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Evolutionary Perspectives on Popular Culture: State of the Art

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Abstract

Utilizing an evolutionary perspective has proven fruitful in a number of areas of interest outside of the standard psychological or anthropological topics. This includes a wide range of fields from applied disciplines such as law, criminology, medicine, and marketing, to the study of the imagined worlds found in art and literature, the domains of the humanities. A number of excellent books, as well as numerous articles, detail the impressive work done in applying evolutionary insights to the study of art and literature. This article focuses on evolutionarily informed explorations of popular culture, an area that, only relatively recently, has benefited from research taking this approach. The existing scholarship in this area will be reviewed, and future directions and challenges highlighted.

Keywords: popular culture, adaptation, by-products, signaling theory, learning, communication

INTRODUCTION

Long ago, Darwin's insights into the process of evolution by natural selection and sexual selection paved the way for a revolution in biology and our understanding of how physical, mental, and behavioral traits are shaped. More recently, evolutionarily informed approaches to the study of human behavior, particularly in the fields of psychology and anthropology, have enabled a more nuanced understanding of human nature. This understanding of both human behavior and the selective forces that have shaped it has also inspired novel approaches in a variety of other fields, such as the study of art and literature. The fruitfulness of the approach is evident in the works of Carroll (1995, 2005, 2011), Gottschall (2008, 2012, 2015), and Boyd (2010), among many others. For a number of years, the focus of this approach has largely been on what is often referred to as *high culture*, great works of literature and art taught at universities and colleges around the world. But in many ways, with its broad appeal, popular culture is a topic even riper for an evolutionary approach. Pinker, in a review of *The Literary Animal: Evolution and the Nature of Narrative* (Gottschall and Wilson 2005), suggested that research in the psychology of the arts needed to turn its attention toward "low- and middlebrow culture . . . [which] appeal[s] to 99% [of the population]" (2007, 176). This article reviews research that has followed this advice, using approaches informed by evolutionary theory to analyze the appeal of various aspects of popular culture.

THE SCOPE OF POPULAR CULTURE

For the purpose of this paper, *popular culture* is defined as culture based on the tastes of ordinary people rather than the elite class. As such, it includes both cultural activities and commercial products that have mass appeal. An evolutionary perspective on popular culture would suggest that popular culture is a product of human nature—produced by and for people—and, as such, is likely to focus on the problems humans have faced over our ancestral history, such as mating, parenting, survival, and social living.

There are two main ways in which evolutionary psychology intersects with popular culture. The first is to use popular culture as data in the service of psychological research. This approach is concerned with how the cultural transmission of popular culture and its products relates to predictions that can be made based on evolutionary theory. The products of popular culture can be seen as artifacts of human nature. Said products can be examined as data in testing theories about human psychological adaptation in the same way as archaeological artifacts can be used by anthropologists to test hypotheses about human evolution. Salmon and Symons (2001, 2004) highlighted the utility of taking this approach, using pornography and romance as unobtrusive measures of male and female sexual psychology. From a methodological standpoint, there are clear benefits to this approach (as opposed to surveys, for example) in that unobtrusive measures do not require the cooperation of participants, or their honesty or self-awareness, and it does not influence the participant response. Unobtrusive measures have proven to be fruitful for a number of topics. Daly and Wilson (1998) used statistics on child abuse and homicide to test hypotheses about discriminative parental solicitude, while Orians and Heerwagen (1992) used real estate prices to illuminate the psychology of human landscape preferences. Popular culture as unobtrusive data has also been used to provide evidence in support of the well-documented (but still contested on occasion) finding that sex differences in jealousy exist and are not an artifact of hypothetical scenarios or forced choice methodology. Kuhle (2011) examined the nature of jealousy-driven interrogations after actual infidelities via video footage from the syndicated reality program *Cheaters*. As others have previously documented via prospective and retrospective studies (Buss, Larsen, Westen and Semmelroth 1992; Buss et al. 1999), men are more likely than women to focus on the sexual aspects of their partner's infidelity, while women are more likely to ask questions about the emotional aspect of their partner's cheating. The point here was not to analyze the appeal of *Cheaters*, but rather to use the program as a different type of data in testing an adaptation-based hypothesis about male/female mating psychology.

In addition to testing evolutionary hypotheses with observational or unobtrusive methods, studies have also used the products of popular culture as manipulations in tests of various hypotheses. Pound (2002) utilized a combination of content analyses of online pornographic images, an online questionnaire, and an online preference study to test hypotheses about male interest in visual cues of sperm competition risk. If sperm competition has been a recurrent adaptive problem for human males, sexual arousal to cues of the risk of sperm competition could be an adaptive response. Pound also suggested that men should find pornography that includes cues of sperm competition (several males and one female) more arousing than pornography without such cues (one male and several females). Indeed, this pattern in preferences was found. A few years later, Kilgallon and Simmons (2005) looked at the physiological impact of such pornographic images, hypothesizing that men viewing images of sperm competition would have higher quality semen than men viewing images of females alone (no sperm competition cues). After controlling for lifestyle factors that are known to influence semen quality, they found that human males viewing images depicting sperm competition had higher percentages of motile sperm in their ejaculates, as well as higher concentrations of sperm.

