionality is a part of both infant and adult attachment behavior. These are three important channels of communication between infant and caregiver.

We may see a powerful example of adult non-verbal /affective behavior in the adult response to the infant smile. Eleanor Maccoby (1980) notes that

Adults find infant smiles highly attractive, and they pay more attention to a smiling infant than a sober one. They smile in return, talk to or pick up the child. (Maccoby, 1980, 51)

Taking an ethological perspective, W.H. Thorpe (1974) comments that

[a] baby's smile is one of the most endearing things about it. It has more than once been suggested (eg. Konrad Lorenz), that the fascination of the smile to any normal human being...[provides evidence for it]...having been developed and selected for, under the intense pressure of nomadism, when being left behind must have been one of the greatest dangers to survival. (Thorpe, 1974, 221)

We may say that the smile is "common currency" in the reciprocal attachment relationship.

Vocalization has an important role in attachment as well. In the previous chapter Carol Izard (1979) commented on the infant's expression of emotion by "crying, babbling and screaming". This serves as an attention-getting and proximity-maintaining device. In a comparable manner David Stern (1975) made the following observation about adult-to-infant vocalization commenting that

Mothers do extraordinary maneuvers with their voices and facial movements when they are with their babies...both mothers and fathers will speak in a falsetto range and use extreme variations in pitch and stress which give a sing song quality to their voice. (Stern, 76, in Klaus et al., 1975)

Stern points out that a number of facial movements accompany these vocalizations, including exaggerated and slower movements of the eyebrows, raising of the eyebrows, and a pattern of throwing back the head and making "ooh" and "aah" sounds.

Izard commented on the tactile dimension of infant attachment behavior and Ashley Montagu (1978) observes its counterpart in adult behavior, noting that

A basic ingredient of "motherliness" is close physical contact, the hugging, cuddling, caressing, embracing, rocking, kissing and other stimulations that a motherly mother gives her child. (Montagu, 1978, 227)

Summarising, we may see that smiling, vocalization and tactility are common common features of both adult and infant communication.

Male attachment and other ethological considerations

In the last chapter, (the section on Pets and Ethological Paradox), we examined the relationship between infantile morphology and adult behavior. Higley and Suomi (1968) noted that when the childhood image is prominently displayed, the infant is "treated with solicitude, protection and...tolerance by adults" (p. 155). Stern et al. (1977) described this condition as "social immunity", noting that

the infant may freely invade the personal space of the most dominant males without fear of the repercussions which would come if he or she were older. (Sternglanz, 1977, 108)

Sternglanz noted that the presence of an infant has an aggression-reducing or aggression-inhibiting effect on "normal" inter-adult male aggression in primates. A comparable behavior pattern in human males was recorded by Donna Britt-Gibson (1985).

She interviewed a former social service worker in Southeast Asia whose party was experiencing difficulty moving around the country because of road blocks and rough treatment from the guards. The situation changed dramatically when an infant joined the group. As her subject related

We'd take it [the baby] to the road blocks and police stations and these sullen chain-smoking guard's faces would light up and they'd pass the baby around laughing. Guys with machine guns over their shoulders would gush over this baby. (Britt-Gibson, 1985, 3b)

We note comparatively that both primate and human males responded to the presence of an infant with suppressed aggression. Arguing ethologically we may say that the ability to inhibit male aggressive behavior has survival value for the physically defenseless infant. This suppressed-aggression response may be a manifestation of male caregiving or attachment behavior and appears to be an automatic in each case.

One further effect of infants on the behavior of adults is to temporarily release them from inhibitions they normally demonstrate when interacting with other adults. A dramatic change can occur, as Sidney Simon (1976) reveals below

Babies and small children are by nature cute and cuddly. They routinely get held and fondled...The most restrained, straight-laced, and prudish aunt or uncle will routinely go "ape" when given a new niece or nephew to hold. (Simon, 1976, 30)

The conventional wisdom for many years was that males have no significant role in childrearing and do not display anything comparable to "maternal" caregiving behaviors or feelings. Contemporary thinking is very different with a number of researchers finding that male attachment behavior is common and normal, for example, Chibucos & Kail (1981).

Ashley Montagu (1968) declared that

There is good evidence that a strong bond of attachment is capable of being formed between father and child within the first few days of life, and also of being reinforced by subsequent attentions to the infant. (Montagu, 1968, 301)

Montagu refers extensively to the work of Ross D. Parke, an expert in the area of father-child attachment. Ross observed that in the first few days of life, middle class fathers were observed to hold their babies twice as much as their mothers, touch the baby somewhat more, but to smile less than their mothers. Parke noted that the presence of the

father had a significant emotional effect on the mother.

Summarising Parke's observations, Montagu (1968) noted that

the father is much more involved in his infant and responsive than our culture has acknowledged. [and] that the practice of excluding the father from early interaction with his infant merely reflects and reinforces a cultural stereotype. (Montagu, 1968, 301)

We conclude that a complete discussion of attachment should include male as well as female caregiving behavior.

The adult response to threat or loss

In his discussion of the child's reaction to the loss of his or her attachment object, or a threat to the security of the relationship, John Bowlby (1980) comments that this evokes a "phase of protest and...physiological stress and emotional distress" in the child. Bowlby notes comparatively that adults go through a similar period of emotional disorientation and grief at the death of a person to whom they have become attached. The parental reaction to the rupture of an attachment bond, because of the loss of a child, can be just as traumatic as the child's reaction to the loss of a parent. As Furlong and Hobbins (1982), point out

One of the most devastating events a family can experience is the death of a child. (Furlong & Hobbins, 1982, 1)

Bowlby (1980) has identified four phases in the adult mourning process, being

1. Phase of numbing that usually lasts from a few hours to a week and may be interrupted by outbursts of extremely intense distress and/or anger.
2. Phase of yearning for the lost figure lasting some months and sometimes for years.
3. Phase of disorganization and despair.
4. Phase of greater or lesser degree of reorganization. (Bowlby, 1980, 85)

Bowlby notes that the mourning or grieving process may be normal or abnormal depending on the quality of attachment between the grieving person and the one lost.

The more secure the attachment has been to the lost figure the more likely is the bereaved in due course to recover from the loss and also to retain a comforting sense of the lost one's presence. (Bowlby, 1975, 305)

However, Bowlby (1975) notes that mourning can take a dysfunctional or pathological course when the attachment has been insecure or unhealthy for any reason, or when there is no one with whom the bereaved can express his or her feelings. He comments that the lack of "someone else to care for", can lead to disturbances in grieving as well.

Attachment as a Life-Span Process

Developmental psychology confines the attachment process to the period of early childhood and the period of active parenting or childcaring. This position is challenged by John Bowlby (1980) who comments as follows:

Intimate attachments to other human beings are the hub around which a person's life revolves, not only when he is an infant or a toddler or a schoolchild, but throughout his adolescence and his years of maturity as well, and on into old age. From these intimate attachments a person draws his strength and enjoyment of life and, through what he contributes, he gives strength and enjoyment to others. (Bowlby, 1980, 442)

Bowlby observes that the forms of attachment behavior change over time, and that vicarious forms of need satisfaction assume greater prominence with maturity. Thus a substitute for the immediate attachment object can serve as an effective releaser, thereby satisfying a deeply felt need.

In the first Part of this chapter, we developed an elaborate theoretical and empirical description of the attachment process in the context of the human infant/parent relationship. This is the analogue of our comparative behavioral equation.

In the pages below we apply our knowledge of human attachment, in the form of a comparative argument, to develop our empirical and theoretical understanding of the

person/pet relationship. This is the primary subject of our comparative behavioral equation.


Attachment and the Person/Pet Relationship

If the previous section was a discussion about interaction and communication between conspecifics as Eible-Eibesfeldt used the term, then in the following pages we discuss a comparable relationship between symbionts. We take as guidance the following comparative observation by Alisdair Macdonald (1981), who noted that

the relationship between pet and human shares many of the features that identify important bonds between humans, such as the mother-child relationship. (Macdonald, 1981, 205)

The implication is that the person/pet relationship is comparable to the human infant/parent relationship, and that pet attachment behaviors evoke human attachment responses.

Macdonald made this remark more or less in passing, but the application of attachment theory to the person/pet relationship has been investigated by Victoria Voith (1981). In her veterinary practice Voith encountered many pet animals with behavioral problems. Moreover, she observed that their owners were strongly bonded to their pets in spite of their unpredictable or destructive behavior. strongly bonded to them. To explain this phenomenon, Voith appealed to the writings of John Bowlby (1969), and framed a definition of attachment, which she describes as



an emotion or affective state that causes an individual to keep another in proximity or in frequent communication, and that results in physiological and behavioral responses by the former when the individuals are separated. (Voith, 1981, 272)

These concepts will be familiar from our discussion in Part One.

Voith's argument for the use of attachment is based on the following premise

If the attachment to a pet is based, consciously or subconsciously on a parent child relationship, corresponding risks might also be evaluated in terms of a parent-child relationship. (Voith, 1968, 382)

In the following pages we examine her argument, comparing her observations about the person/pet relationship with our previous discussion of the human infant/parent relationship. In this way, we develop the primary subject of our comparative behavioral equation.

Pet-to-Person Attachment Behavior

Voith noted that pet animals have different ways of indicating attachment to their owners. For example

An animal may follow an owner within the house, always staying in the same room as the owner. (Voith, 1981, 273)

Gerald Durrell (1956) gives the following account of following behavior in the dog Doda, recently acquired by his mother. According to Durrell.

she attached herself to Mother with the tenacity of a limpet, never moving more than a couple of feet at most. If Mother sat down Doda would be at her feet; if Mother had to get up and cross the room for a book or a cigarette, Doda would accompany her, and then they would return together and sit down again...She even insisted in being present when Mother had a bath. (Durrell, 1956, 249)

By comparison, Mary Ainsworth indicated in the Part One that "following" was a definitive attachment behavior in human infants. In addition, Doda clearly demonstrated the "specificity of attachment" that John Bowlby (1975) discussed in Part One.

