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**From Blood Feuds to Civility:
Romeo and Juliet and the
Changing Evolutionary Role of Cultural Traditions**

Ryan O. Begley, Kathryn Coe, and Craig T. Palmer

Abstract

Evidence from ethnographic and historical records suggests that blood feuds have been a common aspect of human existence. Conventional evolutionary explanations have seen them as examples of nepotism and kin solidarity explainable by kin selection. However, the same records also reveal certain aspects of blood feuds for which kin selection alone cannot account. Examples include traditional rules and practices regulating blood feuds and the tendency of blood feuds to decrease in state-level social organizations – where some overarching political entity brings into close and persistent contact, within state boundaries, multiple categories of individuals with differing ancestry. Hence a universal challenge in the formation and persistence of states is to persuade individuals to cooperate with non-kin. Tactics often include a combination of deemphasizing kinship while emphasizing forms of fictive kinship among “fellow citizens” of the state. Essential to this goal is the suppression of traditional forms of justice – especially blood feuds – that threaten state cohesion. It is within this context that the events in Shakespeare’s *Romeo and Juliet* unfold. While the story of “star-cross’d lovers” is attractive, great historical significance can be found in the blood feud that drives the tragedy. A full understanding of *Romeo and Juliet* requires its placement within the framework of this fundamental shift in human history from traditional kinship behavior and social organization to the civility of modern nation-states.

Introduction

Critics have long and rightly treated Shakespeare’s *Romeo and Juliet* as a tragic story of “star-cross’d lovers” (1.0.5) and there is a wealth of evolutionary psychology literature on such topics as romantic love and sexuality that can shed great light on this aspect of the play (see Buss, 2003).¹ A significantly smaller portion of its criticism, however, focuses on the feud central to its plot. Among the minority was 18th century Shakespearian editor Nicholas Rowe, who concluded that “The Design in *Romeo and Juliet*, is plainly the Punishment of their two Families, for the unreasonable Feuds and Animosities that had been so long kept up between ‘em, and occasion’d the Effusion of so much Blood” (1948[1709], p. XXXI). More recently, Glenn Clark examined the roles of civility and social order within the play. We expand on these perspectives, placing the play in a larger evolutionary and anthropological framework through focusing on the prevalence of blood feuds in traditional, kinship-based social environ-

ments and the struggle of nation-states to prevent such feuds from disrupting the newer, civil fabric of society.

According to ethnographic and historical evidence, “[blood] revenge, or blood feud, which is defined as the expectation of retaliatory violence, following a murder, against the offender or the offender’s kin,” has been a common aspect of human existence (Nivette, 2011, p. 8; see Otterbein, K. F. & Otterbein, C. S., 1965). Evolutionary explanations of blood feuds tend to see them as “example[s] of kin solidarity” conforming to predictions of kin selection (Daly & Wilson, 1982, p. 375; see also Chagnon, 1988). However, ethnographic and historical records also reveal aspects of blood feuds for which conventional evolutionary explanations, including kin selection, cannot account. Such aspects include the existence of traditional rules and practices – passed from ancestor to descendant, from one generation to the next, often for many generations – governing blood feuds and the fact blood feuds often envelop a greater number of kin with coefficients of relatedness lower than conventional evolutionary explanations predict are the extent and limit of significant kinship.

Significantly – and crucial to contextualizing Shakespeare’s play – conventional evolutionary explanations cannot explain the tendency of blood feuds to decrease in states, where some overarching political entity brings into close and persistent contact multiple peoples within state boundaries. A universal challenge in the formation and persistence of states is to persuade individuals to cooperate with non-kin, typically through a combination of deemphasizing kinship and emphasizing forms of fictive kinship among “fellow citizens” of the state. Essential to this goal is the suppression of traditional forms of justice that threaten the cohesion of the state – especially blood feuds. We argue that a full understanding of *Romeo and Juliet* must situate it within the context of a shift from traditional kinship behavior and social organization based upon the influence of common ancestors to the nontraditional influence of non-kin encouraging the civility and citizenship crucial to the formation and persistence of modern nation-states.

Blood Feuds and Cultural Traditions

Contrary to earlier claims (see Otterbein & Otterbein, 1965), Daly and Wilson (1982) convincingly demonstrate that blood feuds were a part of life in most, if not all, traditional social environments of ethnographic record, noting its cross-cultural variability and possible function:

The phenomenon of collaborative homicide perpetrated by close relatives will be familiar to many cultural anthropologists, especially in the context of feuds between rival lineages. According to Given, “although the formal, institutionalized blood feud had ceased to be a feature of English society by the 13th century, kinsmen on occasion still exacted revenge for the death of one of their relatives”...[Given, 1977, p. 44]. A perusal of ethnographic sources suggests that blood revenge is extremely widespread, although the detailed prescriptions of the duties of the victim’s relatives vary cross-culturally ... There could hardly be a more dramatic example of kin solidarity than the sacred obligation of vengeance.

By their deterrent force a man's kin are his security against mistreatment by the hostile world of nonrelatives. (p. 375; see Given, 1977)

Though Daly and Wilson emphasize the compatibility of the kinship basis of blood feuds with kin selection, crucially, this passage also highlights aspects of blood feuds for which kin selection, alone, cannot account: the cultural traditions (“prescriptions...duties...obligation”) and the historical attempts of nation-states (e.g., England – “English society”) to suppress them – to which we add the ethnographic detail that blood feuds often involve large numbers of kin far more distantly related than is explainable by kin selection ($r = .125$; e.g., first cousins).

Although kin selection may have led to the evolution of psychological mechanisms influencing individuals to support very close kin, an evolutionary analysis must also incorporate and account for various “cultural forms” of kinship and kinship behavior (Carroll, 1995, p. 150; Jobling, 2001, p. 29), including rules and practices regarding blood revenge/feud behavior. That is, conventional evolutionary explanations of blood revenge might be able to account for aspects of the behavior by positing selection for the emotions or other psychological mechanisms that blood revenge entails, but are insufficient to explain other aspects of the behavior, such as the existence of cultural traditions regulating these mechanisms – the rules prescribing and proscribing blood revenge/feud and other kinship behaviors that have been handed down from ancestor to descendant through the generations.

For example, selection for psychological mechanisms engendering nepotism cannot alone account for Christopher Boehm's (1984) finding that when a killing occurs the “retaliatory action is regulated by custom” (p. 196), or that “the motivation to take blood was...developed primarily through informal means of socialization” (p. 63). Such mechanisms are insufficient to explain, as another example, the Leopold von Schrenck (1854) observation that among the Gilyak: “Carrying out blood revenge is in part made easier and in part more difficult for the individual because it is not restricted to those who directly participated in the act of bloodshed, but also more or less involves their relatives and imposes certain obligations on them” (p. 1067). The ethnographic record reveals that such obligations often – if not universally – include who is to revenge whom and against whom. Further, the ethnographic record is many and widespread with examples of traditions that prescribe kinspersons to protect one another from retaliation – extending blood revenge/feud horizontally and vertically – as well as traditions that proscribe limitations on blood revenge/feud behavior (e.g., *lex talionis*) in an apparent effort to prevent escalation. Such traditions occur neither automatically nor as simply the result of psychological mechanisms influencing individuals to favor close kin – rather, their existence requires culture (copied behavior) and traditions (copied behavior from ancestors). In other words, descendants such as those in the descriptions above socially learn from their ancestors' rules and practices that create, sustain and spread (downward and outward) kinship and regulate proper and improper kinship behavior, including blood revenge/feud behavior.² Such evidence demands explanation.

The Descendant-Leaving Strategy (DLS) Hypothesis holds that traditions are a means by which ancestors can influence the behavior of living and future generations of de-

scendants; the long-term effect of this influence is that those traditions that promoted the leaving of descendants in the past tended to persist and increase in frequency among descendants of those ancestors in succeeding generations (Steadman & Palmer, 2008). Briefly put, the DLS Hypothesis argues that the tradition of passing descent names, in combination with the prescription exhorting descendants to be kind to all kin identifiable by that descent name, functions to extend kinship and kinship behavior far beyond the range of kin explainable by kin selection (see Coe et al., 2010; Palmer & Steadman, 1997). Moreover, the transmission of patrilineal descent names requires marriage, which in turn dramatically increases the number of individuals offspring recognize as kin (Chagnon, 1988; Palmer, Steadman & Coe, 2006). Robin Fox (1967) explains how these traditions enable “large lineages or clans...[to] grow up over time as the descendants of the original ancestor/ancestress” accumulate (p. 122). These traditions also account for why blood feuds and warfare often came to create allies out of kin far more distantly related than kin selection predicts (see Palmer & Steadman, 1997; Coe et al., 2010).

Recognition of the role of traditions in creating, sustaining, spreading, and regulating kinship behavior is not only necessary to explaining the existence of blood feuds, but also to explain the dramatic decrease of blood feuds in nation-states. Amy Nivette (2011) summarizes the findings of Daly and Wilson (1982) by stating: “They conclude that the prevalence of blood feuds does indeed vary across cultures, but maintain that feuding and revenge are cross-culturally universal in non-state societies” (p. 8). Many factors are undoubtedly responsible for cross-cultural variation in the frequency of blood feuds, but the stipulation that their universal occurrence is limited to “non-state societies” points to a fundamental – and perhaps universal – aspect of blood feuds: the attempt to suppress them in states.

States and the Suppression of Blood Feuds

The formation of states encapsulating multiple distinct categories of people considering themselves descendants of a common ancestor (e.g., tribes; ethnic groups; gens), but unrelated to other categories of people also living in the state, causes a fundamental change in the social environment, bringing individuals into close and sustained interaction with non-kin (Diamond, 2012). Thus, a universal challenge in the formation and persistence of state political structures, as Aristotle recognized, has been to persuade individuals to cooperate with non-kin (Arnhart, 1990; 1994). From examples such as the Code of Hammurabi in the earliest city-states to the efforts of many modern nation-states to prevent internal ethnic violence, states attempt to persuade individuals to treat non-kin as they treat actual kin (Diamond, 2008). Tactics often, if not universally, include a combination of deemphasizing the “axiom of kinship amity” forming the basis of human cooperation for tens of thousands of years, while emphasizing forms of political, often also religious, fictive kinship among all “fellow citizens” of the state (e.g., *patriotism*) (Fortes, 1969, p. 232). A major goal of this process is the cessation traditional forms of justice that threaten the cohesion of the state – especially blood feud – the opportunities for which increase within state boundaries, as contact with non-kin increases the opportunities for people to die at the hands of non-kin toward whom traditions of proscribing revenge with rules of reconciliation

and forgiveness do not apply. Thus reaching this goal requires a fundamental transformation of the traditions establishing and regulating kinship behavior.

One of the earliest examples of an attempt to prevent blood feuds through the modification of traditions is the aforementioned Code of Hammurabi, which brought together into one geographic area two unrelated categories of people: the Sumerians and the Semitics (Diamond, 1951). Michael McCullough (2008) describes how a similar process gradually took place in Western Europe, where “the governments...assumed more and more responsibility for social control, [and] offenders became responsible to the state, rather than to their victims, for their crimes” (p. 173). Trevor Dean (1997) describes that, in Italy, this change was a long, gradual, and difficult process:

No law denied the legitimacy of vendetta, it is said. The law sought only to limit it, to impose truces or to attempt pacifications. The law stopped at the family threshold, and the state conceded personal injury as a private affair. The inability of the city-states to enforce their laws led them not just to tolerate vendetta, but to recognize and sanction such ‘private justice’. This picture is generally thought to have been transformed during the fifteenth or the sixteenth century. Law began to have an effect in limiting revenge. (pp. 3-4)

George Howard (1918), describing the process in Western Europe, provides a similar description:

Long after it had ceased to be autonomous, and had become a subordinate member of a larger state, amenable to a wider peace, the clan hung tenaciously to its right of administering the blood feud...it was only after ages of struggle that the...peace of the tribal state, yielded to the King’s peace, still later to the peace of the democratic nation-state. To trace the evolution of peace through these successive forms is to follow the transition of the law of private wrong into the law of public crime. (p. 299)

Most relevant to Shakespeare’s writing of *Romeo and Juliet*, we return to the quote from James Given (1977), who writes that: “Although the formal, institutionalized blood feud had ceased to be a feature of English society by the thirteenth century, kinsmen on occasion still exacted revenge for the death of one of their relatives” (p. 73). This continuing threat of blood feuds throughout Europe led to further suppression by the state, which began defining crime “not in terms of an attack by one person on another, but...against the state” (Jobling, 2001, p. 34; Weisser, 1979, p. 100). Further, the “creation of more effective police forces” to control blood feuds was still occurring in Britain during the eighteenth and nineteenth centuries (Jobling, 2001). Thus, Shakespeare wrote *Romeo and Juliet* during this long period when states, including England, were continuing their struggle to subdue the tendency to engage in blood feud.

The transition from traditional social organization to that of the nation-state requires, as Aristotle recognized, a fundamental shift moving away from kinship traditions, particularly those concerning blood feuds, toward a political community which gives, as

Aeschylus made explicit in the *Oresteia*, the polis authority over the household (Arnhart, 1990; 1994). It is against this backdrop that we examine *Romeo and Juliet*.

The Consequences of Blood Feud in *Romeo and Juliet*

The Chorus immediately highlights the negative consequences of blood feud. Clark (2011) notes:

Romeo and Juliet opens with a perspective that prompts its audience to recognize the actions of the first scene as insubordinate defiance and, surprisingly, as civility...The pain through which Romeo, Juliet and others in Verona suffer will be a thing of the past, or the thing that allows the past to become a different present. In this sense the Prologue is also a story about the demise of civic violence in Verona. (pp. 284-285).

A “new mutiny” occurs in Verona, the result of an “ancient grudge” between two descent groups: the Montagues and the Capulets (1.0.3). The Chorus states that “civil blood makes civil hands unclean,” important in that, in nation-states, citizens are encouraged to treat each other as like kin, rather than to make distinctions between kin and non-kin. This ancestral blood feud will result in the death of each patriarch’s only offspring; hence, the descendant-leaving success of the original ancestor of each, the House of Montague and the House of Capulet, a measure of fitness, is diminished, and the lineages have possibly become extinct, or “heirless,” at the play’s conclusion (Utterback, 1973, p. 107). The “loins” of descent name bearers are “fatal,” indicating that ancestral Montague and Capulet, through encouraging their descendants to perpetuate the feud (its tradition), created the conditions that led to the demise of their own descendants. The suicides of Romeo and Juliet, along with the death of Tybalt, does indeed diminish, and perhaps extinguish these lines, and affects Verona in such a way that even its prince, Escalus, representative of the state, loses “a brace of kinsmen” (5.3.294). As he states at the play’s conclusion: “All are punish’d” (5.3.294). The perpetrators of the feud, in exhibiting the old traditions of proper kinship behavior (e.g., faithfully copying ancestral instructions) have a destructive effect on all Verona. Traditional behaviors and proper citizenry, in this play, are presented in near-dichotomous opposition: Romeo and Juliet, by behaving nontraditionally (not copying ancestral behavior), are at the same time practicing proper citizenry (not participating in the feud; taking actions to end it). Tybalt, by contrast, by behaving traditionally, practices improper citizenry, disrupting the streets of Verona and killing one of his fellow citizens, Mercutio, kinsman to the Prince (representative of the state). Had the characters in the play treated the Prince (their *king*) as their patriarch, obeying his rather than ancestral instructions, it would have prevented those deaths depicted in the play.³ The message Shakespeare appears to communicate to his audience is to abandon old kinship traditions (of favoring kin and hating one’s ancestral enemies) in favor of new state prescriptions of obeying one’s king and practicing proper citizenry (treating fellow citizens *kindly*) (Steadman & Palmer, 1997).⁴

In the houses of Montague and Capulet, *Romeo and Juliet* presents the older, kinship-based model of society, in which all members are encouraged to behave as kin toward members of their own house and as blood enemies toward members of the other. Such

traditions are antagonistic to the state, which, by contrast, encourages *kind* (kinship-like) behavior toward non-kin through use of a city name, in this case, Verona, as well as through use of the words “civil” (“Of or relating to citizens or people who live together in a community”) and “citizen” (“An inhabitant of a city or...of a town”) (*Oxford English Dictionary*). Clark raises the question of civility in the play – of “whose ‘blood’ is civil, and which ‘hands’ are civil” (287). Of the possibilities Clark explores, we find that civility refers not to aristocratic manners, nor a mockery of the lack of such qualities among them, but to a “link between civility and shared urban space and citizenship” (p. 292). Clark continues:

Their [the citizens’] cooperation, presumably facilitated by their shared residence in the city, their shared interest in peaceful and usable streets and their conversations about those issues, is illuminated by contrast with the feuding magnate houses...Paster explains that “citizenship in the fullest sense means...a shared civility” in which civility implies the fellowship of city-dwellers. (p. 292; see also Paster 1985)

The Prologue invites the audience, with the benefit of foresight, to see the rival families as fellow citizens of Verona, even if the rival families do not consider themselves so; it is their “blood” and the “blood” of their fellow citizens that is civil, but it is only the feuding “hands” that are “unclean.” This ancient grudge between the houses threatens the fairness of Verona; that is, this particular tradition threatens the stability of the city and the well-being its citizens – should the members of each house treat the other’s members as fellow citizens, rather than enemies, all would be well in Verona. The tradition of blood feud has become harmful to the Montagues and Capulets, who, living in a state (which suppresses blood feuds and nepotism), would do better to abandon the feud, the consequences of which are death – even at the cost of denying their respective descent names – abandoning their affiliation with their respective houses in favor of a new practice in which the king supplants the father and citizenry supplants kinship. Stories provide a safe and memorable way for audiences to vicariously experience the consequences of particular behaviors; in *Romeo and Juliet*, the audience is shown through the behavior of the characters the negative consequences of blood feuds and the benefits of forgiving, and even loving, one’s enemies (see Steadman & Palmer, 1997; 2008; see also Scalise Sugiyama, 2001; 2005).