The second approach, the main focus of this review, assumes that an evolutionary perspective can be used to examine specific cultural products and achieve a better understanding of their popularity and content than can be realized otherwise. This approach shares that assumption with traditional evolutionary literary criticism, but focuses on popular culture, rather than elite or high culture. An example can be found in Salmon and Symons' (2001, 2004) analysis of the genre of fan fiction known

as "slash." Slash fiction consists of romantic/erotic narratives, written largely by women, in which the same-sex protagonists are expropriated male media characters, the co-stars of television shows like Kirk and Spock from *Star Trek*, Holmes and Watson from *Sherlock*, and Dean and Castiel (or Dean and Sam) from *Supernatural*. They also include characters from blockbuster movies such as Steve and Bucky from *Captain America*, and Draco and Harry from the *Harry Potter* series. The term "slash" refers to the "/" used between the initials or names to indicate the pairing of the characters, such as "K/S" (Kirk/Spock). Many popular pairings get nicknames as well, such as "Stucky" (Steve/Bucky) or "Destiel" (Dean and Castiel). Media and cultural studies scholarship on slash has tended to interpret it as a presentation of new forms of masculinity, as androgynous romance, or as evidence that the readers/writers—who tend to be women—are alienated from their female bodies. Salmon and Symons found that slash is best understood as a subgenre of romance, one that embodies the romance tradition of overcoming obstacles and finding love and commitment that will endure the trials and tribulations of time with a highly desirable, strong, protective partner. In other words, slash is best understood as a variation on the theme of what we already know about female sexual psychology. However, slash fiction is but one of many pop culture phenomena that is further illuminated by an evolutionary approach. The aspects of popular culture discussed in the rest of this review illustrate the range of active research topics but is by no means exhaustive.

TATTOOS AND BODY MODIFICATION: POPULAR CULTURE AS SIGNALING DEVICES

Body modifications, such as tattoos and piercings, have become increasingly prevalent in recent years in Western culture, with rates in the United States approaching 25% (Kosut 2006; Laumann and Derick 2006). Their popularity is reflected in reality shows, such as *LA Ink*, *Miami Ink, NY Ink*, and *Ink Master*. In addition, they commonly decorate the stars of television, movies, music, and professional athletes. From Johnny Depp and Angelina Jolie to Lady Gaga and Rhianna to David Beckham and Mike Tyson, celebrities are often recognized by their tattoos or piercings. Much previous research on this topic has been done by cultural anthropologists and has often focused on the social role played by tattoos and piercings in certain societies and subgroups. Historically, tattooing and piercing were frequently used as an indicator of social status (Gilbert 2001) or group membership, for example, among criminals, gang members, and soldiers. Some recent studies have focused on individual motivations such as getting a tattoo to be seen as unique, as a form of expressing aspects of one's identity (Alessi 1992; Armstrong, Roberts, Owen, and Koch 2004; Swami 2012), and as a marker for important life events or relationships (Antoszewski, Sitek, Fijalkowska, Kasielska, and Kruk-Jeromin 2010).

While all of these explanations for the phenomenon of body modification are interesting, they don't fully illuminate why individuals should engage in such costly and painful behavior when other methods of affiliation are less of a health risk, such as team colors, clothing, or jewelry. One could suggest that the permanence of body modifications is a marker of commitment or significance, but an evolutionary perspective suggests an additional level of explanation. As mentioned, tattoos and piercings are not only painful but entail health risks. Studies have indicated that over 25% of piercings are linked to infections or disease transmission, including hepatitis and HIV (Hashemi-Shahri, Sharifi-Mood, Metanat, Salehi, and Sharifi 2016; Patel and Cobbs 2016). This suggests the hypothesis that people who choose to tattoo and pierce their bodies are doing so because it serves as an advertisement or signal of their genetic quality. Good genetic quality and immunocompetence may be signaled by the presence and appearance of tattoos and piercings in much the same way

as ornamentation, such as the peacock's tail (in its size and symmetry), serves as a signal of male health and genetic quality (Zahavi 1977). If this is the case, one might expect tattoos to be located where they would be clearly visible to potential mates, or made easily visible to potential partners in a mate attraction context. Several studies discussed below examine this with regard to sex differences in the placement of tattoos.

A number of researchers have explored the concept of tattoos and piercings as good genes indicators. Wohlrab, Stahl, Rammsayer, and Kappler (2007) examined the relationship between personality traits and body modifications reporting that those with body modifications score higher in sensation seeking and appear to be following a more unrestricted sexual strategy than those without. Thus, their modifications might serve to signal such strategies to possible sexual partners. The researchers also reported sex differences in the placement of tattoos such that secondary sexual characteristics were highlighted, with males concentrating on their upper bodies drawing attention to the shoulder to hip ratio. Females had more abdominal and backside tattoos, drawing attention to the waist to hip ratio. The emphasis seems to be on areas highlighting fertility in females and physical strength in males, essential features of physical attractiveness (Buss 2016). Ten years earlier, Singh and Bronstad (1997) had also examined sex differences in the location of tattoos and scarification. They reported that female body modification in the abdominal region was most common in geographic regions with higher pathogen load, again suggesting that such practices may serve to signal physical and reproductive health. Koziel, Kretschmer, and Pawlowsk (2010) examined the relationship between body symmetry and the presence of tattoos/piercings. Fluctuating asymmetry (FA), which is defined as deviation from perfect bilateral symmetry, is thought to reflect an organism's relative inability to maintain stable morphological development in the face of environmental and genetic stressors. Studies on humans and non-human animals have indicated that low fluctuating asymmetry is related to developmental stability and is a likely indicator of good genes (Thornhill and Moller 1997; Thornhill and Gangestad 2015). Koziel and colleagues found FA to be lower in those with tattoos/piercings and that this effect was much stronger in males than in females, suggesting that those with greater developmental stability were able to tolerate the costs of tattoos/piercings and that they serve as an honest signal of biological quality, at least in the males in this study. They also found the same pattern of sex differences in tattoo/piercing locations reported in other studies.