Voith goes on to observe that

Dogs...engage in all sorts of endearing behavior such as acting happy when the owner returns, wanting to be touched by the owner, [and] making the owner happy with antics. (Voith, 1981, 281)

There are several points here. First, she describes dogs as "acting happy" when their owners return and this is comparable to the observation of Marie Ainsworth that children engage in "vigorous welcoming movements" when a caregiver approaches. Voith elaborates on her initial observation by pointing out that

[p]ets, particularly dogs, sometimes cats and even horses greet a person in a way that is interpreted as being glad to see the person. (Voith, 1981, 281)

A wide range of pet animals exhibit greeting behaviors, and they appear comparable to the infant actions of "lifting arms" and "clapping hands" in greeting noted by Ainsworth in Part One.

Voith observes that pets exhibit a tactility-need in their "wanting to be touched by the owner". A further comment on the tactile needs of pet animals is made by Ashley Montagu (1959) who noted the following

Dogs appear to be insatiable in their appetite for stroking, cats relish it and purr, apparently enjoying the stroking at least as much as self licking. The supreme note of confidence offered a human by a cat is to rub itself against your leg. (Montagu, 1978, 26)

Dogs have well developed "strategies" for soliciting tactile contact from humans, and Eberhard Trumler (1973) gives an example below

Binna, my elkhound bitch, loves being fussed over; she has brought this request for stroking to a fine art, laying her ears back so tight that they almost disappear into the thick coat of her neck; with an adoring gaze she presents one with a 'stroke worthy head', looking more like a seal than a dog. Binna's nose nudging is simply not to be denied. (Trumler, 1973, 104)

Comparable contact seeking behaviors in human infants were described by both Ainsworth and Illingworth in the Part One. From this we may conclude that pet animals have physical contact needs that are comparable to those of human infants.

Voith commented that pets can be seen "making the owner happy with antics", a reference to animal play behavior. In this regard Messent and Serpell (1981) made the following observation

The dog is reported to show more play as an adult than most other species of wild or domestic animal...Cats especially as kittens, also have a

reputation for playfulness. (Messent and Serpell, 1981, 15)

Play is one of the behavior patterns that makes these animals so appealing as pets. Below, Eberhard Trumler (1973) gives an example

Sascha's greatest joy...is retrieving sticks. He can play this game til he drops. Whenever one comes out of the house he comes galloping up carrying some piece of wood, sometimes half a tree trunk, sometimes a tiny twig-whatever he has been able to find in a hurry. He is always bitterly disappointed if his invitation is unanswered. (Trumler, 1973, 134)

By comparison Illingworth has described "playing" as characteristic attachment behavior in the human infant.

Continuing the discussion, Desmond Morris (1966) noted a tactile component in canine play behavior, observing that dogs solicit attention by

nudging with the nose and pawing, by making downward swipes of a foreleg in a beckoning gesture... (Morris, 1966, 32)

Eberhard Trumler (1973) contributes further to the discussion of nose nudging with the following observation.

when the cold muzzle is thrust against one's hand, the dog wants something: he is asking for something...If he wishes to be stroked, the dog may even succeed in pushing one's hand across his head; alternately he will push his head underneath the hand, first having raised it with his nose. (Trumler, 1973, 103)

The child's act of pulling on an adult's clothing observed by Illingworth, or the observation by Ainsworth of "burping

face in lap", are comparable attention seeking behaviors in the human infant.

Finally, Voith described these animal behaviors as "endearing" and expands on her meaning by noting that these behaviors evoke

responses of affection similar to those that occur between people. (Voith, 1981, 281)

This reinforces Alisdair Macdonald's observation about the comparability of the bond between parents and infants, and between owners and their pets.

It is apparent that the animal behaviors we have been discussing are non verbal in form and we can see that they are comparable to the acts of human infant non verbal communication described by Ronald Illingworth in Part One. Voith has noted that pet behaviors evoke "responses of affection" in their owners, implying that they have emotional content as well.

In Part One, Carroll Izard (1979) examined the affective dimension of human infant communication and identified the "facial visual system" as an important source of non-verbal signals. A comparable observation in pet animals was made by Messent and Serpell (1981).

Both the dog and cat... have relatively large repertoires of visual social signals compared with many wild species. Facial expression, changes in the position of the body, ears and tail or in the direction of the gaze can express a wide range of different emotional states. (Messant and Serpell, 1981, 14)

Commenting on non-verbal facial signalling, Voith (1981) noted that pets can be observed "looking 'guilty' when they misbehave and 'sad' when the owner departs"(Voith,1981,281). This usually entails a facial expression along with other elements of body language, and Eberhard Trumler (1973) gives an example below

Almost every dog I know will give a paw if one has occasion to scold him soundly. Its effect, combined with the characteristic look of guilt and devotion, is disarming and touchingly human.(Trumler,1973,102)

In Part One we looked at the infant facial signal called the "smile". In the selection below Desmond Morris (1986) discusses a comparable signal in the domestic dog, commenting that

[This is] the so called play face, an expression that is the canine equivalent of the [human] smile and has similar components...A dog showing a play face is completely non-aggressive. (Morris,1986,32)

Different dog breeds vary in their ability to produce the smile and the samoyed is sometimes called the "smiling dog" because of this characteristic expression.

We noted in Part One that the infant smile had a powerful emotional and behavioral effect on adults. Below, Gerald Durrell (1956) describes a comparable human reaction to the canine smile, and demonstrates how skillfully it can be used in canine-human communication.

Roger, in desperation, would place a large paw on the gate, and then look at me, lifting one side of his upper lip, displaying his white teeth in a lop sided ingratiating grin, his stump working itself into a blur of excitement. This was his trump card, for he knew I could never resist his ridiculous grin. (Durrell, 1956, 42)

In Part One, W.H. Thorpe (1974) noted that the infant is almost irresistably attractive to human adults.

In our discussion of the human infant's response to stress or threat, John Bowlby noted that

This is the phase of protest and of acute physiological stress and emotional distress. (Bowlby, 1980, 42)

Gerald Durrell (1956) gives the following example of canine protest behavior in which his mother's dog Doda would protest being denied access to her "preferred human".

Any attempt to leave her outside the bathroom door [when Mother was having her bath] resulted in Doda howling madly and hurling herself at the door panels. (Durrell, 1952, 249)

If protest is not successful or the perceived threat is very serious, other reactions may be evoked as Voith describes below

When separated from an owner, it [the pet] may howl or engage in escape behavior...Some pets become very quiet, stop eating, and look dependent when there is a prolonged separation from the owner. (Voith, 1981, 273)

Gerald Durrell (1956) makes the following observation about canine separation behavior. Whenever his mother left the house and Doda could not find her,

[Idloda went into mourning and waddled, howling sorrowfully, round the house, being so overcome with grief that her leg would come out of joint. (Durrell, 1952, 249)]

In the discussion thus far, we have encountered many similarities in behavior between infants and pet animals. Applying our method of analogical reasoning, we may expect that, being comparable "stimuli", they would evoke comparable responses in their respective "partners". We examine this proposal below.

Person-to-pet attachment behavior

Our discussion of person/pet attachment began with the comparative observation that

the relationship between pets and humans shares many features of...the mother-child relationship. (MacDonald, 1981, 205)

and this became our working hypothesis.

In the section above we learned that pets and human infants have similar behavior patterns. Ethologically speaking, we may say that they have comparable value as sign stimuli or social releasers. Applying MacDonald's comparative observation as well as Voith's comparative premise, we would expect pets and human infants to elicit comparable patterns of "parental care and protection". We examine this proposal below.

Victoria Voith, citing John Bowlby (1969), described the attachment process as "an emotion or affective state".

This is confirmed by Peter Messent (1985) who noted that very few people fail to respond in an emotional manner to the approach of a friendly pet animal or the playful antics of a puppy or kitten (Messent, 1985, 387).

These emotional responses are reflected in particular patterns of owner behavior.

Voith begins this aspect of the discussion with the following observation.

People take measures to keep pets close to them. Pets are often kept in the house, or taken on trips, accompanying owners wherever they go throughout the day and may sleep with the owner. (Voith, 1981, 272)

Proximity seeking and tactility are comparable to the human caregiving behaviors we discussed in Part One. In the previous chapter, Eberhard Trumler (1973) made a specific reference to tactile responses when observing that

The 'puppy-fat' of the silken coated pug is an invitation to cuddling and the maltese, with his long soft silky coat, is also a natural object of stroking and cuddling. (Trumler, 1973, 114)

These behaviors are comparable to the "kissing, and fondling and cuddling" observed by Klaus and Kennel (1976) as well as the "touching and soothing" observed by Diony Young (1979).

We see that these "maternal" responses are evoked by both infantile morphology and behavior. (See Eible-Eibesfeldt's

discussion of the sign stimulus at the beginning of this chapter). With these behaviors, owners may transmit what Diony Young called "messages of affection" to their pets.

In the section above, Voith and others commented on the important role of tactility in the person-pet relationship. Ashley Montagu (1968) contributes further to the discussion with the following observation

In connection with pets, it is of interest to note that many individuals who, for one reason or another, experience difficulty in touching others, often satisfy their tactile needs with pets. (Montagu, 1968, 277)

Sidney Simon (1976) observed in Part One that contact with an infant or young child can release "restrained, straight-laced and prudish" individuals from their usual patterns of inhibited behavior. Montagu observes above that contact with pets can have a comparable effect.

