

Human Nature, Anthropology, and the Problem of Variation (Rough Draft)

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"What does evolution teach us about human nature? It tells us that human nature is a superstition." (Ghiselin, 1997, 1)

1 Introduction

In this essay, I begin with an overview of a traditional account of natural kinds, and then consider David Hull's (1986) critique of species as natural kinds and the associated notion of human nature. Second, I explore recent "liberal" accounts of human nature provided by Edouard Machery (2008) and Grant Ramsey (2013) and criticized by Tim Lewens (2012). They attempt to avoid the criticisms offered by Hull. After examining those views, I turn to Richard Boyd's (1988; 1999) Homeostatic Property Cluster account of natural kinds which is flexible but detailed enough to avoid Hull's criticisms but also those affecting the more recent views. We then consider what I call the "problem of variation." Fourth, I consider two case studies -- the basic emotions and facial expressions and inbreeding avoidance and incest taboos. I argue that the former is a component of a Boydian human nature but the latter is not. The conclusion is that if there is a human nature, it must be argued for on a case-by-case basis. And, one of most discussed cases thought to be part of our nature is simply not.

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2 Natural Kinds and Human Nature

2.1 Hull's critique

Scientists and philosophers of science have spilt much ink on the concept of natural kind. On a traditional view, first, members of a natural kind share an essence. Second, an essence is some intrinsic property such that necessarily all and only members of that kind have that property.¹ Third, observable properties are explained by non-observable properties. The former are called a "nominal essence" and the latter a "real essence." Customarily, the nominal essence is a macrostructural property and the real essence is a microstructural property. A common example is the kind *gold*. The real essence is atomic number 79 and the nominal essence includes its melting point of 1,948°F (1,064°C).

David Hull (1978) famously has argued that biological species are not natural kinds but are "individuals." An individual is a concrete particular; it is spatially localized and its parts exhibit unique causal relations at and over time. For example, *Homo sapiens* came into existence roughly 200,000 years ago and will go extinct at some future date. However, once it goes extinct, no matter how similar an organism is to us, it will not be human. Natural kinds are not like this. Whenever something has the property *atomic number 79* there is an instance gold.² Hull offered several arguments for his view.

The first argument goes as follows. Speaking abstractly, for any kind with respect to a possible world, there is a set associated with that kind in that pos-

¹I say property, but there could be several properties such that members and only them have those properties.

²Philip Kitcher (1984) has challenged this claim with the following hypothetical example.

In the lizard genus *Cnemidophorus* several unisexual species have arisen through hybridization. The lizard *Cnemidophorus tessellatus* has resulted from a cross between bisexual and unisexual species. Now suppose that *C. tessellatus* was wiped out and the parental species hybridized again creating a new population which exhibit the same genetic, morphological, behavior, and ecological traits. (Kitcher, 1984, 117)

Kitcher writes, "To hypothesize 'sibling species' in this case (and in like cases) seems to me not only to multiply species beyond necessity but also to obfuscate all the biological similarities that matter" (Kitcher, 1984, 117). But by the same reasoning, Kitcher would have taxonomists group organisms on the basis of homoplasies (shared characters) as opposed to synapomorphies (shared derived characters). This would leave the "tree of life" out of classification and is contrary to contemporary taxonomy.

sible world.³ This set is defined by an essential property. Species evolve. Sets are atemporal entities. Since only temporal entities evolve, species are not sets. Therefore, species are not natural kinds.⁴ The second argument is this. According to the axiom of extensionality, sets that have the same members are identical. Sets differ just in case they differ in their members. Species can survive a loss of an organism. However, sets cannot survive the loss of a member. Thus, species are not sets. Therefore, they are not natural kinds. Here is the third argument. If species were spatiotemporally unrestricted classes, then there are laws concerning species *per se*. But there are no such laws. Thus, species are not spatiotemporally unrestricted classes. Therefore, species are not natural kinds.⁵ Note Hull assumes in each argument that species are either concrete particulars or natural kinds. If there is a third option, then his arguments are invalid (see Slater (2013, Ch. 5) for such an argument.).

As a corollary of his argument for species as individuals, Hull argued that there is no human nature. First, there is a *synchronic problem*. It is highly unlikely that there is a property that all and only humans have at a time. Hull writes,

Generations of philosophers have argued that all human beings are essentially the same, that is, they share the same nature.... Periodically a biological species might be characterized by one or more characters which are both universally distributed among and limited to the organisms belonging to that species, but such states of affairs are temporary, contingent and relatively rare. (Hull, 1986, 3)

As evolutionary biologist Ernst Mayr has argued at length, evolutionary biology has replaced "typological thinking" with "population thinking" in which variation is the spice of life. Second, there is the *diachronic problem*. For any trait (even if every human has it), evolutionary processes can remove it from the species.

³On this view, kinds would be sets of sets. Specifically, suppose a property *F* is essential to the kind. Then consider the set of objects which have *F* in a world *w*. The set which has each of these subsets per possible world is the kind.