Carmen, Guitar, and Dillon (2012) review evidence for two hypotheses of the origins of body ornamentation. The first is what they refer to as the "human canvas" hypothesis, that body ornamentation is a vehicle for human use of symbolic thought. From this perspective, this "extended phenotype" can be a marker of individuality or a signal of group membership. The second hypothesis is connected to the signaling hypothesis and is referred to as "upping the ante," suggesting that the rise in the popularity of piercing and tattooing in Western culture is the result of high population densities and advances in health care, leading to a need for new and/or unique fitness displays. The researchers highlight this rise in popularity from the 1960s through the early 2000s, including celebrity adoption and their portrayal on popular televisions shows such as *Friends* and *How I Met Your Mother* as well as the previously mentioned *LA Ink*, *Miami Ink*, and *London Ink*. Lynn, Dominguez and Decaro (2016) further refine the costly signaling approach by testing what they refer to as the "inoculation hypothesis of tattooing as a fitness signal" (603), which states that the immune system will habituate to the stressor of tattooing in individuals who are repeatedly tattooed, such that individuals with more tattoos would experience less immunosuppression with subsequent tattoos. Their results do indeed indicate habituation to the stress of tattooing and they suggest

that those with healthy immune systems that heal faster are more likely to get additional tattoo work done, signaling their underlying immunological quality.

Future work in the area of body modification and costly signaling should assess the relative signaling power of different forms of modification, such as piercing in various locations, branding, tattooing, and other esoteric forms. In addition, data on cross-cultural patterns and pathogen prevalence, which would increase the cost of such signaling, could contribute further to our understanding of the modification phenomenon.

POPULAR MUSIC, SONG LYRICS, AND STAND-UP: EVOLUTIONARILY RELEVANT THEMES

If stories, whether told around campfires, through folk tales, or literary works, have been lasting features of human social life (Gottschall 2012), so too has music been a long-term feature of human existence (Wallin, Merker, and Brown 2000; Mithen 2006). Of particular interest here is the content of music in terms of song lyrics and how the popularity of modern music reflects its focus on evolutionarily relevant themes. This has been explored by a number of researchers. Davies (2006) documents sex differences in the lyrics of hip-hop songs. His work highlights how the genre's songs manifest male and female sexual strategies, including male interest in short-term mating and their inclination to brag to other males about the number of sexual partners they've had. DMX's "What These Bitches Want," for example, contains the lyrics "I fuck with these hoes from a distance. The instant they start to catch feelings. . . . Then I'm out just like a thief in the night." One of the verses consists of a list of 46 names of females the singer claims to have had sexual relations with. Male–male competition also appears in bragging not only about number of partners but also about sexual prowess and the size of their equipment, as in "One More Chance" by Notorious B.I.G. when he raps: "So recognize the dick size in these Karl Kani jeans. I'm in thirteens, know what I mean?" Destiny's Child also highlights female preferences for men with status and resources in songs performed by women, such as in "Bills Bills Bills," when they sing that they need a "baller . . . Instead of a scrub like you."

Reproductive themes have been a consistent focus of research on song lyrics from an evolutionary perspective. Hobbs and Gallup Jr. (2011) documented such themes in their content analysis of song lyrics from Billboard's Top Ten lists for Country, Pop, and R&B. Ninety-two percent of the 174 songs contained one or more reproductive themes. The average number of reproductive-phrases-per-song was over ten. These themes included: body parts, courtship/long-term mating, hookups/short-term mating, foreplay/arousal, sex acts, sexual prowess, promiscuity/derogation, mate guarding, fidelity assurance, commitment, resources, status, mate provisioning, sex appeal, rejection, infidelity, and parenting. Interestingly, there were some differences between the frequency of themes between musical genres, for example, more parenting in Country, and more status, resources, and mate provisioning in R&B. Overall, the most popular songs contained significantly more reproductive messages even within the top ten restriction, suggesting that our evolved psychologies are particularly attuned to these messages while the shifts in themes between songs may reflect the specific concerns of the life history strategies of their listeners.

Kurzban's (2012) examination of the fitness relevant content of Country music lyrics is noteworthy not only for his discussion of how often their narrative lyrics focus on the beginning and ending of relationships, but also for his short review of hypotheses about the function of the arts. He raises the question of why we devote so much time and money to the consumption of these narratives. The hypothesis that art consumption is a form of information gathering, a sort of virtual experience of solving problems, or at least being exposed to various problem

solving strategies, is one raised by a number of scholars in this area (Boyd 2009; Dutton 2009; Carroll 2011; Gottschall 2012). While Kurzban does not deny that some information gathering might occur, he raises the question of the value of repeated exposure, as is seen when people listen to their favorite songs frequently, reread a favorite novel, or watch a movie multiple times. He echoes Pinker's (1999) suggestion that "music is auditory cheesecake" (534), hypothesizing that its appeal is in its activation of adaptations that produce a psychological reward to cues of future fitness gains. In the same way that food and sex are rewarding, so are cultural products that trigger these same reward mechanisms. Kurzban argues that the popular culture market is competing for our attention and that we favor products that provide cues of fitness relevant information, whether it's violence and sexual indiscretions on the news or songs about love both lost and found. He includes a number of examples of infidelity resulting in violence committed by males and females from Garth Brooks' "Papa Loved Mama," where Brooks sings: "Papa loved Mama, Mama loved men. Mama's in the graveyard, Papa's in the pen," to Carrie Underwood's Grammy-winning hit "Before He Cheats," where the narrator keys her ex-boyfriend's truck, cuts up the seats, takes a baseball bat to the headlights, and slashes the tires. Infidelity sure doesn't pay in this song. In the end, while Kurzban finds himself favoring the cheesecake hypothesis, he also muses over the emotionally compelling nature of many of the lyrics. It may be that the more fitness relevant the story, the more powerful the emotional response and our inability to turn it off. In a similar vein, Fisher and Candea (2012) explored themes of female intrasexual competition, a highly fitness relevant topic, from the perspective of indirect fitness benefits through social learning. They document a wide range of competitive tactics expressed in songs sung by females, from self-promotion to competitor derogation, betrayal, loss of competition, winning competition, competition withdrawal, and mate manipulation. A broader analysis of specific themes across genres appealing to different ages and culture groups might highlight the way in which life history specific strategies and dispositions are reflected in our music preferences, including how they may change for individuals, or not, across the lifespan.

