

# Animal Magnetism: Perceiving Environmental Objects as Social Subjects among Balinese Looking at Roosters

Yancey Orr

One of the most common themes in ethnography is the symbolic incorporation of animals as quasi-social subjects, as well as the interpreting of animal behavior as motivated by intentionality, and having social relationships similar to those of humans. The question arises, does this distinction between the social and natural world also diverge at the level of perception? If so, why? To investigate these issues a test of holistic perception—a form of visual perception almost exclusively used when looking at human faces—of roosters was conducted among Balinese with different levels of interest in and exposure to roosters. The findings suggest that holistic perception does emerge for environmental objects under certain conditions.

## OF ANIMALS AND MEN

Ethnographic studies have often led anthropologists to conclude that the boundaries between the social world of people and the natural world of animals are more porous in certain symbolic and experiential contexts. Throughout its history, anthropology has paid considerable attention to both the material relationships communities have with animals and the cultural systems through which they understand such relationships. One of the most common themes in ethnography is the symbolic incorporation of animals as quasi-social subjects, as well as interpreting animal behavior as motivated by intentionality, and possessing social relationships similar to those of humans [Descola 1996; Herskovits 1926; Ingold 2000; Lestel 2003; Lévy-Bruhl 1923; Naveh and Bird-David 2014; Valeri 2000]. What accounts for the differences in how people perceive animals? To examine this question, I explored how Balinese perceive roosters using techniques originally developed by cognitive psychologists.

Cognitive science distinguishes between *holistic* and *featural perception* which directly correspond to the distinction commonly made between environmental objects and social subjects. *Holistic perception* is used to observe, discern and

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remember human faces which are the central visual aspect of sociality [Alley 1988; Peterson and Rhodes 2003; Yin 1969]. This form of perception is referred to as *holistic* because it integrates multiple features of a face as a unity, and is thought to be restricted to the perception of human faces. All other environmental objects are perceived by focusing on one or two features that are not integrated into a whole and are thus given the term *featural perception* [Shepherd 1981]. Given that the method of perception so closely overlaps with how the modern West divides the social world from the natural world, the question then arises: *among individuals who describe and relate to specific animals in ways similar to social subjects, does a corresponding change from featural to holistic perception emerge? And if so, what are the factors that result in such a shift in perceptual technique?*

#### PERCEPTION OF SUBJECTS AND OBJECTS

The following is an example that will demonstrate how the perception of faces and of objects differs. Holistic perception is one of the reasons that faces are so easily recognized, discerned and remembered compared to other environmental objects, other parts of the body and isolated features of the face such as the ears or nose [Peterson and Rhodes 2003]. For instance, when identifying a childhood

