



An Evolutionary Account of Cyclic Shifts in Women's Mate Preferences

Seungbae Park

Ulsan National Institute of Science and Technology, Korea

Abstract. According to some psychological studies, women approaching ovulation feel the increased desire to have short-term sexual affairs with “sexy cads” while they are in long-term relations with “good dads.” I argue that this psychological property is a vestige of our evolutionary history. Early hominid females occasionally acquired good genes from top-ranking males while they were in long-term relations with low-ranking males. The Paleolithic living conditions indicate that women with the foregoing psychological trait were more likely to have viable children than those without it. Sexy cads are the descendents of the top-ranking males, and good dads are the descendents of the low-ranking males. Sexy cads and good dads will continue to coexist in the future, developing better methods to detect cheaters and to escape detection.

Keywords: Cheater, Evolution, Good Dad, Hominid, Sexy Cad

1. Cyclic Shifts

Durante, Griskevicius, Simpson, Cantu, and Li (2012) distinguish between two kinds of men whom they call “sexy cads” and “good dads.” In order to describe sexy cads, they use expressions, such as ‘physically attractive,’ ‘symmetrical,’ ‘masculine,’ ‘socially dominant,’ ‘charismatic,’ ‘adventurous,’ ‘commitment-phobic,’ and ‘unfaithful.’ Sexy cads tend to break women’s hearts by deserting them after short-term sexual encounters. In contrast, good dads have the opposite set of characteristics. In order to describe good dads, Durante et al. (2012) use expressions, such as ‘physically less attractive,’ but ‘warm,’ ‘faithful,’ and ‘reliable.’ Good dads are likely to become devoted partners and fathers, providing food and care for their women and children. Interestingly, women near ovulation experience an increased desire to have short-term sexual relations with sexy cads (Gangestad, Simpson, Cousins, Garver-Apgar, Christensen, 2004;

Durante et al., 2012). A problem is that the greater attraction to sexy cads appears to be a disadvantageous trait from an evolutionary point of view. After all, women may lose the support and protection—even suffer domestic violence—if their husbands detect the extramarital affairs. Why do women have this seemingly disadvantageous psychological trait?

Gangestad et al. advance what they call the “good genes hypothesis” according to which women are more attracted to sexy cads just prior to ovulation “to garner the genetic benefits of men who may possess good genes” (2007: 161). Sexy cads have good genes that manifest in the properties indicated earlier in the preceding paragraph. Durante et al. also speculate that “genetic benefits may have offset potential costs *in specific situations* during evolutionary history” (2012: 11). The idea is that women may lose the paternal support once their husbands detect the extramarital affairs, but for our ancestral women, the genetic benefit from sexy cads outweighed the loss of the support from good dads. This paper aims to flesh out and bolster the good genes hypothesis with historical observations. I trace the origin of women’s psychological property depicted above, explaining why women pursued good genes despite the attendant risk of being punished by their jealous long-term partners. Next, I analyze the social interactions among women, sexy cads, and good dads, utilizing the idea that there are cheaters and altruists in nature. Finally, I predict how the competition among the three parties will unfold in the future.

2. Luck?

Why do women feel drawn to sexy cads more during the fertile days than during the infertile days in their menstrual cycles? One possible evolutionary answer is that women acquired the psychological property as a result of variations in the past. It decreased a woman’s chance to rear her children to some extent by destroying marriage, but luckily it passed from generation to generation. A problem with such an explanation is that it invokes luck to explain the psychological trait, and any explanation invoking luck is not interesting. Besides, there might be an alternative evolutionary explanation that does not

appeal to luck, and such an explanation could show how it was likely that the psychological propensity was transmitted through generations. The evolutionary explanation to be sketched below has such a feature.

An evolutionary explanation of a seemingly disadvantageous property becomes interesting when close examination dramatically reveals it to be an advantageous property. For example, women experience nausea in their early pregnancy. The psychological property appears to be a disadvantageous trait. After all, it disposes women to eat less when they need more nutrition due to their babies. On close examination, however, it is an advantageous trait:

Rather, nausea and vomiting of pregnancy is an intricate mechanism that probably evolved to serve a useful function: protecting the pregnant women and embryo from food-borne infections and toxins. (Sherman and Flaxman, 2002: S190)

In the distant past, women who had the psychological mechanism were more likely to have healthy babies than those who did not have it. I attempt to give such an explanation of the aforementioned women's psychological propensity related to sexy cads. That is, in the distant past, women who felt the greater attraction to sexy cads during the fertile days were more likely to have viable children than those who did not.

3. Early Hominids

According to the tree of life, humans and chimpanzees have descended from a common ancestor. In order to give an evolutionary account of women's psychological property depicted above, we must look back at least six million years, before our ancestors had split from the common ancestor. The common ancestral males fought with each other over the top positions in their groups. Strong males took the top positions after defeating weak males. The top-ranking males monopolized females, but they were merely sperm donors to their female partners. The females reared the top-ranking males' offspring without receiving

food and care from them. This kind of mating pattern, however, changed soon after hominids split from chimpanzees.

