

CS 143 \* Comparative Cognition  
A Tour of Primates at the San Diego Zoo

Who has the largest EQ - Ape, Monkey or Prosimian? **Ape**  
 Who is most closely related to humans - Ape, Monkey or Prosimian? **Ape**  
 Who is most similar to the original ancestral primate - Ape, Monkey or Prosimian? **Prosimian**

**Hamadryas Baboon** Ape, Monkey or Prosimian? **Monkey**  
 How does their sexual dimorphism reflect their social structure? **Males twice the size of females; indicates male:male competition resulting in “harem” (1 male : multiple females) social structure**  
 What are those huge canines for? **Much larger in males, for male display and fighting & for predator defense. But note: females (and in fact most primates) have pronounced canines, used also for processing hard foods (e.g. crack nuts)**  
 Why do these animals need such a large habitat? **As foragers in largely-treeless, rocky highlands, they can travel 50 miles in a day, feeding as they go. PLUS, with so many competitive males in group, animals need a way to get away from each other!**

**Gelada** Ape, Monkey or Prosimian? **Monkey**  
 What are some distinctive anatomical features? **Chest patch, found in both sexes. Becomes bright in females when fertile and in dominant males. Also note how red of chest, penis, and face stand out against dark fur.**  
 Why is the content of this group a natural consequence of a Harem society? **All male “bachelor” group. In their “harem” society, only the most successful males gains females. Remaining males form “bachelor groups”, though these are included in HUGE foraging groups (food plentiful and difficult to monopolize, so all gather and graze).**  
 How is their diet peculiar for a primate? **Only primate whose main food is grass.**

**Vervets** Ape, Monkey or Prosimian? **Monkey**  
 What is their claim to fame? **Distinctive alarm calls, for snakes, eagles, & large ground predators**  
 Why is it we can know this about this species and not others? **They live on the savannah & open woodland, and often on the ground, so relatively easy to observe.**  
 Why is their next-door neighbor a good/bad choice? **Leopard! The primary ground predator of vervets!**

**Ringtail Lemur** Ape, Monkey or Prosimian? **Prosimian**  
 Where do all the Lemurs come from? **Madagascar (as do the Sifaka)**  
 Which gender is dominant? **Males during 3 week mating season, Females the rest of the year**  
 What are two uses of that amazing tail? **1) Balance when jumping. 2) A “scent wand” (Males rub scent gland on wrist along tail and then wave the odor around during mating season) since Prosimians rely on smell more than most primates**

**Sifaka** Ape, Monkey or Prosimian? **Prosimian**  
 How does the diet of this species vary from others in its suborder? **Prosimians are generally insectivores, but Sifaka mainly eat leaves.**  
 Is their peculiar locomotion species-specific? **They often run bipedally, arms over their heads. While not particularly common in other species, ALL primates are capable of this, due to their unusual hip and shoulder joints.**

**Gorillas** Ape, Monkey or Prosimian? **(Great) Ape Gorilla gorilla**  
 What is their social structure? **Harem: 1 huge Silverback male, multi females. Male sometimes tolerates younger adult males**  
 Is their diet more frugivorous or folivorous? **Folivorous**  
 In what respect do they defy the usual prediction for such a diet? **They do NOT have smaller brains than the other apes! They do complex, bimanual processing of otherwise difficult to access plants.**

**Bonobos** Ape, Monkey or Prosimian? **(Great) Ape** Sometimes called “Pygmy Chimpanzee”, *Pan paniscus*  
 What is their social structure? **Multi-male, multi-female; Fission-Fusion**  
 What physiological feature distinguishes this species? **Females show sexual swellings throughout cycle (not just during estrus) and engage in social (nonreproductive) sex in all age & gender combinations (except mothers & their non-infant sons)**  
 How does this feature impact on their social structure? **Males stay with females, do not form all male hunting or war parties, as Chimpanzees males do (since their females are only receptive while in estrus). Also females form bonds & even coalitions against males, mediated by their sexual interactions.**

**Kanzi** is a famous bonobo involved in what cognitive research? **Keyboard language study (also comprehends spoken English)**

**Siamangs** Ape, Monkey or Prosimian? **(Lesser) Ape**  
 What is their social structure? **Monogamous nuclear family, territorial**  
 How are their calls specialized for this? **Huge throat sacs can enlarge to produce VERY loud calls; used by family to declare territory, so can monopolize resources there.**