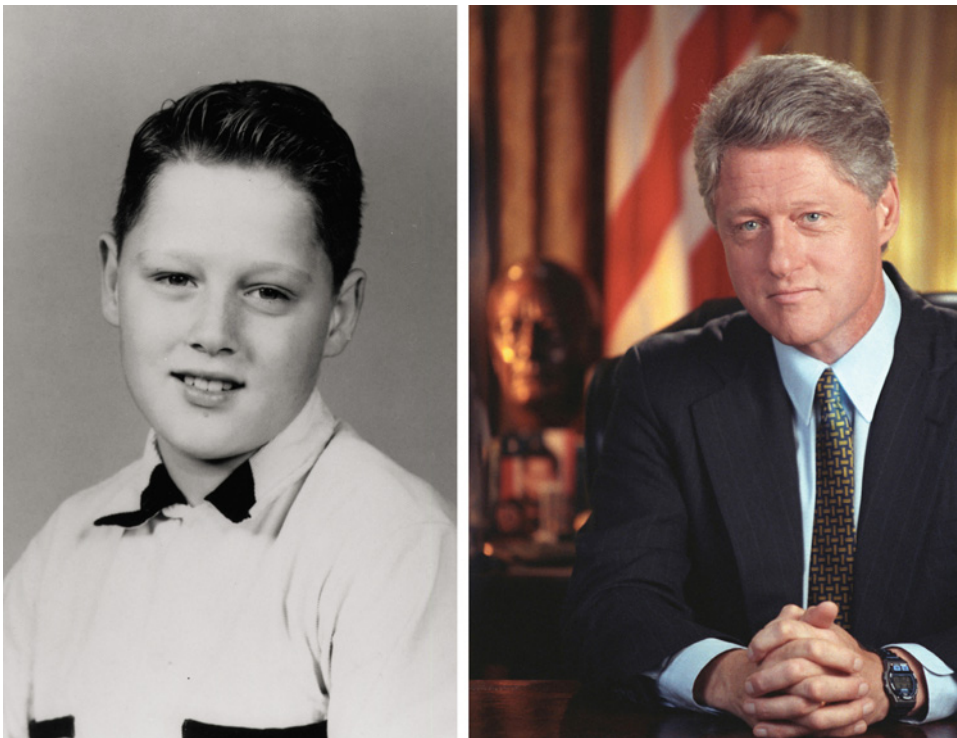


Figure 1 Bill Clinton as child and adult. (Courtesy of William J. Clinton Presidential Library. Released under the auspices of the former President in accordance with the Presidential Records Act 44 USC 2205(3).)

friend in adulthood, one does not recognize one specific feature such as the shape of someone’s nose but rather the relationship between multiple elements of a face. The first image is of President Clinton as a child. His face is likely recognizable to many who have already seen images of him as an adult [Figure 1].

The ability to recognize President Clinton as a child does not come from focusing on the similarities of one aspect of his face, such as his ears. Instead, recognition comes as a gestalt in which multiple features of the face are holistically integrated to form a complete visual percept [Goldstein and Chance 1981]. Similarly a person, even a famous person, is unlikely to be known by solely focusing on his or her lips. Though the adult lips of President Clinton would not provide enough information to identify the person from whom they are taken, the photograph of him as a child is recognizable [Figure 2].

Though holistic perception is used for perceiving faces, there are a limited number of examples of holistic visual perception of nonhuman objects. Instead of using featural perception to examine canines, dog-show judges have been found to have holistic perception when looking at the profiles of dogs [Diamond and Carey 1986]. The evidence that dog-show judges use holistic perception provokes several questions regarding the etiology of this skill, what it means regarding human–animal interaction and whether or not it can only be achieved by a select few in a society with high degrees of niche specialization. To answer these questions, I constructed a visual perception test of the most important animal in Balinese culture, the rooster.

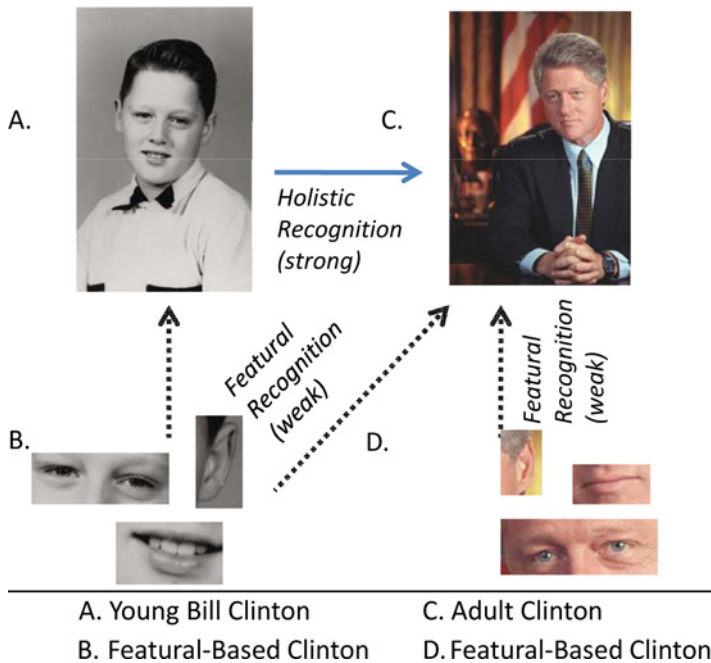


Figure 2 Types of perception and corresponding objects.

## ROOSTERS IN BALI

As Geertz's famous study [1973] clearly and humorously illustrates, roosters are of elevated symbolic importance within Balinese culture. Thus, if holistic perception for an environmental object exists, it is likely it would exist while looking at roosters. A summary of his "Notes on the Balinese Cockfight" would be both unnecessary and epigonic. Instead I will focus on the reasons why the perception of roosters may be unique among Balinese. Geertz writes that the Balinese word for rooster, *sabung* [*ibid.*: 418], as well as the Indonesian term *jago*, connotes an assortment of secondary masculine meanings. Among contemporary Balinese, the word most often used for rooster is *manuk* which also carries the same double meaning. However, Geertz does not mention that roosters and possibly birds in general are perhaps the only animals that are used to describe a human attribute that is not derisive in nature. Comparing someone to a cat, dog, monkey, dolphin, fish, snake or any other category of animal is insulting. Perhaps one of the few exceptions can be found in the Indonesian subculture of *silat*, the martial arts of the Malay Archipelago, where fighting styles are categorized by the animal that the movements recall (tiger, monkey, bear, crane, etc.) and on which they are based [Gartenberg 2002]. However, a master of *silat* regardless of style is referred to as a *jago silat* which both means a rooster martial artist and a champion. Generally when referring to roosters in the bahasa Indonesia language, *jago* is followed by the general term for chicken, which is *ayam*, to become *ayam jago* meaning both "rooster chicken" and "champion chicken." However, *jago* cannot generally be added to any other animal, so calling a male dolphin or an alpha male macaque a *lumba-lumba jago* (dolphin) or *monyet jago* (monkey) is amusingly inconceivable to Indonesians.