4.4 million year old fossils of *Ardipithecus ramidus* suggest that male-to-male conflicts declined and pair-bonding occurred soon after hominids split from chimpanzees (Lovejoy, 2009). The canines of the early hominids were small, which supports the hypothesis that male-to-male aggression waned. The body size of the males was only slightly larger than that of females, which indicates that males and females formed long-term relations. Low-ranking males provided females with food for their reproductive success instead of fighting against top-ranking males. In response, females developed preferences for being provisioned and being faithful to their devoted male partners. They were not, however, completely faithful to their low-ranking males (Gavrilets, 2012: 9926-9927). They simultaneously pursued the goal of obtaining good genes from top-ranking males. Thus, the level of female faithfulness was “controlled by a balance between selection for better genes (potentially supplied by top-ranked males) and better access for food and care (provided largely by low-ranked males)” (Gavrilets, 2012: 9927). Gavrilets concludes that modern monogamy and family were possible because low-ranking males of early hominids started to provision females and their children, and females started to choose low-ranking males over top-ranking males as their long-term partners.

What is important for my purpose here is Gavrilets’s observation that even after early hominid females started to choose low-ranking males as their long-term companions, they sometimes had short-term affairs with top-ranking males in order to receive good genes from them. They inherited from their ancestors the propensity to take good genes from top-ranking males. In my view, what Durante et al. (2012) call sexy cads are the descendents of what Gavrilets (2012) calls top-ranking males, and what Durante et al. call good dads are the descendents of what Gavrilets calls low-ranking males. After all, the top-ranking males and sexy cads are similar in that they are socially dominant, they have good genes, and they leave the child-raising duties to their female partners. The low-ranking males and good dads are similar in that they do not have good genes,

and they use the strategy of provisioning their female partners and children to spread their genes. Modern women's increased desire to have short-term relations with sexy cads just prior to ovulation reflects the distant historic fact that early hominid females pursued both good genes from top-ranking males and the paternal investment from low-ranking males. Their propensity to obtain good genes from top-ranking males traces back to the more distant historic fact that ancestral females, the common ancestor of hominids and chimpanzees, mated with top-ranking males who monopolized them.

It is possible that a variation occurred to early hominids. As a result, some female hominids were born with the disposition to have extra-pair affairs with top-ranking males twice a month as opposed to once a month, e.g., once just prior to ovulation and once just after ovulation. Who had a better chance to have healthy children, these females or the females who felt the increased desire only once a month, viz., just prior to ovulation? Obviously, the latter were fitter than the former because mating just posterior to ovulation does not result in conception and only raises the probability of destroying the long-term companionship with their devoted males. Thus, the increased desire just posterior to ovulation was disadvantageous. The absence of such trait in the modern women is consistent with Lovejoy's view (2009) and Gavrilets's view (2012) that pair-bonding occurred in early hominids. After all, if pair-bonding had not occurred, the former and the latter above would have had the equal chance to take good genes from top-ranking males, and hence the descendents of the former are likely to exist today.

It is also possible that some early hominid females were born with the propensity to be completely faithful to their long-term companions. When fertile, they did not feel more drawn to top-ranking males. In the battle to have viable offspring, they competed with approximately faithful females who had the propensity to receive good genes from sexy cads. Who had a better chance to have strong children, the approximately faithful females or the completely faithful females? One may answer that the completely faithful females were more likely to have viable children than the approximately faithful females in the distant

past, given that today approximately faithful women might be physically punished by their jealous husbands and lose their paternal support. In the present time, approximately faithful women seem to be reproductively less successful than completely faithful women. So must our distant ancestral females have been. A problem with this line of reasoning is that there are important differences between the present and past living conditions. The following section explores the living conditions of the Paleolithic Age in order to support the view that approximately faithful women had a better chance to have healthy children.

4. Paleolithic Age

An overview of the Paleolithic Age would be useful. The term 'Paleolithic Age' refers to the period from 2,500,000 to 10,000 B.C.E. (Spielvogel, 2011: 3). Humans lived nomadic lives until around 10,000 B.C.E. when the Paleolithic Era ended and the Neolithic Era began (ibid.: 3-4). A nomadic band was "made up of anywhere from a handful to as many as a hundred people, but commonly numbered around two dozen" (Coontz, 2005: 39). Women gathered fruits and berries near their camps, and men hunted animals away from their camps. Once the nearby natural resources were depleted, they moved to new places, encountering different plants and animals, and other nomads. Thus, adventure was part of their daily lives.

