

Lecture 8: PRIMATE COMMUNICATION

Primates have (semi-refined) control of articulated hands, face, & vocal repertoire for a wide range of communicative modalities

Reproductive Status - Important social information, much genetically controlled

- Morphological/Hormonal (Note especially use of color!)
 - Female sexual swellings - Signal estrous in many Old World Primates
 - Visible from far away; Highly salient to OW trichromatic vision with red/green opponency
 - Gelada chest patch – becomes bright red in dominant males and sexually receptive females
 - Adult male gorilla silverback & Sagittal crest – distinctive of Harem leader
 - Adult male Sumatran orangutan cheek pads
 - Young-adult males can sometimes delay cheek development, easier to approach females as “SF”
- Behavioral - Position body to make signals salient to other, which often also makes genitals accessible
- Olfactory - While reduced compared to most mammals, still used to signal, especially re: sex
 - Ringtails males, during brief mating season, rub wrist gland on tail, wave as “scent wand”
 - Cebus, uses gland on chest to scent mark trees, “urine washing” to scent own fur
 - Can signal gender, reproductive condition, plus rank, group ID, territory, etc.

-Recognizing Individuals - Primates, like cetaceans, live in “individualized” societies

- Recognize individual faces visually (Fusiforme Gyrus); voices in higher aud cortex (Anterior Temporal)
 - Indicates that discriminating, classifying individuals (not just gender, age) required by social negotiations

Negotiating Social Engagement

- In primates, “*The eyes have it!*”
 - Many eyes highlighted with color, high contrast; Help make signaling salient
 - Recall that Primates have cortical cells (“**Gaze Cells**”) that respond to head and eye direction
 - Also that the eyes are the part of the face primates most likely to examine
 - And that eyes, across the phyla, predict direction of movement & likelihood of engagement
 - Turn flat face toward X > predicts engage with X, move toward X
 - **Eye contact** can be a threat e.g. Double-headed display in Cebus
 - Also can be required before friendly interaction can proceed
 - e.g Female baboons flash eyelids as solicitation
 - **Gaze Aversion** Looking away; Precludes engagement, even deters aggression
 - Can also be used to misdirect, by exploiting tendency of others to Gaze Follow
 - **Gaze follow** to learn, demonstrate common interest – tied to **Social Learning & Social Attention**
 - Lots more on this soon!
- **Facial Expressions** – primates, esp apes, have highly malleable faces (See FACS for details!)
 - Smile, frown, pout, play-face (open smile but top teeth hidden), scream, etc. with many subtle nuances
 - In some species (esp apes) includes laugh as when tickled: Breathy (not voiced) giggle, open mouth
 - **Parr 2010**: In Lab, Chimps heard or saw video of call, pick “matching” expression from 1 of 2 photos
 - Pant-hoots and Play-call photos more reliably chosen from Audio sample, Scream from Video

Antagonistic -

- **Dominant Role: Threaten** = Demonstrate willing/able to fight to gain access, less costly than actual fight
 - **Teeth**: e.g. Yawn display in baboons, shows large canines, as “low level” threat
 - **Pilo-erection**: Raising fur, makes body appear larger, esp while doing hipedal sway
 - Humans lost fur but retain vestigial “goose-bumps”, via Sympathetic Nervous System activation
 - **Using substrate** - Chimps will rattle branches, pound on tree trunks;
 - Gorillas chest-pound, w/cupped hands, even without role model
 - **Attack**- Displays can escalate > bite, slap, kick, pin down; Can produce serious injury, rarely death
 - Some attacks more for show – e.g. To aggravate/challenge third party (see next lecture)
- **Subordinate Role: Submit** = Sometimes, enacting role in ritualized sequence enough to keep the peace
 - Bow, make yourself small, present to be mounted, do not retaliate attack
 - “Fear Grimace”: Full teeth but cringing “smile”, indicates submissive but friendly

