

## Facial Expressions and Vocalizations

From: Parr, L.A., Cohen, M. & de Waal, F.B.M. (2005). The influence of social context on the use of blended and graded facial displays in chimpanzees (*Pan troglodytes*). International Journal of Primatology, 26, 73-103.

rl Relaxed-lip face In this and the neutral face, the eyes and mouth (including mouth corners) are relaxed, but in rl the lower-lip hangs low and the mouth appears slightly open although it is closed. The individual stares ahead with open eyes. The upper-lip covers the teeth and gums, while the bottom lip exposes the gums and some teeth. Vocalizations are absent.  
Goodall, 1968: none  
van Hooff, 1973: none



bg Bulging-lips face Individual stares ahead, eyes open, mouth closed with the lips bulging out as though individual is blowing air. Ears should be flat against scalp. Lips are together and mouth corners neutral. No vocalizations occur.  
Goodall, 1968: Glare, prior to attack or copulation, staring at another individual.  
van Hooff, 1973: Bulging lips, lips pressed tightly together with arching upper-lip, jaws firmly clenched (see also attack-face, van Hooff, 1962; tense mouth face, van Hooff, 1967).  
Redican, 1982: Tense mouth face.



pf Relaxed open-mouth face The eyes and face are relaxed, but may become tense if play becomes rough. The mouth corners are in their usual position, or slightly withdrawn, but the lower lip hangs open to expose the bottom teeth. The top teeth can be slightly visible, otherwise the top lip folds over them. Vocalizations may include a fast, rhythmic staccato breathing (see Fig. 2a).  
Goodall, 1968: Play face, accompanied by laughter.  
van Hooff, 1973: Relaxed open-mouth display, mouth is moderately open with mouth corners withdrawn slightly with lips in relaxed position. The upper teeth remain totally or partially covered by upper lip, while the lower teeth are slightly bared. Vocalizations are staccato, rhythmic breathing which may develop into grunting (see also laughing or play face, Andrew, 1963; Bolwig, 1964).  
Redican, 1982: Play face, antithetical to the threat display.



### **Barks**

bk Bark Open mouth with lips parted but slightly pursed and mouth corners are slightly retracted. There are repeated vocalizations that can be high or low pitched (see Fig. 2b). Eyes are open and gaze may alternate.  
Goodall, 1968: Barking, similar description given when individuals approach food. She also has an expression that looks like a tense face that is accompanied by soft-barks or coughs, given when threatening a subordinate or another species with confidence.  
van Hooff, 1973: Bared-teeth bark, mouth is only slightly open at the beginning but becomes wider during the middle of the call. At this time the mouth corners are pulled back and the lips withdrawn from teeth.  
Marler & Tenaza, 1976: Bark, loud and sharp but varies in pitch. The main energy of the call is at the onset, which helps distinguish it from a squeak.

th Waa-bark The lips slightly parted laterally, and the mouth and eyes are open. The top lip may curl up similar to a pout, and the top teeth may show. The mouth corners are slightly pursed, or relaxed. The expression is combined with “waa” bark vocalizations. During these vocalizations all the air is exhaled and vocalizations tend to be more low pitched than barks (see Fig. 2c).

Goodall, 1968: Waa-bark, when threatening a superior from a distance, or when another chimp is being attacked. No separate bark.

van Hooff, 1973: Waow-bark, similar to bared-teeth bark only at the beginning and the end the mouth is slightly open and lips cover the teeth. The mouth is opened widely at the middle of the call. The vocalization trails off at the end sometimes into a pout moan.

Marler & Tenaza, 1976: Waa-bark. More drawn out than just a bark. Mouth is open wider, and the pitch can rise and fall audibly. Given when dominance is not established and individuals are at a distance.

- sk Shrill Bark A vocalization blend between the categories of screams and grunts. It is higher pitched than the pant-grunt or grunts, but not as tonal as the yelp/squeal, or squeak (see Fig. 2d). The upper-teeth may be exposed as the barks become higher pitched and take on a more rasping quality than grunts  
Goodall, 1968: none  
Reynolds & Reynolds, 1965: harsh, shrill barks