“What’s in a name?”

Juliet correctly concludes: “So Romeo would, were he not Romeo call’d, / Retain that dear perfection which he owes / Without that title” (2.2.45-47). Romeo’s first name is indeed arbitrary. However, his surname, like all descent names, serves an evolutionary function: a device by which co-descendants of a common ancestor recognize one another. Far from arbitrary is that Romeo’s hand, foot, arm, face or “any other part / Belonging to a man” would not exist save for the behavior of his ancestors, from whom he inherited the name “Montague” (2.2.41-42). Not a part of the body descent names are certainly phenotypic, as is all behavior, cultural or otherwise (see Dawkins, 1982). In distinguishing between kin and non-kin, those called Montague follow ancestral instructions to cooperate with others called, linked through birth to, or born of the house of Montague, and the same holds true for those called Capulet, and traditional-

ly, for those of all descent names. It is through obeying ancestral instructions (usually passed from parent to offspring) that every co-descendant by that name came to be. So, when Romeo and Juliet communicate a willingness to abandon their descent names, they are behaving nontraditionally, disobeying their parents (and ancestors), and exhibiting improper kinship by destroying their means of identifying kin, forgoing all future cooperation with all bearers of their respective names:

Juliet. O Romeo, Romeo, wherefore art thou Romeo?

Deny thy father and refuse thy name.

Or if thou wilt not, be but sworn my love,

And I'll no longer be a Capulet.

Art thou not Romeo, and a Montague?

Romeo. Neither, fair maid, if either thee dislike. (2.2. 33-35, 60-61)

Indeed, their names kept, we see filial disobedience on the part of Juliet and willingness in Romeo. By contrast, Tybalt obeys his uncle Capulet. Upon spying Romeo at the Capulet feast, Tybalt determines to confront him, though Capulet – like Montague bound by royal decree to keep the peace – intervenes, asking, then commanding his nephew to “be patient” and not to disturb the feast (1.5.70). Albeit begrudgingly, Tybalt nevertheless obeys, waiting until morning to send a challenge to Romeo, thereby following the ancestral instruction to hate all Montagues.

“*[They fight.]*”

One of the means by which Shakespeare demonstrates the consequences the feud is through the juxtaposition of noticeably similar characters in similar situations behaving in noticeably dissimilar ways with respect to the feud, unambiguously illustrating for the audience which behaviors led (and lead) to which consequences and allowing the audience to imagine alternative outcomes. Tybalt’s behavior is presented as an alternative to that of Romeo’s; the former speaks of hate and the latter of love. The play opens with a potential quarrel made definite upon Tybalt’s arrival, when he perpetuates the feud by attacking the Montague Benvolio (whose sword is drawn in an attempt to part the fighting servants), asking: “What, drawn and talk of peace? I hate the word, / As I hate hell, all Montagues, and thee” (1.1.67-68). By contrast, Romeo startles upon sight of blood from the fight before noting its senselessness (in a foreshadowing the Prince’s ironic assessment of the feud in the final scene):

O me! What fray was here?

Yet tell me not, for I have heard it all.

Here’s much to do with hate, but more with love.

Why then, O brawling love, O loving hate,

O anything of nothing first create! (1.1.171-175)

These contrasting attitudes toward the feud (“O me!”; “Have at thee”) later clash when Romeo refuses to answer Tybalt’s insult. Consistent with the play’s aim of promoting the civil model of society, it is a nonrelative, Mercutio, who defends Romeo by provoking Tybalt. Mercutio is kinsman to the Prince, and like the Prince, is representative of the state, and thus the state model of replacing proper kinship behavior

with proper citizenry and ancestral traditions with state decree. Mercutio, in defending Romeo (whom Mercutio presumes is not up to the task of defeating Tybalt), exhibits proper citizenship in protecting another citizen (a friend rather than a kinsman) from danger. Though Tybalt challenges Romeo and calls him a “villain” (3.1.115), Romeo refuses to fight on the grounds that (unbeknownst to Tybalt) they have become in-laws, or like a “cousin” to one another, a response suggestive of the traditional model (5.3.101). Watson suggests a newer tradition, stating that Romeo, in addition to being newly in-law to Tybalt, is behaving as a proper Christian when, by refusing to fight, he “turns the other cheek” (quoted in Utterback, 1973, p. 110), and though Romeo does blaspheme and, angered, kills Tybalt, Watson’s reading is not inconsistent with viewing Romeo and Juliet’s marriage in the new tradition of proper citizenry, each having forgiven (or ignored) ancient feuds (traditions) and treating each other’s house kindly (as fellow citizens), all of which is compatible with the Christian tradition (see below). Regardless, Romeo, attempting to pacify Tybalt, states:

I do protest I never injured thee,
But love thee better than thou canst devise
Till thou shalt know the reason for my love.
And so, good Capulet, which name I tender
As dearly as my own, be satisfied. (3.1.67-71)

By stating he tenders the name “Capulet” as dearly as his own, Romeo signals a willingness to cooperate with Tybalt, and likewise indicates to Tybalt (though Tybalt does not know the reason for Romeo’s affection), and Shakespeare, to the audience, that Romeo and Juliet’s marriage will be made public, which will, if Friar Laurence is correct (see below), end the feud disturbing Verona to the point that the Prince declares its continuance a capital offense. Such a marriage would also be seen as a prelude to the birth of offspring who would be kin to both Montagues and Capulets, thus uniting the families. As Mercutio and Tybalt fight, Romeo evokes the state decree in an effort to part them, in effect honoring the Prince’s instruction to cease the feud above the ancestral instruction to perpetuate it. As Romeo attempts to separate them, Mercutio, defending his friend and fellow citizen, is “hurt under [Romeo’s] arm” (3.1.105). In response, Romeo demands that Tybalt, “take the ‘villain’ back again” or fight, though even in his anger, Romeo offers Tybalt a bloodless solution of apology (3.1.127). Tybalt refuses, and in the ensuing fight, Romeo kills him. Though the Prince agrees that Romeo has effectively implemented the law (the will of the Prince, who would have executed Tybalt for killing Mercutio), he banishes Romeo for taking the law into his own hands (rather than ceding justice to the state).

Prince Escalus, representative of the new state model of society, does not ignore the fact that his kinsman was slain, reprimanding the houses for his loss, stating:

I have an interest in your heart’s proceeding;
My blood for your rude brawls doth lie a-bleeding.
But I’ll amerce you with so strong a fine
That you shall all repent the loss of mine. (3.1.190-193)

The consequences of the feud for the rival houses now affect the state, as embodied by the Prince and his kinsmen. Though the Prince could lawfully demand the lives of both Montague and Capulet (1.1.95; 1.2.1-3), he is instead merciful; the fee for their crimes will be paid in money, for the benefit of the city, rather than in blood, which would satisfy only his personal desire for revenge – putting into sharp contrast the state and kinship-based models of society.

“A plague o’ both your houses”

Mercutio’s resonating curse serves as a prelude to the turning point of the play (Romeo’s slaying of Tybalt; see below), and is taken by Raymond Utterback (1973) to be the cause of its remaining events (107). While the remainder of the events do stem from Mercutio’s death, they nevertheless fit within the larger framework of the traditional feud (the actions of ancestral Montague and Capulet and their descendants) that serves as the ultimate cause of all of the negative consequences in the play. At this point the play undergoes a tonal change, as Jay Halio (1998) notes: “What seemed to be a largely comic invention turns at that point to tragedy” (21). However, given the content of the Prologue, the brawling in the opening scene, Tybalt’s attitude at the Capulet party, Juliet’s concern about Romeo’s safety whilst on Capulet grounds, and Benvolio’s words of caution (“the day is hot”), it seems the audience is never far removed by means of “comic invention” from the tragedy that inevitably awaits its characters. Thus, we agree with Halio that “Overarching *all* the action of the play, and in one sense its alternative main plot, is the feud between the rival families” (p. 28, emphasis added), but qualify this agreement by emphasizing that so intertwined is the feud with the love story that it is nonsensical to see them as alternatives. Mercutio’s death and curse are likewise inseparable from the feud, without which he would not have provoked Tybalt (who was perpetuating the feud in seeking Romeo), in defense of his friend and fellow citizen.

The purpose of the “infectious pestilence,” as Walpole (1928) points out, “is to ensure Romeo’s fatal ignorance of the potion scheme” (p. 213). But far from a “structural weakness,” as Walpole argues, the pestilence, more than a plot device, also reminds the audience of Mercutio’s “plague” and therein lies the significance of his curse: like him, in particular, and Verona, in general, the houses Montague and Capulet will suffer as a consequence of the feud that caused the curser’s death (p. 213). When the “infectious pestilence” prevents Friar Laurence’s letter from reaching Romeo, it calls to mind the curse, informing the audience that the behavior of the characters following Mercutio’s death is what, most immediately, will cause its tragic end; its ultimate cause is the perpetuation of a futile blood feud (5.2.10). Greenblatt et al. (2008) interpret the line “A pair of star-cross’d lovers” to mean that it was the pair’s “destinies” to “take their lives” (p. 905), but Romeo’s and Juliet’s deaths were not predetermined by the stars; instead, as is indicated by the line “from fatal loins of these two foes,” their deaths are a consequence of ancestrally encouraged behavior.

Thus, following Ruth Nevo (1969), we see Romeo’s challenging of Tybalt not as fate, but as a choice made in the context of circumstances that were out of his control:

Shakespeare's craft has given us a finely turned peripeteia in which the protagonist is responsible for his actions, though he is not accountable for the circumstances in which he must act, and in which these actions recoil ironically upon his own head. His despairing cry "O, I am fortunes fool" [*sic*] richly expresses his sense of the uncalled for, unchosen, outrageous event. (p. 245)

Romeo arrives on the scene, as Nevo notes, "aglow from his marriage ceremony, a vessel of good will," but "happens by the sheerest accident upon the truculent Mercutio and the irate Tybalt" (p. 244). It is true that Romeo, newlywed to Juliet, does attempt to pacify Tybalt, and thus, this situation is "unchosen" (p. 245). But Nevo goes too far when she states that "the plot of Romeo and Juliet stresses the accidental" (p. 241). Romeo was born into an environment of individuals copying ancestral behavior (traditions), including the feud, that formed the circumstances of his life, without which none of the events of the play – including the fights between Mercutio and Tybalt and between Romeo and Tybalt – would have transpired. Certainly inconvenient timing (there was not enough time for Romeo and Juliet to make their marriage public), that Romeo should traverse Veronese streets on his way from one place to another is no accident, nor is the fact that Tybalt, seeking Romeo, should eventually find him on those streets. Considering the events of the first scene, Romeo knows well, as Benvolio puts it, that "the day is hot" (3.1.2) – that there is a danger of Montagues running into Capulets. Romeo is "fortune's fool" inasmuch as he is a victim of the ancestral behavior that prescribed the feud, and while his killing of Tybalt is indeed unfortunate, it is nevertheless also (in addition to the influence of ancestral behavior) the effect of his own actions (whereby he is not a victim), for (for the first time), though revenging a friend and fellow citizen, he participates in the feud by killing a Capulet. Such is the turning point of the play.

Romeo has behaved traditionally by killing the descendent of his ancestor's foe. The audience experiences the outcome of behavior and can imagine alternative outcomes had he done otherwise. The plot stresses unfortunate effects of a discernible cause, rather than the accidental, and therein lies the tragic element. The titular characters, once met, fall in love, immediately resolving to abandon the traditions that would keep them apart, displaying improper kinship behavior, but at the same time demonstrating proper citizenship, for the tradition to which the members of each house adheres – that of the feud – is the obstacle to their love, and macroscopically, the obstacle to the state. That is, the model of society that would allow for Romeo and Juliet's love – the state model – is not possible save through proper citizenship, which is placed throughout the play direct in opposition to proper kinship and the kinship-based model of society (wherein individuals distinguish kin from non-kin). The Prince soberly expresses the tragic element while noting its irony: "Where be these enemies? Capulet, Montague, / See what a scourge is laid upon your hate, / That Heaven finds means to kill your joys with love" (5.3.290-292). The problem of the blood feud tradition for the houses of Montague and Capulet had a simple solution all along: to ignore their ancestors and forgive, if not love, their ancestral enemies, as did Romeo and Juliet. The tragedy is that it took, though need not have taken, the deaths of their offspring for the patriarchs to see this solution and abandon the feud; the characters, and through them the audience, can imagine an alternative outcome through alternative behaviors – that this could have been a happy ending.

“For this alliance may so happy prove”

The problem of the blood feud has only two solutions: 1) the annihilation of one side, as promoted by ancestral Montague and Capulet and as perpetuated by their descendants (namely Tybalt); or 2) peace, be it through a deterrent, as exercised by the Prince, or through forgiveness, as promoted by Friar Laurence and the Nurse. Although Christianity has been used to justify antinationalist movements (e.g., Christian anarchism; see Christoyannopoulos, 2010), it has also been used by rulers as a justification for autocracy and nationalism (e.g., Divine Right of Kings),⁵ and its message of “love your neighbor” and use of “metaphorical kinship” terminology have equally been appropriated by states as a means of encouraging citizenship and suppressing blood feuds (see Steadman & Palmer, 2008). In *Romeo and Juliet*, Christianity, as embodied by Friar Laurence, harmonizes with the Prince’s desire for the end of the Montague-Capulet blood feud and peace in Verona. When Romeo asks that Laurence wed him to Juliet, the friar responds: “In one respect I’ll thy assistant be. / For this alliance may so happy prove / To turn your households’ rancour to pure love” (2.3.86-88). Not yet an endorsement of the state, Friar Laurence later articulates the civil benefits of the public knowledge of their marriage; while Romeo is in Mantua, they (the Friar, the Nurse, Romeo and Juliet) will work to:

find a time
To blaze your marriage, reconcile your friends,⁶
Beg pardon of the Prince and call thee back,
With twenty hundred thousand times more joy
Than thou wentst forth in lamentation. (3.4.149-153)

However, this plan quickly falls apart as Capulet, in an effort to subdue the anguish over Tybalt’s death, orders his daughter to marry Paris. Juliet seeks Friar Laurence’s assistance, threatening to take her own life rather than to betray her husband. Hard-pressed, the friar colludes with desperate Juliet to deceive her family – indeed, all Verona – into thinking her dead. Friar Laurence’s plan, once in accordance with the state model, is as a consequence of the feud (Mercutio and Tybalt’s death; Juliet’s forced marriage) altered to deceive the city. Further, in addition to ending in the deaths of Romeo and Juliet, his deception also results in the death of County Paris, also kinsman to the Prince and a Veronese noble. Though the friar’s plan ends in tragedy, he had suspected correctly: albeit after their deaths, knowledge of the marriage between Romeo and Juliet does “turn [their] households’ rancour to pure love,” not only ending the blood feud, but ending it through forgiveness, bringing peace and a new tradition (“Go hence to have more talk of these sad things”), the tragedy of Romeo and Juliet (the destructiveness of blood feuds and the power of forgiveness), to the city of Verona (5.3.306).