Stand-up comedy may seem like an odd bedfellow next to songs about love and betrayal, but Kuhle's (2012) examination of the popularity of comedian Chris Rock takes the same basic approach as Kurzban (2012) and Fisher and Candea (2012). Many researchers have proposed theories on the evolutionary origins of humor (Dunbar 1996; Pinker 1997; Miller 2000; Martin 2007; Hurley, Dennett, and Adams 2011). Kuhle focuses on how the success of Chris Rock's routines is dependent on the shared background knowledge of his audience, those evolved sex differences in mating strategies that we all recognize at some level (Buss 2016). These routines include material focused on opposite-sex friendships, mate preferences, tactics of mate attraction, parenting, infidelity, divorce, and other conflicts between romantic partners. All of these are highly fitness-relevant themes where Rock's humorous stories illustrate the different sexual psychologies exhibited by men and women. There is a phrase often used in explaining the evolution of sex differences (referring to the biological costs of gamete production): Eggs are expensive; sperm is cheap. Chris Rock sums this up in his own way: "Pussy costs money; dick is free" (Rock 2008).

THE APPEAL OF PORNOGRAPHY AND ROMANCE

While the largely male-audience genre of pornography and the female genre of romance may seem worlds apart, the appeal of both genres is rooted in sexual psychology. As the sexual challenges faced by men and women have not been identical ancestrally, neither are the erotic genres that best tickle their fancy. Romance and pornography are multibillion-dollar industries

whose contrasts reflect the different selection pressures males and females faced over our evolutionary history. Male reproductive success was increased by access to numerous fertile females, while female reproductive success benefited more from selecting a male willing and able to invest in offspring. Salmon (2012) explains pornography and romance from the perspective of sex differences in evolved sexual psychologies. The focus of pornography is lust and physical gratification without the costs of courtship, commitment, mating effort, or long-term relationships. It's the sexual fantasy of short-term mating that is exciting for men in the modern world because men who were easily visually aroused and responsive to short-term sex passed on those traits to their offspring when they had the opportunity to realize them. In the modern world, technology provides the stimulus without the actual mating. Romance is rather different. It is written more often than images (Salmon and Symons 2001), and its focus is the story of long-term mate choice, a woman finding her one true love who is willing to commit to her. It is a simulation of the search for a high-quality mate (Salmon and Symons 2001; Cox and Fisher 2009).

One of the benefits of taking an evolutionary approach to the analysis of pornography and romance is that it can provide insights into specific features that other approaches cannot. For example, female porn stars are essential to the success of the genre. They adorn the advertising; they are what the male audience wants to see. From an evolutionary perspective, we would expect their appearance to epitomize features desirable in a short-term mate. Even a quick examination of the genre reveals a list of features appealing in terms of short-term mating. Female porn stars are mostly young (but not too young, twenties to early thirties), and curvaceous, signaling fertility (Ogas and Gaddam 2011). Their skin is smooth and taut with long legs (or high heels to exaggerate leg length), full lips, lustrous long hair, and perky breasts often on the larger side. All of these are cues of youth and fertility. Rather than some plot by the patriarchy to make women feel inadequate, the porn industry is simply providing the most stimulating images it can for the purpose of male arousal. This preference for youth in pornography is much the same as in prostitution where younger escorts are able to charge more than older ones (Dunn 2018).

Similarly, the characteristics of the hero in romance are most clearly understood as a reflection of female mate preferences (Salmon 2012a). Their fundamental features include physical and sexual competence, intense love for the heroine, and sometimes social status (which is interpreted negatively by some scholars as evidence of male domination of the heroine). The high mate quality of the romance hero has been the focus of several analyses of romances (Gorry 1999; Cox and Fisher 2009; Fisher and Cox 2010; Fisher and Meredith 2012) emphasizing the masculine appeal of the hero and his ability to handle whatever circumstances he is faced with. Handsome, strong, masculine, energetic romance heroes reflect female preferences for males of good genetic quality who will be good protectors and providers.

Some aspects of pornography and romance are still under-researched, including MILFs or incest in pornography and the fan-produced genre of slash fiction, including cross-cultural differences in story tropes (Salmon and Fisher 2018).

HEROES AND VILLAINS: OUR LOVE AFFAIR WITH FILM

Evolutionary approaches to the analysis of film have cast a wide net, targeting action heroes, anti-heroes, villains and monsters, as well as their emotional impact on the audience (Grodal 2007, 2009; Schwab and Schwender 2010). Several researchers have suggested that the media is a type of virtual playground where people can "practice" skills needed for real life interactions and gain knowledge about interpersonal relationships and the emotions that go along with

social life (Tooby and Cosmides 2001; Schwab and Schwender 2010). In this way, film and other media forms can allow us to experience a wide range of emotional narratives, ones that reflect essential human problems such as mating and social conflict, and to learn from them without having the actual experiences. And we react to the content of the media we consume based on our evolved emotional framework. As a result, Grodal (2007) argues that we are captivated not only by tales that evoke pleasurable emotions, but also by ones that evoke negative ones including sadness, disgust, and fear.