Affiliative

- **Contact:** Gentle, sometimes prolonged; Tends to calm participants, solidify social bonds, builds trust
 - **Hug, Kiss** - Primate *need* physical contact; Monkeys reared alone prefer cloth mother to wire w/food
 - In *Pan*, includes comforting the losers in a fight, even by youngsters
 - **Grooming** – Pick through other’s fur with fingers, mouth. (Can also self-groom, esp when anxious)
 - *Not* about eating bugs (except fortuitously) but about calming contact; proximal and unthreatening
 - Increases oxytocin levels, decreases cortisol
 - Often serves as social currency; e.g. Associates who recently groomed more likely to help in attack
 - It is an investment of time, energy, most often directed to family, allies
 - **Promoting Ease, Tolerance**
 - Many species “**lip smack**”, and Chimps do “**leaf clipping**”, esp while avoiding eye contact
 - These mimic feeding sounds; Animals while eating pose little threat, so serves to set others at ease
- **Reconciliation** = Increased tendency to engage in affiliation following agonism
 - Compare likelihood of affiliative interaction w/in 10min of agonism vs. of random proximity
 - Of many species studied, most do increase grooming, friendly contact immediately after fights
 - e.g. Seen more often in egalitarian Stumptail than despotic Rhesus Macaques (except w/kin)
- **Coalitional displays** Convey “we are one” to partner and to audience
 - Use proximity, synchrony (e.g. baboon males move shoulder-to-shoulder), support in fight, etc.
 - Also other bonding behavior (e.g. grooming) can signal others that a coalition is building
 - Cebus coalition test/display their bonds with potentially-harmful but gently-practiced rituals
 - e.g. Take turns sticking finger in eye, up nose, chewing on/sucking body parts etc.
- **Gestures** – Prompting others to engage
 - **Begging**
 - Infant begs from mom, its hand or mouth to her hand or mouth, sometimes w/whimper & pout
 - In bonobos, beg has become ritualized in adults as “**peering**” (stare at mouth of eating other)
 - Very rarely does adult gain food; Performed mostly up female hierarchy, as a sign of respect
 - **Soliciting a Carry**
 - Infant positions itself such that it affords being picked up (in front of mom, leans back, reaches up)
 - **Soliciting Play**
 - Usually, tho not always (e.g. “mock fights” can be pretty aggressive!) marked as “play” e.g. by playface
 - Like play itself, tend to be “at-from” behaviors, a little aggressive-a little submissive
 - Many different behaviors work, idiosyncratically developed between playmates (see Soc Learning Lec)

Vocalizations – Not as varied or elaborate as in cetaceans;

- May be capable of exercising more “top down control” of hands, face, than vocalizations ?
- “Mammal-typical” repertoire, a relatively fixed set of ~ 12-36 calls
 - Can be loud “broadcast” calls, or directed to particular individual(s) as public or intimate signals
- “Emotional State/Social Relation” calls
 - e.g. Baboon (dom) “grunt” vs. (sub) “fear bark”, used to demarcate rank
 - e.g. “Scream” - common call of high arousal distress, rage, esp in aggressive species
 - Can be nuanced to indicate if adversary is kin, neighbor or stranger
 - e.g. “Whimper” – made by fearful infants, submissive adults, or as request for favor
 - e.g. Chimpanzee males will sometimes chorus “Pant Hoots” when troop aroused
- e.g. **Duets** for courtship & territory defense, in monogamous species
 - e.g. In gibbons, male may repeat a sequence, then stop short of end, if female completes = mate!
- e.g. **Food Calls in Chimps** – If find fig tree w/lots of ripe fruit, then call; If little ripe fruit, then don’t
 - Often results in sharing with kin, but broadcast call also attracts non-kin & some sharing occurs
- e.g. **Vervet Alarm Calls** - diff for *Eagle*, *Snake*, *Leopard*, provoke appropriate defensive response
 - *Eagle*: Move to center of tree, *Snake*: Stand up & look around, *Leopard*: To outer tree branches
 - So note, not necessarily best to think of these as (proto) “names”