Many authors have noted a strong prohibition against inter-personal touching in North American and Northern European societies. With strong needs for contact but without a socially approved way of expressing this need, what is the outcome? Sidney Simon (1976) responds as follows

have you ever associated the incredible boom in the number of pets in this country with the national epidemic of skin hunger we are suffering?...Where else but from a pet can you get such an endless supply of nonthreatening, highly satisfying pleasure through petting an animal with silky fur. (Simon, 1976, 43)

Voith noted that pets engage in "antics" or play behaviors that their owners find "endearing". Below R.D. Ryder (1973) comments on the range of adult responses evoked by the play behavior of pet animals. He begins by observing that play can be relaxing but that many forms of adult play tend to be "serious and competitive". He goes on to say that

The only chance that most adults have of playing really silly uninhibited games is either with children or with pets. Many grown-ups either do not have children they can play with or are too inhibited to do so. Playing with the kitten, throwing sticks for the dog, however, we can often forget our problems. (Ryder, 1973, 665)

We learned earlier that a pet or infant can release an otherwise inhibited social and tactile response in adults. We now see that pets, along with infants, can release an otherwise inhibited set of unstructured affective/behavioral, or play responses in adults as well.

Desmond Morris (1987) quoted Michel Montaigne a French writer of the seventeenth century describing his play-relationship with his cat.

When I play with my cat who knows whether she diverts herself with me or I with her. We entertain ourselves with mutual follies...and if I have my time to begin to resist, she also has hers. (Morris, 1987, 59)

In the Part One we learned that adults, especially mothers, talk to their infants in a characteristic manner. Voith has observed the talking behavior of owners to their pets and comments as follows

The person may talk to the pet, often in the same way as to a dear friend or most likely a child. The owners may ask questions of the pet, without expecting an answer-much as one might of a small child-and might hug, or scoop up the pet into their arms. (Voith,1981,281)

Here is another similarity between the behavior of parents and pet owners.

We use one of Voith's observations to summarise the discussion thus far. A male owner came to her with a dog that had a long history of hyperactivity and destructive behavior.

When asked why he had kept a dog such as this for as long as he had, Mr. M. answered, as he grinned with one arm circling the dog "Cuz I lov'em". Whenever the dog was near, Mr. M. would stroke the animal. (Voith,1981,273)

The first thing we may note is the fact that this male was experiencing and expressing nurturing or caregiving feelings. He was externalising emotion. This behavior is in certain respects comparable to the nurturing behavior of the border guards described by Britt-Gibson in Part One. Inhibitions appear to be lowered (Simon,1976). and a public expression of nurturing behavior is "permitted" (Britt-Gibson,1985). MR. M. also permitted himself to engage in intimate publicly observable touching (Montagu,1968) without compromising his "masculinity". In addition, his speech pattern has points of similarity with the pattern of mother-to-infant vocalization described by Stern,1976.

Voith commented further that

[he] had born considerable expense and discomfort rather than part with his pet.

When a pet is ill or injured Voith observes that the owners expend considerable effort and money to return the animal to health, thereby revealing the owner's depth of feeling and concern. Voith concluded that

He was clearly attached to his dog. (Voith, 1981, 273)

This supports her hypotheses that

the attachment to a pet is based...subconsciously on a parent child relationship. (Voith, 1981, 382)

and the risks entailed in the relationship were evaluated by the owner

in terms of a parent child relationship. (Voith, 1981, 382)

Voith points out that

Most owners experience some grief when their pet dies and there have been reports of profound grief when a pet dies. (Voith, 1981, 272)

Commenting on the grief reaction to pet loss, the veterinarian Bruce Foyle (1981) makes the following observation

some degree of mourning is necessary and normal. A pet owner's reaction to the death of his pet resembles in many respects the normal grief response following the death of a loved one. And the normal grief response to a loved one's death is well documented. (Foyle, 1981, 339)

The grieving process was described in detail by John Bowlby (1975) in Part One.

Sometimes however, the grief reaction does not take a "normal" course. Foote (1981) comments on the "pathological" form of grief reaction as follows

If the emotional investment in the pet is intense, the death of a pet can create complicated grief, in part because of denial of the death, but also because of the shame in admitting such a strong non-human attachment. (Foote, 1981, 240)

Comparable observations, of pathological grief reactions to a human death, were made above by John Bowlby (1975).

We may summarise by again referring to observations made by Victoria Voith. As she commented

Many owners who are attached to a pet and faced with the dilemma of separation will say without coaxing "But I feel toward this animal as though s/he was my child". (Voith, 1981, 282)

This confirms her hypothesis that the person/pet relationship is evaluated by the owner in terms of a parent/infant relationship. On the strength of this observation she is able to conclude that

The mechanisms of attachment have worked well to ensure parental responses and care. (Voith, 1981, 282)

Chapter Summary

We began this chapter by discussing ethology and its relationship to John Bowlby's formulation of attachment theory. In Part One we used this theoretical framework to describe and explain the form and process of the human infant/parent relationship. This was the analogue of our comparative behavioral equation.

Part Two was an extended comparison. We used our knowledge of the human parent/infant relationship to describe and explain the person/pet relationship, this being our primary subject. We noted many points of similarity. Infants and pets were comparable in terms of their evocative behaviors and gestures while parents and pet owners were comparable in terms of their patterns of nurturing or caregiving behaviors. The attachment process was common to each relationship and constituted their major point of similarity. Therefore we affirm the proposal of Victoria Voith (1981) that the person/pet relationship is evaluated in terms of the parent/infant relationship. We conclude that insights from the latter may inform the empirical, methodological and theoretical discussion of the former. We note in closing that both the parent/infant and the person/pet relationship meet the conditions of the ethological formula that began the present chapter.

This ends the biological portion of our discussion. In the next chapter we examine the socio-psychological dimension of the person pet relationship. We will look deeper into the observation by Victoria Voith that

[t]he person may talk to the pet in the same way as to a...child.(Voith,1981,281)

The Socio-psychological dimension of the person/pet relationship

In the previous chapters we considered the person/pet relationship from a biological/ethological perspective. In this chapter we leave biology to concentrate on the socio-psychological dimension of the person/pet relationship. We also adopt new forms of comparative argument.

In her discussion of person-to-pet talking behavior in the previous chapter we recall the following observation by Victoria Voith (1981).

The person may talk to the pet often in the same way as to a dear friend or most likely a child. (Voith, 1981, 281)

This is understandable given our previous discussion of person/pet attachment. However she went on, commenting that

[i]t has been amazing to me how many people talk to the dog, discuss the situation with it and try to use verbal reasoning to get the dog to change its behavior. (Voith, 1981, 284-5)

When they were not successful they would complain to her, saying for example:

I've told him over and over again not to do that. He just won't do what I've told him. (Voith, 1981, 285)

It would appear that the owners believe their pets are able to understand and respond appropriately to them. They appear surprised by their pet's unwillingness to cooperate. This talking behavior of pet owners is the focus of our discussion in the present chapter.

The "problem" of person-to-pet talking behavior

The "problem" of person-to-pet talking behavior attracted the attention of Kathy Hirsh-Pasek and Rebecca Treiman (1982) who conducted a study comparing the talking behavior of mothers to infants with the talking behavior of female owners to dogs. The former pattern is known in the literature as motherese and according to one author

Motherese (as the adult-to-child code has come to be known) differs from adult-addressed speech in many ways. It is grammatically simpler, better formed, more repetitive and briefer...It contains more imperatives and questions and fewer statements...Its references are mainly to the here and now situation and not to past or future events...It is characterised by various phonological differences such as high pitch and exaggerated intonation... (Schaffer and Collis, 1977 in Sluckin and Herbert 1986)

The authors called the latter pattern doggerel.

They operationally defined motherese in terms of eight measurable categories, while their experimental strategy was to observe talking behavior between a number of women and their pet dogs in a laboratory setting as well as in the home environment.

They compared motherese with the talking behavior of the women to their dogs, and they found that doggerel was comparable to motherese in seven out of their eight categories. A number of similarities were also noted anecdotally. Attempting to explain the similarities in pattern, they discussed and then rejected several explanations of motherese/doggerel based on theories of childhood language acquisition. They concluded with the following comparative hypothesis.

[dogs] ... share with children one central characteristic. Social responsiveness... seems sufficient to elicit the basis of motherese. Perhaps this packaging is the linguistic means for the promotion of reciprocity. We propose that motherese is triggered by the social responsiveness of the listener, be it child or dog. (Hirsh-Pasek & Treiman, 1982, 236-7)

Their term social responsiveness can be interpreted a number of ways. We begin one interpretation by attending to the authors' comment that:

The finding that talk to dogs and talk to children share so many properties forces us to ask why the properties of motherese (well formedness, high pitch etc.) emerge - especially in this context. (Hirsh-Pasek & Treiman, 1982, 234)

They take note of a relationship between the characteristics of motherese/doggerel and the context : asking what are the conditions under which motherese/doggerel is evoked, and what response mechanism is involved?

There is a clue in their comment that:

Perhaps the short sentences with this intonational packaging arise from our desire to interact. Perhaps this packaging [the particular characteristics of motherese] is the linguistic means for the promotion of reciprocity. (Hirsh-Pasek & Treiman, 1992, 236)

There are two factors here. One is the linguistic packaging or the form of the vocalization patterns collectively identified as motherese/doggerel. The other is the purpose of these vocalizations, which they describe as the promotion of reciprocity. We begin with the latter.