⁴Kitcher (1989) has argued that sets can evolve in the following sense. Let a stage of a species be the set of organisms alive at that time along with their frequency distribution of traits. A species evolves then just in case there is a change in the frequency distribution of properties between stages represented by an ordered *n*-tuple of stages ordered by times.

⁵Kitcher (1984) argues that there could be laws concerning a species. For example, he considers a schematic law, "All *S* are *P*" where '*S*' names a species and '*P*' is some property essential to being a member of *S*. Suppose that if a member of *S* lacked *P* they would be inviable. But inviolable offspring are still *S* (Sober, 1984).

To complicate matters further, these clusters of properties, whether uni- or multi-modal, change through time. A character state (or allele) which is rare may become common, and one that is nearly universal may become entirely eliminated. In short, species evolve, and to the extent that they evolve through natural selection, both genetic and phenotypic variation are essential. (Hull, 1986, 3)⁶

As a consequence, human nature cannot be grounded in rationality, language deployment or acquisition, etc. since they are not essential to "parts" of *H. sapiens*. Hull was open to the possibility that phylogenetic position in the tree of life did provide an essence to species. Supposing species are lineages individuated between speciation events, speciation events and extinction events, or speciation events and extant taxa, then maybe such a property is essential to us as a species.⁷

2.2 Liberalizing (liberating?) human nature

Several philosophers have reconsidered Hull's critique including Machery (2008) and Ramsey (2013). Machery defends a *nomological* notion of human nature. He writes, "According to this second notion, human nature is the set of properties that humans tend to possess as a result of the evolution of their species" (Machery, 2008, 323). As examples of our nature, Machery suggests bipedalism, fear of unexpected noises, and biparental care. Machery's account has several important implications. First, our nature is not "definitional." That is, these properties, or generalizations concerning them, do not individuate our species. Second, since our nature is not definitional, non-humans may have generalizations true of us, true of them. For example, biparental care is not unique to us (e.g. it is found in tropical frogs). Third, generalizations concerning our nature may be true of only most of us.

Machery claims that his nomological notion is immune to Hull's arguments. First, synchronic variation is consistent with the nomological notion. Second,

⁶Evolution by natural selection requires variation; otherwise, selection cannot proceed. Thus, if we have a unimodal distribution of a trait, evolution by natural selection has ceased.

⁷This would also explain why species names are proper names given a Kripkean theory of reference (Kitts, 1983; Hull, 1984). Also according to Kripke, one has one's parents essentially. Thus, given species are individuals and they have their parent species essentially, the tree of life could not have been other than it is. Given all species descended from a common ancestor, Creationism is false and necessarily so.

dyachronic variation is consistent with the nomological notion. Finally, the account of human nature here is descriptive and not normative; it has no sociopolitical implications on its own.

The nomological notion of human nature has been criticized in several ways. First, as Tim Lewens (2012, 464-5) argues, the nomological notion is restricted to generalizations that result from evolution. However, it is difficult to draw a distinction between evolution and culture. For example, proponents of gene-culture coevolutionary theories claim learning and imitation can be sources of evolutionary change (Boyd and Richerson, 1988). Second, Machery's nomological notion has a problematic metaphysics. He writes,

For Aristotle, the fact that humans have the same nature explains why many generalizations can be made about them (for a recent development of this idea, see Walsh, 2006). For me, on the contrary, the fact that many generalizations can be made about humans explain in which sense there is a human nature. (Machery, 2008, 323)

Metaphysicians, especially Humeans, claim we explain the truth of a generalization in terms of the particulars of which it is true. For example, if the generalization, "For all x , if x is F , then x is G " is true, it is because " Fa " and " Ga " are true, and " Fb " and " Gb " are true, and so on. Machery is inverting this bit of metaphysics.

Recently, Grant Ramsey (2013) has argued against Machery's view in favor of his even more "liberal" account. First, he thinks that properties that most humans lack can be components of human nature. He writes,

First, by requiring possession by the majority of humans, one loses many traits characteristic of humans. Any traits (psychological, behavioral, morphological) that are sexually dimorphic or, say, exhibited only by a particular ethnic group, will be excluded. Viviparity, lactation, and menopause, for example, are no part of human nature. (Ramsey, 2013, 985)

Viviparity, lactation, and menopause are important features of women's lives in our species. They have evolutionary explanations. However, Ramsey is wrong that they are "characteristic of humans." Menopause cannot be characteristic of humans since killer and pilot whales exhibit menopause too. A trait is characteristic of humans if, and only if, it is distinctive of us. It is common to claim that since human nature does not require essential properties then human nature does not require distinctive properties. Theories of human nature can give

up essential properties but they cannot give up distinctive properties. After all, we want to explain what makes us distinctively human.⁸ Machery makes the same mistake since he includes traits like bipedalism as part of our nature. But other species are bipedal; *Struthio camelus* otherwise known as the ostrich is. Bipedalism is not distinctive of our species. Additionally, Ramsey (2013, 986), with Lewens, that the distinction between evolution and culture or innate and learned traits is unsustainable.