“deliver it my lord and father”

After learning of Juliet’s “death,” love-sickened Romeo, resolved to kill himself, writes a letter to his father explaining the reason why (that he and Juliet were married). He instructs Balthasar to “deliver it to my lord and father” (5.3.24), though this is not to be mistaken for proper kinship behavior. Romeo certainly did not need to kill

himself, which, unless for the benefit of kin (in which case it is altruistic), is improper (selfish) kinship behavior. Although Romeo exhibits improper kinship behavior, as is often the case in this play, in doing so he simultaneously exhibits proper citizenship, by revealing to his father that he (Romeo) had married the daughter of his (Montague's) foe, Capulet, the revelation of which Friar Laurence hoped would end the feud. Nor did Juliet need kill herself. With Paris dead, she no longer needed to fear a forced marriage to him, though there is no reason to look even this deeply into Juliet's behavior. Moments after waking, upon hearing Friar Laurence's briefing, she immediately resolves to end her life so to join her beloved, and upon hearing the Chief Watchman enter the tomb, does not hesitate to do so.

The destructiveness of the feud is evident from the very first scene; judging from Romeo's reaction to the blood spilled in 1.1, its negative consequences have been known for some time. Even insulated Juliet knows the consequences of the discovery of a Montague at the Capulet feast. Steadman and Palmer (2008) write: "When individuals do choose to modify or even abandon traditions, their decision to do so is often influenced by their remembered experiences of that traditional behavior, including its effect on others" (41). Whatever the benefits of thinking each other enemies (they are never mentioned), the feud is seemingly more costly to participate in than to ignore. That the Prince declares its continuation punishable by death makes it all the riskier for Montagues and Capulets to obey their ancestors. So when Romeo and Juliet fall in love, they have every reason to abandon the tradition of the feud – witness to its negative consequences and dissuaded by the state, they ignore ancestral instructions.

Conclusion

A full understanding of *Romeo and Juliet* must situate it within the context of a shift in traditions concerning blood feuds facilitating a transition from kinship-based behavior and social organization to the civility required by state-level political organizations. As forms of communication ("the manipulation of signal-receiver by signal-sender"), Shakespeare's play, as well as the older stories upon which it is based,⁷ more than describe or reflect this shift, may have influenced audiences in such a way as to promote this transformation (Dawkins, 1982, p. 57; Krebs & Dawkins, 1984). We suggest that future scholarship investigate the possible role of the play in facilitating this transition through its demonstration of the tragic consequences of blood feuds to an audience with recent experience of such feuds (e.g., the War of the Roses) and its communication in England at a time in which "kinsmen on occasion still exacted revenge for the death of one of their relatives" (Given, 1977, p. 73).

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Notes

1. Edition: *The Arden Shakespeare* (third series); based on the second quarto (Q2) of 1599.
2. "Proper" and "improper" are taken to mean the "rules laying down what ought to be done or what ought not to be done" (Hefner, 1991, p. 115, quoted in Steadman & Palmer, 1997, p. 342).

3. “King” is derived from “kin,” derivative of “gen,” which means, “to produce, engender, beget.” On the relationship between “king” and “kin,” see *Oxford English Dictionary*.
4. Though we often see the promotion of the state in Shakespeare’s plays, not all are as anti-nepotistic as *Romeo and Juliet*. Indeed, Shakespeare often highlights treacherous acts that are both an offense against both kin and king (e.g., Claudius’s fratricide/regicide in *Hamlet*; the conspiracy of Lear’s eldest daughters). Macbeth concisely describes his own uneasiness while contemplating the murder of his kinsman and king, Duncan, stating: “He’s here in double trust: / First, as I am his kinsman and his subject, / Strong both against the deed” (1.7.12-14).
5. Such was the case during the English Reformation, during which Henry VIII’s “Act of Supremacy” was enacted into law. Though repealed by Mary I, it was later reinstated during Elizabeth I’s reign, when Shakespeare wrote his version of *Romeo and Juliet* (see Lilly, 1909).
6. Meaning “kin” (Greenblatt et al., 2008, p. 947).
7. Shakespeare’s “direct source” for *Romeo and Juliet* was Brooke’s 1562 version, itself based upon Boiastuau’s 1559 adaptation of Bandello’s 1554 version, though the story is traceable at least as far back as 1476 (Greenblatt et al., 2008, p. 897).

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Bridging the Is-Ought Divide: Life *is*. Life *ought* to act to remain so

Edward Gibney

“The naturalistic fallacy...seems to have become something of a superstition. It is dimly understood and widely feared, and its ritual incantation is an obligatory part of the apprenticeship of moral philosophers and biologists alike.”¹

Competing Oughts

You ought to keep the Sabbath holy. You ought to honor your ancestors. You ought to kill your daughter if she’s dishonored your family. You ought to treat others as you would wish to be treated yourself. You ought to hold the door open for strangers. You ought to listen to your gut. You ought to cut down on your intake of saturated fats. You ought to act “only according to that maxim whereby you can, at the same time, will that it should become a universal law.”² Oughts come from many different sources – various world religions, socially agreed upon norms, biological urges, scientific recommendations, philosophical arguments – and so far these systems have remained separate, agreeing in some areas, contradicting in others. These oughts are what make up our morals.³

Morality, from the Latin *moralitas*, meaning manner, character, or proper behavior, is “the differentiation of intentions, decisions, and actions between those that are good and those that are bad.”⁴ It’s “a conformity to the rules of right conduct.”⁵ But who gets to define what good, bad, or right mean? Philosophers have fallen into divided camps over this issue, setting up tents as deontologists, consequentialists, virtuists, and nihilists. Social scientists and positive psychologists have meta-studied commonly accepted ethical systems to try to unite them into standard lists of morals and virtues.⁶ None of these ethical systems, however, have ever been grounded in objective facts that offer conclusive justification for their existence, so humanity has thus far been left to either rely on revealed dogmas or ignore the relativism that lurks beneath persistent questioning about our morals. Why is this still the case?

The Is-Ought Divide

Since at least the beginning of ancient history, religions have claimed to know what is good and bad according to some kind of divine revelation. Around 400BCE though, Plato recorded Socrates asking a religious expert named Euthyphro, “Is the pious loved by the gods because it is pious, or is it pious because it is loved by the gods?” The Euthyphro Dilemma⁷, as it is known, perfectly frames the question of whether or not there is an independent source for morality, beyond what gods or human beings say that it is. This question has been tackled by legions of philosophers ever since, but in 1739 David Hume made what has become the definitive argument against most of these attempts. Hume compared moral values to “sounds, colors, heat, and cold,” which “are not qualities in objects, but perceptions in the mind.”⁸ Having established this subjective nature of moral values as something different than objective facts about the world, Hume then chastised those who ignore this difference:

In every system of morality, which I have hitherto met with, I have always remarked, that the author proceeds for some time in the ordinary ways of reasoning, and establishes the being of a God, or makes observations concerning human affairs; when all of a sudden I am surprised to find, that instead of the usual copulations of propositions, is, and is not, I meet with no proposition that is not connected with an ought, or an ought not. This change is imperceptible; but is however, of the last consequence. For as this ought, or ought not, expresses some new relation or affirmation, 'tis necessary that it should be observed and explained; and at the same time that a reason should be given; for what seems altogether inconceivable, how this new relation can be a deduction from others, which are entirely different from it.⁸

Although Hume's use of the double negative ("no proposition not connected") may be confusing out of context, he is universally understood to have meant that "it seems inconceivable that a moral conclusion can be a deduction from premises that are entirely different from it."⁹ In short, there can be no ought from is; at least not directly by using logic alone.

Many philosophers assume that Hume therefore closed the door on deriving morals (what we ought to do) from the natural world (what is), but this is simply wrong. Hume himself was "a naturalist, since he supposed that there are moral truths, which are made true by natural facts, namely facts about what human beings are inclined to approve of."⁹ This sentiment is succinctly captured in another of Hume's famous quotes: that "reason is, and ought only to be the slave of the passions."¹⁰ When he said this, Hume "provided the classical statement of the view that moral values are the product of certain natural human desires. Hume argued that human behavior is a product of *passion* and *reason*. *Passions* set the ends or goals of action; and *reason* works out the best available means of achieving these ends."¹¹

So when Hume said there can be no *ought* derived from an *is*, he didn't mean it can never be done; he simply meant it cannot be done without a *want*. This is how we navigate the world all the time using our passions. You want some chocolate. There is chocolate in the cupboard. You ought to go to the cupboard. You want to visit your sister in Poughkeepsie. There is a train at 8am to get there from here. You ought to take the 8am train. Hume was right to say that it makes no sense to claim the third parts of these arguments (the *ought* statements) follow from their second parts (the *is* statements) without initially setting down their first premises (the *want* statements), and he was right to say that the same reasoning applies to our moral passions. You can't say that Max is a cheater and you ought to punish Max without clearly stating the desire or want that drives this conclusion. But what are these wants and where do they come from? Could they come from nature?

The Naturalistic Fallacy

Any time someone tries to provide justification for morality from the world as it is, the next refrain philosophers will usually utter is that any such attempt to do so is "committing a naturalistic fallacy." This phrase is derived from G.E. Moore's *Princip-*

ia Ethica, which was published in 1903. But what did Moore really mean when he coined this term? Hilary Putnam believed that Moore had demonstrated that: “Good was a ‘non-natural’ property, i.e., one totally outside the physicalist ontology of natural science,”¹² and this interpretation has led many to assume that it is a fallacy to claim that moral goodness is part of the natural world. But Putnam’s interpretation was wrong and so all the follow-on assumptions don’t truly...follow on. Let’s unpack the two terms in Moore’s phrase to see where Putnam went awry.

Moore “called the mistake of identifying an object of thought with its object a *fallacy*. And if the object – with which one mistakenly identified the thought – happened to be a natural object, as opposed to metaphysical entity, then the error became the *naturalistic fallacy*.”¹³ But Moore used the term “natural to refer to properties of the external world. He contrasted *natural* with *intuitive*, which he used to refer to properties of the mind – including *objects of thought* such as *good*. Hence when Moore claims that *good* is not a natural property, he is simply restating the point that *good* is an intuitive *object of thought* and not an objective feature of the outside world.”¹⁴ What Moore was actually saying was the same thing as Hume. While Hume used *perceptions in the mind* to point out where good resides, Moore rephrased slightly and used *object of thought* as its location. And so just as Hume did nothing to rule out nature from driving our morality (in the form of human thought driven by our natural wants), neither did Moore – at least not to anyone who discarded Descartes’ dualism long ago.

In fact, a survey of the literature reveals that there are eight so called naturalistic fallacies¹⁵ that include various interpretations of Hume and Moore, and none of them actually preclude an objective source of morality coming from natural human desires. As Curry concludes in his paper *Who’s Afraid of the Naturalistic Fallacy?*:

Whenever someone uses the term “naturalistic fallacy,” ask them “Which one?,” and insist that they explain the arguments behind their accusation. It is only by bringing the ‘fallacy’ out into the open that we can break the mysterious spell that it continues to cast over ethics.¹⁶

As John Mackie stated:

It is not for nothing that [Hume’s] work is entitled *A Treatise of Human Nature*, and subtitled, *An attempt to introduce the experimental method of reasoning into moral subjects*; it is an attempt to study and explain moral phenomena (as well as human knowledge and emotions) in the same sort of way in which Newton and his followers studied and explained the physical world.¹⁷

As Daniel Dennett said:

If ‘ought’ cannot be derived from ‘is,’ just what can it be derived from?...ethics must be somehow based on an appreciation of human nature – on a sense of what a human being is or might be, and on what a human being might want to have or want to be. If that is naturalism, then naturalism is no fallacy.¹⁸

The various interpretations of the naturalistic fallacy are, in fact, quite easily flipped on their heads and retorted back as “supernaturalistic fallacies.” In a universe with no evidence of supernatural intervention, where else do morals (or anything for that matter) come from but from nature? As Charles Pigden wrote:

[T]here is no need for naturalists to evade the arguments of Moore and Hume...Insofar as they are valid, Hume’s arguments, and Moore’s too, are compatible with naturalism. Formal attempts to refute naturalism having failed, it remains a live option.”¹⁹

As I hope to now show, naturalism remains very much a “live” option indeed!

The Want That Must

So the is-ought divide is not an uncrossable chasm – it just requires a bridge to make the connection. We have established that *oughts* can come from *is* as long as they are driven by a *want*. So if we are to find an objective and universal basis for morality, then we must therefore find an objective and universal *want*. Additionally, as Christine Korsgaard writes, “When we seek a philosophical foundation for morality we are not looking merely for an explanation of moral practices. We are asking what *justifies* the claims that morality makes on us.”²⁰ So not only must this fundamental *want* that we seek be objective and universal, it must somehow justify its claim on us as well. What are some of the *wants* we might consider?

We can look to psychology and list out our hierarchy of needs from Maslow.²¹ We can want to eat, to sleep, to have sex, to be safe, to be loved, to be respected, to be creative, to solve problems, and to pass on what we have learned. We can look to philosophy and consider the qualities that others have reasoned we ought to want. We can want to be happy, to flourish, to have justice, to be virtuous, to maximize wellbeing, to enjoy freedom, or to become superhuman. We can look to theology and listen to what preachers say they have heard from the heavens. We can want to know God, to be saved in the afterlife, to serve Jesus, to obey Mohammed, to become enlightened, or to reincarnate as a higher being. We can study science to see what empirical researchers have uncovered. We can want to pass on our genes, to protect our kin, to cooperate with the group, to maintain purity, or to punish cheaters. Or we can discard all of these findings and determine our own individual wants, even if that means we want something bad or want nothing at all.

In short, we are blindly groping for the right wants as they compete to pull us in many different directions, often simultaneously. And not just groping for any one of these wants, but for some combination of them all, some perfect mix or balance that optimizes whatever it is we can possibly hope to achieve. Some choices work, and we rationally decide to keep them. Others do not, and they are discarded. Does this general process sound familiar? This kind of *blind variation and selective retention* (BVSr) is “the most fundamental principle underlying Darwinian evolution.”²² Whether we realize it or not, our moral wants are being selected through evolutionary processes. Which ones will survive? The wants that lead to long-term survival. No other criteria can outweigh this fundamental outcome that is both objective and uni-

versal and justifies its claims on us with its logical inevitability. If we, as a species, were to choose wants that did not lead to our survival, then we, and those wants, would go extinct. Therefore, we ought to want to survive over the long term. We *can* choose otherwise. Nothing in this universe says we *must* choose this path. But no other want will come out of an evolutionary process, and the history of science tells us we are locked in just such a universe – one that is governed by evolutionary processes where things on a macro scale don't just wink in and out of existence by natural or supernatural means. We ought to accept that fact and align our moral obligations with it. Nothing else can subvert this fact or override it. This is the fundamental, objective, universal, and justified basis on which human morality is built. All other wants are proximately caused in service of this ultimate cause.²³

To see this from another direction, let's go back to Hume. As he put it in one of his later works:

Ask a man why he uses exercise; he will answer, because he desires to keep his health. If you then enquire, why he desires health, he will readily reply, because sickness is painful. If you push your enquiries farther, and desire a reason why he hates pain, it is impossible he can ever give any. This is an ultimate end, and is never referred to any other object....And beyond this it is an absurdity to ask for a reason. It is impossible there can be a progress in infinitum; and that one thing can always be a reason why another is desired. Something must be desirable on its own account, and because of its immediate accord or agreement with human sentiment and affection.²⁴

Sadly, Hume wrote this in 1777, just over 80 years before Darwin was to publish *On the Origin of Species*. Had he been introduced to that book and been able to think through the ramifications of evolution, Hume may have arrived through his root cause analysis at the fact that existence is the ultimate end, and survival is the thing that must be desired on its own account. Prior to existence – or after it is extinguished – there are no human desires. If the state of existence is not satisfied, then there is no one to answer any further inquiries. There would be no more passions to drive our reason. Even if our ontological questions about the universe have no regressive end to them at the moment, our moral questions about our place in this universe do have an end. They end with whether or not we will continue to exist. The fundamental nature of being implied by the use of the word *is*, is the very thing that helps us get from is to ought. We are alive. We want to remain alive. We ought to act to remain so.