The symbolic importance of the rooster in Balinese life is matched by both passive observational experience and interactive experience within villages and cities. Roosters and hens are often the only animals that Balinese give attention to and pet within the household compound. Dogs, though they often reside within the family compound, are seldom touched when they are no longer puppies, and unlike roosters, which receive considerable food scraps from family meals, are rarely fed within the household. Though roosters are nearly ubiquitous in Bali, the importance they have for individuals is not. Some Balinese have little interest in roosters and cockfighting while others obsess over both the aesthetic aspects of roosters and gamble relatively enormous sums on cockfighting. Moreover there are men who breed and train roosters for cockfighting and who referee bouts. Due to this variance in both the level of interest and the degree and type of experience with roosters, the field subjects were taken from three groups of Balinese in accordance with their level of interest and exposure to roosters. By doing so, the importance of symbolic value can be compared to the degree of interactive experience with roosters for creating holistic perception. The subjects in this test were divided into three groups: those who had little interest in cockfighting and roosters (low interest, low interactive experience), those who were avid cockfight attendees (high interest, low interactive experience) and those that bred, trained and refereed fighting roosters (high interest and high interactive experience).

## INVERSION TEST AND PERCEPTION

Holistic visual perception results in exceptional performance in remembering faces, and for dog judges, dogs, that have been previously seen. However, holistic perception only works with faces and objects when they are right-side-up. The spatial relationships which allow a person to integrate information holistically do not exist with upside-down objects, or at least, the mind is unable to flip those relationships upside-down. So to find holistic visual perception a researcher exploits the difference in accuracy that holistic perceivers show when discerning and remembering objects right-side-up and upside-down in what is referred to as an “inversion test.” Developed in the 1960s to demonstrate the skills people use in observing and remembering human faces [Yin 1969], this test was altered by Rhea Diamond and Susan Carey to investigate the perception of environmental objects in the 1980s [1986]. The methods they used to test visual perception were followed in my test in Bali, except that roosters were the animals that were used rather than dogs.

To create an inversion test, a large number of photographs of roosters are needed in which the roosters have a matching background and similar angle to the camera. This process involved taking multiple photos of roosters with a blue cloth background, with a high-speed camera. These photographs were then digitally altered to give a more uniform background and to alter changes in the ground in front of the roosters. From approximately 160 standardized photos of roosters, 30 rooster photos were selected to be the observed roosters, in addition to 30 decoy roosters which looked similar to the roosters that subjects were initially shown [Figures 3 and 4]. Subjects were shown 15 right-side-up rooster

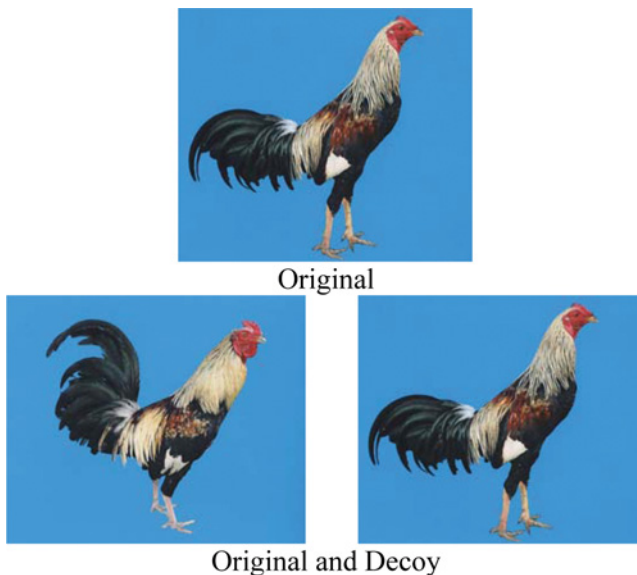


Figure 3 Normal condition.