The family system of the Paleolithic Age is different from that of modern times. The Paleolithic Era family "was normally an extended family, or clan, that included uncles, aunts, in-laws, and other relatives rather than the nuclear family (mother, father, children) that is common today" (Adler and Pouwels, 2012: 7). It follows that in case a Paleolithic woman lost the support from her children's father, she had her other family members and other members of her traveling group who could share the burden of protecting and rearing her children. For Paleolithic women, losing good dads did not mean that their children would die.

According to Wells (2010: 23), the average life span of Paleolithic males was 35.4 years and that of Paleolithic female was 30.0, only the half of that of contemporary people, because they were at perennial war with nature, fighting against diseases, predators, and natural disasters. In addition, Paleolithic people were much more brutal. 15% of human beings, Pinker (2011: 48-50) claims, died at the hands of their fellow human beings in the Paleolithic Age, whereas only 3% died violent deaths in the 20th century. The figures of the average life span and the violent deaths in the Paleolithic Era lead to the view that the paternal support from good dads was not as valuable as it is today.

We do not know the exact infant mortality rate of the Paleolithic Era, but it might be much higher than the present rate. It is worthy of note in this context that in the early 1600s England “two-thirds of all children died before the age of four” (Rorabaugh, Critchlow, and Baker, 2004: 47). Paleolithic people did not have the advanced medicine and medical technology to fight against pathogens. It follows that for Paleolithic women, taking good genes from sexy cads was more than a luxury. It is not surprising that they occasionally engaged in short-term extra-pair affairs with sexy cads when fertile, despite the possibility of attendant violence against them from their wrathful long-term companions.

We can infer that Paleolithic women suffered less violence from men than current women do today, given that they enjoyed a higher social status than modern women do. Researchers agree that women and men were more or less equal in the Paleolithic Age. For example, Spielvogel says “a rough equality existed between men and women” in the Paleolithic Age (2011: 3). Stavrianos also says that the “relations between the sexes were more equal during the Paleolithic millennia than at any time since” (1991: 9). It follows that Paleolithic women had more freedom to shop for good genes than current women do, while they were in long-term relations with good dads.

The considerations of the living conditions of the Paleolithic Age support the view that approximately faithful women had a higher chance to have viable children than completely faithful women who received the paternal support from good dads and did not receive the genetic benefit from sexy cads at all. Of course,

approximately faithful women sometimes must have paid the cost of losing the paternal support from good dads for receiving the genetic benefit from sexy cads. Overall, however, they were better off than the completely faithful women. They felt increased attractions to sexy cads as short-term mates during the fertile days in their menstrual cycles. Contemporary women inherited their psychological property.

5. Cheaters, Altruists - Future

Women feel the increased desire to have extra-pair intercourse at the right time of the month and at the right frequency, viz., only during the fertile days, to cheat their devoted long-term partners. This psychological property suggests that women might be cheaters and good dads might be altruists. Cheaters in the evolutionary context “are individuals that receive benefits from partners without reciprocation” (Sachs and Simms, 2006: 585). Altruists, in contrast, incur some cost not for their own benefit “but for the benefit of other conspecifics” (Wade and Breden, 1980: 167). Paradigm examples of cheater and altruist are cuckoos and wagtails respectively. Cuckoos lay their eggs in the nests of wagtails. Wagtails raise the cuckoos’ progeny, taking them as their own. Cuckoos benefit from wagtails, but they do not repay wagtails for the benefit. Wagtails support cuckoos without benefiting from them. Thus, cuckoos are cheaters, and wagtails are altruists.

The foregoing theoretical resources of cheater and altruist shed interesting light on how women, sexy cads, and good dads are related to one another. Good dads are obviously altruists, given that they sometimes rear the sexy cads’ children, assuming that the children are their own. Sexy cads are cheaters, given that they leave the parental duty of raising their children to women and good dads. How about women? Women are double-dimensional in this context. On the one hand, they are not provisioned by sexy cads, so it appears that they are victims. On the other hand, they take sexy cads’ genes not exclusively for the sexy cads’ benefit. It is also in their interest to do so. Accordingly, women are reciprocal altruists in relation to sexy cads. With respect

to good dads, however, they are cheaters because they take advantage of the paternal support. To sum up, women and sexy cads are reciprocal altruists to each other, they are both cheaters to good dads, and good dads are altruists to both women and sexy cads.

Sexy cads, good dads, and women compete in the battle to propagate their genes. Sexy cads have the goal to spread their genes without shouldering the parental responsibility to rear their children. They use the strategy of being sexually appealing to women and the strategy of begetting daughters who are temporarily more receptive to sexy cads as opposed to good dads. Good dads also have the goal of spreading their genes. Unlike sexy cads, however, they use the strategy of provisioning their women and children. They are not interested in raising sexy cads' children, though. They sometimes detect and punish the cheaters, viz., women and sexy cads. Women, in contrast, are interested in both obtaining good genes from sexy cads and receiving the paternal support from good dads.

