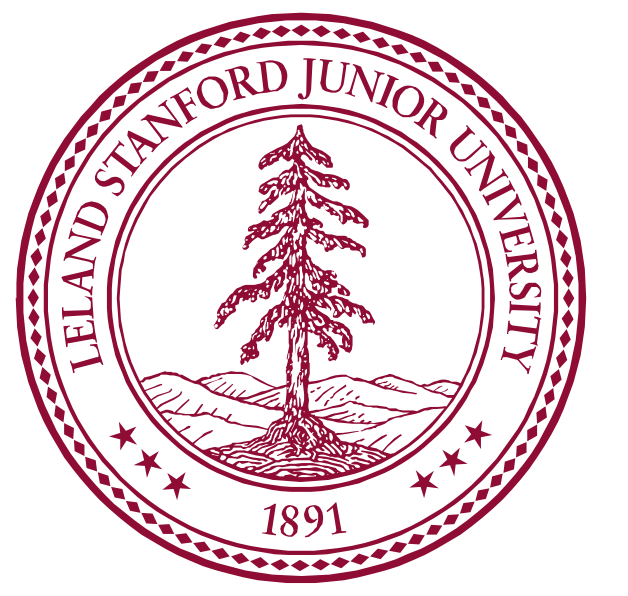




What is Animal Behavior?

An Introduction to the field and it's use today



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What is Animal Behavior?

Animal behavior investigates both the static and active actions of all animals as well as the factors that can influence these actions. There are two main approaches to animal behavior.

Ethology tends to study animal behavior while looking at naturally occurring behaviors of animals.

Comparative Psychology tends to study animal behavior while looking at learning/learned behaviors and tends to work in lab settings.

This poster will focus more so on the principles of ethology and other ethologists

Niko Tinbergen's Four Questions

In 1963, Niko Tinbergen wrote *On the aims and methods of ethology*. In it, he proposed four types of questions that can be used as lenses to view an animal's behavior. The four types of questions are:

- **Questions of function of the behavior:** how does an activity help improve the animal's chances of survival? How does this activity help the animal ensure reproductive success?

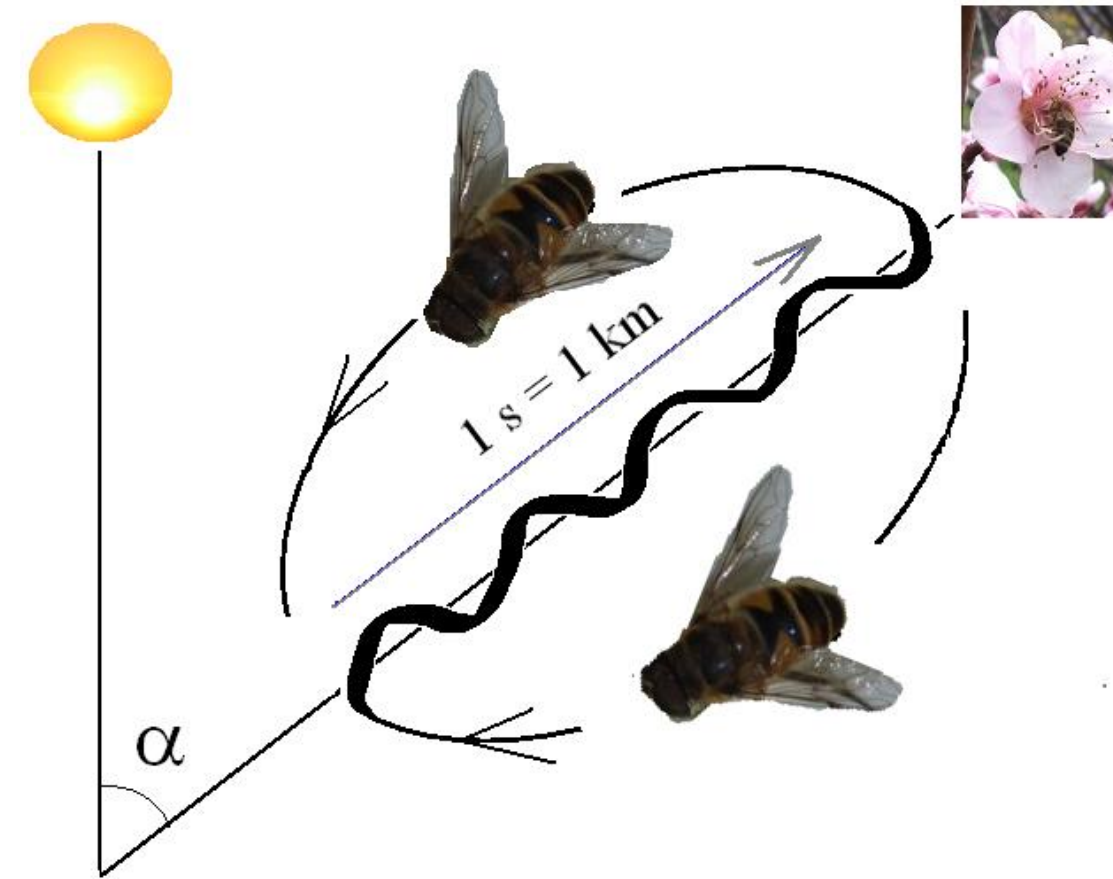
- **Questions of the evolution of the behavior:** how has the behavior changed over time as the animal, as an individual, has evolved?