Hirsh-Pasek and Treiman propose that motherese/doggerel is the "linguistic means for the promotion of reciprocity". We may recall that from the previous chapter's discussion that Diony Young (1979) emphasised the significance of "a reciprocal pattern of responses...between parent and baby" in the attachment relationship. Arguing analogically, we may infer that the reciprocal attachment process is involved.

We can relate their comments about linguistic packaging to attachment as well. From the previous chapter we may recall the observation by David Stern that

Mothers do extraordinary maneuvers with their voices...both mothers and fathers will speak in a false alto range and use extreme variations in pitch and stress to give a sing song quality to the voice...Vowel duration is elongated to give "oohs" And "aahs". (Stern, 75, in Klaus et. al., 1975)

This account conforms well with the definition of "motherese" given above. In that case we may infer that motherese is the name of the vocalization pattern characteristic of mother-to-infant attachment behavior as described by Stern (1975). Thus we may conclude that motherese is an indicator of maternal attachment behavior.

Hirsh-Pasek and Treiman made the additional observation that

motherese is triggered by the social responsiveness of the listener be it child or dog. (Hirsh-Pasek & Treiman, 1982, 236)

The implication is that child or dog social responsiveness is a stimulus, and that motherese is a response. If motherese/doggerel is the vocal form of a parental attachment response, and social responsiveness triggers this response; then applying our definition of attachment from the previous chapter social responsiveness must be the equivalent of the infant or pet attachment behavior that we discussed in the previous chapter. Applying our ethological formula, we may see that infant or canine social responsiveness is a social sign stimulus that elicits a specific maternal attachment response in the form of motherese. It would appear that attachment theory is sufficient to explain the origin of motherese/doggerel.

However, we may recall that Victoria Voith identified person-to-pet conversation behavior as exceptional, and presumably beyond the explanatory range of attachment theory as she perceived it. Hirsh-Pasek and Treiman noted an exceptional quality in their findings as well. Indeed they began the discussion of their findings with the observation that:

Dogs do not talk and we cannot reasonably expect them to talk. (Hirsh-Pasek & Treiman, 1982, 234)

In that case how do we evaluate the claim of pet owners that they have conversations with their pets?

First we discuss the reasons why dogs do not talk. One is anatomical. They do not talk (speak a human language) because they have neither the anatomical nor the neurological capacity to do so. In addition, Eberhard Trumler (1973) points out that

The dog does not 'understand' the full meaning of our words of command; he merely relates their sound to what he has heard. (Trumler, 1973, 143)

Lindesmith et. al. (1975) examine Trumler's observation in greater depth, commenting as follows:

Although it is often held that dogs and other animals "comprehend" things said to them, the standard of comprehension is not the same as that applied to human beings...The child is subjected to another and more crucial test: he or she must be able to use the words correctly, not just once or twice, but in a wide variety of situations and in various combinations...[We should] not be confused by the fact that lower animals, such as the dog, seem able to respond to verbal

cues....children show a similar subverbal comprehension before they have learned to speak. (Lindesmith et. al., 1975, 144)

We learned in the previous chapter that both human infants and pet animals are able to communicate effectively by non-verbal means. However they do not have the ability to speak and understand adult verbal language. Nevertheless, parents do talk to their preverbal children, and owners do talk to their pets, and they do insist that they are "communicating".

Lindesmith et al. (1975) have demonstrated that there is no objective way of accounting for this phenomenon; but perhaps there is a subjective one. Below we consider subjectivity in the form of the psychological process of projection.

Infants, Pets, and Projection

Textbooks of abnormal psychology typically associate projection with Sigmund Freud. It was Freud who defined projection as a defense mechanism, a disordered process in which a person attaches his or her own negative feelings or fears about self onto other persons or objects. (Bootzin, 1980, 36-7). But this is only one side of the coin. A balanced and more positive presentation of the concept may be found in Abt and Bellac (1950), where projection is described as:

an active process ... of transforming the world of situations and people into forms, meanings and values which the individual has learned selectively to perceive, by imposing upon them or investing them with the meanings they have for him...it is a recognition of how ... the human organism learns selectively to perceive and respond to the environing world or events as they appear to him or as he feels toward them (Abt & Bellak, 1950, vii, viii)

From this perspective, projection is a process by which a person assigns personal value or significance to objects or events in ordinary life, (imbuing them with particular, and perhaps idiosyncratic meaning; in sum a normal psychological process. For example, a chess player considering the likely moves of his or her opponent and constructing different scenarios based on these assumptions, is projecting. A playwright or cartoonist is continually constructing characters and defining their motives, attitudes and behaviors. We hear that they put themselves into their work. This is projection as well.

Projection can serve as a problem-solving or sense-making strategy; a way of dealing with uncertainty. Edwin Wagner (1983) comments that there is

a natural inclination to resort to habitual or modal reactions in situations which lack specificity. There is nothing magical about this tendency and the same phenomenon can be observed in other ambiguous situations, e.g. when strangers meet at a party. Such reactions are automatic and an individual is generally unaware of his behavior unless he introspects. Similarly, it is in this sense that a testee unwittingly projects on to an inkblot. (Wagner, 1983, 1251-52).

The inkblot is a familiar symbol in psychology, a stimulus in the the Rorschach Projective test. Below Chandler Washburne (1971) discusses the rationale of projective testing.

A common use of projection in psychology is projective tests, which are generally concerned with what the individual projects from his own personality into a purposefully vague unstructured situation. Projection is thus seen as something relatively free of outside stimuli; and dependent upon the nature of the individual personality. It is seen as a process which all normal individuals engage in, however with varying projection depending on the individual. (Washburne, 3).¹

Infants, Pets and the Problem of Uncertainty

Uncertainty is a characteristic of the Hirsh-Pasek and Treiman study because the pet owners could not confirm objectively that their partners "understood" them. In that case how do they infer the social responsiveness of their pets? Below, we apply the theory of projection to the problem of talking behavior and conversation in the parent/infant and person/pet relationships.

¹ Robert Allen (1950) discusses the techniques, materials and rationale of projective testing as follows: "Projective techniques ... are any form of test materials which being 'unstructured', or 'minimally structured' are organised by the individual in such a way as reveals the dynamics of personality. An inkblot, for example, is a chance form, hence it is said to be unstructured. A dim picture is "relatively" unstructured. Clay, finger paints, and other materials also constitute projective techniques. The subject interprets or uses these things in such a way as to reveal various aspects of personality". (Allen, 1950, 156-7).

Kenneth Kaye (1980) investigated certain patterns in mother-to-infant talking behavior and discovered a number of consistent themes. For example, mothers would ask their babies if they loved their parents, or if they were smart, or why they would not talk. Kaye was impressed with the fact that the mothers were making judgements about their infants but without the benefit of any objective evidence upon which to base these judgements of infant "love", or "intelligence". In this study, which he called The infant as projective stimulus, he commented that

the mothers were in a sense confronted with a projective test, for though the explicit instructions were "try and get the baby's attention and play with him as you normally would", the implicit instructions were "look at the baby and say something", the kind of instructions one would give to a subject with a Rorschach or TAT card. (Kaye, 1980, 732)

The Rorschach and TAT or Thematic Apperception Test are widely used in psychological testing. The Rorschach consists of the well known inkblots, while the TAT is a

method of story telling in response to a series of semi structured pictures. These themes are the events forming the basis of inferences regarding the individual's thought content or recurrent preoccupation and modes of dealing with the problems of life. (Allen, 1950, 160).

In each case the subject is handed a card bearing the stimulus. The Rorschach contains the inkblot while the TAT card depicts an ambiguous personal or social situation. The

task for the subject in a projective test is to make sense of the situation by applying apperception, that is to arrive at

the awareness of the meaning and significance of an object or idea or perception by relating it to an already-existing body of knowledge and experience. (Goldenson, 1984, 56)

If the stimulus has no obvious structure, as for example an inkblot, or bears an ambiguous message like the TAT, then the subject cannot arrive at the "meaning" of the stimulus by inferences based on observation alone. In Kaye's opinion, the infant presents a similar kind of "ambiguous" or "unstructured" situation. In that case, in the absence of observable data, the mothers must have arrived at their "understanding" of their infants by falling back on what Wagner (1983) called "habitual or modal responses", consisting of:

what the individual projects from his or her own personality [and which is] relatively free of outside stimuli and dependent upon the nature of the individual personality. (Washburne, 1971, 3)

He concludes that the mothers' judgements are projections, the content being their own feelings, values and expectations. Kaye admits being skeptical of the validity of projective testing, but acknowledges that:

here we have found at least the empirical reliability of certain features of mother's projective behavior in an everyday situation. (Kaye, 1980, 736)

A comparable study was conducted by Wayne Hogan (1980) investigating the "attribution of human traits to non-humans". He wanted to see what kinds of responses were evoked by particular animal species and how male and female response patterns compared. Also he wanted to see

if the attribution of human traits to non humans is affected by such person-perception dynamics as authoritarianism and the individual's capacity for experiencing a wide range of human emotions. (Hogan, 1980, 161)

The subjects were given tests of emotionality and authoritarianism and then instructed to assign 10 human traits to 36 infra-human animals. They answered on a Lichert-type scale where 10 represented "organism does not experience the feeling" and 50 represented "organism probably experiences this feeling a great deal". The human traits were "fear, anger, love, sympathy, humor, compassion, happiness, vanity, sadness and pain". (Hogan, 1980, 162)

Persons with high emotionality scores also rated high as "attributors". Persons with high authoritarianism scores revealed low emotionality and rated low as "attributors" hence.

humanistic traits [were] attributed to non-humans more by persons maximally rather than minimally sensitised to human feelings. (Hogan, 1980, 162)

Hogan also found that:

The expectation that women would project more human traits than men was generally confirmed. (Hogan, 1980, 162)

This comment has a number of implications.