Expanding the Circle

So far, we have been talking about human morals and human concerns, but is that enough? And when I say, “we are alive,” whom exactly am I talking about? An individual? A family? A tribe? A race? A nation? The human species? Is that consideration even enough? If we say that the ultimate want is long-term survival, then whose survival needs to be considered as part of that desire?

In *The Expanding Circle*, philosopher Peter Singer argued that “altruism began as a genetically based drive to protect one's kin and community members but has devel-

oped into a consciously chosen ethic with an expanding circle of moral concern.”²⁵ Singer described the growth of this expanding circle by starting with the selfish concerns of one individual and using moral reasoning to show how it widens step by step to eventually encompass all of humanity:

If I have seen that from an ethical point of view I am just one person among the many in my society, and my interests are no more important, from the point of view of the whole, than the similar interests of others within my society, I am ready to see that, from a still larger point of view, my society is just one among other societies, and the interests of members of my society are no more important, from that larger perspective, than the similar interests of members of other societies...Taking the impartial element in ethical reasoning to its logical conclusion means, first, accepting that we ought to have equal concern for all human beings.²⁶

Singer went on to extend this ethical scope to include all sensitive species, but that has remained a contentious idea even as societies have enacted more prohibitions against cruelty to animals. Setting that controversy aside for the moment, however, Singer does bring us to a larger point. While we have been discussing morals and how they are rules for living, we have been led to talk about individuals, species, and survival over long terms. We began to talk about issues concerning biology, and in particular the natural sciences of biology, sociobiology, ecology, and evolutionary biology. This makes sense as biology is the study of life and we are talking about rules for living, but I would like to make the connection even clearer and stronger by outlining the entirety of the circle that Singer began to push into shape.

In 1998, biologist E.O. Wilson published the book *Consilience* in which he complained about the general splintering of knowledge that kept scientists in the dark about facts that had already been discovered in other fields. In particular, he bemoaned the divide in his own area of specialty and noted the means by which they could be united. He wrote that the “conception of scale is the means by which the biological sciences have become consilient during the past fifty years. According to the magnitude of time and space adopted for analysis, the basic divisions of biology” from the bottom to the top are:²⁷ (1) Biochemistry -> (2) Molecular Biology -> (3) Cellular Biology -> (4) Organismic Biology -> (5) Sociobiology -> (6) Ecology -> (7) Evolutionary Biology

These seven mutually exclusive, collectively exhaustive categories²⁸ describe the study of life in its totality. They provide the list of individual lenses we need to look through to understand everything there is to know about life. These lenses can also, therefore, be used to study and understand morals through ever-widening circles, and I believe this is particularly instructive. For example, to follow Singer’s descriptions, personal interests such as individual flourishing make sense in the light of needs at the organismic biology level, societal interests such as justice and cooperation make sense in the light of needs at the sociobiological level, and the welfare concerns for other sensitive creatures makes sense in the light of needs at the ecological level. By bringing in this comprehensive analytical model from the field of biology, we see that Singer’s circle makes sense, it just fails to expand wide enough to take into account the needs of societies and ecologies over evolutionary timeframes. It also fails to nar-

row down small enough analyze our moral history by examining the lower three levels of biology using morally-loaded analogies.

Imagine various oughts evolving over time, always remembering that the ultimate want is survival. We could then imagine telling the following morality plays about the history of the evolution of life on Earth (while keeping in mind that I'm using poetic license to ascribe intentions to entities that clearly have none). For example, "1. The Morals of Biochemistry": These chemicals bond readily to those chemicals to form a useful compound. But those chemicals are in short supply and being wasted in other bonds. These chemicals ought to bond with all of those chemicals. The end. (This first play has no tradeoffs in it so it's rather boring.) Then we progress to "2. The Morals of Molecular Biology": But what if no chemicals are left over for other useful compounds? Our first compounds would benefit from combining with other useful compounds. Those first compounds ought to leave some chemicals for other compounds so that together they can make a really useful compound called a molecule. The end. You can repeat the storyline for yourself through the levels of cellular biology (3) building the first complex organisms (4), which evolve into cooperative societies (5) and fill niches in the ecology (6), which all change over evolutionary timeframes (7). Each story, over and over, being one of competition in the short term giving way to broader cooperation over the long term for the benefit of all.

Of course, the lack of "free will" (here, I mean freedom to choose) within the first three levels of biochemistry, molecular, and cellular biology mean that we must project our emotional pulls onto the actors in those plays. But given their roles as our own ancestors and building blocks, we find it easy to do so and root heartily for them to succeed. After that, the procession is easy to follow. Can a person act to survive at the expense of others? Not for very long, and not if she has a choice, for she would eventually be faced with fighting nature alone. One must cooperate with others to survive. Can groups act to survive at the expense of other groups? Not for very long. We need vast connections of cooperation to ensure the progress of civilizations that provide us with robust diversity and adaptability. We must cooperate as a species to survive. Can a species act to survive at the expense of other species? Not for very long. We are enmeshed in a complex web of life that makes up a supportive ecosystem. Species must cooperate with other species to fill the niches necessary for an environment to thrive. Can environments remain intact in a static manner? Not for very long. The universe changes and individuals within species within ecosystems must cooperate with one another to adapt to these changing conditions over evolutionary timeframes.

These are the tradeoffs that must be addressed correctly by our moral urges if we are to survive. These are the base sources of all our competing wants, which drive all our competing oughts, which our systems of ethics must choose between. By utilizing the comprehensive framework for biology to understand the totality of *wants* for all forms of life, we come to a clearer understanding of morality, which seeks to satisfy those wants in an optimal manner. In general, the focus of morality in the past has centered on the middle circles of this biological spectrum – the organismic and societal levels – since those are the most obvious areas for our concern. The smallest end of the biological scale does not really enter into our considerations because there is no free will

there. The largest end has only recently entered into our considerations because the theory of evolution has only recently been grasped and there is much epistemic opacity there (it is very hard to know what we see and predict the future given such massive complexity in the system), which casts doubt over inquiries into and hypotheses about that realm. Still, we can see that this all-encompassing biological landscape for morality is the one that makes logical sense.

If my hypothesis about morality is true, that it is a growing concern for the survival of life over larger and larger circles of concern, then this should lead to some predictions. Perhaps our moral emotions would have evolved along this path. This has not been fully investigated, but we do in fact see some evidence for this progression of morality going from concern for the self to concern for others in the evolutionary past of our brain structures. Evolutionary neuroscientist Jaak Panksepp of Bowling Green State University has identified seven emotional systems in humans that originated deeper in our evolutionary past than the Pleistocene era. The emotional systems that Panksepp terms Care (tenderness for others), Panic (from loneliness), and Play (social joy) date back to early primate evolutionary history, whereas the systems of Fear, Rage, Seeking, and Lust, which govern survival instincts for the individual, have even earlier, premammalian origins.²⁹ This is a tantalizing fact that begs to be investigated as part of an empirically driven science of morality, were an objective basis for the field to be accepted as has been proposed in this essay.

Bridging the Is-Ought Divide

To reiterate, there is no supernatural force that dictates anything *must* follow rules for survival, but this blind and unsympathetic arbiter of the selection process within our universe means that this *is* the ultimate judge of all actions. We see this on all the circles of our biology and we see that it holds true for other species as well. Those pandas *ought* to want to mate more to ensure the survival of their species. Those humans *ought* not to want to act in a manner that wipes out bees because their own food chain depends on it. Those trees *ought* to grow at higher elevations because the habitat they are in is changing. Etc. etc. These actions are all different depending upon the species, the environment it is trying to survive in, and the ability of individuals to make moral decisions, but all of these oughts must obey the same logic of leading towards survival. All of these oughts therefore lead us to a final inference about a moral rule that objectively, universally, justifiably, and ultimately compels our actions. The prescription of morality can thus be generalized to apply to all of life, for the remainder of time. This is our conclusion:

1. Life is.
2. Life wants to remain an is.³⁰
3. Therefore, life ought to act to remain alive.

The first two premises are irrefutably true from observation. The conclusion is logically valid and becomes the final test by which all moral standards must be judged.

Across the Bridge to the Other Side

Okay, so we have an objective basis for morality. Now what? Is the way forward clear? Are the answers to all of our moral dilemmas suddenly obvious? Hardly. But that's okay, because any framework for morality that does not account for the friction that has continually accompanied our difficult moral choices is a framework that does not account for reality. We would not have such a long history of questions in this sphere if we did not have an extremely complicated set of competing wants that we all feel and must try to make sense of. But at least now we can see the locations of all those sticking points. All moral dilemmas can be understood as conflicts somewhere along the consilient spectrum of biology.³¹

Our intuitive moral feelings are often in conflict because of the debates that rage within us regarding the self vs. society, or society vs. the environment, or the short-term vs. the long-term, or just the fundamental choices between competition and cooperation. This is what drives the two faces of humankind. We are neither inherently good nor inherently evil – we are capable of both, a flexibility we must have in order to have the power to choose between alternate paths that are right some of the time and wrong some of the time.

As we learn what the right path is over the long term though, we develop cultural norms to enforce good behavior along those lines, even though other ways are still possible. Sometimes, after further review, changes to those norms occur when individuals are able to convince groups that their current path is leading away from that which enables the long-term survival of life. Even if other proximate reasons are given, there will always be this final backstop that ultimately proves whether the changes in our moral norms are correct or not. As we finally come to recognize this, will it mean we have to change all our previously held moral beliefs? Of course not, although we would if we discovered we were on the path towards extinction.

Fortunately, life has already been selected for figuring out ways to balance the concerns that individuals and groups must take into account. It's only recently that we've discovered this (recent in comparison to the field of philosophy anyway), but research in fields such as game theory, evolutionary biology, animal behavior, and neuroscience has shown us that humans and other animals have natural dispositions to act for the common good of their kin, social group, species, and ecosystems, and even over evolutionary timeframes. Under certain circumstances, organisms will be social, cooperative, and even altruistic. Using terms such as kin altruism, coordination, reciprocity, and conflict resolution, evolutionary theory has explained why and how some organisms care for their offspring and their wider families, aggregate in herds, work in teams, practice a division of labor, communicate, share food, trade favors, build alliances, punish cheats, exact revenge, settle disputes peacefully, provide altruistic displays of status, and respect property.³² All of these behaviors clearly lead to prolonged survival for the groups of individuals that exhibit them.

We can learn from these and other examples of what has worked in the past to generalize about how we as a species must move forward into the future. What traits do we currently believe will lead to survival over the long term? Suitability to an environ-

ment. Adaptability to changes in the environment. Diversity to handle fluctuations. Cooperation to optimize resources and reduce the harm that comes from conflict. Competition to spur effort and progress. Limits to competition to give losers a chance to cooperate on the next iteration. Progress in learning, to understand and predict actions in the universe. Progress in technology, to give options for directing outcomes where we want them to go. These are the virtues and outcomes we must cultivate to face our existential threats and remain determined to conquer them. Traditional moral rules supporting concepts such as charity, honesty, freedom, justice, etc., may also lead us toward these survival traits, but make no mistake that this is the end goal of morality toward which we are headed. We know this now.

We also know the locations of the decision points along the way toward that goal. What are the best means to achieve individual flourishing? How much individual flourishing can we have and still remain cooperative with one another? How can our differing societies experiment with their own ways forward without devolving into utterly destructive competition? How can we balance the progress of humanity with the scarcity of resources needed to fuel that progress? These and many other questions of morality still remain to be answered. Knowing these locations and desired outcomes though will help us empirically evaluate our choices wherever it is possible to experiment with them. Good answers will strike the best balance between all the options. Evil answers will get the mix wrong. Most commonly, evil will involve weighting the needs of an individual too heavily in comparison to the needs of other individuals or other groups. But there will also be instances of evil being done to individuals in the name of social or ecological forces that have been overweighted.

On that note about evil, I'll close with a word of caution about this new direction we can now take. The probabilistic nature of knowledge means we won't always know how to solve our moral conflicts – in fact, we may never be certain of some of the answers either before or after we make a decision. How do we proceed then where we don't know? Carefully of course, and taking a cue from *The Black Swan*³³, which made a study of this fuzzy realm where consequences of improbable events may be large and especially terrible. Limited trial and error is the way life has blindly found its way through these dark minefields of existence in the past, and anyone that takes a big bet on a non-diversified strategy will eventually lose everything over the billions of repetitions that our existence in evolutionary timescales allows. So even if we become confident about the direction we would like to go, humans should not be lured into racing there using existentially risky behavior. No, change that last part. Humans *ought* not to do that, now that we know what it *is* that we *ought* to be acting towards.

Notes

1. Curry, O. (2006) [Who's Afraid of the Naturalistic Fallacy?](#) *Evolutionary Psychology*, Volume 4, p. 243.
2. [The Categorical Imperative](#) from Immanuel Kant, *Grounding for the Metaphysics of Morals* 3rd ed. Hackett, p. 30.
3. For a more nuanced description of the use of the term morality, see the entry in the Stanford Encyclopedia of Philosophy titled [The Definition of Morality](#).
4. [Wikipedia definition](#) of morality.
5. [Dictionary.com](#) definition of morality.

6. Based on extensive empirical research from around the world, Jonathan Haidt proposed in *The Righteous Mind* the following foundations for all cultural moralities: 1) Care/Harm; 2) Fairness/Cheating; 3) Liberty/Oppression; 4) Loyalty/Betrayal; 5) Authority/Subversion; 6) Sanctity/Degradation. Martin Seligman, in *Authentic Happiness*, based on empirical research from around the world and throughout history, proposed the following 24 elements in 6 categories of virtue: I. Wisdom: 1) Curiosity, 2) Love of learning, 3) Judgment, 4) Creativity, 5) Emotional Intelligence, 6) Perspective; II. Courage: 7) Valor, 8) Perseverance, 9) Integrity; III. Humanity: 10) Kindness, 11) Loving; IV. Justice: 12) Citizenship, 13) Fairness, 14) Leadership; V. Temperance: 15) Self-control, 16) Prudence, 17) Humility; VI. Transcendence: 18) Appreciation of Beauty and Excellence, 19) Gratitude, 20) Hope, 21) Spirituality, 22) Forgiveness, 23) Humor, 24) Zest.

7. [The Euthyphro dilemma](#).

8. Hume, D. (1739) *A Treatise of Human Nature*, book 3, part 1, section 1.

9. Pidgeon, C. (2011) [Hume on Is and Ought](#), Philosophy Now Magazine, Issue 83.

10. Hume, D. (1739) *A Treatise of Human Nature*, Part 3, *Of the will and direct passions*, Sect. 3, *Of the influencing motives of the will*.

11. Curry, O. (2006) p. 234.

12. Putnam, H. (1981) *Reason, Truth and History*, Cambridge University Press, p. 206.

13. Curry, O. (2006) pp. 238-239.

14. Curry, O. (2006) p. 239.

15. From Curry, O. (2006) p. 236: “A survey of the literature reveals not one but (at least) eight alleged mistakes that carry the label “the naturalistic fallacy”: 1) Moving from is to ought (Hume’s fallacy). 2) Moving from facts to values. 3) Identifying good with its object (Moore’s fallacy). 4) Claiming that good is a natural property. 5) Going “in the direction of evolution.” 6) Assuming that what is natural is good. 7) Assuming that what currently exists ought to exist. 8) Substituting explanation for justification.”

16. Curry, O. (2006) p. 243.

17. Mackie, J. L. (1980) *Hume’s Moral Theory*, Routledge and Kegan Paul Ltd, p. 6.

18. Harris, S. *The Moral Landscape*, p. 250, quotes this as from “Dennett p. 468,” but Harris’ reference is sloppy here and does not say which Dennett book he is referring to, though I have little doubt that Dennett said it.

19. Pidgeon, C. R. (1991) *Naturalism*, in Singer, P. (Ed.), *A Companion to Ethics*, pp. 427-428.

20. Korsgaard, C. M. (1996) *The Sources of Normativity*, Cambridge University Press, pp. 9-10.

21. Maslow, A.H. (1943) *A theory of human motivation*, in *Psychological Review*, 50(4), pp 370–396. See the [Wikipedia entry](#).