Ramsey offers his own *life-history trait cluster* account of human nature. Consider a human with a genome and in an environment with some trait at a time. If we consider all of the traits over time with respect to their environments and genome we have their life-history. Moreover, we can also consider the distribution of traits of all humans with their genomes over their environments. This is their collective life-history.

Human nature is defined as the pattern of trait clusters within the totality of extant human possible life histories. Thus, if one were to take all of the possible life histories that form the basis for individual nature, and then combine them, one would possess the set of life histories that forms the basis for human nature, since the trait distribution patterns in this set of life histories constitute human nature. (Ramsey, 2013, 987)

The collective life-history described above is not yet human nature. Rather, we must consider all of the possible traits which extant humans would have given their genomes and environments. This proposal is problematic. First, we must consider deceased humans as well since our evolutionary history includes them too especially if we are interested in patterns. For example, human settlement patterns can only be explained by human migrations taking us far back into the past. Second, we need to determine what the notion of possibility is here. Is it logical, nomological, or technological possibility? With no constraints, we can at most draw a blank at this space of possibility. Ramsey is aware of this worry (Ramsey, 2013, 988-9). He stresses scientists are interested in *patterns* in life-histories. He provides an example. Social scientists are interested in whether a

⁸Suppose Hull is right that there are no intrinsic properties essential for being human. That is, for any property you pick -- bipedalism, big brain, language, etc. -- it is possible for a human to lack them. From this it does not follow that there are not nomologically necessary properties of humans. Hull's own view is that there might be extrinsic essential properties of being human such as having the parents we qua species.

child who is abused will be aggressive towards their own children. They are interested in the *prevalence* of a trait; what proportion of children are abused? And, they are interested in the *robustness* of the association between traits; what proportion of children abused are aggressive towards their children? This concerns the actual abuse and aggression and has little to do with the merely possible.

I think that Machery and Ramsey are right that Hull's criticisms do not challenge more liberal views of human nature. First, human nature need not be definitional. Second, following Lewens and Ramsey, our nature need not be the product of evolution alone. However, like Lewens and Hull, I am more skeptical of human nature because of data. Specifically, when we look at traits considered as classic examples of human nature we find a mixed bag. Before we turn to that, I want to sketch a different approach, which I think is better than the nomological and life-history views.

2.3 Boyd's alternative

Over the last three decades, Richard Boyd (1988; 1999) has offered an alternative account of natural kinds. Natural kinds are *homeostatic property clusters*. First, they are families of co-occurring properties that result in a sort of homeostasis. Second, homeostasis occurs because either the properties in the family are causally related, or they result from a common cause. Third, we explain our successful projections and inductions by reference to HPC kinds. What matters is not whether all and only members of a kind have some property, but this property causally covaries with members of that kind.⁹ This too is a "liberalized" view of kinds. Boyd argues species might be natural kinds, though we do not have to follow him here. Additionally, a Boydian HPC kind approach offers the possibility of a human nature. It is this possibility that we will explore in this essay.

In order to flesh out this Boydian alternative, here is some terminology with specific reference to biology (c.f. Wilson et al. (2007)).

- Nominal essence: Properties of a taxa that covary which may be directly causally related.

⁹On Boyd's view, a property may be essential to a kind even when members lack it and non-members have it. Given his theory of reference, we mistakenly thought 'essence' mean "necessary and sufficient" but it what be it actually means is "causally covaries with."

- Real essence: Properties of a taxa on which the nominal essence causally depend.
- Phylogenetic position: Properties that individuate a taxa's phylogenetic position (e. g. branching and extinction events).

Boyd's account is superior to Machery's and Ramsey's. First, like their views, it need not assume that human nature is definitional because we need not think species are HPC kinds themselves. Second, it is superior in that it provides more structure than theirs. It incorporates the notion of homeostatic property clusters and thus causal covariation making room for nomologically necessary traits for human nature. Third, it is superior since it need not assume real essences are evolutionary and nominal essences are cultural. If Lewens and Ramsey are correct that no distinction can be made between evolution/culture or innate/learned, it can accommodate this.

2.4 The problem of variation

We can now state the *problem of variation*. If human nature consists in HPC kinds associated with our species, then there are property clusters that overlap with *H. sapiens*. Moreover, these property clusters are no more inclusive and no less inclusive than our species. Suppose we have a property cluster more inclusive than just our species. Then, it will not provide a *human* nature. Suppose we have a property cluster which is less inclusive than our species. Then, it again it will not be a *human* nature. In this essay, I consider two examples. The first example concerns the basic emotions and facial expressions. I argue that is plausibly is an HPC kind. That is, the basic emotions provide a real essence of which facial expressions are a nominal essence. They causally covary just as we would expect on a Boydian approach. However, I argue that our second example is not an HPC kind. Inbreeding avoidance is a trait that is found in primates more generally and not just in humans.¹⁰ Likewise, incest taboos are absent in many human societies, and in societies where they exist they vary in who counts as kin. Thus, even if inbreeding avoidance is an HPC kind, it is too general for a human nature, and incest taboos, even if they are HPC kinds, are too specific for a human nature.