Sturman (2012) and Jonason, Webster, Schmitt, Li, and Crysel (2012) focus on the cinematic portrayal of the action hero. Sturman draws a distinction between the classic action hero and the modern hero. The classic hero, the strong leading man of the 1920s through the 1960s who was both a fighter and a lover, was a man with intersexual and intrasexual advantages, winning the war and getting the girl. James Bond is a prime example. It is not surprising that such movies appealed to male and female audiences as they combined action and romance. However, the modern action hero, described as cold and detached, with some almost psychopathic inclinations, includes Dirty Harry, John Rambo, and the Terminator. Accomplished in intrasexual competition, they are ruthless and successful at crushing the opposition. But the fitness benefits, such as getting the girl, seem to have faded from the picture, perhaps accounting for some of the shift from mass appeal to a more male audience who can be more easily captivated by the competition itself. It must be noted, however, that some of these modern action heroes are given tragic backstories with a hope for redemption, somewhat like the cad to dad shift seen in some romance novels (Fisher and Cox 2010), which often appeals to the female audience.

Jonason, Webster, Schmitt, Li, and Crysel (2012) focus their interest on the popularity of the antihero, similar in many ways to the modern action hero described by Sturman. Here the antihero is a pop-culture manifestation of fast-life history strategy and dark triad personality traits which include narcissism, psychopathy, and Machiavellianism. These are the bad boys of popular film and television, from Batman to Dexter. These antiheroes are typically characterized by relatively fast-life history. Bruce Wayne/Batman experienced the early loss of his parents to violence and his adult behavior is characterized as aggressive, antisocial, and entitled. Blood splatter analyst Dexter is portrayed as a psychopathic killer, but an antihero nonetheless. Based on his dad's code, he only kills those that deserve it. The effects of his actions on his "group," or society, are positive as he ends the careers (and lives) of murderers, never the innocent. Based on the knowledge-acquisition/problem-solving view of art, the antihero could be popular because people with dark triad traits are out there in our everyday world, and understanding them can only help us in our dealings with them. But the typical popular-culture antiheros, while not the nicest characters, take actions that benefit others, whether that benefit is to their families, in the case of Michael Corleone in *The Godfather*, or the larger community in the case of Dexter. Of course, in the real world, dark triad traits often impose substantial costs on society, which is why the movie and television antiheroes have to do some good, otherwise they would just be psychopathic villains (like Anton Chigurh in *No Country for Old Men*), and not nearly as appealing to female viewers as characters like Dexter.

Kjeldgaard-Christiansen (2017) also approaches the analysis of the antihero, highlighting Walter White from the TV series *Breaking Bad*. But here the focus is on our moral psychology and the appeal of morally ambiguous characters, an appeal more likely to be found in adults, as the cognitive flexibility of children is more limited. As such, their fiction tends to lack such ambiguity in morality. But for adults, conflicted characters and their motivations reflect the conflicts that play out in moral domains in the real

world and as such are often fascinating in that they emphasize social agency and the complications it entails.

Kjeldgaard-Christiansen (2016) targets the motivations and traits of the popular culture villain as well, through a narrative analysis and an evolutionary lens. He suggests that an evolutionary perspective predicts the most powerful villains to be selfish, exploitative, and sadistic. They are the exact opposite of the traditional prosocial heroes. Because we are a group-living species, we have evolved adaptations to make cooperation possible, including ones to prevent exploitation by free riders and antisocial agents. Evil is often portrayed as antisocial in popular culture. Kjeldgaard-Christiansen provides five predictions about the universal nature of the popular culture villain and provides supportive evidence in the form of a number of examples, ranging from the villain using people as a means to an end, like Anton Chigurh in *No Country for Old Men*, to phenotypic indicators that the villain is not part of the social contract group, such as foreign accents à la Hans Gruber in *Die Hard*. Another area ripe for further evolutionarily minded study of the antihero is professional wrestling, which is discussed later, though not with regard to this specific topic. But the rise of the antihero in professional wrestling since the 1980s and the role of wrestling as a morality play have been explored from a masculine melodrama perspective (Jenkins 2005), though not an evolutionary one.

HORROR AND DANGER MANAGEMENT

The horror genre is quite successful in both fiction and film. The top grossing horror film of all time is *It*, based on the novel by Stephen King, featuring a murderous clown, grossing over $700 million in 2017 (BoxOfficeMojo.com). Yet questions are often raised about the origins of this genre's appeal. Clasen (2012, 2017) takes a biocultural approach that integrates evolved psychology with cultural contexts as a counter to the usual constructivist approach (Skal 2001). Clasen suggests that human psychology, adapted to manage dangers, has shaped the features of horror stories. Humans evolved in an environment filled with danger from predators, pathogens, and conspecifics. The cognitive adaptations that we have for detecting and managing dangers are the same adaptations that make horror films both frightening and fascinating. The monsters of horror "are usually supercharged predators with counterintuitive traits, well designed to capture and hold our attention" (Clasen 2012). Our fascination with such monsters is likely the product of the adaptive inclination to attend to dangerous features of the environment and to acquire as much knowledge as possible about them in a non-direct fashion so as to learn how to deal with them, similar to the role that rough-and-tumble play has as training for adult physical conflicts. In this sense, consuming horror allows for problem solving without the risk of real antagonistic interactions.