22. Entry for [Blind Variation and Selective Retention](#) on Principia Cybernetica. The term comes from Joseph Campbell who also coined the phrase “evolutionary epistemology” and noted how BVSR governed the evolution of knowledge in general.

23. [From Wikipedia](#): “A proximate cause is an event, which is *closest* to, or immediately responsible for causing, some observed result. This exists in contrast to a higher-level ultimate cause (or *distal cause*), which is usually thought of as the “real” reason something occurred. Separating proximate from ultimate causation frequently leads to better understandings of the events and systems concerned.”

24. Hume, D. (1777) *An Enquiry Concerning the Principle of Morals*, pp. 244-245.

25. Singer, Peter (1981) *The expanding circle: ethics and sociology* (1st ed.), book cover description.

26. [Singer, Peter](#) (1981) p. 119.

27. Wilson, E.O. (1998) *Consilience*, Vintage Books paperback edition, p 91. Wilson left off the field of sociobiology from his list (I’m guessing because he himself controversially named it and it is not a widely recognized field), but I’ve inserted it in my account to ensure that the continuum from individual to society to species is complete.

28. The [MECE Principle](#).

29. Panksepp, J. (1998) *Affective Neuroscience: The Foundations of Human and Animal Emotions*, Oxford University Press.

30. When I talk about "life" here, I recognize that it is not a singular entity with conscious desires. Looking at the specifics of life though, I believe we can generalize this larger rule. I think we can look at a sunflower and say that it "wants" to face the sun. Does it have agency and free will to do so? Most probably not. But there are those who say we humans don't have agency and free will either, yet we still use the word "want" for our motives. To me, the word "want" does not imply agency, it just implies a chemical / emotional pull. Objectively speaking, we see that living things act to remain alive. We therefore say they "want" to remain alive, even if they are not aware of that fact themselves, and the "wants" are hard coded in their genes.

31. As Sam Harris pointed out in *The Moral Landscape* (2010), non-biological objects don't enter into our area for moral concern. Can I break this rock? You can, as long as it doesn't disturb any forms of life. Can I eat this carrot? You might not want to if it were the last carrot on earth, because life is currently impossible to recreate once it's gone, unlike a rock or gas that can be reproduced using physical or chemical processes. This is another example that points to the link between biology and morals.

32. As listed in Curry, O. (2006) p. 236, these traits have been detailed in many studies, including the following: Aureli, F., and de Waal, F. B. M. (Eds.) (2000) *Natural conflict resolution*, University of California Press; Axelrod, R. (1984) *The Evolution of Cooperation*, Basic Books; Clutton-Brock, T. H., and Parker, G. A. (1995) Punishment in animal societies, *Nature*, 373, 209-216; Crespi, B. J. (2001) The evolution of social behaviour in microorganisms, *Trends in Ecology and Evolution*, 16(4), pp. 178-183; de Waal, F. (1996) *Good Natured: The origins of right and wrong in humans and other animals*, Harvard University Press; Hamilton, W. D. (1964) The genetical evolution of social behaviour, *Journal of Theoretical Biology*, 7, pp. 1-16, 17-52; Hamilton, W. D. (1971) Geometry for the Selfish Herd, *Journal of Theoretical Biology*, 31, pp. 295-311; Harcourt, A., and de Waal, F. B. M. (Eds.) (1992) *Coalitions and Alliances in Humans and Other Animals*, Oxford University Press; Hepper, P. G. (Ed.) (1991) *Kin Recognition*, Cambridge University Press; Johnstone, R. A. (1998) Game theory and communication, in L. A. Dugatkin and H. K. Reeve (Eds.), *Game Theory and Animal Behavior*, Oxford University Press pp. 94-117; Kummer, H., and Cords, M. (1991) Cues of ownership in long-tailed macaques, *Macaca fascicularis*, *Animal Behaviour*, 42, pp. 529-549; Maynard Smith, J., and Price, G. R. (1973) The logic of animal conflict, *Nature*, 246, pp. 15-18; Trivers, R. L. (1971) The evolution of reciprocal altruism, *Quarterly Review of Biology*, 46, pp. 35-57; Zahavi, A., and Zahavi, A. (1997) *The Handicap Principle: A missing piece of Darwin's puzzle*. Oxford University Press.

33. Taleb, N. (2010) *The Black Swan: The Impact of the Highly Improbable*, 2nd Ed., Random House.

**“lighting out for the Territory ahead of the rest”:
The Future of/in *The Adventures of Huckleberry Finn***

R.C. De Prospro

“We are outside history, outside sociology, caught up straightaway in the territories toward which Huck Finn lit out.” Geoffrey O’Brien, “Dreams on the Water.”

I

The wisdom that becomes conventional is almost always the wisdom that reassures. Conventional wisdom concerning *The Adventures of Huckleberry Finn* is that a combination of fellowship with a supremely caring slave coupled, a bit less obviously, with an affinity for nature combine to convert a racist 1830s poor-white-trash Missouri teenager if not into a proto-abolitionist at least into a proto-integrationist, conventional wisdom that is frequently deployed to counter minority wisdom that a combination of the novel’s profusion of n-words coupled with some inconvenient racist remarks by its author justifies removal from the ranks of American classics, if not an outright ban. (The most popular buddy movies all feature mixed-race couples: *The Defiant Ones*, *In the Heat of the Night*, *Trading Places*, *48 Hours*, *I Spy*, the *Men In Black* franchise, *Training Day*, *Die Hard: with a Vengeance*, *Django Unchained*, the *Lethal Weapon* franchise, still, even after the disclosure of some inconvenient racist remarks by the white star.)

But suppose Huck’s ethics to remain questionable, or worse, even at the end, and that the beneficial agency of the river or of what is usually spelled, incorrectly, the “territory” to be negligible. Maybe both *The Adventures of Huckleberry Finn* and its author are best uncoupled from Huck’s supposed conversion and nature’s supposed redemptive potential. Maybe doing so enables the novel and its author to be said to be precociously cognizant of race matters, exceptionally pessimistic about their easing any time soon in the US, and so as hyper-sensitive to the plight of their victims as even a Cornel West or an Al Sharpton could possibly wish for.

Entirely too much fulminating has already occurred over the fetishizing of *The Adventures of Huckleberry Finn*, both pro and anti, for me to want to add to it. I’ll confess a tendency toward the anti – note the unsubtle tell of my choice of “fetishizing” – but, then, I ought further to confess a tendency generally to be against the worshipping of canons. And believing, as I do, that race still matters in the US, I’d be loath even to ask, was Huck black? which is a rhetorical question to Shelley Fisher Fishkin and the title of her 1993 book. Elaborating upon, and implicitly contesting, Mark Twain’s insistence in his *Autobiography* that Huck Finn was based entirely on Hannibal’s celebrated vagrant, bad, dirty, but nonetheless definitively white, boy – “In ‘Huckleberry Finn’ I have drawn Tom Blankenship exactly as he was” (58) – Fishkin mounts a sophisticated linguistic analysis of Huck’s slang and speech patterns to show that Huck spoke a sort of early Ebonics, which also elaborates upon and implicitly contests Mark Twain’s rather insistent introductory:

EXPLANATORY

IN this book a number of dialects are used, to wit: the Missouri negro dialect; the extremest form of the backwoods Southwestern dialect; the ordinary "Pike County" dialect; and four modified varieties of this last. The shadings have not been done in a haphazard fashion, or by guesswork; but painstakingly, and with the trustworthy guidance and support of personal familiarity with these several forms of speech.

I make this explanation for the reason that without it many readers would suppose that all these characters were trying to talk alike and not succeeding.

THE AUTHOR. (iv)

Fishkin's book adds linguistic authority to presumptions that go back to even before Leslie Fiedler's somewhat puckish suggestion of a homoerotic tie that the rapport that Huck and Jim develop anticipates the possibility that racial amity will one day replace racial animus in the US. Fishkin's premise is no more outrageous than Fiedler's, and to many probably a good deal less so; better a hetero Huck devoted to a black mentor, Eminem-to-Doctor-Dre fashion, than a closeted gay-leaning jungle-feverish one. If any of this seems too atypical an overreach on Fisher Fishkin's part, realize that Russell Banks implies in his Introduction to the 1996 Oxford edition of *A Tramp Abroad* that Jim might be considered white (xi).

But rather than tussling anew with T.S. Eliot/Ernest Hemingway/Lionel Trilling/Henry Nash Smith/Shelley Fisher Fishkin/Justin Kaplan/Russell Banks et al., or closing ranks with Leo Marx/Jane Smiley/John Wallace/Jonathan Arac/Ishmael Reed et al., I'm going to concentrate just on trying first to redetermine the much over-determined place I referred to in my title that lies beyond the closing of the novel, and second to focus on – dare I confess to fetishize? – a rather less thoroughly examined place that lies, conversely, deeply in the novel's interior, at its center, the nineteenth of its forty-two numbered chapters. My point will be to critique the very many critiques of the novel that promise that some kind of race-blind great good place awaits Huck in "the Territory," correctly spelled – and implicitly awaits also all other Americans willing to venture beyond what that noted Mark Twain predecessor and butt of his literary derision earlier famously disparaged as "the settlements."

Once having ascended – descended? – to the status of fetish, texts acquire the privilege to inspire in enthusiasts the tendency to elide seemingly repellent elements of its plot and diction – and not just the n-word, objections to which Alan Gribben's recent edition blithely presumes to counter by simply performing a global edit changing all two-hundred-nineteen n-words to "slave" ("Indian" is also made to replace the "Injun" that appears mainly in *The Adventures of Tom Sawyer*, which is also included in Gribben's new NewSouth edition. New South, indeed.) Laura Skandera Trombley, a Mark Twain scholar and current president of Pitzer College, says recently in an article in *The Chronicle of Higher Education* that in her "favorite lecture," called "Why Huck Matters," she tells her first-year students "about the character of Huckleberry Finn, a young boy whose mother is dead, who skips school and who suffers severe abuse at the hands of his alcoholic father. Nobody much cares what happens to Huck. He is poor, uneducated, lacking in social status, and without influence." Mother dead,

school skipped, father a violent drunk, no education, no status, no power – check all of that. And maybe even Tom’s taking such care as to bribe Huck into returning to “civilization” as the condition of Huck’s being permitted to pretend to be the kind of outlaw he has actually become before being enticed by Tom to return isn’t enough of a complication to give even a Mark Twain scholar pause before claiming that “nobody much cares about what happens to” Huck, this also in spite of Mark Twain’s testimonial in his *Autobiography* to the charisma, and the consequent popularity, of Tom Blackenship, “the only really independent person – boy or man – in the community, and by consequence he was tranquilly and continuously happy and envied by the rest of us. And as his society was forbidden us by our parents the prohibition trebled and quadrupled its value, and therefore we sought and got more of his society than any other boy’s” (59). Assuming this to be no stretch, boys cared about the boy Huck is modeled after. A lot.

And Huck “poor”? He is, of course, rich, as even anybody who might be totally ignorant of *The Adventures of Tom Sawyer* is reminded by Huck’s alluding to it in the second paragraph of *The Adventures of Huckleberry Finn*; then later, in the event that this little detail has been forgotten, it’s reinforced by the conspicuous plot device in chapter IV of having Huck improbably recognize his main vulnerability to his abusive father being legal and fiduciary rather than physical, and so he rushes headlong the instant he recognizes his father’s heel-print in the snow to Judge Thatcher to sequester his fortune in trust. Six thousand dollars – six Jims at approximately the going rate in the 1830s – or, perhaps more to the point here, enough to buy six Jims out of slavery – six thousand dollars, enough money to buy the 1830s equivalent of six luxury automobiles, as we can estimate taking into account the value of hard-currency dollars at that time: and potentially even more, since the purchase of six male field hands in their prime would represent not conspicuous consumption but capital investment, in the event that Huck were as precociously knowledgeable about finance – as well as immune to moral qualms – as he has already shown himself to be about such “civilized” matters as legal dependency and judicial discretion. (Although Huck’s trust in judges turns out to be naive; the precocity of Huck’s reaction to his father’s reappearance is immediately countered when a second, unnamed, judge, with a predictable patriarchal tendency to prefer fathers, in the very next chapter decides that Pap is a good candidate for rehabilitation, which is what exposes Huck first to being kidnapped by Pap and later to being nearly murdered by him.) So eager is Trombley to cast Huck as an embodiment of the American dream – after finishing with Huck, Trombley continues to tell her first-year students about her father, orphaned in the Five Points slum of Manhattan just before the Depression, but who manages eventually to reach his own version of the territory ahead, a Pepperdine University Bachelors degree and a USC MBA – that she reconciles Huck’s origins to a prototypical model of innocent disadvantage, a certain inconvenient particular of the plot of *The Adventures of Huckleberry Finn* to the contrary notwithstanding.

Shelley Fisher Fishkin has yet to my knowledge to ascend to the height of the presidency of an elite liberal arts college, but she is an even more prominent Mark Twain scholar – she is certainly today among the very most prominent – and one who is so decidedly, not surprisingly, of the pro-fetish party that she awards *The Adventures of Huckleberry Finn*, in her 1996 book *The Territory Ahead: Reflections on Mark Twain*

and *American Culture* what I guess must be considered American literature's gold medal, "the most taught piece of American literature" (9)¹ – this despite the best evidence having been obtained in a 1990 survey by the Modern Language Association that the award may, somewhat unexpectedly, go to Thoreau's *Walden* (Huber 40).² Revelations of the incorrect or dubious awarding of literary prizes have become increasingly more commonplace these days, and I don't think anybody can be absolutely certain that the MLA's award might either never have been statistically deserved or might by now be outdated, and that Fishkin's wishful estimate may actually be correct. But the casual assumption that the title of her book can be accepted to be the novel's very last, concluding and conclusive statement on Huck's future deserves to be challenged, not only because it's careless and wrong but because it might be said to be silently, and therefore all the more profoundly, motivated.

The phrase that has come to quintessentialize *The Adventures of Huckleberry Finn* to the novel's admirers is of course a foreshortening of Mark Twain's original. This phrase foreshortens the original, and, moreover, departs significantly from the original's orthography. The celebrated final half-dozen words of the novel, confirmed by the discovery of Mark Twain's autograph, are "the Territory ahead of the rest"; see the xerox of Mark Twain's very legible "Territory" on the final page of his 1883 manuscript reproduced in the Mark Twain Library 2001 edition (508). The adumbration, whose adoption extends from the popular culture of the title of a high-end apparel catalog all the way to the university culture of the title of Fisher Fishkin's book, encourages the notion, dear to the hearts of virtually all Americanists, even irreverent ones like Leslie Fiedler, that it is virgin land that is beckoning to Huck at the end as a purifying alternative to Aunt Sally and "sivilization." But the phrase in its entirety implies the opposite, that Huck is driven by the very "sivilized" urge to get there first, driven by the desire for competitive advantage, and Huck's destination, "Territory" the upper-case proper noun, is innocent only in accordance with the most incomplete, ahistorical understanding of the geopolitics of North America; "Territory," upper-case proper noun, was the fruit of America's original, original sin (remember "Indian" Joe from *The Adventures of Tom Sawyer* who is dispossessed of a twelve-thousand-dollar treasure, half of which constitutes Huck's fortune) and continued to be inextricably tied, at least since the corrupt bargain of 1820, to its second. If Huck is headed in the 1830s to land above parallel 36°30' north and outside the Missouri Territory he can invest his \$6000 as capital and aspire to get even richer off of slave labor as the *arriviste* master of a plantation himself. A contemporary equivalent of Mark Twain's "Territory" would be the very vexed and thoroughly politicized "Occupied Territories," or, if you prefer, the "Disputed Territories," of the Middle East.

II

Backtracking, I can't claim to be the first to notice the felicities of Huck and Jim's idyll on the bank of the river in Chapter XIX. But I am among a minority to emphasize the irony of its placement at virtually the precise, mathematical, center of the novel. For, almost all of Chapter XIX constitutes the longest interruption of the adventures of Huckleberry Finn in the novel, a long pause structurally central to the novel that is rudely brought to an end by the beginning, at the chapter's conclusion, of the penultimate, and to Jim the second most costly, adventure of all, initiated by Huck's

inviting the fleeing Duke and King to escape with them on the raft. The ultimate consequence of what Huck claims to be a reflexive empathy for fugitives – “whenever anybody was after somebody I reckoned it was me – or maybe Jim” (160) – will be the Duke and King’s betrayal of Jim back into slavery in Chapter XXXI.