¹⁰It is found in other species too, but I focus here on primates.

3 Case Studies

3.1 Basic emotions and facial expressions

Consider a sad face. When sad, we angle upward the inner corners of our eyebrows; our lips are stretched horizontally with the lower lip pushed up and corners pulled down; our cheeks are raised and our eyelids droop. In the 1970s, psychologists Paul Ekman and Walter Friesen (1971) showed expressive photos to the non-westernized Fore of New Guinea (189 adults and 130 children). Subjects were shown three pictures with an associated story and were asked to pick the face that fit the story. It is worth noting that a Fore and a westerner interviewed subjects where the former recruited and read the story. The Fore members were told there was no correct answer and their readings were back-translated. Western members also averted their eyes during the reading. The stories provided were these:

- Happiness: His (her) friends have come, and he (she) is happy.
- Sadness: His (her) child (mother) has died, and he (she) feels very sad.
- Anger: He (she) is angry; or he (she) is angry, about to fight.
- Surprise: He (she) is just now looking at some thing new and unexpected
- Disgust: He (she) is looking at something he (she) dislikes; or He (she) is looking at something which smells bad.
- Fear: He (she) is sitting in his (her) house all alone, and there is no one else in the village. There is no knife, axe, or bow and arrow in the house. A wild pig is standing in the door of the house, and the man (woman) is looking at the pig and is very afraid of it. The pig has been standing in the doorway for a few minutes, and the person is looking at it very afraid, and the pig won't move away from the door, and he (she) is afraid the pig will bite him (her).

The results that Ekman and Friesen recorded confirm that basic emotions have universal facial expressions. Here are the results they obtained for adult participants.

TABLE 1
ADULT RESULTS

Emotion described in the story	Emotions shown in the two incorrect photographs	No. Ss	% choosing correct face
Happiness	Surprise, disgust	62	90 ^{ab}
	Surprise, sadness	57	93 ^{ab}
	Fear, anger	65	86 ^{ab}
Anger	Disgust, anger	36	100 ^{ab}
	Sadness, surprise	66	82 ^{ab}
	Disgust, surprise	31	87 ^{ab}
Sadness	Fear, sadness	31	87 ^{ab}
	Anger, fear	64	81 ^{ab}
	Anger, surprise	26	81 ^{ab}
Disgust (smell story)	Anger, happiness	31	87 ^{ab}
	Anger, disgust	35	69 ^a
	Disgust, surprise	35	77 ^{ab}
Disgust (dislike story)	Sadness, surprise	65	77 ^{ab}
	Sadness, surprise	36	80 ^{ab}
Surprise	Fear, disgust	31	71 ^a
	Happiness, anger	31	65 ^a
Fear	Anger, disgust	92	64 ^{ab}
	Sadness, disgust	31	87 ^{ab}
	Anger, happiness	35	86 ^{ab}
	Disgust, happiness	26	85 ^{ab}
	Surprise, happiness	65	48
	Surprise, disgust	31	52
	Surprise, sadness	57	28 ^a

^a $p < .05$.
^{ab} $p < .01$.
^a Subjects selected the surprise face (67%) at a significant level ($p < .01$, two-tailed test).

Figure 1: Adult Results

Here are the results they obtained for child participants.

TABLE 2
RESULTS FOR CHILDREN

Emotion described in the story	Emotion shown in the one incorrect photograph	No. Ss	% choosing the correct face
Happiness	Surprise	116	87 ^a
	Sadness	25	96 ^a
	Anger	25	100 ^a
Anger	Disgust	25	88 ^a
	Sadness	69	90 ^a
Sadness	Anger	60	85 ^a
	Surprise	33	76 ^a
	Disgust	27	89 ^a
Disgust (smell story)	Fear	25	76 ^a
	Sadness	19	95 ^a
Disgust (dislike story)	Sadness	27	78 ^a
	Happiness	14	100 ^a
Surprise	Disgust	14	100 ^a
	Fear	19	95 ^a
	Sadness	25	92 ^a
Fear	Anger	25	88 ^a
	Disgust	14	100 ^a

^a $p \leq .01$.

Figure 2: Child Results

The accuracy rate is striking for both adults and children. For example, in Table 1 we see that when happiness is the correct emotion accompanied by surprise and disgust, 90% of 62 participants chose correctly. Moreover, the results are significant at $p < 0.01$. The results for children are even more accurate. Participants did have some difficulty in distinguishing fear from surprise as we can see in the bottom three rows. For example, the accuracy rate of the 57 participants that were shown fear (correct), surprise, and sadness was 28%. Finally, Ekman and Friesen note the universality of facial expressions might be due to "evolution, innate neural programs, or learning experiences common to human development" (128). Subsequently, 26 studies have replicated Ekman and Friesen's findings in different human societies (Matsumoto et al., 2008).