However, monsters are not the only significant characters in horror. Female protagonists as action heroes are frequent enough to have their own term—the "Final Girl" (Clover 2015). Females also frequently appear as the antagonists. King (2015) offers a thematic analysis of female characters in horror, concentrating on life history theory and the major transitions that women experience (e.g., puberty, mate selection, motherhood, and menopause). Life history theory specifies the factors that guide the allocation of resources by organisms across the life span between individual survival—or somatic effort—and reproduction. At any one point in time, resources may be allocated mostly to one or the other (survival for example being a pre-pubertal focus) or distributed more equitably. Life history strategies are usually envisioned as being positioned along a single dimension from fast to slow. Fast life history strategies give priority to reproductive effort over somatic effort and mating opportunities over parenting, while slow life history strategies are predominantly channeling resources to somatic over reproductive effort

and parenting over mating (Figueredo, Vasquez, Brumbach, and Schneider 2007). King's (2015) thematic analysis illustrates a typology of four female horror archetypes across cultures that correspond to these life history transitions, indicating a consistent underlying awareness that makes these archetypes psychologically resonant. One such archetype is the scary young girl, which evokes themes of puberty, blood, predatory males, and possession/character change. The lead character in *Carrie*, as well as Regan from *The Exorcist*, are classic examples. There are also the sexual predators. Examples of the heterosexual dangerous predator include Catherine Trammell (played famously by Sharon Stone) in *Basic Instinct* and Alex Forrest in *Fatal Attraction*. Motherhood in horror can include themes of maternal possession by evil or vengeance on those who threaten their offspring. The possessed mother can be seen in *The Omen* and *Rosemary's Baby*. The vengeful, protective mother appears as the Alien Queen in the *Aliens* series of films and the Borg Queen in *Star Trek*. The cross-cultural popularity of this genre and the recurrent appearance of these archetypes suggests that popular culture products are best understood as the products of our evolved psychology and that their themes are best understood in light of the problems humans have faced (survival, mating, parenting) over evolutionary history. Horror films and stories reflect and exploit our emotional reactions to these challenges and the threats they pose. In light of this, further study of the cross-cultural nature of male monster archetypes, in particular, seems warranted.

MALE-MALE COMPETITION: PRO-WRESTLING, MMA, AND VIDEO GAMES

Professional wrestling, Mixed Martial Arts (MMA), and video games are all aspects of popular culture that have larger male than female audiences. The majority of evolutionarily minded scholars have focused on the role of male–male competition, whether solo or coalitional, in the appeal of these forms. Oxford, Ponzi, and Geary (2010) examined the appeal of violent multiplayer video games as a simulation of the male–male coalitional competition that has characterized much of male in-group/out-group competition (Wrangham 1999; McDonald, Navarrete and Van Vugt 2012). Oxford and colleagues tested men's competitive testosterone response to playing violent video games and found that within-group and between-group game scenarios influenced competitive testosterone response such that it was muted during in-group when compared to out-group scenarios. This suggests that violent multiplayer games may be appealing because they simulate male–male coalitional competition, activating our evolved motivation for competition, as well as providing practice in strategizing about such conflicts.

Similarly, Gottschall's (2015) account of MMA fighting highlights male–male competition, though mostly individual rather than group competition. He points out that the rapid rise of MMA in America may reflect a basic aspect of male psychology that is focused on proving one's strength of body and mind, as well as competition for status. He also touches on group alliances with an account of regional pro-wrestling that highlights the kind of matches where the good guys are the local boys and their evil enemies are from out of town. Such conflicts also tap into coalitional psychology, the local male audience actively supporting "their boys" and derogating the outsiders. The World Wrestling Federation took advantage of this sort of psychological appeal during the cold war era with epic feuds between wrestlers like Ivan Koloff and Bruno Sammartino (who had an incredible New York hometown following). One of the takeaways of Gottschall's book is that in the modern world there are not that many ways for men to be men, to engage in duels or socially sanctioned violence intended to give an outlet to some of our more aggressive impulses in male–male status and dominance contests. As a result, men not only enjoy training for sports like MMA but they also like to

watch this sanctioned male-on-male violence, whether it's in the Octagon, boxing, or the scripted performance of violence seen in the pro-wrestling ring. In fact, some studies have demonstrated that fans of sports teams experience elevated testosterone when their team wins (Bernhardt et al. 1998).

Salmon (2012b, 2016) further explains the appeal of pro-wrestling not only to a male audience but also to the 25% or more of its audience that is female. This is done through an examination of the storylines and their evolutionary themes such as the male competition for status through both dominance and prestige that Gottschall (2015) elaborated on. The stories also contain themes of mate choice, justice, morality, cheater detection, and kinship (both solidarity and rivalry). Brotherly love and hate, for example, are recurrent themes with very successful storylines in the WWF/WWE (World Wrestling Federation/World Wrestling Entertainment) revolving around serious rivalries between brothers, such as Bret and Owen Hart, or the Undertaker and Kane. Yet despite their vicious matches, when an outside threat appears, as during the Hart Foundation/Degeneration-X Canada/United States feud, that hate-filled rivalry was forgotten and the Hart family became inseparable. Sex differences occur in the appeal of certain wrestlers as the product of female mate choice preferences (Salmon, 2012). It's not just an attractive face that appeals to the female wrestling fan but also the physically imposing protector, especially when he comes with a damaged hero backstory like The Undertaker or has a witty sense of humor like The Rock, as discussed in Salmon and Clerc's (2005) review of female wrestling fans.

COMIC BOOKS AND SUPERHEROES

Like pro-wrestling, comic books are highly popular and contain larger-than-life characters. They are a textual and visual genre that have long appealed to young boys in the West, as well as to young boys and girls as manga in the East. Due to their broad appeal across gender and culture, they are ripe for evolutionary analysis. Boyd (2010) has suggested that comics enjoy such wide appeal because of their visual nature, as well as their storytelling ability. Despite this, there have been relatively few articles taking advantage of an evolutionary perspective to analyze comics. One could explore the way both male and female characters are portrayed or the common themes that run through their storylines. One could also compare comics in terms of cross-cultural variations or commonalities with regard to images of males and females or thematic content. One could also examine comics aimed at a male or female audience in light of evolved psychological sex differences. There is an abundance of visual and written content to be examined.