Chapter XIX is the one in which Huck famously observes that “it’s lovely to live on a raft” (159), and much attention has duly been paid to the lyric raptures of his description of the sunrise that he and Jim get to appreciate from their sanctuary tied up and hidden by cottonwoods and willows on the bank of the Mississippi. What makes this hiatus especially salient is not only that it is immediately followed by the commotion of Huck’s rescuing the Duke and the King, but also that it is immediately preceded by the horrific conclusion of the Sheperdson-Grangerford adventure, which Huck singles out as probably the worst trauma of a lifetime that even after only twelve or so years has already endured plenty: “I ain’t agoing to tell *all* that happened – it would make me sick again if I was to do that. I wished I hadn’t ever come ashore that night, to see such things. I ain’t ever going to get shut of them – lots of times I dream about them” (154). Intensifying Huck’s horror at having just witnessed at close range the slaughtering of his friend Buck and Buck’s cousin is the fact that Huck is at least partly responsible, having prolonged his stay with the Grangerfords out of curiosity about how the star-crossed, Romeo-and-Juliet affair between Sophia Grangerford and Harney Sheperdson would conclude by postponing escape with Jim even long after he learns that Jim is alive and had repaired the raft, and, worse, having voluntarily enabled the lovers’ adventure as their go-between, reading the notes that they, believing him illiterate, entrusted to him: “I reckoned I was to blame, somehow...I ought to told her father about that paper and the curious way she acted, and then maybe he would a locked her up and this awful mess wouldn’t ever happened” (154-5).

“Raft” is easily construed as an exceptional state of mind, one that Huck, despite appearances and a great deal of commentary on the novel to the contrary, only very rarely can sustain. It’s not only or primarily that floods and fogs and juggernaut steamboats force Huck to abandon the raft: he more often voluntarily disembarks to have adventures, unnecessarily reconnoitering the shoreline in drag in Chapter XI, for example, which crude disguise is instantly unmasked, and then, evidently undeterred, immediately afterward in Chapter XII recklessly boarding the wrecked “Sir Walter Scott” against Jim’s prudent advice, which ends with Huck and Jim not only again almost being discovered but probably being murdered by the real robber gang Huck stumbles upon on board. To try to visualize the unique inactivism of Huck’s posture in Chapter XIX I show my undergraduates Winslow Homer’s 1873 “Three Boys on the Shore,” in which boys of about Huck’s age and socioeconomic status – and, I tell them, doubtless also Huck’s adventuresome inclinations – are immobilized by a superficially unremarkable seascape, their prone posture and dun garments rhyming almost perfectly with both the shape and the color of the rock they’re lounging on. Their backs are to us, like the couple viewing another superficially unremarkable seascape in Homer’s 1874 “Moonlight,” which I also show, both implying another, I think more critical, harmonizing, this one not the banal one between people and nature but a more subtle, proto-post-modern one between viewers of nature and viewers of art. Sedentary, comfortable, safe, Huck and Jim enjoy what is for them the uncommon luxury of a purely aesthetic absorption in the scene.

And Mark Twain may even anticipate some of Homer's most prominent successors in his stylizing of Huck's perceptions, which not only delight in decrying phenomena – sky, shoreline, river, river-craft, voices, dwellings, even just the coming of daylight itself – that in almost every other circumstance in the novel would of necessity cause the fugitives to take alarm and look no longer to the phenomena but to how to escape the possible discovery that such phenomena portend; Huck's representations subtly transform the coming into view of three-dimensional things into a composition of two-dimensional shapes: woods become "a dull line," sunrise becomes "paleness, spreading around," river "softened up" into "black" and then "gray," trading scows become "little dark spots," rafts and snags become "long black streaks" (157-58). And the play that Mark Twain attributes to Huck's serene apprehension of the scene in its entirety is that of pure, non-binary difference: dark and light, silence and sound, even the stink of "rank" dead fish and the "sweet" smell of a "nice breeze" (158). Monet's late waterlilies, or even Huysman's *Des Esseintes'* carnival of odors in *Au rebours*, or even Derrida's *différance*. A post-modern, post-structuralist *The Adventures of Huckleberry Finn* was of course inevitable, and I won't pretend that the precocities I just suggested are either the first or even the most audacious that have been claimed for the novel. I will direct you to a very good, relatively brief, example, which identifies certain intriguing textual affinities between *The Adventures of Huckleberry Finn* and, of all things, late nineteenth-century tort law, with its structuralist divorcing of individual agency and motivation from ill consequences, including the very ill ones of racism in general and Jim Crow discrimination in particular: Stacy Margolis's article in a 2001 issue of *PMLA*, "Huckleberry Finn; or Consequences."

But the interruption of the adventures of Huckleberry Finn in Chapter XIX permits yet one more, final and crucial, perhaps even more advanced than postmodern, perhaps even utopian, transformation. Under the spell of all of his disinterested gazing, Huck is atypically generous toward Jim's creationist insistence that the stars that they contemplate toward the end of their idyll were made: "Jim he allowed they was made, but I allowed they happened; I judged it would have took too long to *make* so many. Jim said the moon could a *laid* them; well, that looked kind of reasonable, so I didn't say nothing against it" (97). On previous occasions when quarrels between Huck and Jim imply a theological dispute – the argument over the wisdom of King Solomon in Chapter XIV, for example, when Huck keeps insisting that Jim "clean missed the point," ironically parroting the catechizing of the Widow Douglass that Huck himself had rejected in favor of superstition in the first chapter of the novel (111) – Huck is as eager to "lord it" over Jim and sneer at his superstitions as Tom was in Chapter II when he cruelly takes advantage of a sleeping Jim, hanging Jim's hat on a limb so that Jim, predictably, would believe that "witches bewitched him and put him in a trance and rode him all over the State, and then set him under the trees again and set his hat on a limb to show who done it" (23), which is ironically true enough, considering that any white person, including a boy half Jim's age and size, has the arbitrary power and the gratuitous malevolence to toy with Jim like an overgrown plaything. Huck is only once, and then only briefly, in Chapter XIX so inclined to embrace difference as a value in itself that all binaries, including that most invidious one for the antebellum US – and doubtless still today – can momentarily be resolved into something like equality.

“The Territory Ahead” – the clothing catalog now, not Fisher Fishkin’s book – used to print all of the last words of *The Adventures of Huckleberry Finn* – with “territory” demoted to a common noun – on page three. In one of the catalogs, a slide of which I show my students, the words are printed over a picture of footprints in the snow leading off into the distance toward an empty mountain landscape. In later catalogs this flawed testimonial to the novel disappears altogether, and recently even Mark Twain’s article has been eliminated: the catalog appears now as just plain “Territory Ahead.” The gradual erasure of the original, and I’m asserting an original foreboding, and the gradual ascendancy of the land, along with the Americanist/naturalist exceptionalism that it more than just implies, characterizes too much of our misunderstanding of more than just America’s literary history. Far from promising a race-blind future, the original ending of *The Adventures of Huckleberry Finn* can be recognized ominously to prophesy that after the end of Mark Twain’s novel there probably lies more of the same, to which a certain very prominent, Nobel-prize winning US intellectual, not exactly a professional reader of Mark Twain but one to whom race tragically never stops mattering here, gives powerful voice. In her “Introduction” to the same 1996 Oxford edition of *The Adventures of Huckleberry Finn* in which Fisher Fishkin first makes the claim that the novel is “the most taught piece of American literature,” Toni Morrison warns that “the danger that sifts from the novel’s last page, is whether Huck, minus Jim, will be able to stay those three monsters [“a child’s fear of death and abandonment,” the “sadness at the center of Jim’s and his relationship,” and “Huck’s engagement with a racist society,”] as he enters the ‘territory.’” Morrison goes on to ask “will that undefined space, so falsely imagined as ‘open,’ be free of social chaos, personal morbidity, and further moral complications embedded in adulthood and citizenship?” (XLI). It’s a rhetorical question, and I think Mark Twain would agree.

Notes

1. This from Fishkin’s “Prologue.” She’s quoting a sentence from a 1993 *English Journal* article by Allen Carey-Webb (22) and had made the same proxy claim earlier in the opening of her Foreword to the Oxford edition of *The Adventures of Huckleberry Finn* (xi). Carey-Webb’s estimate precedes the MLA survey and would seem to be restricted – as would be expected in an article in this journal, which is sponsored by the NCTE – to works assigned in junior high and high schools. Evidently pro-fetishizing Mark Twain scholars have a tendency to introduce their testimonials with memoir. Whereas Trombley recalls her father, Fishkin recalls her mother, who, in the first sentence of her book, “startled me out of a cocoon or cartoons and cocoa one blustery Saturday morning when I was eleven. ‘Get dressed. We’re going on a mystery trip’” (3). Turns out to be Mark Twain’s Hartford home. As proof that Fishkin neglects the geopolitical significance of “Territory,” proper noun, consider this, from the conclusion of her “Epilogue”: “The territory Mark Twain ‘lit out for’ was a strange and complicated place, filled with promise and pitfalls, beauty and barbarity. Twain, like Huck, lit out ‘ahead of the rest,’ foreshadowing a host of challenges and conflicts we are still negotiating today” (203). “Ahead of the rest” seems to imply to her a clairvoyant glimpse of the modern US, which Huck evidently shares with his author.

2. Thoreau is a close second to Hawthorne in the rankings of the importance of individual nineteenth-century American authors, but *Walden* wins out over *The Scarlet Letter* by a large margin in the rankings of individual nineteenth-century American texts most taught. High school teachers were of course not surveyed, so these findings reveal the preferences only of university and college English professors. Among the latter, interestingly, *The Adventures of*

Huckleberry Finn doesn't rank high enough even to get a mention in Huber's analysis of the survey.

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Rhythm, Evolution and Neuroscience in Lullabies and Poetry

Dustin Hellberg

Abstract

This paper will attempt a methodological configuration to link the natural sciences (evolutionary theory and neurology) to literature (lullabies and poetry, specifically). It uses findings in neuroscience and animal neurology as well as the theories of evolution by natural selection in to examine patterns in lullabies, and then connect these to poetry. As one will never find a ‘metaphor gene’, nor do genes even code for behaviors – coding instead for traits – is it possible to even locate overlaps between the disciplines of natural science and literature? Doing so requires a mixed methods approach. This article seeks to build on the existing philosophical and theoretical ground of current natural science in order to establish a dialogue with current cultural and literary theories.

Key words: Charles Peirce, Susan Haack, mirror neurons, lullabies, evolution, literary theory

Methods and Meanings

The philosopher Charles Peirce said, “Let us not pretend to doubt in philosophy what we do not doubt in our hearts” (1974: 157). The fact of evolution by natural selection has long been established as thoroughly as any scientific theory, and yet it is puzzling to witness the continuing doubt regarding its potential influences in the humanities, and in literary studies specifically. “Among the sophisticates, the controversy does not center on the basic fact of evolution but on certain consequences, such as the importance of natural selection and especially the relevance of evolution to human affairs. The intellectual positions most fiercely opposed to ‘sociobiology’ and ‘evolutionary psychology’ include social constructivism, postmodernism, and deconstruction” (David Wilson 2005: 21). I would like to suggest that mapping the connections between seemingly incommensurable disciplines is in fact possible, through an interdisciplinary methodology. Recent discoveries in animal neurology (human and non-human) and the brain’s relation to rhythm, music and isopraxic mimicry open doors for the interrelation between the brain and language, the interrelation between the evolved human brain and a work of literature. Specifically, I will look toward poetry as an extension of basic neural reaction to rhythmic sound and pattern, trace that through mirror neurons and symbolic representational action, and then try to bridge these to poetry by examining patterns in lullabies owing to their reliance on metric form, musicality and metaphor, all of which will be shown to have a strong relationship to the human brain’s neurological functions. The strong reliance on science here necessitates that fallibilism remains the guiding ethos.

Susan Haack outlines a definition of fallibilism along Peircean lines. Fallibilism, for Haack, helps to avoid the trap of the hypothetico-deductive method of Popper while also staying clear of linguistically relative traps of a more modern philosophical stripe (Haack, 2013: 181-183). These notions are especially important in attempting a methodology compatible with literature. Literary works are by their nature¹ falsified and

heightened accounts of a kind of ‘reality’ which needn’t bear any resemblance to the present one. But, literary works also bear certain common aspects such as theme, narrative and poetic effects that are too similar to ignore, and these similarities bear the stamp of a human nature which must owe its presence to the common evolutionary ancestry of the human species and its evolved traits. A fallibilist methodology will help to avoid the twin pitfalls of reductionism and linguistic relativism. Though Haack is speaking of fallibilism in relation to the philosophy of science, it will serve the present purposes well enough. She says, borrowing Peirce’sⁱⁱ term, “Critical Commonsensist theory...is not skeptical, but fallibilist; it focuses less on demarcation than on continuities between science and other kinds of empirical inquiry; and it is not purely logical, but worldly” (2013: 190). The key for Haack is that beliefs and perceptions both imbue the human experience with meaning (192). Using these criteria along with what Haack calls “epistemic likelihoods” (193) against a kind of reductive probability, I believe that the evidence to be provided supports the main claim that evolutionary theory can be used to analyze certain aspects of literature; also, that the evidence provided is independent of the claim (Babylonian lullabies were not, obviously, influenced by the theory of evolution – like a modern lullaby written by, say, a sociobiologist might be); and, while I cannot claim comprehensiveness, I will look at a lullaby in Babylonian, and then attempt to bring these findings to bear on a twentieth century poem in English.

What might be needed here is a shift in the definition of literature to something more akin to scientific inquiry that will retain interpretive range of textual materials. Brian Boyd offers one such definition in *On the Origin of Stories*. He seeks to define literature (or rather art in general) as a type of ‘Darwinian machine’ that evolvesⁱⁱⁱ as an interplay between evolutionary tendencies in a species and its environment, both in territory and sociality. For example, the poetic possibilities of what constitutes a poem relies on variation, which will likely deviate from current social (or aesthetic or whatever) dispositions. For example, there will be certain social practices based on tradition, culture and innate/evolved traits which codify the institution of ‘poetry’ against which a particular artist (like a mutation in an organism) then puts into the environment. The author cannot know in advance that the new ‘poem’ will be liked or accepted, but it is not until the introduction of the new variant that such modifications of what constitutes a ‘poem’ may take place. This is not artistic definition by natural selection, but by what Boyd calls ‘unnatural selection’ (2009: 405-406). Art changes, drifts, comments, refuses to comment, may reveal tendencies of the human species, or those tendencies may be suppressed by an author with an anti-evolutionary bent after having learned of it.

While this kind of possible occlusion may seem a glaring methodological flaw, by relying on Haack’s fallibilist ground, we may safely proceed. By looking at integrative “continuities between science and other kinds of empirical inquiry” (Haack, 2013: 190), we can try and identify the borders of the disciplines and map not only innate dispositions like sexual desire or parental investment strategies, but also note where these natural processes give way to cultural ones, those places and patterns and rhythms on which ‘art’ rests and also resists, creating new forms of personal and cultural expression. Boyd continues in outlining eleven ways that art generates variation in its creation (2009: 121-123). Two of these will be useful for spatial limitations:

numbers three and eleven. “3. Because art appeals to our cognitive preferences for patterns, it is self-motivating: we carry innate incentives to engage in artistic activity...¹¹. We appreciate even minor variations within established forms as worth of attention and response. With our senses highly tuned to basic patterns, we enjoy repetitions and variations on a theme in art as in play” (121-122). Patterns, rhythms, variations, syncopations.^{iv} These are core tenets of the arts of poetry, fiction and music. I will seek to tie these notions back to evolved tendencies in the brain and suggest new avenues for reading literary works.