### *Bared-teeth and Scream Expressions*

- yp Yelp/Squeal This represents a blended expression between the categories of barks and screams. The teeth are typically exposed during these vocalizations but the pitch is more pure and tonal than the distinctive rasping of the bared-teeth screams. The calls are usually not prolonged, but are given in more distinct forms (see Fig. 2e).  
Goodall, 1968: This may be squeak calls, short, high-pitched squeaky screams made while grinning, given after attack or threat or during submissive gestures. Also incorporates very low intensity screams that are highly graded between bared-teeth screeches and squeaks.  
van Hooff, 1973: Bared-teeth yelp, high-pitched, moderately loud vocalization accompanied by bared-teeth, eyes open, partially open mouth and partially covered upper-lip (see also squeal, Reynolds & Reynolds, 1965, and scream without vibrato, Marler, 1969).
- sq Squeaking Mild form of the yelp category, where the vocalizations are more quite high pitched and of less intensity than yelping (see Fig. 2f). They are also of a purer tonal quality than the bared-teeth screams, but are more mild than the yelps and occur much quicker, but the face still takes the form of bared-teeth expression.  
Marler & Tenaza, 1976: A high shrill call that occurs very quickly, tenths of a second, sometimes given in a series. It can be a sign of distress, given after an attack.
- bt0 Excited bared-teeth expression The mouth opens and closes, eyes open, teeth-bared w/ varying degrees of lateral lip retraction. Mouth corners are retracted. Teeth are exposed. When very intense, wrinkles around the cheeks appear as mouth corners are obliquely retracted. Vocalizations include very high-pitched and tonal “aich-aich” panting or “eech eech” squeaks as mouth opens and closes, but can be sustained in high intensity situations (see Fig. 2g).  
Goodall, 1968: no name but described similarly when individuals commence feeding.  
van Hooff, 1973: none (but perhaps tonal grunt, van Hooff, 1971)  
Marler & Tenaza, 1976: Rough grunt incorporates a wide array of sounds from squeaks to grunts. Given during excited social periods and during feeding on preferred foods. Figures suggest it has the bt component.
- sc0 Silent scream face The mouth is wide open, eyes open. Top and bottom teeth are exposed. Mouth corners are withdrawn to expose teeth and lips are fully withdrawn. Either none or very quiet raspy hisses are issued.  
Goodall, 1968: none  
van Hooff, 1973: none
- bt1 Silent bared-teeth display The mouth may be slightly open or closed, lips withdrawn and mouth corners retracted laterally, and the teeth fully exposed.



Eyes may be open or squinted. The lack of vocalizations help define this from the other bared-teeth expressions.

Goodall, 1968: Silent grin.

van Hooff, 1973: Silent bared-teeth display. Horizontal bared-teeth display has mouth corners withdrawn and lips retracted from teeth and gums, but mouth is kept partially closed, and animal is usually still or moving slowly (see also silent grin, Goodall, 1968; grin, van Hooff, 1962). Open mouth bared teeth face, same as above but lips are maximally withdrawn and mouth is open, and contact with another animal usually occurs. Vertical bared-teeth display, mainly upper-lip is retracted, but mouth corners are in normal position and teeth are kept closed. This causes the upper lip in particular to protrude slightly, and animal posture is typically relaxed.

Redican, 1982: Grimace, and the open-mouth grimace which is a combination of all other bt expressions described by van Hooff.

sc1 Low-intensity scream. This is a category of display that includes all forms of scream that are of a lower intensity than the bared-teeth scream faces, but not clearly definable as any in the yelping/squealing, squeaking categories. The calls are highly variable, take many different facial forms where the teeth may or may not be exposed, and the mouth may or may not be open. The calls are not of a high intensity or of a prolonged duration (see Fig. 2h).

bt2 Screeching bared-teeth face The eyes are squinted or closed, ears flat, eyebrows lowered, body posture is typically crouched. Mouth is partially open, lips withdrawn as in screaming or staring bared-teeth face, but teeth are fully exposed. Vocalizations are loud and high-pitched rasping screams that are often very hoarse, and can be voiced on the inhalation. These are usually sustained for several seconds, but can also quickly spasmodic, turning into a sustained tantrum/distress episode (see Fig. 2i).

Goodall, 1968: Pant-shrieks while grinning, made when submitting to a superior, or greeting a superior.

van Hooff, 1973: Pant scream, breathy, emitted with sharp timbre, often given while crouching or fleeing. Inspirations can be noisy or tonal.



bt3 Staring bared-teeth scream face The eyebrows are lifted wrinkling the forehead, eyes open, mouth is wide open with lips withdrawn exposing teeth completely. Individuals may have piloerection, and exhibit forward movements. Vocalizations include loud harsh screaming like “aach - aach” (see Fig. 2j).

Goodall, 1968: Scream calls, threatening a superior or another species while afraid, may look for support. Does not mention of forward motivation, or counter-attack.

van Hooff, 1973: Bared-teeth scream, most intense vocal display. Mouth is widely open and lips fully retracted. Vocalizations are high-pitched, intermittent screams with sharp timbre. Van Hooff divides screaming into several categories based on sonographic analysis; pulsed scream-rasping scream (see also rough scream, Marler, 1969; roars, growls and screams, Reynolds & Reynolds, 1965), double-tone scream-higher frequency, rasping disappears (see also Yerkes & Learned, 1925) and pant scream (see screeching b-t face).

Marler & Tenaza, 1976: Scream, can intermix with other calls with a lot of variability, i.e. squeaks.

### ***Pouts***

wh Stretch pout-whimper The lips are slightly puckered/pursed while being slightly withdrawn to expose the teeth, and mouth corners are pushed forward. Eyes are partially closed and mouth is partially open. Vocalizations are of the long low wailing type (see Fig. 2k).

Goodall, 1968: Whimpering with whimper face, more intense form of hoo-whimper or if infant is ignored.

van Hooff, 1973: Intermediate between bared-teeth yelp and pout-moan.

Vocalization is pure and noiseless, mouth is closed with retracted corners. Lips curl outwards and protrude slightly, especially the upper-lip.