It is plausible that there are basic emotions including fear, surprise, anger, sadness, happiness, disgust, and possibly contempt. These emotions are individuated as "affect programs" since they have distinctive appraisals, physiological changes, behavioral tendencies, and facial expressions. These features causal covary. Thus, we have an HPC kind sadness whose real essence is the emotion and its nominal essence includes the distinctive facial expression mentioned above. Facial expressions causally covary with their associated basic emotion. Here I am in effect borrowing from the excellent analysis provided by Griffiths (1997).



Figure 3: Basic emotions, facial expressions and HPC kinds

We can visualize this Boydian view by considering the close overlap between three Venn diagrams including our species, basic emotions, and facial expressions. This overlap illustrates the covariation between these three sets.

3.2 Inbreeding avoidance and incest taboos

In this section, I will consider the distribution of inbreeding avoidance in primate species and the distribution of incest taboos across human societies. Anthropologists distinguish between inbreeding and incest since the former is a biological process whereas the latter is a normative one. Primatologist Anne Pusey (1996) has collated studies of inbreeding avoidance in different primate species and so will begin with her findings.

Consider the following table.

TABLE 3.1
Avoidance of Sexual Activity with Relatives

<i>Species</i>	<i>Mother</i>	<i>Maternal Siblings</i>	<i>Other Maternal Relatives</i>	<i>Father</i>	<i>Paternal Siblings</i>
Ring-tailed lemurs ¹	+	+			-
Muriquis ²	+				
Marmosets ³	+			+	
Vervet monkeys ⁴	+	+	+		
Japanese macaques ⁵	+	+	+		
Rhesus macaques ⁶	+	+	+	+	-
Barbary macaques ⁷	+	+	+	-	-
Stumptail macaques ⁸	+	+			
Olive baboons ⁹	+	+		+	
Yellow baboons ¹⁰	+	+	+		+
Chimpanzees ¹¹	+	+		+/-	
Gorillas ¹²				+	

NOTE: + signifies that inhibition of mating occurs, - that it does not; +/- means that inhibition occurs between some pairs but not others. Cells remain blank if the frequency of mating in this category has not been measured in this species.

Figure 4: Avoidance of sexual activity with relatives

As we can see, a + represents inhibition of mating, - represents there is no inhibition, +/- means that it sometimes occurs and sometimes not, and an absence of any sign means there is too little data. Consider vervet monkeys and macaques. Males of the species are inhibited from mating with their mothers, maternal siblings and other maternal relatives. Likewise, in chimpanzees, males are inhibited from mating with their mothers and maternal siblings. Thus, non-human primates exhibit inbreeding avoidance. Amongst the male chimpanzees studied at Gombe, males will attempt to copulate with their mothers and sisters before reaching puberty.