Ingalls (2012) approached this tangentially in her study of sex differences in the creation of fictional heroes. Specifically, she focused on female heroes and superheroes in popular culture. Her hypothesis revolved around the creators of the characters, theorizing that female heroes created by males would be more physically powerful than those created by females. In addition, she suggested that their primary goals should differ, with female-created heroes having more of a family focus. The evidence presented provided support for her hypothesis, with major television female superheroes from *Buffy the Vampire Slayer*, *Xena: Warrior Princess*, *Wonder Woman*, and *The Bionic Woman*, each one being created by men and having superhero-enhanced strength, reflexes, or artifacts. In fact, men have created the majority of powerful female heroes in television and comics. Rowling's *Harry Potter* series of books and movies, female-authored, full of witches and conflicts between good and evil, tends not to portray its heroes as superheroes, and focuses as much on cunning, intelligence, and goodness to achieve victory as opposed to sheer power. The female-created *Sailor Moon* manga and anime concerns five girls who all have their own powers but win by working together; rather different from the

individual power focus of female heroes created by males, or male superheroes created by men such as Batman, Superman, and Captain America. The female-created female superheroes are family- and group-cooperation-focused in terms of where their power lies, while male-created female superheroes seem to be shaped by a male psychology focused on having and displaying individual power.

Other studies have examined the role of the superhero in comics as agents of prosocial behavior and culture. Carney and colleagues (Carney, Dunbar, Machin, David-Barrett, and Junior 2014) suggested that, in the service of maintaining sociality or enforcing a moral code, superheroes should exhibit the following features: punitive prosociality, be supernatural or quasi-supernatural, be minimally counterintuitive, and display kin cues. They tested these predictions with 17 superheroes from a number of comic publishers, including DC and Marvel. Their predictions were largely confirmed. Carney and Mac Carron (2017) tested this further, developing a sample of 19,877 characters from a wide range of comic universes and again found support for the prosocial agency approach.

CELEBRITY CONNECTIONS: POP CULTURE AND OUR SOCIAL LIVES

The amount of attention and emotional investment individuals spend on people they have never interacted with in the flesh raises some interesting questions. These attachments are referred to as *parasocial attachments* (non-reciprocated attachments to familiar others that we do not have in-the-flesh relationships with). Why do humans develop such attachments? And do such attachments have positive consequences, or do they result in some sort of dysfunction? Several evolutionarily informed studies explore these questions. Kanazawa (2002) examined claims that Americans are socially disengaged because they spend too much time watching television. Based on mismatch theory (Tooby and Cosmides 1990; Salmon, Crawford, Dane, and Zuberbier 2008), Kanazawa predicted that, because the human brain can have difficulty in comprehending products and circumstances not present for most of our evolutionary history, people who watch more television might feel as though they have more friends and be more satisfied with the state of their social lives. Indeed, based on data from the US General Social Survey, Kanazawa found that watching relatively more prime-time dramas and situation comedies (which are often relationship- and family-focused) was associated with being more satisfied with their friendships for female participants. The pattern was basically the same as that for real friendships where the number and amount of socializing also increased participant satisfaction with friendships.

Stever (2017) recognized that before the rise of mass media, forming attachments would have only happened with those proximal to us, suggesting that with our current popular culture, parasocial attachments to celebrities are likely due to repeated exposure via visual media such as television, film, and the Internet. Is this functional or dysfunctional? Stever's response, based on over 20 years of participant observer data, is that in the majority of cases it is not dysfunctional. Rather, it is the harmless natural product of a psychology designed to form attachments to those we have frequent contact with (or exposure to, in the case of celebrities). De Backer (2012) examined the study of celebrity culture and fandom, in particular the emotional attachment that other researchers have addressed as well as the importance of the visual nature of this connection and mismatch theory. She argued that the parasocial bonds that may form between the audience and celebrities, or characters for that matter, are created most strongly in the presence of visual cues (provided via television and film), which allows them to be integrated into our social networks.

Social networks, too, have come under an evolutionary lens. Many people have raised concerns about compulsive checking of e-mail,

Facebook, and Twitter, and that this may result in less time and effort spent on real-world socializing. Social media clearly has broad impacts from keeping in touch with family and friends to online dating to sparking political movements (Arab Spring, for example) around the world. Why are people so attached to their social media, and should we be concerned? Crosier, Webster, and Dillon (2012) raise these questions and address them in light of our psychological adaptations for social living, pointing out that humans have evolved to pursue social connections and continue to do so with the new tools that technology has provided. However, surprisingly little research attention has been paid to examining differences between online and offline social networks in terms of their basic nature or their positive/negative effects. This is a little puzzling considering the attention given to the role of social media in adolescent bullying and evolutionarily minded research on bullying more generally (Best, Manktelow, and Taylor 2014; Volk, Dane and Marini 2014). Examining differences between online and offline communication with regards to the role played by anonymity in some forms versus the visibility of identity in others (Facebook posts certainly have come back to haunt people during job interviews or more broadly) is one area likely to benefit from an appreciation of the type of social environments we evolved in and the particular problems we needed to solve in order to be socially successful.