- **Questions of the causation of the behavior:** What caused the animal to perform that specific behavior at that specific time? What external and internal circumstances influence it?

- **Questions of the development of the behavior:** How does this behavior change over the animal's lifetime? How is the behavior different in an older animal than a younger animal?

Today, most studies in ethology look at explaining an animal's behavior by answering one of these four questions.

Tinbergen's Questions At Work



Honey bee Dancing:
http://en.wikipedia.org/wiki/File:Bee_dance.png

Function: Karl Von Frisch and Honey Bee Dancing

Von Frisch spent great efforts to look at the sensory perceptions of the honey bee. Von Frisch was able to decipher how the bee's waggle dance serves to ensure that others can find food. He was the first to show how the length of the waggle relates to the distance away a food source is and how the angle at which the bee waggles towards the sun is the same angle at which other bees should fly to find food.



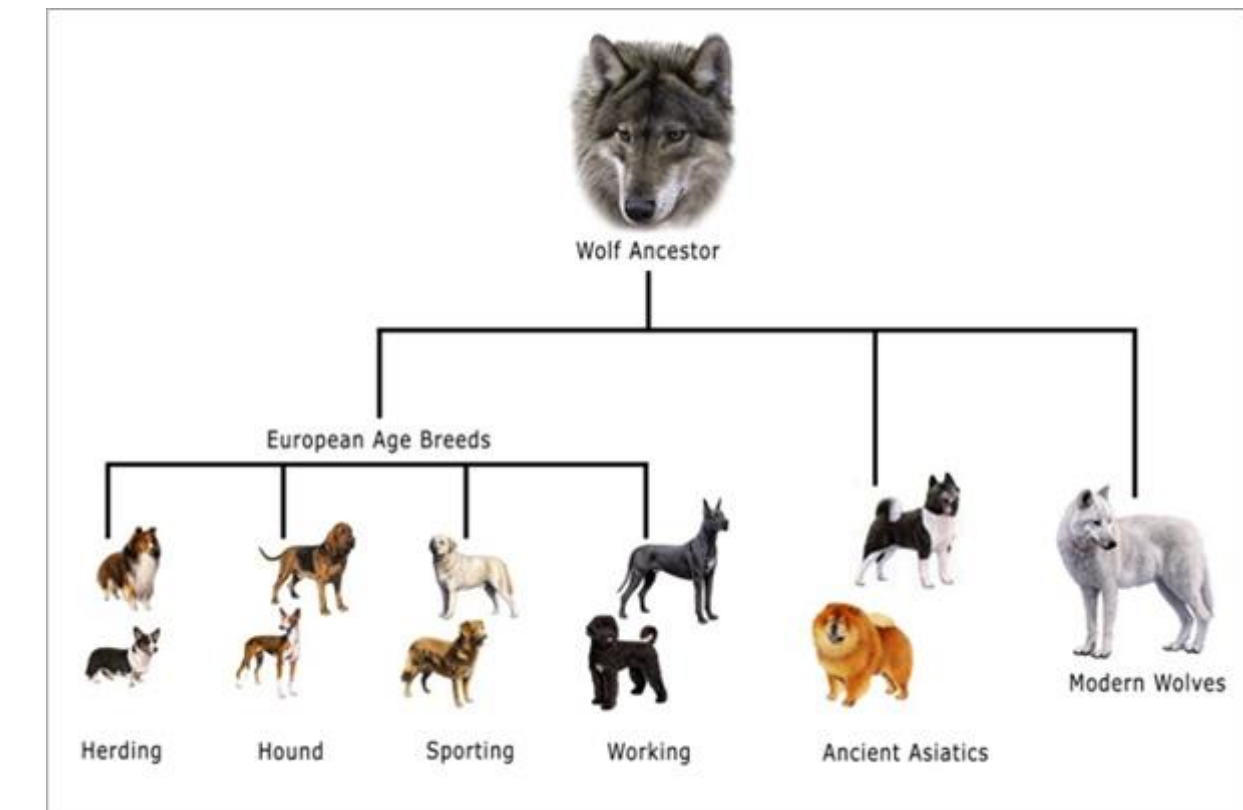
Curved Cattle Corral:
<http://www.grandin.com/design/design.html>