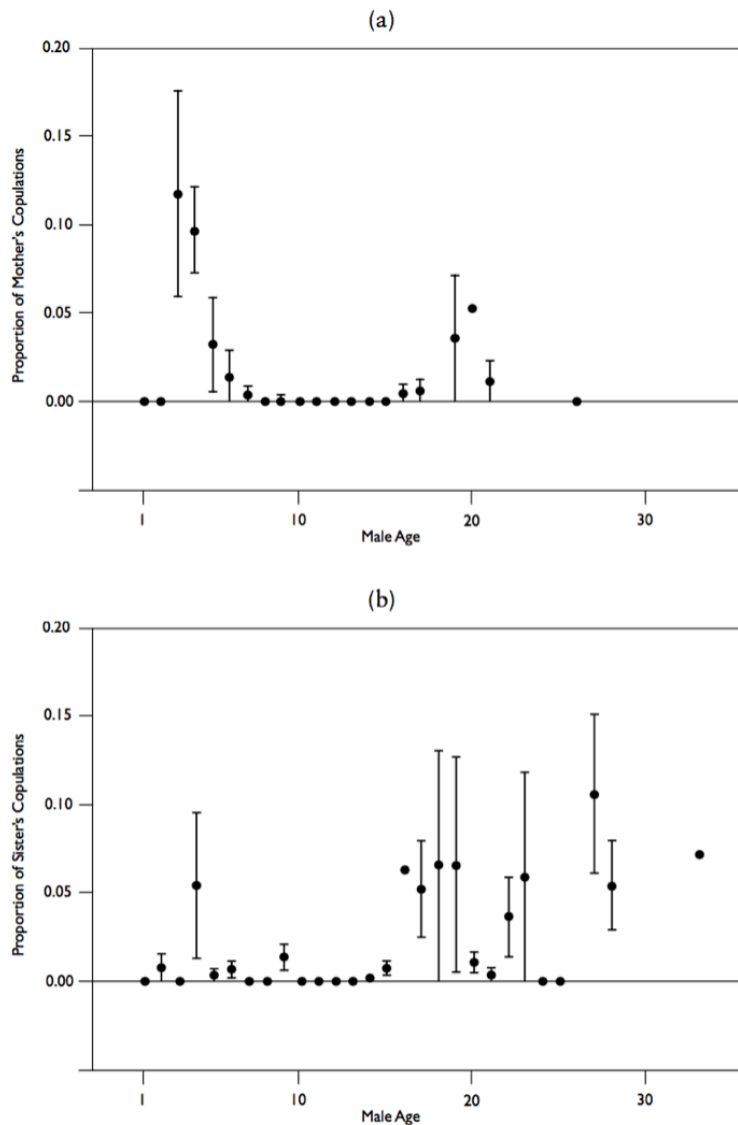


FIGURE 3.1. Copulations Between Mothers and Sons and Sisters and Brothers in the Gombe Chimpanzees. (a) Mean (SE) proportion of mothers' copulations contributed by sons of each age ($N = 25$ mother-son pairs, with some pairs observed over several years). (b) Mean (SE) proportion of sisters' copulations contributed by brothers of each age ($N = 22$ sister-brother pairs, with some pairs observed over several years). (Data from Pusey, Schumacher Stankey, and Goodall, in preparation.)

Figure 5: Copulation of male chimpanzees with mothers and sisters

However, by age 7, the inhibition reaches 100%. Thus, inbreeding avoidance is exhibited by many different primate species.

In many primate species, kinship is not obvious since one is raised by many females. How do they recognize kin? Biologists propose two mechanisms for kin recognition in primates: phenotype matching associated with the major histocompatibility complex (MHC) and familiarity or what is called the "Westermarck effect." In mice, biologists have found that MHC leads to different odors in urine. Thus, by comparing the smell of one's own and another's urine, a mouse can discriminate between relatives. Edvard Westermarck was a Finnish sociologist who taught himself English to read Charles Darwin and Thomas Hunt Morgan. His theory has several components. First, a sexual aversion tends to develop between those raised together in early childhood. Second, this sexual aversion is an adaptation to avoiding inbreeding depression. Third, this sexual aversion causes the incest taboo.

Anthropologist Arthur Wolf (2005; 2014) has argued at length that Westermarck's theory applies to our species. Here are two studies that lend support to Westermarck's claims. In Taiwan/China, there existed two types of marriage, major and minor marriage. In major marriage, when a male reached puberty, a female was chosen who would move into the future groom's parental home. In minor marriage, a infant girl would be raised in the future groom's parental home as a the future daughter-in-law of a male infant. Thus, they are raised together as infants to be a married couple. Wolf provides data that rates of divorce and infidelity were increased in minor marriages compared to major marriages. Additionally, he argued that rates of fertility decline with regard to minor versus major marriages. Wolf defines *general fertility* as,

$$\frac{\text{Births to women aged 15-45}}{\text{Years of marriage between these ages}}$$

Then we can see the earlier first association between future husband and wife, general fertility decreases.

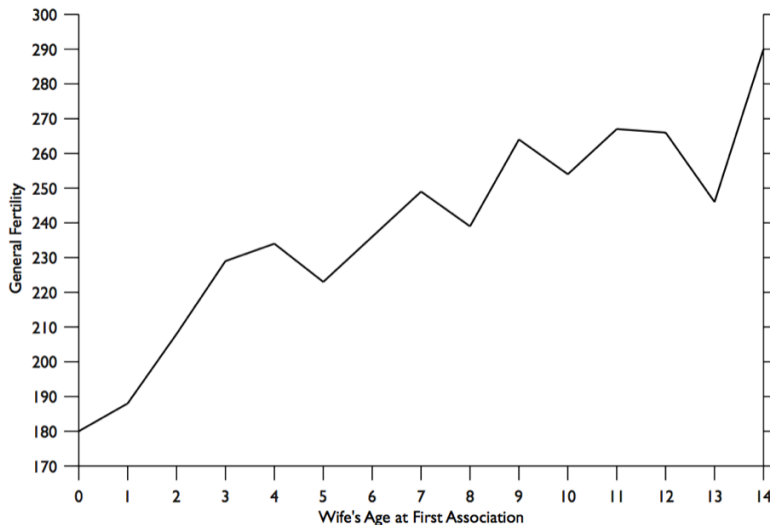


FIGURE 4.1. General Fertility by Wife's Age at First Association

Figure 6: General fertility in minor marriages

A second supporting example Wolf has used comes from Shepherd's (1971) kibbutzim study. 65 unrelated children were raised in similar-age peer groups from birth to age 18. Remarkably, there were no cases of heterosexual activity between adolescents of the same peer group, no cases of marriage between members of the same peer group, and there was no overt pressure to avoid sexual activity. Of 2,769 marriages, there is no instance of inter-peer group marriage. Importantly, Hartung (1985) criticized Shepherd's study because it only considered marriages in peer-groups and not across them. Hartung reasoned that women often marry men in different peer groups. When one considers this difference, one finds 253 marriages between individuals in the kibbutzim.

We have seen that the inbreeding avoidance is not unique to humans, but is found in many other primate species. Thus, inbreeding avoidance cannot be a component of an HPC kind associated with human nature. However, we might still argue that incest taboos are. We can define an incest taboo as a prohibition of sexual relations between certain categories of kinship. Anthropologists have thought incest taboos are extremely important to what it is to be human. Lévi-Stauss writes,

If social organization had a beginning, this could only have con-

sisted in the incest prohibition, it is there, and only there, that we find a passage from nature to culture, from animal to human life. (Lévi-Strauss, 1956, 278)

His view was that incest taboos marked what it means to be human because through them we resisted our animal nature. Culture liberates us from our biology.¹¹ He, along with others, were proponents of alternative cultural theories including the alliance theory, which claims that incest taboos ensure exogamy or interfamilial alliances.