Hogan used the word projection to describe the attribution behavior of his subjects. Apparently attribution and projection are synonymous terms. In that case, we may analyse Hogan's results in terms of projective theory.

We may say that the higher scores of women as compared to men reveal characteristic differences in "habitual or modal patterns of response" (Wagner 1983). Persons with authoritarian characteristics did not express emotion readily, thus were not "sensitised to human feelings", and this is reflected in their recorded low rate of projection.

The animals receiving the highest attribution or projection scores were the chimp, dog, horse and parakeet. All these have strong emotional associations with humans as "companions" or pets. From this we may conclude that pets are strong elicitors of projective responses. We learned from Kaya (1980) that infants have this attribute as well. Now arguing analogically or comparatively, we invoke the following formula

Two things resemble each other in some respect. A certain proposition is true of one: Therefore it is true of the other. (Shaw and Ashley, 1982, 419)

and we apply it as follows.

Infants and pet animals resemble each other in that they both elicit projective responses in adults. Kaye (1980) identified the infant as a projective stimulus. Applying analogical reasoning we may infer that pets can serve as projective stimuli as well. In that case, we may expect infants and pets to elicit comparable projective responses.

The conditions in the Hirsh-Pasek and Treiman study were comparable to those in the studies mentioned above in that they all had a degree of uncertainty. Given this premise we may argue that the doggerel response they documented was, in part, a projected response. We may say that it was induced by a dog acting as a projective stimulus. In that case, we propose that "dogs share with children one central characteristic", being their perceived social responsiveness.

From an Intra-psychic to an interpersonal process

Thus far we have considered projection as an intra-psychic process, occurring more or less within the experience of single individuals. In the pages below we consider projection in the context of social interaction.

Ralph Turner (1970) a sociologist of the family noted

a recurrent theme in parent-infant interaction, the parent acting toward the infant with the principle aim of evoking a response. (Turner, 1970, 378)

When parents did succeed in attracting the child's attention, either to themselves or to an object they were holding, they would glow with satisfaction. The infant's acknowledgment is clearly sought and expected, and serves as strong parental reward.

In addition to an emotive aspect the parental agenda has a powerful anticipatory component as Turner reveals in his comment that parents

interpret infant gestures in terms of a more advanced stage of development than the infant has reached. (Turner, 1970, 378)

As an example of this anticipatory sense-making activity, he cites a case in which

[a] reflex mouth motion becomes a smile, a hard vocalization becomes "daddy" [and] complex desires and satisfactions are inferred from infant behavior. (Turner, 1970, 379)

A comparable example is provided by the ethologist W.H. Thorpe, who comments on the parental response to an infant's smile in the first few weeks of life.

While it is hard to say exactly what...has occurred, the effect on the mother, or on the baby's companion is clear-they will probably remark, "Now he can see me", or "Now he is fun to play with". (Thorpe, 1974, 222)

A similar process may be observed in peoples' interactions with pets.

What is the basis of these parental inferences that go beyond the range of available data? There is a clue in

Turner's reference to "recurrent themes" in parental responses, a remark that is comparable to observations made by Kaye (1980) concerning maternal projective sense-making behavior.

Commenting on ambiguity or uncertainty as a characteristic of social interaction, Chandler Washburne noted that as a social situation becomes progressively more "unstructured" there is likely to be a parallel increase in projective activity.

The assumption [is made] by a person without adequate supportive evidence, that others are as he is. In the absence of knowing much about the other, there is little else that one can do. (Washburne, 5).

Applying Washburne's interpretation, we can say that the parents are making sense of an uncertain or ambiguous social situation by making attributions or projections of their own feelings, attitudes, priorities and expectations and using these to construct their perception of their child's future.

The same pattern of reasoning could be applied to the actions of a pet owner in making sense of his or her pet's expressions, vocalizations or movements. Pet owners appear to have an anticipatory component in their agenda as well, because they interpret their animals' actions in "human" rather than "animal" terms. We consider this in greater depth below.

From the "Psychological" to the "Social"

Up to this point we have been using mainly psychological terminology and theory to investigate the parent/infant and the person/pet relationship. However sociology has made valuable contributions as well. Ethnomethodology with its emphasis on sense-making activity has articulated the interpretive process called the etcetera principle. George Ritzer (1983) explains it as follows:

All situations involve incomplete aspects that must be filled in by the participants ... Despite being confronted with ambiguity we carry on our social life. In a given situation we allow unclear information to pass on the assumption that it will be clarified later on. As the action proceeds, we seek information within the context that allows us to clarify and grasp what happened. If we stopped to question ambiguity, little social life would take place. We must all practice the etcetera principle if social life is to be possible. (Ritzer, 1983, 227).

Ritzer appears to say that we "defer" our judgement in uncertain situations until we come upon the information we need to make sense in a particular situation. He assumes that the needed information is "out there" and available, and that we will come upon it in due course. He does not seem to address the problem of persistent or unresolved ambiguity. Washburne would presumably say that we fall back on projection as a sense-making strategy in such a case. Below we consider some strategies for dealing with uncertainty in the parent/infant and person/pet relationship.

From the Dyad to the Family

In 1975, Pollner and McDonald-Wikler conducted a study of a family interacting elaborately and "meaningfully" with a five year old daughter clinically diagnosed as profoundly retarded. Their study, whose title in part was "The Social Construction of Unreality", was a constructionist analysis based on the theory of Peter Berger, author of The Social Construction of Reality.

The authors were impressed with this family's ability to attribute meaning to the actions of their daughter, and

{to} describe whatever the child is doing at a particular moment as though it were an intentional project of the child. (Pollner and McDonald-Wikler, 1985, 252)

Ralph Turner (1970) made a comparable observation in noting that "a reflex mouth movement becomes a smile...". In each case there is a strong anticipatory element leading to an attribution of intention

The authors described the behavior patterns of this family as "folie a famille" a form of collective delusion. Attempting to remain descriptively neutral, they note that a high level of skill, knowledge and vigilance are necessary to establish and maintain this particular "definition of the situation" as the orthodox family belief system. Furthermore they point out that

there is heuristic value in underscoring the fact that these groups develop meaningful worlds that, like all such symbolic constructs, must be

nourished and protected through specific acts of reasoning, speaking and acting. (Pollner and McDonald-Wikler, 1985, 253)

The authors used videotape, participant observation and other data-gathering techniques in order to afford themselves:

[a] close examination of the artful, minute, and continuous work through which what might be characterised as "myth", "distortion", or "delusion" from outside the family is rendered a reality for those on the inside. (Pollner and McDonald Wikler, 1985, 242)

There are no direct references in this paper to the person/pet relationship. We include it on the strength of a comparative observation, recorded in a footnote, made more or less in passing. Referring to the practices the authors meticulously documented, they comment as follows

A number of colleagues have suggested that similar practices are found in interactions with pets. (Pollner and McDonald Wikler, 1975, 243, footnote)

Applying analogical reasoning, we may infer that the observations they made, as well as the categories they define in their study of this family/child interaction, may be applied to the study of person/pet relationships. Below we look at the sense-making practices they documented, which include framing, semantic crediting, putting words into a person's mouth, and explaining in the "bright" direction.

In Framing, a particular social situation is consensually predefined or prestructured, so that all of the

daughter's actions could be defined as meaningful or purposeful. For example, when the family was "playing ball", Mary's objectively uncoordinated actions were variously interpreted as "catching the ball", "not catching the ball", or "dropping the ball". Mary's observed unresponsiveness was interpreted as "not playing", the result of disinterest or boredom. The frame was constructed so as to define and maintain a "context of plausibility". In this way, all of Mary's actions could be interpreted as intentional.

In Postscripting, the family attributed significance to Mary's behavior "after the fact", a practice the authors described as commanding the already done. Practicing great finesse, the family members were able "intercept" an action in progress and then frame it; thus making suitable attributions of intention, as the action was being completed. For example, Mary would begin to sink to the floor, and the father would say "Mary you just lie down", thus framing the child's otherwise unstructured behavior. Alternately,

by discerning a pattern or developmental possibility in Mary's behavior, the successful postscriptor could integrate his or her actions with Mary's to achieve the appearance of coordinated interactional activity. (Pollner and McDonald Wikler, 1985, 246)

Another practice was puppeteering, in which family members went beyond verbal intervention to actually manipulate Mary's largely unresponsive body into purposeful looking postures and patterns. This manipulation was accompanied by framing-type commentary "implying that Mary was performing as an autonomous and responsive agent". (Pollner and McDonald-Wikler, 1985, 246). In reality, they treated Mary exactly like a marionette.

Semantic Crediting: Mary made predictable motor responses to many environmental stimuli such as a sudden loud noise, a person reaching out to her, or a person walking away from her. No purposive content could be discerned in them. However the family persisted in making complex attributions of intention or competence while describing or responding to them, again applying the framing strategy.

Putting Words in Mary's Mouth: This was the most dramatic and enigmatic practice by which "the family created the semblance of Mary's competence". (Pollner and McDonald-Wikler, 1985, 248). Mary's vocal productions were limited to babbles, gurgles, and monosyllables, and the family would consistently "repeat" what they heard Mary say. However their repetition was not babbling or gurgling but articulate English:

when family members "repeated", they were actually creating a novel intelligent utterance and stating it as though they were repeating what they had heard Mary say or imply. (Pollner and McDonald-Wikler, 1985, 249)

In doing so they managed to "frame" an otherwise problematic or projectively uncertain situation.

The family members revealed a pattern of explaining in the "bright" direction.