Marler & Tenaza, 1976: Whimper, context of use may vary. Goodall lists three different expressions in three contexts, but there is no spectrographical difference between these. The circumstances are being frightened by strange things or sounds, begging for food, and when clinging to their mother or searching for the nipple.

- po Silent pout Eyes are open and mouth is rounded with corners pursed forward. Lips are pursed into a round shape. No teeth are visible. No vocalizations are present.  
Goodall, 1968: none  
van Hooff, 1973: Silent pout face, lips are strongly pursed and pushed forward but no vocalizations are made (also see pout moan, van Hooff, 1962, 1967).



- ho1 Pout moan Same as pout face, but typically accompanied by short, hooting vocalizations “oo .. oo” although pout can occur without vocalizations (see Fig. 2l).  
Goodall, 1968: Hoo-whimper with pout face, given by infant searching for nipple, or in older ape when begging or ignored after requesting something like grooming.  
van Hooff, 1973: Pout moan (van Hooff, 1962 & 1967 refer to this as pout face), has low tone calls with pouting lips similar to the rising hoot display. Lips remain in contact near mouth corners, but are parted in middle showing a round opening (see also moaning hoots or soft moans, Reynolds & Reynolds, 1965).

### ***Grunts & Pants***

- hg Grunts Mouth and mouth corners are relaxed, slightly open. Eyes are open and face forward. Lips are relaxed and may hang open. No teeth are visible. Vocalization includes a low-pitched tonal call (see Fig. 2m).  
Goodall, 1968: Hoo-calls  
van Hooff, 1973: Grunts, or grunt-barks, low-pitched tonal calls with maintained periodicity. Face is relaxed with mouth slightly open (see also grunts, gruff barks or panting barks, Reynolds & Reynolds, 1965).  
Marler & Tenaza, 1976: Grunt, soft, low-frequency sounds that are difficult to hear. Can be given during feeding and in some situations of social excitement. May be an intermediate stage between barking, pant-grunting and other similar calls. Cough is similar but the vocal comes from a rush of exhaled air during mild threats.
- pa Pant Fast, rhythmic breathing accompanied by relaxed mouth, with no teeth typically showing. This is typically used during play, and can be called laughter (see Fig. 2a).  
Goodall, 1968: Panting  
van Hooff, 1973: Pant, soft but fast rhythmic breathing with smooth onset. Mouth is typically relaxed, with lips only slightly parted. Rhythmic nature often leads to slight body shaking.  
Marler & Tenaza, 1976: Pant, one of three calls that have phonation on inhalation and exhalation. Given during greeting, face to face contacts, copulation and whenever there may be a low probability of aggression.
- ho0 Pant-grunt Soft rhythmic vocalizations produced in a rapid sequence “hoo - hoo” accompanied by bobbing and/or bowing (see Fig. 2n). Because of the rapid series of vocalizations, the inhalation of the grunt is voiced, and therefore this represents a blend between the categories of panting and grunting.  
Goodall, 1968: Panting, or bobbing pants, described during social grooming and when kissing or bowing to another individual. Mouth may be open, no teeth showing. Eyes are open and lips are relaxed, and mouth corners pursed forward slightly.  
van Hooff, 1973: Rapid ohoh series, more breathy, rough grunts delivered in rhythmic succession. The mouth is open fairly wide, with lips covering teeth and mouth corners drawn slightly forward, creating a round aperture. This may develop into a scream, yelp or shrill bark.

Marler & Tenaza, 1976: Also voiced on inhalation and exhalation. Given after adolescence to dominants during greetings. If proximity is reduced the grunts may turn into bobbing and bowing, if individual loses their nerve and flees, the vocalization may turn into pant-screaming.

## ***Hooting***

ho2 Rising pant-hoot Lips are pursed with rounded mouth and forward pursed lips. Mouth can be slightly open as louder, rhythmic breathing hoot vocalizations “hoo-hoo” occur. There is no climax as in ho3. Because of the rapid sequence of vocalizations and the voiced inhalation, this represents a blended expression/vocalization between the panting and hooting categories (see Fig. 2o through 4.5 seconds).

Goodall, 1968: Pant-hoots/hoot face, as others approach or in response to distant calls.

van Hooff, 1973: none

Marler, 1975: whimper hoot, one of 3 calls voiced on inhalation and exhalation

Marler & Tenaza, 1976: Pant-hoot, most common call voiced on inhalation and exhalation. Given in response to distant pant-hoots, to food, or after separation.



ho3 Climax pant-hoot In this version of hooting there is a loud, screaming “waaa” climax vocalization at the end of the rising hoots.

Goodall, 1968: Pant-hoots with shrieks or roars, during displays.

van Hooff, 1973: Rising pant-hoot, initially lips may pursed into a pout face, and at the end the mouth may be open widely with teeth bared. Vocalizations begin with moderate, low-pitched calls that become gradually louder and end with a scream or a waow-bark (see Fig. 2o). The inspiration phase is strongly vocalized (see same display by Reynolds & Reynolds, 1965; Marler, 1969; Nissen, 1931; Yerkes, 1943).