It is striking how much variation exists with regard to incest taboos. First, there are many societies without such taboos. Second, where they exist, they vary a great deal as to who is kin. In a famous study by Goggin and Sturtevant (1964), they used the Human Relations Area Files to determine which if any human societies lacked incest taboos. They found 34 societies which practiced full and half sibling incest including:

- All: Aleut, Caingang, Edo, Roman Egyptians, Fulani, Hoklo, Ancient Japanese, Tontemboan
- Some (Full): Balinese, Guanche, Hawaiians, Inca, Malagay, Mixtec
- Some (Half): Burmese, Cambodian, Chaga, Ancient Egyptians, Fon, Ganda, Javanese, Kwakiutl, Lozi, Luba, Lunda, Monomotapa, Nyanga, Nyoro, Otomi, Shilluk, Thai, Zande

¹¹In the early twentieth century, many social scientists assumed members of the nuclear family were sexually attracted to one another. Freud certainly thought this in his *Totem and Taboo* (1938). In fact, James Frazer, author of *The Golden Bough*, objected to Westermarck's theory saying,

The law only forbids men to do what their instincts incline them to do; what nature itself prohibits and punishes, it would be superfluous for the law to prohibit and punish. (Frazer, 1910, 98-9)

Westermarck responded,

Would he maintain that there can be no general aversion to bestiality because bestiality is forbidden by law, and that the exceptional severity with which parricide is treated by many law-books proves that a large number of men have a natural propensity to kill their parents? The law expresses the general feelings of the community and punishes acts that shock them, but it does not tell us whether an inclination to commit the forbidden act is felt by many or by few. (Westermarck, 1921, 203-4)

To better understand what they found, let's consider a few of these societies in greater detail.

Under Roman rule and from 1-300 CE, Egyptians were required to participate in a census every 14 years providing household names, ages and kinship. Of millions of these records collected, 300 survived. They show of 121 marriages documented, 20 are between full siblings and 4 between half siblings; other documents contain 13 more sibling marriages. What is remarkable about these marriages is that they were publicly announced with no apparent shame.

The Greeks write regarding pre-Islamic Iran (Sasanian Empire 224-651 CE) (Slotkin, 1947, 612-3),

...he says that the Magi cohabit with their mothers and their daughters, and according to law have intercourse with sisters; and also that the wives sisters; and also that the wives are common, not by violence and stealth, but by mutual agreement, when one wants to marry the wife of another.

...they [the Magi] see no impiety in marriage with a mother or daughter.

From the unholy commerce of Gellius and his mother let a Magian by born to learn the Persian art of soothsaying; for a Magian must be the offspring of mother and son, if the unnatural religion of the Persian is true, so that their child may worship the gods with acceptable hymns, whilst melting the fat caul in the altar flame.

...these Magi, by ancestral custom, consort even with their mothers. Alcibiades lay with his mother, his daughter, and his sister, as Persians do.

Persians have illicit intercourse with their mothers.

...the Persian magnates marry their mothers and regard the children of the marriage as nobles of the highest birth, worthy, so it is said, to hold the supreme sovereignty.

Alexander [the Great]...persuaded...the Persians to reverse their others and not to take them in wedlock.

There are a variety of other sources but the Greeks are thought to be particularly reliable.

From 200 BCE until the 20th century, the Samaritans declined and in the 1940s there were 146 individuals (Bonne-Tamir, 1980; Jamieson, 1982; Talmon, 1977). However by the 1980s there were about 250 individuals. Samaritan religion prohibits marriage outside the religion, marriages are limited to extended family lineages, and 85% of marriages are between first and second cousins.

Finally, E. E. Evans-Pritchard writes,

[W]hen a boy reaches puberty he may take his sister and with her build their little hut near his mother's home and go into it with his sister and lay her down and get on top of her--and they copulate.
(Evans-Pritchard, 1974, 107)

Russell Middleton (Middleton, 1962, 603) also notes that Azande kings married their daughters and that father-daughter incest was common among the Thonga.

Contrary to textbooks, incest taboos are not universal. They are absent from many more societies than one would expect. However, even in those societies in which they exist, they vary in many different ways. They can differ as to who is kin, how strict the prohibition is, and what the punishment for violating the taboo is. Let's consider just variation in one dimension -- who counts as kin.

Recall an incest taboo is a prohibition of sexual relations between certain categories of kinship. But who are kin? Some societies allow sexual relations between first cousins. Some societies prohibit sexual relations up to fifth cousins. Some societies prohibit matrilineal sexual relations but not patrilineal ones, and vice versa. Many anthropologists have argued that the concept kinship is a social construction (Sahlins, 2013). One argument for constructivism is by considering different systems of kinship.