Temple Grandin:
<http://en.wikipedia.org/wiki/File:TempleGrandin.jpg>

Causation: Temple Grandin and Cattle

Grandin, pictured above, tried to better understand how an animal's stress could manifest itself in certain behaviors. She focused on the animal's environment and other external factors that produced the animal's behavior. Her research culminated in tools such as the sweeping corral above. These corrals are aimed at reducing the stress of the animals.



Coppinger:
http://vet-clinics.blogspot.com/2012/02/dogs-info_13.html

Evolution: Ray Coppinger and Dogs

Coppinger's work centers around answering questions of how the behaviors of wolves have given rise to certain practices dogs perform. Using tools such as ancestral trees (shown above) and observational methods, Coppinger is able to compare the behavior of both species for common interactions.

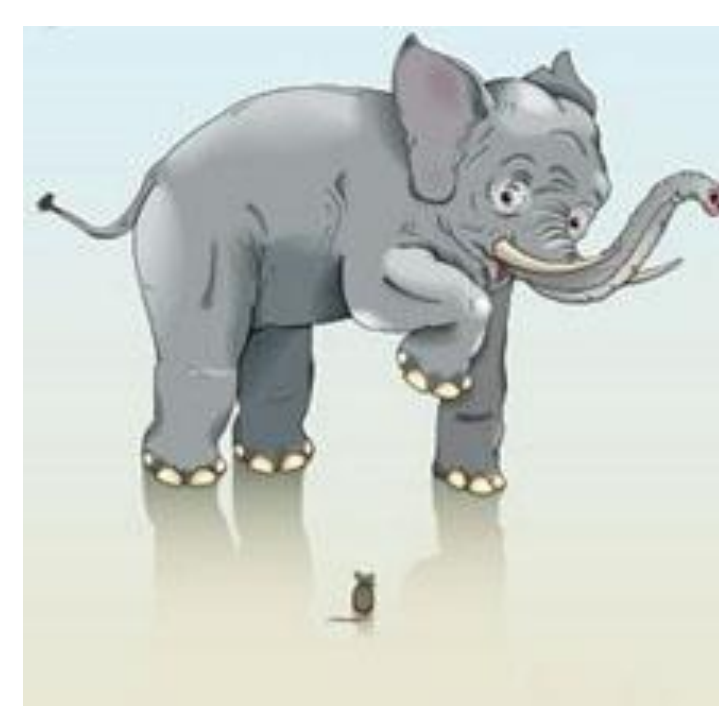


Jane Goodall:
<http://www.nationalgeographic.com/explorers/women-of-national-geographic/>

Development: Jane Goodall and Chimpanzees

Goodall studied the numerous social behaviors of chimpanzees. One of the aspects of her work is that she looked at the same chimps for multiple years at a time. This key characteristic allowed her to answer how the behavior of these animals could change over time. Here we see her at work observing and interacting with a chimp.

Animal Behavior Today



Elephants afraid of mice:
<http://withsomeuglytruth.blogspot.com/2010/08/are-elephants-afraid-of-mice.html>

Today, ethology manifests itself in numerous different settings. *Mythbusters* used many of Tinbergen's principles and designed a study to further understand if elephants are afraid of mice. Apparently they are...

Dr. Joseph Garner's lab, uses ethological tools to improve lab animal welfare. In studies like the one pictured to the right, he used different housing material for mice and observed how they built their houses in the lab setting. Dr. Garner also uses his research for human health and enrichment. He has done extensive research in mice on trichotillomania, (excessive hair-pulling) in order to provide a better understanding of the behavior in humans.



Hess, SE et al. JAALAS 47 (6), 25-31, 2008

References

Manning, Aubrey, and Marian Stamp. Dawkins. *An Introduction to Animal Behaviour*. 5th ed. Cambridge: Cambridge UP, 1999