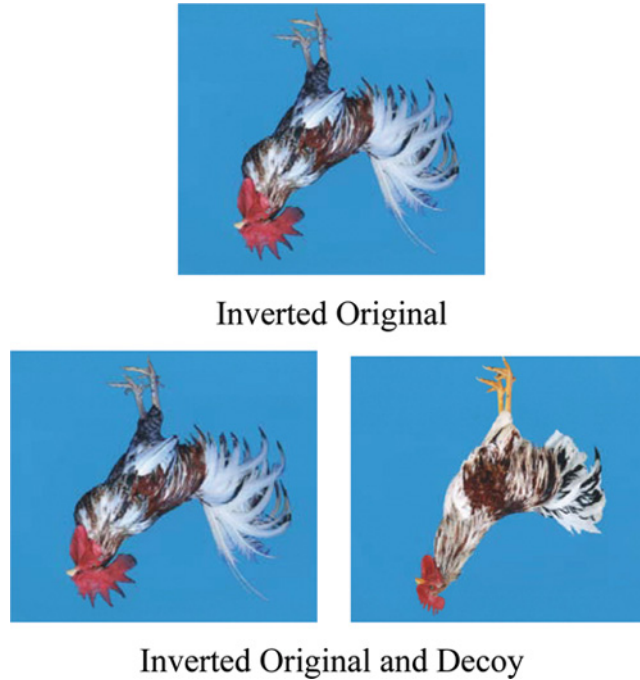


Figure 4 *Inverted condition.*

images at 5-second intervals and then shown 15 images of the original roosters with decoy roosters. Subjects were asked to choose which rooster they had previously seen. Then 15 inverted images of new roosters were shown at 5-second intervals followed by 15 sets of inverted original roosters and decoys. A subject using holistic visual perception would be able to perform the task of remembering and selecting the original rooster at a high degree of accuracy in the normal condition and their ability to do so would vastly diminish when the images were inverted, which is called the “inversion effect.”

Subjects in Bali were divided into *a priori* categories by the degree to which they were interested in cockfighting and the amount of time they spent interacting with roosters. Individuals in several villages in the Regency of Gianyar were divided by research assistants into four categories, ranging from extremely interested in cockfighting to showing no interest at all. There was an additional category of seven Balinese who were noted breeders and trainers of roosters for cockfighting.

A total of 89 subjects were in one of the three categories (46 uninterested, 36 avid cockfighting attendants, and 7 breeders, trainers or referees). They were all men and between the ages of 18 and 50, which was necessary due to human subjects regulations and the lack of access to reading glasses for older Balinese. Because of the need to test breeders, trainers and referees to gain some statistical significance, the number of subjects in each category is likely not a proportional representation of Balinese society.



## RESULTS

As Figure 5 shows, the three groups scored differently on the normal and, to a lesser extent, on the inversion test. The “uninterested” category averaged approximately 9.5 on the normal category and slightly worse at 8.5 for the inverted images ( $p < .078$ ,  $n = 46$ ) making the difference between the conditions statistically insignificant for this category. The avid cockfighting enthusiasts scored roughly 10.5 on the photo in the normal condition and 8.5 in the inverted condition ( $p < .0001$ ,  $n = 36$ ). The breeders, trainers and referees scored significantly higher on the normal condition (12.9) and their scores dropped to approximately 8.2 on the inverted test ( $p < .0001$ ,  $n = 7$ ). The approximately 35 percent drop in performance from the normal to inverted score for the breeders, trainers, and referees category compared to the 8 and 18 percent drop for the uninterested and enthusiast categories, respectively, is evidence for holistic visual perception for the category of breeders, trainers and referees [Diamond and Carey 1986].

## CONCLUSIONS: HUMANS, ANIMALS AND PERCEPTION

These are the first findings from a non-Western society that show holistic visual perception for objects other than human faces. The perceptual technique used by expert dog judges is qualitatively similar to those who breed, train and referee roosters in Bali. This is evidence that holistic visual perception can exist in a village setting and is not only the result of highly differentiated niches found in modern societies. The finding that only breeders, trainers and referees use, as a category, holistic visual perception when looking at roosters demonstrates the importance of extensive interaction with roosters for this skill to develop. As those with a great deal of interest in cockfighting (avid cockfighting category) do not, as a group, show holistic perception of roosters, intense symbolic and personal interest is not sufficient for developing holistic perception. Additionally,