Mary's ostensive failures were continually reinterpreted as successes of sorts or else explained away as the product of normal transient mood shifts or lapses of attention. (Pollner and McDonald-Wikler, 1985, 249)

Actions which could not be "explained" as competent and purpose-oriented were described as "teasing", "pretending", "faking", "malingering", momentary inattentiveness or boredom.

Mary's behavior was problematic in the extreme and George Ritzer might remark that, the family was heroically applying the etcetera principle. Another interpretation, based on the comments of Wagner (1983) and Washburne (1971), would be to describe the family's practices as a monumental task of "applied projection"; in the "Freudian" sense. The authors noted that

The net effect of such explanation and description was to inhibit the growth of what could have been an enormous catalogue of incompetence. (Pollner and McDonald-Wikler, 1985, 251)

We examine the cognitive and emotional consequences of this "inhibiting" process at a later point, in our discussion of cognitive dissonance.

Pets, Fallacy, and Anthropomorphic Thinking

Many scientifically oriented authors have commented that the attribution of human characteristics to animals (including pets), as well as the attribution of adult characteristics to infants, is inaccurate and misleading. For example, Lindesmith et. al. (1975) caution their readers:

[to] be on guard against anthropomorphism (which is) the projection of human traits upon things not human and is a fallacy to be guarded against in the study of lower animals. (Lindesmith et. al., 1975:56)

Hunter and Whitten (1967) discuss the meaning of anthropomorphism as follows:

This term refers to the ascription of human characteristics to objects not human...

In the wider sense of the word, anthropomorphism may be illustrated by analogical transfer of human qualities to animals as when referring to their reasoning power or ascribing to them such psychological traits as courage or cowardice. The word may even be applied to descriptions of inanimate levels of reality in metaphors taken from

human experience (as in speaking of the "anger" of the storm". (Hunter & Whitten, 1967, 14)

An example of the anthropomorphic fallacy is

when a pet dog does something for which it is usually punished and is then spoken of as feeling guilty and looking ashamed. (Lindesmith et. al., 1975, 57)

Victoria Voith (1981) was apparently referring to this process when she wrote that pets could be observed

looking "guilty" when they misbehave and "sad" when the owner departs (Voith, 281 in Fogle 1991)

Her use of quotation marks is a sign that a "literal" interpretation would be incorrect or at least questionable in this case, while Lindesmith et. al. make explicit the reason for this caution, the tendency on the part of pet owners to engage in the fallacy of anthropomorphic projection.

A fallacy is a logical error, in the case of anthropomorphism, an erroneous conclusion stemming from the objectively insupportable claim that pets are "like" humans and infants are "like" adults; a practice to be avoided in scientific observation and discussion. However we have seen that this "fallacious" practice is a necessary part of the definition-of-the-situation that makes the parent/infant and person/pet relationship a meaningful and ongoing reality for their participants.

Anthropomorphism in the person/pet relationship is explicitly acknowledged by Pauline Wallin (1978). She observes that anthropomorphism is one means by which an owner expresses an emotional attachment to the pet. Applying the term as it was defined earlier, she proceeds to ask:

Does a dog get lonely? Do pets really feel jealous? Can pets experience a genuine grief reaction when their masters die? We can only guess what an animal is feeling (if it is capable of feeling at all), and our guesses originate from the restraints of our own self-centered points of view. That is, we ascribe human-like emotions to our pets because we interpret their behavior to be human-like. (Wallin, 1978, 9)

Pets, Fallacy, and Cognitive Dissonance

Constructing and maintaining this anthropomorphic perspective leads inevitably to a "strain" between "objectivity" as represented by Lindesmith et. al. and "subjectivity" as represented by Kaye, Hogan and Pollner and McDonald-Wikler. According to the social psychologist Leon Festinger (1957), this induces a condition of cognitive dissonance (extensively discussed in Aronson, 1976).

Festinger observed that cognitive dissonance is a noxious condition and that the individual(s) experiencing it will attempt to reduce or eliminate the dissonance, or avoid conditions that evoke or increase it. He commented that the

severity of the felt dissonance is proportional to the perceived importance of the cognition involved. For example, parents and pet owners are often reluctant to acknowledge the "fact" that their infants and pets cannot actually engage them in conversation.

Festinger stated that the dissonance could be reduced or eliminated by adding new cognitions, or by changing existing ones. The added cognitions can alter the force of existing cognitive elements, thereby reducing the effect of the felt dissonance.

Considering the McDonald-Wikler study in the light of cognitive dissonance theory, we may say that the purpose of the family's sense-making practices was to establish a state of conformity or cognitive consonance among family members, thereby defining and maintaining a stable definition-of-the-situation.

Puppeteering and "putting words into Mary's mouth" are clearly cases of redefinition of an existing situation. The intent of "postscripting" was to anticipate, and thereby head off any potential dissonance-inducing condition. Explaining in the "bright" direction was their version of the etcetera principle, a way of dealing with uncertainty that could become unmanageable. Adapting a statement by Pollner and McDonald-Wikler (1985), we may conclude that

the net effect of such explanation and description is to inhibit the growth of what could become an enormous catalogue of contradiction leading to a condition of cognitive dissonance. (pace Pollner and McDonald-Wikler)

Pollner and McDonald-Wikler (1985) noted that the practices of postscripting and puppeteering, that they observed in the "delusional" context of Mary's family, were in fact common and typical in the majority of parent/infant and person/pet relationships. We may infer that the practice of anthropomorphic attribution, associated with this practice, is functional, or normal, or modal, as well. In that case, the attendant dissonance-reducing practices would be normal, for example the "denial" that an infant or pet could "not understand".

Anthropomorphism and "Opting for the Subjective"

To account for the process of anthropomorphic attribution in descriptive terms we need a positive statement of the practice of opting for the subjective, and we have a candidate in the literary device called pathetic fallacy. This is the literary practice of attributing human emotion or behavior to animals inanimate objects or other entities, in a word, anthropomorphism. Through pathetic fallacy we have "smiling" flowers, "cruel" winds, "wise" owls and "happy" larks. These descriptions are objectively

fallacious as we have discussed above, but they bestow positive benefits in terms of our aesthetic experience. Discerning readers of poetry or other literary productions containing this device do not typically make objectively based criticisms of the imagery or metaphors in the manner of Lindesmith et. al. Indeed, they look upon people who do as childish, unsophisticated or "literal-minded". Rather, they enter into the spirit of the image by adopting an attitude known in literary and dramatic circles as the willing suspension of disbelief (Jacobson, 1982). We can see that pathetic fallacy is a useful device for understanding the subjective element the person/pet relationship.

Pets, Projection, and Need Satisfaction

In our discussion of adult attachment in the previous chapter, we noted the observation of John Bowlby (1980) that attachment, some form of closeness or belonging, is a life-long human need. The practices of Mary's family in the present chapter, the framing and puppeteering and so forth, are indicators of a strong need to maintain family solidarity through cognitive consonance. We learned that these practices are seen in parent/infant as well as person/pet relationships, indicating that needs are being expressed and satisfied there. In the pages below we look

more closely at some of the needs that are expressed and satisfied in the person/pet relationship, and the "roles" that may be attributed to pets in particular circumstances. Our main reference is the article on need satisfaction by the British veterinarian R.D. Ryder(1973). We also draw extensively on the the observations of James Bossard (1953), a sociologist of the family with a special interest in the person/pet relationship.

Ryder acknowledges that physical as well as psychological needs are met in the person/pet relationship. The paper begins with an extensive discussion of tactility that helps illuminate the discussion in the previous chapter. He begins the discussion of psychological need satisfaction with empathy, observing that

It is certainly true that many owners get satisfaction from feeling that their pets understand them. (Ryder, 1973, 660)

We examined the objective counter-evidence for this claim in the pages above, yet we have seen that this projectively constructed definition of the situation is a vital part of the meaning of the person/pet relationship.

Bossard (1953), commenting on the "projective plasticity" of the situation, makes the following comment

the dog serves each of us according to our own affectional needs. Not being able to speak or to argue, the dog will not say the wrong thing to dampen our ardor or spoil the rapport of the moment. (Bossard, 1953, 237)

Wayne Hogan (1980) might remark that a non-speaking non-comprehending dog is the perfect projective stimulus. We may impose any interpretation on the situation that is convenient or meets the spontaneously changing emotional needs of the moment.

Ryder notes that relationships with pets give their owners a sense of importance. Dogs in particular evoke a wide range of nurturing responses in their owners, elicited by their neotenous morphology. This response is enhanced by their dependent nature and the fact that "they never really grow up" (Ryder, 1973, 660). Making a comparative observation Ryder notes that

[t]hey make us feel important. They make us feel needed. All this is rather similar to the satisfaction an adult can derive from being a parent and having a child which is consistently dependent on him. (Ryder, 1973, 660)

Under the heading of "loving and feeling loved" Ryder explores another aspect of human feelings elicited by or projected onto pets, as Wallin (1968) noted above. Ryder states that

[f]eeling love for a pet is often a most reassuring experience. But often it is selfish in that one can get satisfaction from giving to another what one really wants for oneself. (Ryder, 1973, 661)

This pattern of indirect gratification, like the practices observed by Pollner and McDonald Wikler, (framing,

puppeteering, putting words into Mary's mouth etc.) can have an adaptive or a dysfunctional outcome depending on the motives and needs of the actors.