Such a wide-angle view, however, requires a wide lens in which to figure it. I am, in a way, simply following Boyd’s earlier idea of ‘unnatural selection’. The fields of neuroscience and literary studies might seem unrelated, a problem further complicated by the background philosophy and methodology of each. Hence the methodology and backing will require some extra length for explication. Much of the difference between literary studies and neurosciences may be related to the recent dominance of cultural studies in the humanities and their subsequent blurring of ‘facts’ as relative forms of interpretation, kinds of discourse, mere apparatuses. This kind of modern dualism update is found “(i)n current mainstream literary study, [where] dualism most often takes the form of ‘cultural constructivism’ – the idea that culture has an autonomous causal force and is not constrained by innate dispositions” (Carroll, 2011: 65). The line of thinking contends that if human action can only be described in language and if language is culturally bound in its determinate meanings and social function, then because all cultures differ in various degrees, there is no foundation from which to begin speaking of an ineradicable ‘human nature’ because there is no vantage, no “gods’ eyes view” (with apologies to Putnam) from which to begin to speak. To claim that there is no truth is in fact a nugatory affirmation of a statement of truth, which refutes itself (and remains a variation of the liar’s paradox).^v Also, this line of thinking, that all cultures differ, that all art is subjective, that all language is slippery and shifting, ignores an even deeper observation: the universal existence in the human species of culture, sociability, language, art. Boyd says:

If cultural anthropology has shown that human nature is much more diverse than any one society had assumed, evolutionary biology and anthropology have also begun to discover that culture exists in many animal species (dialects and fashions in bird and whale song, for instance, or in chimpanzee traditions of toolmaking), that there is a universal human nature, and that in humans, too, culture is not apart from nature but part of nature. And as many have noted, ‘explaining’ human cultural variation by the power of culture is too circular to be an explanation at all. (2005: 149)

Lacking a full and integrative picture, art could only be rendered and interpreted through the blurry linguistic lens of slippery meanings and definitions which tend almost invariably toward variations of linguistic relativism.^{vi} Of course while paradox, irony and ambiguity are important literary techniques, they cannot serve as methodologies for understanding themselves. Indeed, had the common social functions – like art, culture, sociability and language – lacked a deep root in human nature, had they been prone to the vagaries of mere linguistic drift, had they not somehow conferred a survival advantage on early humans, the odds are that they wouldn’t be seen in mod-

ern human activity. Those traits whose resulting behavior granted the individual or group no advantages would have likely disappeared. Nor would it be possible to glean these self-same activities in the human DNA records, fossils, neural activity, and historico-anthropological records. But these very data are traceable, locatable, identifiable. If one focuses on the (self-refuting) statement that *homo sapiens* is a social/linguistic construct, surely one will be asked, How far down into the nature of our species can a linguistic/constructivist theory hope to delve? How far into the nature of what it means to be human can cultural theory go? Surely what is meant is the social human, the linguistic side of human activity, and not the neural processes and cellular activity, and so on. And if the biological properties are to be ignored or subsumed and only the conscious cognitive properties are emphasized, then what is presented is a return to a type of dualism, here between the biological/evolutionary and the linguistic, or worse, the claim that language creates consciousness.^{vii}

A new conscious state, new information, an epiphanic moment, is not a purely novel reconstitution of the world, just as the brittleness of a hip-bone is constitutive of the bone itself and not merely the whim and caprice of the person identifying that brittleness (and very much less the language or term used in the identification). In this, John Searle would argue that “Consciousness is literally present throughout these portions of the brain where consciousness is created by and realized in neuronal activity [which] runs contrary to our Cartesian heritage that says consciousness cannot have a spatial location” (2004: 63). It is a reconfiguration of neural activity and stimuli to a particular brain composed of brain-stuff which cannot be reduced or exactly replicated, thus sloughing off charges of reductionism (or epiphenomenalism) or the grotesqueries of solipsism. It has to do with brain states in a brain evolved (teleologically ateleological) to grant meaning to itself, and that self-ascribed meaning might be labeled ‘belief’. “The point is precisely that [these beliefs] are complex dispositions including dispositions to respond to/to use sentences in a public language, or other non-natural signs; it is the dispositions, not the sentences, that are in the head” (Haack, 2012: 231). Beliefs and sentences about beliefs have proven quite useful for the human species, and both belief and evolved abilities have proven incredibly advantageous.

Christian notes (2005: 140) that the total amount of energy controlled by the human species from the Paleolithic to the present has grown nearly 50,000 times, suggesting the incredible adaptability and intelligence of the human species largely due to the power of what he calls ‘collective learning’, a bringing together in language of particular skills, forms of knowledge and observation; as Christian sums the figure, “This is a staggering amount of energy to be controlled by one species, and it helps to explain why our species has had such an impact on the entire biosphere” (2005: 140). Here is an example that seems to blend together – or at least blur distinction – between the natural sciences and the status of sociality/culture in *homo sapiens*. Yet, interestingly, as a species, humans are 99.9 similar genetically (Witherspoon, et al., 2007: 351). In fact, “(M)ost of the genetic variety within modern humans occurs within African populations, which suggests that this is where humans lived the longest” (Christian, 2004: 177).^{viii} How can any constructivist model which claims plasticity in human character and behavior by linguistic model alone thereby account for the remarkable lack of variation in the genes of the total human population? Language and belief have an

effect on human behavior, no doubt. But the case might have been overstated seeing that a staggeringly statistical phenotypic regularity suggests an almost complete lack of variation, throughout the cultural/linguistic explosion of human history.

In the case of language itself, it is of course possible that mutations in the genetic code might have resulted in the human species' knack for language. The occurrence of the FoxP2 gene in human and non-human animals, a gene associated^{ix} with language use and language learning, is incredibly suggestive. But, such findings must be met with critical common sense: correlation here is only suggestive. Churchland is quick to point out that phenotypic variation like height is associated with nearly 50 gene sequences, and to suggest that any particular gene is responsible for advanced behavioral and social tendencies and traits like warfare or even language must be carefully trotted out (2014: 160). But cross-species genetic recurrences are tantalizing nonetheless. As Marzluff notes, "The song- and speech-learning systems of songbirds and people...involve neural interaction with their auditory systems: in people this includes extensive involvement of multiple thought centers within our forebrains; in birds multiple forebrain regions are likewise involved in song learning and song production" (2012: 52). Analogous neural areas between birds and humans suggest the mimicry, pattern recognition and rhythm syncopation abilities in the two species share some common ancestry, and if shared, push the human language capacity back into the deep realms of evolution (2012: 53-54).

Some of these similar characteristics involving sensitivity to sounds and rhythms derive partially from the FoxP2 gene (2012: 52, 56). This gene was also found in the sequenced Neanderthal DNA (Finlayson, 2009: 106), and gives rise to speculation that *homo sapiens*' 'cousin' might have also had some limited language ability, though analyses of their skulls suggests that they lacked the physical ability (due partially to a different larynx shape) to manipulate sounds as effectively as *homo sapiens*, despite their physically larger brains (Christian, 2004: 175). Again, the primacy of language as a force of social and cultural change is not to be undercut as it conferred a distinct advantage to the human species. The linguistic ability of early humans was largely responsible for what Christian calls 'collective learning' and was probably the very thing that allowed 'extensification' (viz. slow migration) of the species (2004: 190). The more the natural sciences are brought to bear upon human activity, the less the human species seems to stand apart. This is not reductive. It is instructive. It does not seek to eschew the importance of culture in human development but to deepen the vantage. As the literary arts are human productions, and human productions must necessarily bear the stamp of an evolutionary heritage, even strange bedfellows like evolution and literary theory must be brought together.

It doesn't seem presently necessary to engage the particular issue of what a 'culture-based' theory may or may not get right,^x and it will not be necessary. The methodological configuration will continue by outlining the general aims of Literary Darwinism and then proceed to some recent discoveries in neuroscience and will end by connecting these together by comparing lullabies and poetry, again under the aegis of a fallibilist ethos. While fallibilism, for example, served as Charles Peirce's primary maneuver toward his Pragmaticist philosophy, this paper will not be making a Pragmatic/Pragmaticist argument.^{xi} Further, the use of neuroscience must be tempered

with such fallibilism to avoid reductionist charges of determinism or epiphenomenology. How then to explore the connections, the overlaps, between animal neurology (here, meant to include *homo sapiens*) and rhythm in poetry with an ear toward patterns and rhythm in lullabies, a pattern that stretches back to the earliest recorded ones of Sumerian and Babylonian culture? Mixing methods requires a lengthier explanation. But all of this comes with a fallibilistic caveat, as when attempting to apply fMRI scans and genetic information to human activity. As Deacon says, “Consider functional brain imaging, such as positron emission tomography (PET) or functional magnetic resonance imaging (fMRI). (I)t would be a serious mistake to imagine that the function in question is in any sense ‘located’ in the identified ‘hot spots’, or to believe that a metabolic ‘snapshot’ would be in any sense a simple correlate to what is involved even at a gross level in the performance of that activity” (2012: 176). With this fallible mindset firmly in place, we may begin to proceed. For the most part.

Moving Toward the Human

One question often lacking in the discussion of art is, Why does art even exist? If human activity has been shaped for aeons back into our primate past – long before language – by evolution and natural selection, why would humans engage in such a time-intensive endeavor, spending valuable time and energy on the creation, production and consumption of artistic work? This is quite a different question than asking whether science has anything at all to say about art. The pushing apart of science and the arts has been a principle notion since post-modernism’s early foundation. For example, in 1979 Jean-Francois Lyotard described the incommensurability of ‘language games’ between science and narrative,^{xii} saying, “It is therefore impossible to judge the existence or validity of narrative knowledge on the basis of scientific knowledge and vice versa: the relevant criteria are different” (1984: 26). This line of reasoning (echoing Wittgenstein) runs through the interstices of post-modernism, post-structuralism, social constructivism and the updated post-theory (or whatever it calls itself these days)^{xiii}, though Lyotard here is not calling the incommensurability a positive thing. Rather, he notes that it is merely a symptom of postmodern/poststructural thought. Joseph Carroll addresses this sentiment seen often in the ‘post-X’ movements in relation to science, saying, “In the move to post-theory, one grants the general validity of evolution...but also then declares that it is irrelevant...that it alters not one jot the way we would read this or that text or describe this or that historical cultural moment...In reality then, ‘post-theory’ is just the latest incarnation of cultural constructivism” (2011: 68).

If, as in social constructivism, language dictates the gamut of human behavior (Boghossian, 2006: 16-19), the science of evolution (or physics or biology or neurology) have no basis from which to speak, and they should thus lack in predictive power. That is simply not the case. It is quite clear that modern critical/cultural theory is ideologically and thus methodologically incompatible with natural science, and if science can be proven to have at least some interpretive power in regards to literature, then a revaluation must take place. While it is important to examine things like gender or racial discrimination, modes and methods of power, in fields like the sciences, humanities or society in general, it is quite another thing to deny that science and culture have nothing to say to one another except at a minimal or cursory level. Yet, often

enough the ends of both disciplines seem to be the same: to establish a better society, a more tolerant and compassionate culture, and to strive for dignity of all members of our species. I would offer this definition of dignity: Dignity is the moment when *homo sapiens* becomes human being. It is that synapse and that jump, and it must be bridged by an accord between the natural sciences and cultural theories. The same holds in literary studies. The attitude in literary studies that sees science as simply another 'discourse' follows the "Passes-For Fallacy: what has passed for, i.e., what has been accepted by science as, known fact or objective evidence or honest inquiry, etc., has sometimes turned out to be no such thing; therefore the notions of known fact, objective evidence, honest inquiry, etc., are ideological humbug" (Haack, 2007: 27-28). Literary Darwinism (hereafter LD), however, has made strides in the past 20 years to bring the arts and sciences closer together.

Speaking from the LD side about the necessity of evolution as part of the interpretational repertoire, Brian Boyd says, "Unless we revert to myths of divine creation, evolution must be part of any complete account of the human, including human art...If evolution can help explain art – human behavior at its freest and most creative – any fears that it implies determinism or denies culture should be dispelled once and for all. No one was ever 'genetically determined' to write or to read something as unprecedented as *Ulysses*" (2004: 147). LD attempts to explain literary events and phenomena in relation to general evolutionary patterns such as adaptation, survival and reproduction, among other concerns and areas of focus. There is no need here to wade into the fray between LD and the prevailing moods of post-structuralist^{xiv} theories except to agree with David Sloan Wilson when he says that "Social constructivists are first and foremost trying to imagine and implement a better world. What they imagine may strike some as naively optimistic or wrongheaded, but it is perfectly sensible, even in biological terms – equality, respect, basic necessities for all, the end of repression, and so on" (2005: 22). If the goal of literary studies is to provide grounds for interpreting literary texts, then it remains as Jeremy Fernando notes that "(i)n other words, interpretation is nothing more, and infinitely nothing less, than the promise of the possibility of interpretation" (2013: 195). If the goal, as Fernando rightly labels it here, is possibility, an expanding outward toward multiplicity, then the inclusion of an evolutionary function of literary interpretation can only widen possibility and bring a better concord between the natural sciences and the humanities in their interpretational scope.

Interpretation involves, among other things, pattern recognition, and *homo sapiens* are capable of pattern recognition like no other animal, as Boyd notes. We are the most adept species at identifying pattern from the chaos of the environment (2009: 88-89), and it causes pleasure. It is a pleasure to try and predict what a character in a book or movie will do, what rhyme might be coming in a poem, or what variations a rhythm or melody in a song might take. Boyd says, "Only humans have the curiosity to seek out pattern in the open-ended way that once led our ancestors to see constellations in the skies, then to infer first the revolution of the Earth from the motions of the stars and planets, then the expansion of the universe, then possibilities beyond our patch of the multiverse" (2009: 89). If pattern could be loosely defined as a kind of regularity of rhythm, a kind of symmetry, then even human infants demonstrate an innate attraction to complex patterns and stimuli. Indeed, human infants tend to show more attraction

to symmetrical faces (Quinn, et al., 2008; Jones, et al., 2007), show aesthetic preference in facial attractiveness (Samuels, 1994), and demonstrate intentional understanding (action prediction) in adult movement (Hernik, et al., 2014). Quinn, et al. found that infants' attention is drawn to certain "entities (attractive faces) more than others (unattractive faces) because of a family of preferred perceptual features that includes but may not be limited to particular features such as large eyes...and the complex geometric attributes that characterize the spatial relations among the features such as their location (e.g. height) and arrangement (e.g. symmetry, top-heaviness) within the whole." What is being shown, albeit briefly, is a prelinguistic tendency in infants toward aesthetic considerations. This kind of 'appreciation' is not singular to our species.

If visual pattern recognition is a fundamental part of the species' evolutionary heritage, it stands to reason that it would figure heavily in artistic representation, and this is of primary importance to the Literary Darwinist hypothesis. What of auditory pattern recognition? What of literary pattern recognition in fiction and especially in poetry? Brian Boyd says, "For the poem or the fiction has been designed to appeal to still more of our preferences for pattern, situation, character, or story and thereby to catch and hold the attention of any audience, far beyond the naturally shared focus of a moment, a situation, a friendship" (2005: 148). Even in this brief quotation, there are two key premises to note. The LD account of literature does not reduce artistic endeavor to a knee-jerk causal relationship between the very broad fact of evolution by natural selection and a particular artist's idiosyncratic creation (cf. 'unnatural selection'). This permits many aesthetic theories to discuss the typological and semiotic^{xv} values of art without having to necessarily label these as 'adaptations'. It also quite succinctly outlines ways in which evolution may be brought into aesthetic domains. For example, in "Studying Synchronization to a Musical Beat in Nonhuman Animals", Aniruddh Patel outlines similarities and differences between human and non-human animals in rhythm and syncopation to music. He says, "(H)umans likely resemble other primates in hearing pitch roughness, though we may be the only primate that forms aesthetic preferences for consonant and dissonant musical intervals based on this precept" (Patel, Iversen, Bregman and Schulz, 2009: 459). While this definitely suggests a more refined aesthetic appreciation in the human species for music and rhythm, it also strongly suggests non-human's innate 'appreciative' capacity.

Some of Patel's other findings are compelling as regards non-humans' sensitivity to rhythm and music. Patel's study originated in studying a cockatoo from an internet video which seemed to be bobbing its body to a particular musical beat. Examining and testing the bird, Patel found that the bird could modulate its 'dancing' syncopation to match slower or faster rhythms (2009: 459-460). This beat-perception and synchronization (BPS) would seem to suggest that, while not perfectly displayed in those animals so far studied, that there exists a kind of 'appreciation' or sensitivity to patterned music which (in most forms of popular music) produce sounds that would never occur in nature. Patel hypothesizes (2009: 462) that this 'appreciation' ability is only found in vocal learning species which include *homo sapiens*, but is also "an evolutionarily rare trait shared by only a few groups of animals, including humans, parrots, songbirds, hummingbirds, dolphins, seals, and some whales" (2009: 462) and other primates like bonobos (2009: 465).

