

- goodness of a natural trait is province of ethical reasoning
- Darwin 1/ species related by sharing descent from common ancestors (unity of life), 2/ species change thru natural selection, 3/ male/female (m/f) obey universal templates -- males 'ardent' and f 'coy' (choose mate for superior genes, ie, best male vs best match).
- social selection - animals exchange help in return for access to reproductive opportunity, mutual assistance with reproductive opportunity as currency. social-inclusionary traits among f, or among m and shown by secondary sex characteristics (evolutionary approach to social behaviour)
- human development characterised by cooperation -egg chemically endorses a sperm, genes interconnect to produce gonads, tissues touching share info, hormones from adjacent baby in utero permanently influences other's temperament. What we become is result of our relationships rather than atomic genes (which can be turned on or off by emotions anyway). e.g. coal vs diamond, genial gene vs selfish gene. genes must cooperate to maintain common body (feedback theory - complex nonlinear programming, minimax thru successive iterations. can't 'cleanse' diversity from gene pool.
- organisms flow across bonds of any category - in biology, nature abhors a category.
- diversity-affirming theory of sex vs diversity-repressing (Darwin's sexual selection) theory
- sex: m => small gametes, f=> large gametes
- gender: appearance, behaviour and life history of a sexed body (appearance plus action - how organism uses morphology, including colour and shape, plus behaviour to carry out a sexual role)
- mammalian genitals have symbolic function - display (vs fish, snakes, birds)
- North sea pipefish - sex-role reversed - polyandry - m harem looking after eggs. f compete with each other for ms who will tend their eggs. f sex coloration and larger. vs m seahorses compete for f to produce eggs (more ms than fs can produce eggs for) so m are larger, more colorful. same with different birds (wattled jacanas in Panama). but not with mammals because of high parental investment by mammalian f (milk, pregnancy)
- 90% birds monogamous vs 90% of mammals polygynous (15% of primates monogamous, also wild canines, voles). monogamy rare in mammals because f knows embryo is hers and has greater incentive to care for it herself (not so great a need for marriage to one m). m needs to control f to make sure the offspring are his and has more incentive to try for patriarchy. for birds, egg could be dumped there (not belong to f). m just looks after the eggs (and has higher likelihood they're his if he's constantly around, but they both must search for food, so he can't afford to be so possessive). they need marriage more since eggs more exposed and need both parents solely looking after them and feeding offspring, taking turns. sometimes cooperative polyandry when just m/f pair not enough (previous but immature offspring help out)
- multi-male polygyny - 1-8 m in alliance. after 2-3 yrs rival coalition moves in. to counter m danger to cubs, f band together to raise young. over 10 yrs 5 rival m gangs may come and go. (house mice have same family dynamics)
- vampires -- mutual assistance/ reciprocal altruism, since can't afford to miss meal two nights in a row, hence food sharing. animal interactions, from mating to territorial spats, to grooming and food-sharing, are often done in the open. animals with 'nice' reputations may be included in cooperative activities and 'meanies' left out. (vs Islam on charity)
- animal counterparts of democracy, dictatorship, even distribution of resources leading to widespread participation in breeding, and uneven distribution of resources leading to power hierarchies, family feuds, labour strife, economic mkts for transactions of reproduction

opportunity.

- bullfrogs have two m genders: large m who call at night and small m silent (latter grows into former)
- canary-bird fish - large m guards big collection of eggs laid by 5 f. small m mature at younger age and are silent, don't defend territories, but mate by darting in to fertilize eggs being laid in large m territory. hundreds of fish species where m in two or more genders.
- sunfish - large, medium and small m - medium may school with the f. courtship with large m, joins large m (drives away small m). sandwiched between large m and f during mating, as f releases eggs, both m fertilize them. 85% one m one f, 11% 2+ m and one f, 4% 1 m 2 f. developmentally, the small and medium m one genotype, and small transition into medium.
- criticizes deceit mimicry theory - animals smart enough to tell the difference, rather any mimicry is secondary sex characteristic, showing large m fish that a medium one that looks like a f is a cooperator (f sees his friend the large m is less threatening, more protection against predators). medium fish fertilizing is pay-off. ie, medium fish's femininity has nondeceptive genuine role as marriage broker.
- European wrasse in Mediterranean, medium m not look like f, bigger with own coloration and can be aggressive. lured by large m as security guard/ bouncer as f are more common than in sunfish, so don't need marriage broker.
- big m sedentary, small m nomadic
- hormones - irreversible effects (making m) vs reversible (when drought, tree lizards activate corticosterone from stress and become nomadic)
- white-throated sparrows (Ontario) have 4 genders - 2 m (one more aggressive - white stripe), 2 f (one more aggressive - white stripe). 90% mating between white and tan. tan m better care
- European flycatcher - aggressive m courts feminine m before f arrive and encourages him to be neighbour. sex as bonding
- garter snakes after hibernation - temporary sex orgy as m can emit f perfume
- in fish, two m cooperate to build nests, court f, with spawning in trios
- mimicry concept is patriarchal - g as f-mimicry vs g as helper/ cooperator/ friend/ guard/ teacher/ peacemaker
- f choice concerned with totality of reproduction, including growth and protection of young - copulation as shared paternity 'staying incentive'
- wall lizard f mimic's m green colour when they have fertilized eggs or have recently laid an egg, signalling they won't accept courtship
- damselfly - masculine f have higher survival rate because of diminished harassment but lower chance of mating.
- ruffs (sandpipers) mate in common lekking breeding ground. birds have two male genders. dark-ruffed controllers and white-ruffed assistants (who spend time with f off the lek), and jointly court and mate with f. f prefer dark/white team (polyandry).
- females choose not great genes but well-connected genes. when f chooses m with special colour on his tail, not fashion but rather endowing offspring with bodily marker of culturally inherited power, like Tudor nose (or sociability, extensive good relations with species members) and/or likelihood of delivering on promise of parental care
- whiptail lizards asexual - peaceful sans m and where all related + f bonding
- mm ff mating to reduce aggression after territorial dispute, to aid in raising brood. g swans, even raising offspring from f temporarily associated with them.
- bighorn sheep - f only receptive for 3 days. almost all m msm (men having sex with men)

