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What's Wrong with Using 'Dominance' To Explain the Behavior of Dogs?

In the past, much of the behavior of dogs was interpreted quite simplistically in terms of 'hierarchy' or social structure. It was believed that dogs were motivated (i.e. had an internal 'drive') to achieve a higher 'status' relative to other dogs or people, and that this desire led them to show behaviors such as aggression in order to achieve control. Lots of eminent behaviorists and trainers used to think in this way, but with the advancement of science and clinical behavior practice, we now know that the foundations on which this theory was based are fundamentally flawed, and the majority of trainers and behaviorists have changed their practice as a result. We also have a much better understanding of how the brain works, and how animals learn, which has enabled us to develop a better understanding of why behaviors such as aggression do develop in dogs. In this article, we summarize why 'dominance' is no longer regarded as a useful explanation for the behavior of dogs. A fuller review is available in Bradshaw et al. (2009).

Key Points:

Where did 'dominance theory' come from?

- Early studies of captive unrelated wolves suggested a rigid social structure or 'hierarchy' maintained by aggression
- The findings of this research was applied to interactions between dogs, because the wolf was the ancestor of the dog
- The theory was assumed to apply in relationships between dogs and people, and that dogs perceived the relationship with their owner in terms of relative 'status'

What are the problems with this theory?

- More recent research on wolves has found that the natural social groupings of wolves is actually based on co-operative family groups of parents and offspring, with very little aggression
- Dogs have changed a lot since domestication, and groups of feral dogs do not have the same social structure as wolves
- Studies of interactions between dogs show no evidence of fixed 'hierarchical' relationships, but rather relationships between individuals which are based on learning

Where did 'Dominance Theory' Come From?

Firstly, it is worth considering where the concept of 'dominance' originally came from, as this helps to explain the background to the debate on its current usage. The concept of dominance is a historically well established one within the field of ethology, the study of the natural behavior of animals. It was used to describe relationships between individuals, where one of a pair of animals is observed to obtain an important resource in a competitive situation. However, over time the problem of using this concept in more complex animals became apparent,

because such relationships were not always consistent in different situations. In other words, although animal A may be more likely to win an encounter over one resource, animal B may do so over another. Furthermore, in social species, other factors appeared to be influential in the outcome of an interaction over a single resource – for example the outcome of competition over food varying with how hungry each animal was. The ability to identify and learn about particular signals that might predict how others are likely to behave in different situations makes predicting the 'outcome' of an encounter between two individuals even more difficult. 'Dominance', therefore, seemed to be a too simplistic way of describing the interaction between social mammals, and in ethology much more complex models are now used to describe social groupings (e.g. Van Doorn et al. 2003).



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Dominance came to be used to describe dog behavior through the application of studies of its ancestral species, the wolf. Early studies of wolves were done on artificial groups of animals kept in captivity, where individuals were unable to get away from each other, and the social groupings were not the normal family groups that are found in the wild (Mech 1999). The results of such studies suggested a rigid hierarchy where particular individuals ('alphas') had priority access to resources, and maintained the group structure through the display of aggression to others (Zimen 1975).

Since the wolf is the ancestor of the domestic dog, those interested in dog behavior suggested that similar social groupings may occur in dogs, and that the formation of these groups are based on the 'desire' or 'drive' of each individual to be the 'leader' or 'alpha' of the group, the resultant hierarchical structure being based on competitive success. This interpretation of dogs became so well established, that it was also used to interpret interactions between dogs and people, the assumption being that dogs also regarded people as competitors in the struggle for social status. This interpretation of dogs has been used to explain behaviors ranging from aggression, attention seeking, destruction, and even failure to return on recall.

If one assumes that the behavior of a dog is motivated by a desire to control or 'dominate' its owner, it tends to lead on to the conclusion that in order to deal with the problem, the owner needs to establish 'dominance' over the dog. This interpretation of dog behavior, therefore, has tended to encourage the development of training techniques that use punishment or force to 'show the dog who is boss' (e.g. Kovary 1999). However, for the reasons summarized in the following sections, we now know that the use of 'dominance theory' to explain the behavior of dogs relies on flawed assumptions, and it is therefore important to re-evaluate the techniques we use in the training of dogs, and make sure we use techniques that are not only effective but are least likely to compromise the welfare of our pets.

Recent Interpretations of Wolf Behavior

Recent research on natural populations suggest that the groupings are more based on co-operative family groups, where one breeding pair produce puppies and other members of the family assist with rearing them (Mech and Boitani 2003). This particular reproductive strategy is adaptive for their ecological niche, and although it results in fewer puppies being born, the higher investment in each puppy increases their chance of survival. Hence, the natural social groupings of wolves are based on co-operative family groups, where the parents 'guide' their offspring in developing social and hunting skills, the apparent hierarchical structure arising through parent-offspring relationships rather than competitive or aggressive encounters (Mech 2008). In such groups there is no 'alpha' achieved by strength or aggression (Mech 2008), and there is no evidence that individual wolves have a life-long 'dominant' characteristic (Packard 2003). Aggressive behavior is very rare in stable groups (Mech 1999), and where it does it occur, it is flexible, being based on individual circumstance rather than being predictable between individual pairs of animals. Since the type of 'dominance hierarchy' whereby the social structure is based on competitive ability does not appear to occur naturally in wolves, the argument for this occurring in the dog, as the descendent of the wolf, it has been strongly argued that to be a poor one (Van Kerkhove 2004).

Do Feral Dogs have the Same Social Structure as Wolves?