**Orangutans** Ape, Monkey or Prosimian? **(Great) Ape** *Pongo pygmaeus*

What does their name mean? **“Man of the Forest”**

What is their social structure in the wild? **One (absolutely HUGE) male controls the separate territories of each of “his” females, who spend their time mostly alone with their infants. So, VERY social in captivity, but not so much in wild... ?**

What is a (perhaps surprising) cognitive trait they show? **Best imitators** of any ape. Seems counter-intuitive at first, since they are **relatively asocial, but note: Mothers & Infants together for several years!**

**Silvered Langur** Ape, Monkey or Prosimian? **Monkey**

What is their primary food? **Leaves = they are “Folliovores” (spend all day chewing & producing methane in elongated gut)**

What are some possible cognitive implications of this diet? **Food widely distributed, not very cognitively demanding to obtain or process. Thus, across monkey species, there is a negative correlation between gut length and brain size.**

Why is orange a safe color for an infant to be? **Because predators, with only 2 cone types, cannot distinguish orange from green**

**Mandrills** Ape, Monkey or Prosimian? **Monkey**

What use do they make of color? **Faces and behinds similarly & brightly colored, especially in males = sexual signals**

What hint does their appearance give to their social structure? **Males signif larger > Harem (1 male: multi females)**

How does this structure differ from that seen in Olive baboons? **Olive baboons live in multi-male/multi-female groups**

Which is thus more likely to show *reciprocity*: Mandrills or Olives? **Olive baboons, since males form coalitions where they give aid against competing males to help gain their partners access to females, in expectation of being reciprocated.**

**Mangabeys** Ape, Monkey or Prosimian? **Monkey**

What micro-habitat do they inhabit? **Canopy (tops of trees – can live whole life w/out touching ground), Africa**

How does their tail help? **Helps them balance during great leaps from tree to tree (sometimes 100’ above ground!)**

What is the Black Mangabey’s claim to fame? **Elaborate vocal repertoire, including very loud “whoop gobble”**

**Cebus Monkey** Ape, Monkey or Prosimian? **Monkey**

How does their object use differ from most other monkeys? **Only known New World tool user- e.g. use rock to crack nuts**

Describe the “two headed display” and it’s implications? **Coalitions co-threaten others by positioning one head above other.**

**A direct look is often threatening in primates, so two such looks are a double threat, indicating a coalition.**

How did they earn their nickname? **“Ape of the New World” - largest brain/body ration of any New World monkey**

**Gibbons** Ape, Monkey or Prosimian? **(Lesser) Ape**

What is their primary mode of locomotion called? **Brachiation (long arms, overhead, rapidly swing through trees)**

What social structure does their mono-morphism suggest? **Monogamous nuclear family, territorial**

How is this also reflected in their vocalizations? **Pair duet during courtship, and later to co-defend their territory**

**Black & White Colobus** Ape, Monkey or Prosimian? **Monkey**

How are their hands different from most primates? **No thumbs! Only stubs. Swing through trees with hooked-grip**

Is their diet more frugivorous or follivorous? **Follivorous. Langurs (above) are main the Asian leaf eaters, these Colobines are the main African leaf eaters. They show the same “more leaves: less brains” pattern.**

Their cousins the Red Colobus are sometimes cooperatively hunted by whom? **Cooperating bands of male Common Chimpanzees (*Pan troglodytes*)**

**Lion-Tail Macaques** Ape, Monkey or Prosimian? **Monkey**

Where do all Macaques live? **They are Asian monkeys. Lion-tails are from India**

To what medical term do Rhesus (not Lion-tail) Macaques lend their name? **Rh blood factor (most common primate used in medical research)**

Which Macaque is most despotic and which is most egalitarian? **Rhesus most despotic: strict hierarchy, born into mom’s rank.**

**Stumptail macaque is egalitarian – loose hierarchy, readily associate with others, even babysit, from different ranks.**

What cultural activity has been identified in Japanese Macaques? **Potato-washing, a behavior documented to spread, through social learning, to all but eldest males in original wild group. Still practiced by descendents.**

**Just A Few More Questions. . .**

Which of the above species are from the New World? **Only Cebus**

We have seen MANY ischial callosities today - what is their function? **Butt-pads for sitting-up, FREES HANDS!**

What Great Ape species did we NOT see at the Zoo today? **The chimps: *Pan troglodytes* & *Pan paniscus***

What is the most numerous primate we’ve seen today? ***Homo sapiens***