(genital licking nuzzling, anal intercourse. the few m not msm labeled 'effeminate', living with ewes acting like f. attempts to breed out probably would destroy domestic social system

- dolphins - m bonding in adolescence for life, sex in 3somes, 4somes. more than heterosexual activity.
- macaques - fsf (females having sex with females) between distantly related individuals and between higher ranking and lower ranking, elevating the lower ranking f temporarily
- if h not directly further survival, why not bred out? neutralist position - h neutral byproduct of evolution of other traits, is harmless so no need to remove. reason - pleasure
- or adaptationist position (all behaviour should benefit organisms)
- lizard - small m keeps coming to edge of large m territory. large m eventually gives up chasing him. ie, small lost 5 battles but won the war. other lizards watching so meaning of interaction extends beyond the pair.
- macaque fsf is social networking (support from lower ranking f not to climb dominance hierarchy but to navigate a political network). fsf between close kin not have any strategic value. social inclusionary trait
- bonobo chimps (matriarchy, fsf and social uses of sexuality) - more sensitive - died of fright during bombing of German zoo in WWII but not chimps. live in mixed sex, mixed age groups of 60. f receptive continually, msf 1/3 face to face, fsf facing - genital area (vulva and clitoris) evolved to facilitate this, msm back to back or penis-fencing (hanging from branch rubbing penises together), also kissing and oral sex but no anal intercourse. some fsf for 15 minutes every 2 hours. reasons - facilitate sharing (sex before eating), reconciliation, integrate new arrival, form coalitions against aggressive m => earlier sexual maturity
- vs common chimps (male-dominated, mm power games) - f only receptive for a few days during cycle, msf all front to back, m eat first (and can be carnivores - monkeys), later sexual maturity
- baboons - much msm - diddling greeting behaviour, long-lasting coalitions 20% of mountings between m and 10% between f. violent social life. same-sex courtship for coalition-building but powerful m can break up coalitions (homophobia)
- gibbon - breeding only every 2-3 yrs. nonabusive intrafamily same-sex behaviour common - m parent and offspring penis-fencing
- gorilla - 1 m to 3-5 m + all male groups (common msm)
- primates - prosimian branch (vs anthropoids) little same-sex. anthropoid branch splits into new world primates (some same-sex) and old world (macaque, baboons, gibbons, orangutans, gorillas, chimps, humans) most sophisticated of primate societies with complex relationships using same-sex. ie, evolutionary innovation around 50m years ago, more complex a society, the more likely to have h, must manage both within- and between-sex relationships, which physical contact and bodily symbolism and behaviours help. there are gradations in intimacy, with some members of group settling on different levels of intimacy depending on their physical/ mental/ social experience/ make-up as adaptation/ survival mechanism.
- h use? - friendship (innocent or threatening purpose)
- g gene? - complex social behaviour
- contradict evolution? - nonbreeders always exist. rather social evolutionary trait. maybe higher survival through friendships and thru greater control of resources (even increasing fertility)
- clitoris with sensitive pleasure neurons apart from vagina (less chance of orgasm during penetration) but bonobo ie promote same-sex contacts for social networking
- cell is partnership
- fertility + survival => social, thought, spirit

Roughgarden: Evolution's rainbow (2004)

Written by Administrator

-sex/ bodies not conform to binary model, genders (behaviour) not binary, sex roles are reversible, mating is public symbol (not promiscuous anonymous act) managing and publicizing relationships, f chooses for fertility and survival (a la knowledge sans will/character is dangerous - need balance of individual/ social (J will is antisocial)), family size negotiated, no social deceit, same-sex common, mating not primarily for sperm transfer, secondary sex characteristics not just for heterosexual mating.

-msm to acquire and defend resources they pay out as parental care, fsf to acquire the circumstances in which they can safely rear the young under their control

-mating not so much sperm transfer but maintaining the between-sex and same-sex relationships need to provide food and safety for the young. social evolution is turbulent and unpredictable (chimps vs bonobos, and human societies)

-genders emerge as occupational categories and settings for matings, raising young, tending resources. social inclusionary traits (genitals on f spotted hyenas, sfs bonobos and macaques, human brain?, skin colour, body types) evolve fast because once trait takes hold, anyone without it is excluded from the group. m who is strong but obnoxious/ without m allies will never have chance to mate