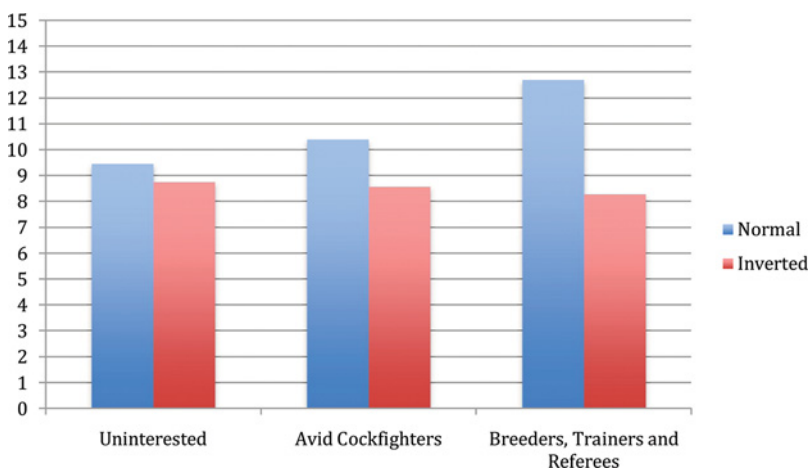


Figure 5 Results of inversion test.

the ubiquity of roosters in Balinese communities and their existence as household pets for most families makes casual observation of them a daily activity for the majority of Balinese. However, this type of observation does not result in holistic visual perception. It is only those who spend time training multiple roosters with the intent of making them better fighters who develop such perception. Thus holistic perception in Bali for roosters is not the result of casual observation, deep interest in cockfighting or considering roosters as an extension of one's social world. Rather it requires considerable interactive attention and experience with roosters for this type of perception to emerge.

Numerous ethnographic accounts demonstrate that different communities see these animals not as animated objects in an environment but as subjects in social relationships with humans. This blurring of distinction between the social and natural worlds has been attributed to different symbolic systems [Descola 1996; Grasseni 2009; Lévi-Strauss 1962], subsistence modes [Herskovits 1926; Ingold 1980, 2000], the religious systems of totemism [Frazer (1890) 1996] and cognitive patterns [Lévy-Bruhl 1923]. The findings from this research point to the importance of sustained and interactive experience for creating holistic perception. Both Tim Ingold and Melville Herskovits, in their examinations of pastoralism, position the degree and type of interaction with animals as a key determinant of perceptual emphasis and cultural elaboration on animals. Though the implications of finding that only some Balinese see roosters as people does not necessarily imply that these individuals identify with roosters at a deeper emotional or social level than others. However the striking finding that environmental objects can become social subjects at the level of perception suggests there are aspects of fetishism, totemism and other experiences of the natural world for which anthropology has yet to account.

Totemism has been the subject of much anthropological literature [Durkheim (1912) 1995; Lévi-Strauss 1962]. Many societies commonly project some type of social relationship between humans and animals and imbue specific animals, most notably pets, with a form of subjecthood. Whereas most anthropomorphism of animals takes place in contexts marked with propinquitous physical relationships in agricultural and industrial societies, totemic animals are almost always not domesticated animals [Ingold 2000]. If the finding that only extensive interactive experience results in the development of holistic perception, this suggests that totemism, because of the limited interaction between people and totemic animals in the wild, is unlikely to produce such a change in perception. This is surprising, since a purpose of totemic classification is to use animals and plants to define social relationships at the level of communities and individuals.

If a link can be made between holistic perception for specific animals and a greater identification with certain animals, the implications for social theory expand beyond the field of cross-cultural perception. In Bali the extensive interactive contact cockfighting experts have with roosters stems from symbolic and social institutions common in Southeast Asia. However, the quotidian interactions humans have with animals in many other parts of the world are because of ecological necessity, most particularly subsistence systems in arid and semi-arid regions where agriculture is not possible [Netting 1986]. This sustained interactive exposure to animals may in fact drive the creation of holistic perception, as is the



case in Bali, which in turn may be a cause in the strong identification these communities have with their livestock, as Herskovits [1926], Evans-Pritchard [1958] and Ingold [1980] illustrate. Perhaps ecological necessity results in interactive experience that in turn creates holistic perception and thus causes greater identification with certain animals. If a stronger link between holistic perception and identification of animals were empirically validated, it would provide greater insight into the conceptual and affective relationships of pastoral cultures with their livestock. In conclusion, these results from Bali raise new questions about how specific animals can enter our social world in ways not consciously known, in which the relationship between labor, identification and perception is foregrounded.

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