The next assumption in 'dominance theory' is that since wolves are the ancestors of dogs, the two species will form similar social structures (e.g. Lindsay 2000). However, the dog has changed considerably from its ancestral species since domestication (Miklósi 2007), and observations of feral dogs suggest that the social structure of feral dogs is completely different (reviewed in Bradshaw et al. 2009). For example, mating is unrestricted in feral dog groups (Pal et al. 1999), and although appeasement behavior occurs, it is both within family groups, and between individuals of different groups, suggesting a general function of diffusing conflict, rather than being a specific 'submission' behavior to maintain group hierarchical structures. Studies of feral dogs tend to suggest, therefore, that domestication has significantly altered the social behavior of dogs from their ancestral species. In free living groups, feral dogs do not remain in strict family packs, there is no restriction of breeding, and hence no apparently pyramidal structure based on a single breeding pair and their



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offspring as is found in wolves. Interactions between individuals are much more fluid, and appear based more on circumstance, sexual cycles and prior learning about the behavior of other individuals.

What About the Social Structure of Domestic Dogs?

Since neither natural groups of wolves, nor free-ranging groups of feral dogs, appear to adopt the pyramidal hierarchical social structure traditionally ascribed to them, the assumption that domestic dog behavior is influenced by a desire to assume such a structure is difficult to substantiate. Furthermore, recent research suggests that groups of domestic dogs do not form social groupings that can be interpreted in terms of a dominance hierarchy. The study, described in Bradshaw et al. (2009) investigated the interactions between a group of 19 dogs housed together in a 'sanctuary' environment. The aim of this study was to investigate whether these neutered domestic dogs, which had been in the group for at least 6 months and were freely able to determine interactions between group members, formed a hierarchical structure as predicted by the 'dominance theory'. Interactions between each pair of dogs were recorded, but showed no evidence of an overall 'hierarchy' within the group. Rather, the interactions suggested that each pair of dogs had a learnt pattern of behavior with each other, which may or may not vary between different situations, but which could not be combined into any overall group structure (Bradshaw et al. 2009).

Dominance as an Explanation of Behavior

There is, therefore, very little evidence that social groupings of the domestic dog are based around the traditional pyramidal structure. This may seem like an academic argument that has little relevance to the everyday interaction between people and dogs, but the real problems that have arisen with the use of 'dominance theory' in the dog fraternity, is that the term has been used not only to describe the interaction between individuals, but also explain it. In other words, the reason for a dog showing a behavior was ascribed to it 'trying to achieve dominance / social status'. This requires a further assumption – not only do dogs form a pyramidal structure based on competitive success, but that they are actively planning ahead in order to try and raise their own relative status.

This assumes that dogs are able to form an abstract concept of their own 'status', relate this to the relative status of others, and plan future events with the aim of modifying their relative hierarchical position. This type of thinking is actually very anthropomorphic (from a human point of view) – because we have language and an enlarged frontal cortex that enables us to form and 'name' abstract ideas, it is difficult for us to imagine not being able to 'conceptualize' using words. This is exactly the same principle as the argument that dogs which show appeasement behavior when owners return home to find house-soiling or destruction feel 'guilty' because they recognize that they have done something 'wrong' according to a human code of behavior. Recent research supports the general consensus amongst trainers and behaviorists that the behavioral signs interpreted by owners as 'guilt' are a learnt response to a context (such as an angry owner facial expression) rather than an awareness in the dog of a misdeed (Horowitz 2009).

Because it is very difficult for us to imagine life without this ability, it is natural for us to interpret the behavior of other animals with the assumption that they have the same cognitive abilities as ourselves. However, there is no evidence that dogs form abstract concepts and think about them forwards and backwards in time. It is, therefore, an unsupported assumption that dogs are likely to plan future actions with the aim of modify their long-term relative social status with other individuals. Their response to other individual animals or people is much more likely to be based on individual learning about how others respond in different circumstances (as we explain further in 'How do we explain social behavior').

What are the Consequences?

The real problem with assuming that a dog is showing a behavior because it has a 'master plan' of achieving high status, is the effect that this assumption has on how owners respond to their dogs, and attempt to train them. If owners believe that a dog does something to 'achieve status' or 'control them' or 'be the boss' it naturally tends to lead people to use



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coercive training techniques. This relies on inducing a negative emotional state (e.g. fear or anxiety) in a dog in order to inhibit behavior, which has the risk of inducing further undesired behavior or having a negative effect on welfare, as described further in 'What are the problems of using training techniques that induce fear or pain?'

Unfortunately the concept of 'dominance' is well embedded in historic scientific literature and the public consciousness. Although the majority of trainers and behaviorists no longer think in this way, some new authors to the field interpret particular aggressive signs as 'dominant', because their definitions are based on older literature (e.g. Pérez-Guisado, J. and Muñoz-Serrano, A., 2009), which tend to perpetuate this theory. In addition, some of the trainers who reach many thousands of dog owners through television also perpetuate these out-dated ideas.

Conclusions

Although it has been widely accepted amongst qualified behaviorists and trainers for many years that the interpretation of dog behavior based on a 'dominance model' relies on unsupported assumptions, this outdated approach is still used by those that have not had the opportunity to study the most recent literature and clinical practice. This article has explained how this theory arose through a historical 'mistake' in the interpretation of wolf behavior, along with a series of assumptions about how this might apply to dogs. These assumptions have been clearly shown to be erroneous by recent research, and a modern interpretation of dog behavior provides us with a much clearer interpretation of how and why behavior develops. Although often portrayed as an 'academic argument' it is important to realize that the way people interpret the behavior of their dogs has a strong influence on the way that they behave towards them. Dispelling the myths behind this theory is therefore an important step in enhancing the welfare of the dogs in our care.

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