How will the competition among the three parties unfold in the future? One may predict that good dads will outperform sexy cads thanks to the advent of the DNA technique to verify the genetic relationship between a child and a father, which helps good dads to detect cheaters. As a result, there will be fewer sexy cads in the future. I believe, however, that the benefit of the technique is cancelled out by the decreasing value of paternal support. Paternal support has been losing its influence on women since women's social status surged in the 20th century. As their status rises, the degree to which women feel the need of paternal support decreases; they will increasingly seek affairs with sexy cads. I speculate that the relative population sizes of sexy cads and good dads fluctuate in accordance with women's social status. As the status goes up, the portion of sexy cads becomes higher in the general population. As the status goes down, the portion of good dads becomes higher. Good dads will not die out, though. Given that not all women will enjoy high social positions, some will not be able to afford sexy cads. Moreover, some women, even if enjoying high social standings, will refuse to choose sexy cads as their children's fathers, simply thinking that it is

unfair for men not to fulfill the parental duty. For these women, the desire for fairness trumps the desire for sexy cads. In short, women will use diverse strategies for their reproductive success, so good dads will continue to exist.

Furthermore, where there are cheaters and cooperators, there can be an evolutionary arms race between them (Nesse and Lloyd, 1992: 606). Once some organisms acquire the abilities to cheat others, their social inter-actors will develop abilities to detect the cheaters. In response, the cheaters will acquire increased abilities to escape detection. The altruists will in turn develop better abilities to detect the deceivers. This arms race will escalate toward ever-increasing complexity of their mental and physical structures. Given that women and sexy cads are cheaters and good dads are altruists, we can retrodict that there has been an evolutionary arms race whose possible path can be reconstructed as follows: Females had multiple partners in the distant past. The shape of the penis evolved in response to the females' promiscuous behavioral pattern. The large glans and prominent coronal ridge of the penis was designed to "displace seminal fluid from rival males in the vagina by forcing it back over/under the glans" (Gallup and Burch, 2004: 12). The penis drew out the semen deposited by rival males, as it moved back and forth inside the vagina before ejaculation. Women confronted the shape of the penis by developing the mechanism of the vaginal and uterine contraction. When women feel orgasm, the vaginal and uterine contractions help to intake and retain sperm (Baker and Bellis, 1995). Women are more likely to have orgasm when they have extra-pair intercourse with sexy cads than when they have marital intercourse with good dads, thereby increasing the chance that they have sexy cads' children. In response, men evolved a certain behavioral pattern, viz., "men appear to be particularly vigilant of their partners' whereabouts when their partners are fertile" (Gangestad, Garver-Apgar, Simpson, and Cousins, 2007: 161). Thus, the mental and physical properties of modern men and women are the results of the interactions between prehistoric men and women in the battle to fertilize eggs and to select good sperm.

The evolutionary arms race among women, sexy cads, and good dads will continue to become more sophisticated, and their morphological and psychological properties will be more complex. For example, a woman's voice may change subtly during the fertile period in the future. Sexy cads, but not good dads, may unconsciously perceive the voice to be more attractive. In response, good dads may develop the psychological mechanism to feel anger toward sexy cads, although they may not be conscious of why they feel the way they do. I am not claiming that such changes will definitely or are likely to occur. We cannot predict specifically what morphological and psychological properties women, sexy cads, and good dads will acquire in the future because we do not know what the future environment would be like and hence what variations will occur in the future. Evolutionary theory is known to lack predictive power. It only makes an abstract prediction that only the fittest tend to survive and reproduce. In any event, the examination of contemporary men and women's morphological and psychological properties meshes well with Gavrilets's contention (2012) that after pair-bonding occurred several million years ago, early hominid females were not completely faithful to their devoted low-ranking males.

6. Conclusion

Our current mental structure reflects the behavioral pattern of our ancestors. Just prior to ovulation, women feel the increased desire to have short-term relations with sexy cads. This psychological property is a vestige of our evolutionary history traceable to the time when our ancestral males fought with each other to monopolize females. Top-ranking males enjoyed short-term relations with females merely as sperm-donors. After hominids diverged from chimpanzees, low-ranking hominid males started to provision females and their offspring instead of fighting for the top positions in their groups. In response, females began to form long-term relations with the low-ranking males. At the same time, they occasionally cheated their long-term companions to obtain good genes from top-ranking males. The Paleolithic living conditions indicate that women with the aforesaid psychological trait were more likely to have robust

children than those without it. Sexy cads are the descendents of top-ranking males, and good dads are the descendents of low-ranking males. The future of sexy cads is bright because women's social status is on the rise. Women, sexy cads, and good dads will continue to coexist in the future. Women and sexy cads will develop better methods to cheat good dads. In response, good dads will develop better methods to detect the cheaters.

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