The psychiatrist E.K. Rynearson (1978) examined several forms of dysfunctional attachment in the person/pet relationship using concepts developed by John Bowlby in his study of dysfunctional parent/infant attachment. Rynearson calls one form Anxious attachment, and this is characterised by

a low threshold for triggering attachment resulting in a clinging overdependent relationship. (Rynearson, 1978, 551)

Compulsive caregiving involves a similar kind of insecurity but a different form of expression. Satisfaction is gained in this case by acting as a source of caregiving instead of seeking out opportunities to receive it. But as Ryder observes:

it conveys a forced overdetermined quality and is often directed at others who neither seek nor welcome the caring. (Rynearson, 1978, 551)

form of attribution. Rynearson notes that the owner can sustain projective identification in a psychologically dysfunctional relationship by practising compulsive caregiving or anxious attachment with the pet. By doing so, the owner is able to satisfy an urgently felt need, but may avoid the emotional risk entailed by interpersonal (inter-

human) involvement. In this form of dysfunctional attachment the "definition of the situation" is such that:

The pet is symbolically imbued with the warm trusting unconditional caring that magically nurtures the regressed [immature] insatiable craving for closeness. (Ryner, 1978, 551)

Under the heading "loosening the upper lip" Ryder notes that

[p]ets do not fully count in our scheme of conventions: that is, we do not seek their social approval in the same way we do that of other humans. (Ryder, 1973, 661)

In a comparable manner Ralph Turner (1970) observed that a particular form of adult speech to infants, that he calls "baby talk", conveys a specific social message.

This message defines the nature of the infant and the young child, who are only to be taken seriously when their urgent needs are at stake. (Turner, 1970, 380)

Because both pets and infants can be defined as "non-adults", their presence and their "opinions and feelings" can be discounted. Making an observation applicable to infants as well as pets Ryder comments that:

We do not have to make polite conversation with pets and we do not feel we have to maintain our dignity when in their presence. (Ryder, 1973, 661)

This permits a kind of unselfconscious "letting down", comparable to the uninhibited adult response to infant or pet behavior that we discussed in the previous chapter.

Pets can "offer" their owners a sense of security, serving as a physical deterrent or alarm, or by acting as:

a defense against loneliness particularly at night when our primitive fear of the dark may strike us.
(Ryder, 1973, 662)

Ryder comments that the need for security may be reasonable and adaptive, or dysfunctional, as when a person keeps a strong and ferocious animal as a defence against neurotically projected fears.

Pets can satisfy an owner's need for narcissistic self gratification by acting as symbols of accomplishment, status or wealth. Ryder observes that:

If the owner feels he is living up to his expectations then the pet confirms his image, if he feels he is failing the pet makes up for his deficiencies. (Ryder, 1973, 663)

We may comment that the pet is very "malleable" as a projective stimulus, being able to sustain such varied interpretations.

Exhibitionism is related to narcissism and Ryder comments that:

Showing off one's pet is like showing off one's car or one's house. [furthermore] To own a thing makes it part of one, so its magnificence rebounds upon its owner. Ownership implies control.
(Ryder, 1973, 663)

Thus, again, a pet can serve as a status symbol as well as satisfying a need for "possession".

A pet can be "defined" as an underdog, thereby serving as a noncomplaining object of displaced hostility. There is no verbal retaliation nor fear of physical reprisal in this "convenient" form of aggression toward pets. In this regard, James Bossard (1953) pointed out that

the dog is a satisfactory victim of personal needs for ego satisfaction and ego gratification. If things have gone wrong, and you feel like kicking someone, there is Waldo waiting for you...How soul satisfying to take the dog for a walk and order him about. This is a most effective therapeutic procedure. (Bossard, 1953, 241)

And as Ryder says about pets,

We dominate them in order to make ourselves feel more important. (Ryder, 1973, 663)

Ryder observes that a pet can serve as a "go between or catalyst". As he observes

Mutual affection [for a pet] can bring two people together, it may be a way they can indirectly show their affection for each other...Pets like the weather are safe things to talk about. (Ryder, 1973, 665)

There are a number of roles a pet can assume as a go-between, and they range from ice-breaker to symbolic intermediary. James Bossard comments below on the dog in the role of ice-breaker.

A dog serves as an effective social aid. By the time one has walked a dog a few months, one is sure to have increased the range of one's acquaintances...The genial old man stops to chat, the [attractive] mistress smiles, first at the dog, then at you. (Bossard, 1953, 242)

In addition, you may be walking along and notice an attractive person you would like to meet

and the dog obliges by making up to her, to the end that another "contact" is made. (Bossard, 1953, 242)

The role of symbolic intermediary is revealed in the following example.

If relations between husband and wife become strained, the dog becomes the needed excuse for the renewal of conversation. Compliments can be paid through the dog. Also, the dog is an excellent excuse for saying things for the benefit of the children. (Bossard, 1953, 243)

This is the "adaptive" side of the coin. However E.K. Rynearson (1978) identified a dysfunctional situation in which the pet may serve as a link between two or more individuals in a relationship of pathological dependency:

In a family where various members mutually distrust attachment the pet may serve as an attachment figure through which they indirectly interact. The pet becomes a trusting partner in a drama of distrust. (Rynearson, 1978, 554)

Ryder then turns to another aspect of the "catalyst" role in which the pet is not a object of positive shared interest but a "bone of contention", serving as an excuse to begin a fight or hold a grudge. Below Ralph Turner (1970) presents a similar case involving an infant:

When conflict has been endemic to the marriage, the infant parent relationship supplies new means for carrying on the battle...The phenomenon of husbands who become jealous of the infant because they view him as a rival for the wife's attention has often been reported in the clinical literature. (Turner, 1970, 382)

We can easily substitute "pet" for "infant" in this example.

A dysfunctional variant on this theme was observed by E.K. Rynearson in which:

[a woman's] marriage dissolved after her husband tired of her inability [as she put it] "to love him as much as I loved my dog". (Rynearson, 1978, 553)

Divorces have become aggravated confrontations over who would get possession of the family pet, while the presence of children and their feelings about the pet can add considerably to the strain. Summing up the role of pet as catalyst Ryder states that:

The pet can draw out the emotion, good or bad, between the humans around it. (Ryder, 1973, 666)

Bossard (1953) investigated this in depth and made the following observation

a dog often reveals the underlying feelings in the neighbourhood, and by bringing them out into the open serves a useful mental hygiene role...

A confrontation with a neighbour over a pet-

serves often to bring the unconscious likes and dislikes of a neighbourhood out into the open. Dogs do not create neighbourhood feuds, they reveal them. (Bossard, 1953, 242-3)

Thus the pet can serve as a projective stimulus with powerful and wide ranging effects.

Ryder's last category is the use of pets on psychotherapym, or more generally to promote and maintain psychological health. This is what Bossard meant by "mental hygiene".

Ryder cites his personal experience in a psychiatric hospital where chronic and severely withdrawn patients were observed responding positively to a pet's friendship. He notes that pets have been used in the treatment of narcotic addicts, sociopaths and emotionally disturbed children. He comments that

They make excellent therapists in that they give so much affection and ask so little in return...They can increase self confidence...They love almost unconditionally and whatever a human being may regard as his weakness or faults, the pet will usually forgive him.(Ryder,1973,666)

Ryder was not alone in coming to this conclusion. He was preceded among others by Boris Levinson writing on The dog as co-therapist in 1962, as well as James Bossard 1953, whom we have cited above. This work was a restatement of observations he had made on The mental hygiene of owning a dog in 1944.

Commenting on the benefits of the dog as a companion, Bossard made the following remarks.

A dog is a silent, yet responsive companion, a long suffering, patient, satisfying, uncritical, seemingly affectionate, constant, faithful companion, more affectionate than you deserve and appreciative beyond what anyone would expect from a human rival.(Bossard,1953,243)

These few lines, with their blatant anthropomorphism and projection, recapitulate the whole of this chapter's discussion.

We might expect a person of the "Freudian" persuasion to define this projection-laden situation as dysfunctional and seek to avoid it... But there is evidence to the contrary in a letter from Sigmund Freud to his friend Anna Bonaparte. She had sent him the manuscript of a story about "Topsy", a chow chow (the breed they both kept as a pet), asking for his comments. He responded in part by describing the relationship with his own dog, Jo-Fi. As he said:

It really explains why one can love an animal like Topsy (or Jo-fi) with such extraordinary intensity: affection without ambivalence, the simplicity of a life free from the almost unbearable conflicts of civilization, the beauty of an existence complete in itself; and yet despite all divergence in the organic development, that feeling of an infinite affinity. Often when stroking Jo-fi I have caught myself humming a melody which, unmusical as I am, I can't help recognising as the aria from Don Giovanni: A bond of friendship unites us both... (Freud, 1960, 288)

Chapter Summary

In this chapter we considered the person/pet relationship from a socio-psychological perspective. Our comparative hypothesis was that the perception of the person/pet relationship is comparable to the perception of the parent infant relationship. We began by examining "talking" behavior and we noted that parents and pet owners treated their respective "partners" as if they fully comprehended their verbal exchanges (Voith 1981).

Hirsh-Pasek and Treiman (1982), in their comparative study of talking behavior, concluded that the characteristic "motherese" response, elicited by both infants and dogs, was due to their "social responsiveness". They gave no definition of this term so we explored two possible interpretations. We found that it could be explained "objectively" as attachment, and "subjectively" as projection.

Examining the concept of projection, we began by emancipating the term from its Freudian status as a dysfunctional defense mechanism. We showed that projection is a normal, adaptive, indeed a necessary psychological process. We learned that both infants (Kaye 1980) and pet animals (Hogan 1980) elicit patterns of projective responses in their respective partners. Both infants and pet animals function as projective stimuli.

We examined the problem of uncertainty in the parent/infant relationship and we learned how projection functions in the context of social ambiguity (Washburne 1971). With Turner (1970) and Pollner and McDonald-Wilker (1985) we studied particular interpersonal practices by which people deal with uncertainty in the parent/child relationship. We proposed that their observations and findings would apply in the person/pet relationship as well.