CHALLENGES AND FUTURE DIRECTIONS FOR THE EVOLUTIONARY STUDY OF POPULAR CULTURE

The study of popular culture from an evolutionary perspective is still in its infancy but a body of work is starting to develop. One of the challenges it will face is similar to that of the field of Darwinian literary analysis. There are some non-trivial barriers to getting those already in the popular culture studies field to get on board with evolutionary theory as an analytic tool (Carroll et al. 2017), as many in the humanities may shy away from scientific explanations of human nature in the first place. But for those willing to take a chance on a different theoretical approach, evolutionary popular culture studies will have a chance to increase our understanding and appreciation for the way popular culture is shaped by essential aspects of our evolved psychology.

Another challenge that this area of study faces is its breadth in terms of all the various "things" that constitute popular culture. It's not just literature or film or art. It's also music and music videos, news, television shows, video games, comics and graphic novels, social media, as well as sports, politics, fashion, and much more. Individuals that study these disparate forms often speak very different languages, have different approaches, and publish and present in different venues. The challenge and the payoff is consilience, to unite them all under the language of one umbrella, biocultural theory.

Evolutionarily informed scholarship on popular culture can be compatible with non-evolutionary work in the area. For example, a number of non-evolutionary studies are simply examining the topic of interest at a different level of explanation, often a more proximal one than some evolutionary studies will take. But what this means is that the integration of the findings of both types of studies will go further than either one in explaining the phenomenon under investigation. For example, the finding that rap/hip hop and rock music contain lyrics with messages of rebellion and impulsiveness (Knobloch-Westerwick, Musto, and Shaw 2008) fits well into evolutionary predictions about the factors that influence young males. Evolutionarily minded research on young males highlights increased risk taking as a result of sexual selection and sex differences in variability in reproductive success (Wilson and Daly 1997; Zuckerman and Kuhlman 2000). Rebellion and impulsiveness facilitate risk-taking and it should be no surprise that young males are the biggest consumer segment for such types

of music. Can other music preferences be predicted on the basis of variables like life history strategy? And do changes in music preferences over time reflect strategies involving different allocations of effort and resources?

The longstanding debate over whether the arts, their creation or consumption, are an adaptation or a by-product (the previously mentioned metaphorical cheesecake) continues with scholars present on both sides of the discussion. One view holds the arts (including most of popular culture) as a by-product of our ancestral psychological mechanisms that activate in response to the vicarious experiences and modern media cues with the same pleasurable response that they did to the original input. The other perspective holds the arts to be adaptive, for example by helping with problem solving and social and cultural learning (Tooby and Cosmides 2001; Carroll et al. 2017). Conclusive evidence, however, seems somewhat elusive so far.

One criticism that is sometimes directed toward an evolutionary approach is that it is engaged in just-so storytelling. A behavior is reported and a story about its ancestral origins is told. While more sophisticated versions of such reverse-engineering take place, the key to taking an evolutionary approach is to use existing theories to develop hypotheses and test them through various methods and types of data. If the different methods and data types reveal similar evidence in support of the hypotheses, the hypotheses may be confirmed. But they may also be disconfirmed. The point is that hypotheses need to be testable. One example of this is Carney and colleagues' work on prosociality and comic book heroes. Another example is the work by Kruger, Fisher, and Jobling (2003, 2005) on male and female mating strategies as assessed via survey and through British romantic literature. The key to the utility of a theoretical perspective is the question of whether it generates new knowledge through hypothesis testing—and evidence to date suggests that an evolutionary perspective does just that.

So the future of evolutionary popular culture studies is wide open with many opportunities for intrepid scholars. Some areas that are particularly ripe for study include music videos and songs, as well as video games along with most aspects of modern technology that are applied to entertainment as well as communication more generally, such as social media. Comic books and superheroes are one area that is experiencing a surge in popularity along with the rise of Marvel Studios. The top 25 grossing films since 2010 include seven Marvel films (*The Avengers, Avengers: Age of Ultron, Avengers: Infinity War, Captain America: Civil War, Iron Man 3, Guardians of the Galaxy Vol. 2*, and *Deadpool*) as well as two DC films (*Wonder Woman* and *The Dark Knight Rises*). There are so many opportunities for analysis of comic and film superheroes and their stories including comparing those aimed at male and female audiences, their depictions of masculine and feminine ideals, the social conflicts and relationships, all just waiting for someone to wade in on the side of human nature. There is much more work to be done.

Much of the work in this area has been qualitative in nature, which also may lend itself more to some of the popular culture scholars who have less experience with quantitative methods. It is also common during preliminary exploration-focused work. But as this field develops, one would hope for more quantitative work as well, which points the way to an additional opportunity. Scholars with backgrounds in popular culture studies and evolutionary psychologists and anthropologists need not only to communicate more but also to work together. While this article has been focused on using evolutionary approaches to inform the study of popular culture, popular culture can also be used to inform our understanding of human psychology. Unusual and unexpected pop culture phenomena can sometimes be the exception that proves the rule, as Salmon and Symons (2001) suggest about slash fiction. At first glance, one might say, "How odd that is."

But a deeper exploration can reveal the essential aspects of human nature that underlie some very different manifestations of pop culture. And that will provide pay-offs for everyone involved in the complementary goals of understanding the roots of our human nature and the appeal and form of popular culture.

CONCLUSIONS

Much like the field of evolutionary literary theory that has come before it, evolutionary popular culture studies is introducing a biocultural approach to topics that many of those outside of popular culture rarely think to examine in a scientific way. But it is an approach that is starting to bear fruit with an increasing number of published articles and books. Yet there is much untapped potential material out there that will hopefully be the target of scholars—both new and experienced—with an interest in improving our ability to understand the psychology behind the rise of various aspects of popular culture. Evolutionary perspectives have been highly illuminating to the study of psychology, anthropology, politics, law, economics, criminology, literary theory, business, and marketing. Now it's popular culture's turn.

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