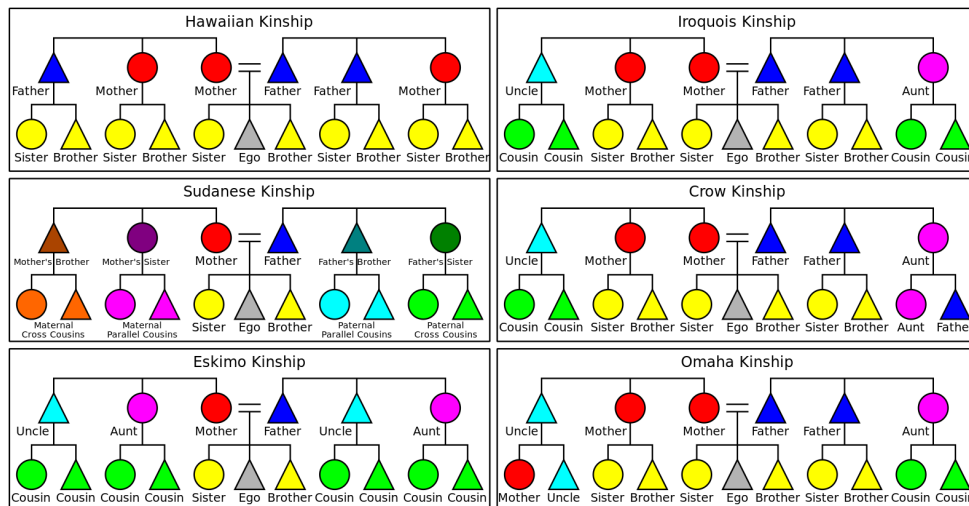


Figure 7: Different systems of kinship (wikipedia)

In kinship diagrams, the "ego" is the focal individual, with \circ represents females and \triangle represents males, | represents descent, \square represents sibling ties. In the Hawaiian system of kinship, one's mother and mother's sister are in the same category and one's father and father's brother are in the same category. In effect, both are mothers and fathers respectively. Additionally, the daughters and sons of one's mother and father and their respective siblings are in same category; they are in effect your siblings. Americans typically classify kinship in terms of the Eskimo system of kinship in which uncles, aunts, cousins, etc. are distinguished. The Hawaiian system represents approximately one third of the world's societies whereas the Eskimo system represents one tenth of the world's societies. Now, consider an incest taboo that say one should not have sexual relations with your sibling; this would look radically different in a Hawaiian versus an Eskimo system. Constructivism about kinship need not deny relations of descent; in fact kinship is superimposed on them as in our digram. Rather, we often choose who to mate and marry. Norms affect that choice and thus in part determines who our kin are (Hacking, 1999).

In our first case study, I argued that there was an HPC kind consisting in the basic emotions and facial expressions. The former is a real essence and the latter a nominal essence. They overlay our species quite well. But when we consider inbreeding avoidance and incest taboos things became complicated. First, inbreeding avoidance is found in many different primate species

(and other species as well). Though inbreeding avoidance might covary causally with the Westermarck effect, inbreeding avoidance simply is absent in many societies. Second, incest taboos are absent in many societies and even where there exist, they vary in many different ways including who counts as kin. Thus, there are variations in taboos that inbreeding avoidance cannot explain. Thus there is no HPC kind associated with our species with inbreeding avoidance as its real essence and incest taboos as its nominal essence. The former is too general and the latter too specific. We can illustrate this by the following diagram.

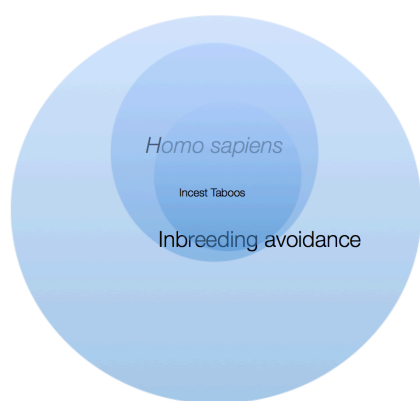


Figure 8: Inbreeding avoidance, incest taboos, and HPC kinds

We can visualize a Boydian view by considering the extremely loose overlap between three Venn diagrams including our species, inbreeding avoidance, and incest taboos.

There is no Boydian HPC kind in our last case study. If we want to explain projections and inductions regarding inbreeding avoidance we must consider much larger groups than our species. Likewise, we wish to explain our projections and inductions regarding incest taboos where they exist, we must consider very different human societies and kinship systems.

4 Conclusion

In this essay, we considered a traditional view of natural kinds and David Hull's critique of species as natural kinds and there being a human nature. We then consider a liberalized account of human nature due to Edouard Machery and

Grant Ramsey. I argued that Richard Boyd's account of HPC kinds was most promising for developing an account of human nature. By examining two case studies, we found whether there are HPC kinds associated with our species depends on the traits chosen. Donald Brown in his *Human Universals* argued that facial expressions and incest taboos were human universals. We found that in some cases, variety is the spice of our lives.

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