To further explore the construction-of meaning process in the person/pet relationship, we examined the concept of anthropomorphism and its relationship to projection (Wallin 1978). Then we turned to the problem of the conflict generated when objective and subjective elements collide in the consciousness of the actor. We used cognitive dissonance theory to explain how the conflict so generated is managed, reduced, or eliminated. Accounting for the lived subjective experience of the person/pet relationship, we found a useful explanation in the literary concept of the "willing suspension of disbelief".

We ended the chapter by examining some of the needs that are expressed and satisfied in the context of the person/pet relationship. There were many similarities with the adult/infant relationship. We closed by referring back to our discussion of projection and proposing that persons of the Freudian persuasion would stay well clear of any projection-inducing situation. Contrary to this expectation, we found that in his relationship with his dog, Sigmund Freud was as guilty of anthropomorphic attribution as any other pet owner.

An After-Word

The Concept of Convergence

In our analogy of rope making, we proposed that the individual chapters in this project were comparable to the strands in a rope. We learned that the rope was constructed by twisting the strands one around the other to form the final convergent structure. We learned as well that the strength of the rope depended on the mutually supporting relationship of its component parts. Below we discuss an example of convergence.

Convergence and the Person/Pet Relationship

In each chapter of this document we may observe a process of "transfer". In the first chapter, Fullard and Reiling (1976) argued that caregiving responses evoked by the physical characteristics of their infantile stimuli "transferred" or "generalised" from the human to the non-human infant. In the second chapter we learned that comparable patterns of attachment behavior in infants and pet animals can induce a "transfer of affection" in pet owners. In the third chapter we may infer from Hogan (1980) and Kaye (19890) that certain "modal" infant-oriented

projective responses transfer from infant to pet. Thus we see a process of transfer in both the biological and psychological dimensions of the person/pet relationship. This "point of similarity" serves to unite the discussion of the three chapters.

Synergy in the Person/Pet Relationship

Throughout our discussion we have made reference to different means and "channels" of communication. In the first chapter we learned that the childhood image was a kind of rudimentary visual signal, while in the second chapter we learned about the more complex signalling capabilities of the facial-visual system. In the third chapter we studied the characteristics of the projective stimulus as a source of "messages" of different kinds. Each of these represents a single channel of communication, similar to what one would experience while listening to the radio.

However when we are watching television, we are exposed to a situation in which two signals auditory and visual are impinging simultaneously on two different sensory systems. We may call this a process of multi-channel stimulation or communication. We may presume that the effect of multi-channel stimulation would be more intense than stimulation from a single channel alone.

Two signals occurring together may enhance or reinforce each other. We may refer to the process of mutually reinforcing multi-channel stimulation as synergy.

There are many examples of synergy in the person/pet relationship. One is the facial-visual system, in which we receive the stimulation of the childhood image (morphological input), along with various gestures and expressions (behavioral input). This multi-channel signal enhances the experience for the parent or pet owner and serves to maintain caretaker proximity as well. Therefore the benefit is reciprocal.

Another example of synergy may be seen in our multi-dimensional analysis of the Hirsh-Pasek and Trieman study in the third chapter. We found that the "perceived social responsiveness" of babies and pets could be explained by attachment theory as well as by projective theory. We may presume that the attachment process and the projective process are both active in the same situation. We may presume further that they are not only parallel occurrences but mutually reinforcing ones. In that case, parents and pet owners are receiving biologically and psychologically based messages at the same time, and they are interacting synergistically. This would greatly enhance the emotional experience for the pet owner.

The Application of Convergence

In the pages above we reviewed examples of synergy that emerged in the course of our theoretical discussion. Below we apply our synergistic-convergent model empirically as we discuss an actual person/pet encounter.

Laura Langston (1989) wrote a short article on an innovative use of a companion animal in social service work. Her subject was Bailey a dog owned by Santino Marruzzo, executive director of the Association for Street Kids, a social service agency in Vancouver British Columbia. Marruzzo regularly brings Bailey to work with him and the dog accompanies him on his rounds through the Vancouver streets. Below Marruzzo describes an encounter between himself, a client, and Bailey. As he related to Langston

I was sitting on Yates Street...and Bailey was with me. The kids were coming up and patting the dog. We started talking about the dog. But after a few minutes...we were talking about more serious things and the kids were telling me their problems. (Langston, 1989, 10)

Several processes are operating here. First of all, we can see that Bailey served as an effective "ice-breaker" between Marruzzo and the clients, as described by Bossard, 1953.

Given their circumstances we may presume that these young people were unwilling to take an interpersonal risk, especially with "straight" people such as Santino. In that

case, Bailey provided the opportunity for a non-threatening tactile/emotional exchange, such as Ashley Montagu described in the second chapter. This non-verbal message, combined with a positive projective transfer, allowed Santino to establish contact with these young people, with his dog acting as a symbolic intermediary.

The encounter with Tracy provides another example of a synergist process. Tracy responded to Bailey by saying

Bailey's like a big teddy bear. He's something to reach out to, to cuddle. If it hadn't been for him I probably would never have talked to Santino. (Langston, 1989, 11)

A teddy bear is soft to the touch and has given contact-comfort to many generations of children. In addition it has "appealing" which is to say neotenous morphological characteristics, as determined by Hinde and Barden (1985). These are two powerful forms of non-verbal stimulation acting together. There may also be a projective factor in that Tracy may have recalled and soothed herself with comforting childhood memories.

Tracy said that Bailey's "cuddliness" induced her to approach Santino. This implies some kind of "ice-breaker" function. Apparently Tracy was able to projectively define Bailey as "safe", and apply the attribution to Santino by projective transfer. Thus "Bailey broke the barrier".

As for another client

He was attracted, he says, to the dog with the smile on his face. (Langston, 1989, 11)

In the second chapter we discussed the visual/behavioral/affective nature of the smiling gesture. Gerald Durrell (1956) described the smile as his dog Roger's "trump card" when he wanted to induce Durrell to take him for a walk. Perhaps his smile was Bailey's (not to mention Santino's) trump card as well. We may presume that Bailey's innocent smile evoked a nurturing response, or at least caused a lowering of inhibition. Thus Bailey was able to "penetrate" this client's psychic barrier, and induce a positive and secure feeling that was projectively transferred to Santino.

Langston reports that Bailey was very popular in the neighbourhood and people would regularly sound their car horns in recognition or stop and give the dog's head a rub. According to Langston, the dog became a virtual "institution" in the neighbourhood. This conforms with observations made by Bossard (1953) that a dog can serve as an effective "social aid". Bailey did help to expand the range of Santino's acquaintances both in the community and among the street people. The tactile stimulation from rubbing the dog's head would serve to release nurturing feelings, thereby enhancing the effect of the overall experience.

Attempting to explain Bailey's popularity in the neighbourhood, Langston comments that

Bailey's popularity rests in his ability to share an elusive quality that so many street people crave. "he gives them unconditional love" says Santinio. "That's it, unconditional love". He makes no demands and he's everybody's friend. Everybody at the Association loves him. Everybody loves him. (Langston, 1989, 11)

Bailey's ability to "share unconditional love" is of course an anthropomorphic projection as Lindesmith et al. (1975) and Wallin (1978) pointed out earlier. Nevertheless it does provide the subjective means for the clients to construct a positive definition-of-the-situation and apply it to the unfolding action (Pollner and McDonald-Wikler, 1985)

The observation that Bailey is everybody's friend reflects Bossard's observation that

the dog serves each of us according to our respective needs. (Bossard, 1953, 237)

We may say that the "elusiveness" or ambiguity of the situation, like the stimulus in a projective test, invites an individualised projective response reflecting the clients' own fears, expectations, and emotional needs (Wagner, 1983; Washburne, 1971). In this way, Bailey could be each individual's "friend".

A_Final_Word

In the course of this project we met a number of empirical, theoretical and methodological goals.

1 We examined three different aspects of the person/pet relationship (morphological, behavioral and psychological) and developed theoretical analyses for each position.

2 We demonstrated the validity of the ethological approach in studying the person/pet relationship.

3 We demonstrated the value of the comparative method in studying the person/pet relationship.

4 We demonstrated the value of applying logical categories and terminology to a comparative analysis.

5 We demonstrated the theoretical and empirical value of comparing the person/pet relationship with the human infant/parent relationship.

6 We demonstrated the value of an interdisciplinary approach in studying and explaining the complexities of the person/pet relationship.

7 We demonstrated the explanatory value of a convergent perspective by

8 using our theoretical model to evaluate an actual "case" of a complex person/pet interaction.

With this case presentation we demonstrated that the person/pet relationship is a complex personal and social phenomenon with many factors that may interact to produce the total experience. In so doing, we have demonstrated the value of a comparative, convergent, multi-disciplinary analysis in reliably navigating through this complexity. In our introduction we drew a comparison between the development of this project and the construction of a rope. We noted that the factors contributing to the soundness of each included the selection of materials, the method of fabrication, and the skill of execution.

In terms of the application of theory and the overall logical structure and development, the argument is sound and we may claim validity on these grounds. However, a methodological criticism may be advanced. This project was not based on direct research. Rather, the method of data collection was archival and some of the material was anecdotal. On these grounds one may claim a weakness in the empirical demonstration.

We respond by referring once more to our introduction, especially to the passage where we noted that the purpose of our project was to lay a foundation. Putting up the walls and other structures will be the outcome of further research, we hope by additional investigators. With

empirical research, well thought out and well executed, we may be sure that practice will inform theory and that a more satisfactory explanatory outcome will be the result.

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