The interesting conclusion here is that if the ability to appreciate and synchronize to rhythms in music is not particular to humans only, then aesthetic models that do not in some way treat with evolutionary and neurological evidence are to be found lacking. If evidence continues to suggest deeper and larger structures that dictate at least some human activities in continuum with non-human species, then these data must be continuously nudged toward consilience. While certainly neither totalizing nor easily realizable, such research and endeavor is key. For example, sensitivity to rhythm and sound is a hallmark of poetry, and this could serve as connective tissue to move toward language in a related chain of possibly linked causal relationships: rhythm, sound, music, language, song, lullabies, poetry.

A study by Fadiga, Craighero and D'Ausilio, "Broca's Area in Language, Action and Music", examines the relationship between Broca's Area of the brain in humans and non-humans. Broca's Area is a key location in the inferior frontal gyrus which is important for language production. But, as Fadiga et al. report, "A growing body of neuroimaging evidence indicates that Broca's area, in addition to its linguistic functions, appears to be engaged in several cognitive domains. These domains include music, working memory, and calculation" (2009: 451) in addition to motor domains in the primates studied (2009: 451). The relation to music via auditory-motor interactions is interesting regarding Broca's area because of its proximity to a large cluster of mirror neurons (2009: 450-451).^{xvi} As Patricia Churchland explains, "Mirror neurons are a subset of neurons in the frontal cortex of the monkey [and also human beings, my note]...that respond both when the monkey sees another individual grasp an object (e.g. I put food in my mouth), and when it performs that action itself (e.g. it puts food in its mouth)" (2011: 135). Advances in fMRI research have allowed the discovery of this same neural activity in humans, and in fact the mirror neurons fire when performing an action, seeing action, hearing action, hearing descriptions of an action (Iacobini, et al.: 2009: 11-12), and have also been shown to fire when an individual reads of an action (Aziz-Zadeh, et al.: 2006).^{xvii} Returning to Fadiga's study, it is important to note that while there seems to be a correlation between mirror-neuronal activity and Broca's area, thus suggesting a brain-based (and thus an evolutionarily^{xviii} causal explanation) "these sources of information (neuroimaging and electrophysiological techniques), although very compelling, offer only a correlation between activity of a given area and the task the subject is performing" (2009: 452). As always in a fallible manner, the evidence must be further weighed.

That the brain does not operate specifically in discreet modules has been roundly challenged if not outright disproven (Deacon, 1997: 157-158), and in fact, neural activity tends to be spread through systems and areas rather than easily localized regions. As Deacon notes, "Once we abandon the reification of language areas as modular language algorithm computers plugged into an otherwise non-linguistic brain, it becomes evident that language functions may be widely distributed and processed simultaneously in many places at once" (1997: 293). But, if there is a neural origin for at least some form of 'aesthetic appreciation' (like sensitivity to rhythm) and that humans beings' brains physically react even to written action (when mirror neurons fire) as if that action had been visually witnessed, the potential overlaps of evolution and literature through LD, become more and more apparent. There likely never will be any

form of reductive ‘smoking gun’ evidence that links evolution directly to literary works, but this seems no great problem.

How could there be direct evidence? One cannot extract Odysseus’ DNA of course or plug Achilles into an fMRI, but this kind of guffaw is nothing more than a straw hominid. Overlaps can be brought to bear on another. The disciplines do require different vocabulary and utilize different methodologies, but as with any set of languages, translation is always possible, and the more each side practices this translation, the easier and more accurate it becomes. Carroll notes, “To generate adequate interpretive commentary from an evolutionary perspective, we must construct continuous explanatory sequences linking the highest level of causal explanation...to particular features of human nature and to particular structures and effects in specific works of art” (2011: 69-70). While there is only a correlative relationship yet proven, the confirmed proof is interesting enough to legitimate some of LD’s claims. As more and more fMRI studies are done, there will be a surfeit of further understanding on the brain’s functions.

Rhythm, Lullabies and Poetry

Just as the marvels of Lascaux and Chauvet caves prove that -among the many examples of Neolithic cave art (Clottes, 2008; see also McBrearty and Brooks for a sweeping account of hominin development) – humans, as a species, have been artistic, have been sensitive to their environment, to the animals around them, to the issues of life and death, for a very long time. Musical instruments extend back at least 35,000 years in the form of flutes made of vulture bones and ivory, found in southwestern Germany (Conrad, et al.,2009). The implication is clear that a musical tradition – in order to have instruments, especially ones requiring skills sophisticated enough to craft complex instruments – would be much older than the discovered artifact. This is the same for the elaborate and highly ornate painting styles of the Neolithic artists. It is the same with language and communication. Christian suggests that in order for early hominins – the precursors of modern humans – to survive and migrate, they must have had some form of language that conferred survival advantages (2005: 159-168). While the implications are clear that language and art are older than probably suspected, physical evidence is of course scarce.

Once again, though, it is clear that the compounding of evidence, be it neurological or anthropological, suggests very old and deeply rooted broad trends in human behavior. This is neither reductive nor left to sheer ‘mind-mystery’. It has long been known that honey bees communicate (Esch, 1967 & Frisch, 2011), that chimps can be taught rudimentary symbolic language (Zlatev, 2008: 142), that vervet monkeys have particular sound relations to identify predatory animals (Diamond, 2003: 45), and that corvids are capable of abstract tool-use and reasoning (Marzluff, 2012: 1-10), and these birds even have language-learning brain centers similar to those of humans (2012: 41-64). It would seem odd to somehow figure the language of *homo sapiens* as anything other than similar instance of a shared continuum. In human language use, sensitivity to rhythm leads to manipulation of rhythm and syncopation to create differing types of meaning, much in the same way that non-humans – like the vervets – control pitch to indicate different predators. That rhythmic meaning stems not just from linguistic or

dictionary definitions. The human brain is a primate brain, and as such, bears distinct similarities to non-human brains, despite the obvious and incredible semiotic/linguistic range displayed by *homo sapiens*. The structures are biological,^{xix} not linguistic. “It is far more reasonable to expect language processes to be broken up into subfunctions that have more to do with neural logic than with linguistic logic” (Deacon, 1997: 288).

A brief glance at any literary tradition – Egyptian literature (Foster), early Greek poetry like Archilochus and Sappho (Constantine, et al.), the *Epic of Gilgamesh* (Gardner) – shows that these texts quickly push past the merely cultural and environmental concerns of the authors. It reveals a stunning singularity among the many voices of primary concerns like sustaining life, the rearing of children, mate selection, not just the more philosophical and religious quandaries of who and where and when. As has been shown, human language is entirely bound up in neural activity, and that neural activity is at least connected to an evolved primate brain, which bears some stamp of its evolutionary heritage. The addition of technologies like paper have given something like a fossil record to the words and shapes of ideas of early civilizations’ oral antecedents. Scholars like Milman Parry, in the early twentieth century, discovered the mnemonic and structural similarities between Homeric verse and Serbocroatian oral poetry (Parry: 1971), suggesting that human brains have not changed much – and more pointedly do not change much from language to language – in nearly 3000 intermediating years. Each oral poetic tradition used very similar mnemonic devices to facilitate the recitation of the poems/songs. It begs a further question: Why is it that across nearly 3000 years and in different languages and social contexts that very similar patterns emerge regarding memory and rhythmic pattern use? What is seen here is nothing less than a deep and telling similarity of form, function and theme owing to the distinctive similarity of evolved human brains.

Poetry is a literary genre which requires a high sensitivity to sound, rhythm, form, content, visual (when written) typographical meaning and vocal (when spoken) modulation. All of these combine in a poem to create various and simultaneous meanings. Things like alliteration, consonance and assonance are hallmarks of the genre and are consistent across poetic traditions^{xx}, underlying the surface concerns of content and focus of particular poems. Looking for overlaps between the neural and the poetic might at first seem strange. It will serve to first examine a cousin to the poem in order to draw out patterns of similarity and then apply this to a ‘poem’ proper.

In ‘Magic at the Cradle’, Farber provides a translation of several Babylonian lullabies which show very similar patterns and structures to any modern equivalent. Once again, reifying my claim (or to parallel Parry’s) that despite linguistic, cultural or formal poetic concerns, emerge the more common patterns of rhythm, sound and the associated meanings that these effects have. Lullabies, the songs and chants sung to infants to calm them, are ubiquitous (Trehub, 1998: 44) across culture and language, once again reflecting a shared ancestry and use. They will serve effectively as a starting point because human infants – as pre-linguistic entities – would not be listening necessarily to the meaning of the words, but rather the meaning of the rhythms and sounds themselves (as accompanied by a melody of some sort), which helps hearken back to earlier proven accounts of human and non-human neural sensitivity to things

like rhythm and sound. He says, “(I)t seems clear to me that such little poems, aimed at quieting babies still unable to articulate their helplessness, pain or anger, must be common all over the world, both in cultures with, and without, a written tradition” (1990: 135). The lullaby he cites was established and socially integrated into the Old Babylonia period of c. 1950-1530 BCE (1990: 140), and contains similar patterns of rhythm (with alliteration and consonance primary among them) that can be seen in any other modern lullaby. The text is as follows (with the English translation after):

sehrum wāSib bit ekletim
lú tattasām tātamar nūr èamèim
ammin tabakki ammin tuggag
ullikia ammin lā tabki
ili bitim tedki kusarikkum iggeltêm
mannum idkianni mannum ugallitanni
sehrum idkika sehrum ugallitka
kima Sātu karānim kima mār sābitim
limqutaāaum èittum

Little one, who dwelt in the house of darkness—
well, you are outside now, have seen the light of the sun.
Why are you crying, why are you yelling?
Why didn't you cry in there?
You have roused the god of the house, the kusarikkum has woken up:
“Who roused me? Who startled me?”
The little one has roused you, the little one has startled you!
“As onto drinkers of wine, as onto tipplers, may sleep fall on him!” (1990: 140)

What should be clear, despite a lack of knowledge of the Babylonian language and particular pronunciation,^{xxi} is the constant alliteration and consonance, the particular rhythms that these effects cause. One can compare them to such random examples as ‘Rock a Bye Baby’ in English, where each lullaby builds through repetition of rhythmic consonant sounds; English utilizing B, T and L sounds, not to mention the qualities of assonance. The Babylonian lullaby here (and Farber admits on 140 that the English translation was made to reflect content, not sound) uses T, M and G sounds to create its particular rhythms. Farber says of the Babylonian text, “The form of the poem emphasizes simplicity and is thus particularly suited for memorization. Taking all this together, I consider the text to be not only a typical, but also an especially impressive example of purposeful folk poetry” (1990: 142). The question here – since what is being examined is a style of poetry which is not attempting to be artistically ornate – is why the overall similarity of sound and rhythm functions in the various lullabies unless there is an innate appreciation in the infants (and thereby has always been if a 4000 year spread is to be believed) for exactly the same kinds of rhythms and metric patterns?

Dissanayake says of universal trends in mother-infant engagement and bonding, “The utterances also appear to be organized primarily into what can be transcribed as lines (or phrases), judged either by number of words, or by timed length, generally three to four seconds” (1999: 380). She builds her theory of musicality on Turner’s and Pop-

pel's 'neural lyre' in which they note an absolute universality in relation to poetics, meter and attention to rhythm. Turner says, "All over the world human beings compose and recite poetry in poetic meter; all over the world the meter has a line length of about three seconds, tuned to the three-second acoustic information-processing pulse in the human brain. Our acoustic present is three seconds long" (1999: 22). The evidence here, again, seems very compelling that these rhythms speak to a broader pattern of appreciation and utility (indeed, what parent would choose to soothe a child with a song or set of sounds that wouldn't work) in the pre-linguistic infant brain which can only be based on neural and therefore innate and evolved tendencies. It is precisely that the infant cannot process the lullaby's sounds as anything more than rhythmic moments that is the most telling feature as the lullabies' rhythms push past mere word meaning and cultural association, let alone the nearly universal tendency for poetic lines to be about three seconds long, roughly the same length as the Babylonian lullaby from millennia ago. That these same patterns and rhythms show up in all cultures' lullabies and poetics, there is no doubt that another force deeper and broader than 'culture' can explain.^{xxii}

To foray into poetry, and into a modern example, one can turn to W.H. Auden's conveniently titled poem, 'Lullaby' (1979: 50-51), for a similar use of rhythm and sound. Of course, with Auden's poem, the sounds are more complex and subtle, but the same effects can be seen. [Editor: Because of copyright restrictions we cannot quote the poem, but the work can be found here where permission has been granted. <http://www.poets.org/poetsorg/poem/lullaby-0>]:

Reading the poem aloud with sensitivity to the internal rhythms yields an interesting piece of the poem's meaning. All lines when spoken (without rushing them) are about three seconds long, but it is when the speaker addresses the supernatural, the gods, vague abstractions or people, like the hermit, who deny the importance of human agency (stanzas 2 and 3), the poem's rhythms change subtly but considerably. It is only in the first and last stanza where the poem takes on a more patterned (almost trochaic tetrameter, except that the lines tend to contain two trochees and a cretic foot) rhythm, as if the subject of human propinquity, mortality and tenderness (and the calling up of the agency of death) required the poem to do what lullabies, like the Babylonian, Korean and English ones do: to calm and to reassure the listener, while the contrasting imperfections of the poem's rhythm call up the imperfect nature of love and those who would try and define it. There is thus a tension between a culturally assigned level of meaning in the poem and its rhythmic structure. That the earlier cited lullabies do this in rhythm and sound to pre-linguistic infants, and that these same effects can be seen in Auden's poem, do not seem coincidental. Since this poem is not addressed to a pre-linguistic baby, the message of the poem can be read in accord with its metric level of meaning and implication. Certainty in the poem becomes linked with the pedants and the gods, and their boring excesses, and to any heavenly/supernatural messages of love and hope. Certainty is not promised to the 'faithless' speaker or the 'human' beloved.

The form of the poem is regular enough, alternating between seven beats (trochee, trochee, cretic) and trochaic tetrameter^{xxiii}, with a regular rhyme scheme that employs both perfect and near rhymes (abcbadcee'd: the paired e rhymes are slant/imperfect),

and the pairing of rhymes seems to suggest a type of ‘bond’ or pairing between the speaker and addressee. These patterns are interrupted in the syncopation of those lines that keep their meter while being more difficult to read aloud (lines 5-6, 13-14, 16, 19-20, 24-25, 38). This tension between a regular meter and the consonantal/alliterative disruption (in rime and onset^{xxiv}) creates a level of meaning in the poem which should grate on the ear of a careful listener. “Onsets and rimes not only define the possible sounds of a language; they are the pieces of word-sound that get manipulated in poetry and word games” (Pinker, 1994: 170). This disruption and interference on the level of the message and the rhythmic patterns in contrast to the other more regular stanzas that convey the more loving and considerate message are compelling in their sound effects. Auden uses the line and form against the poem’s ‘meaning’ to establish two levels of rhythmic address in the poem, as a mother might have two levels of address while singing an infant back to sleep: the spoken voice and the rhythms of the song sung. Compression of the sound features in Auden’s poem make voicing/reading aloud (and in the head) subtly difficult. Just as the lullabies play on rhythmic repetition to pre-linguistic infants, so too do poems, like Auden’s, because “features, not phonemes, are the atoms of linguistic sound stored and manipulated in the brain” (Pinker, 1994: 175). Poetry necessarily plays with the onset/rime rules in language to create rhetorical, intellectual or emotional effects, deviating from the conventional ‘spoken’ laws of a language. Auden’s play of metric tension against the onset/rime pattern in the poem to create another level of meaning has its ground in the human brain’s delight and sensitivity to rhythm and pattern.

That such sensitivity to rhythm and sound as a form of ‘appreciation’ has been shown in birds and non-human animals, and that these rhythms can be utilized over a 4000 year time span in vastly different languages, and that the same techniques can be seen in more complex versions in a modern poem, all point toward the neural capacity or appreciation of an evolved brain in continuum, and not merely in linguistic relativity to the meaning of the words of the texts themselves. What one should see if artificial selection (say, via language) were overpowering natural selection (a case which would have to be made by social constructivists to sustain a linguistically-oriented nurture-over-nature line of reasoning) is a much wider variation in devices like alliterative and consonantal form. If language had the titanic shaping power claimed by some, there would also be much more genetic variation due to isolated gene pools or selective marriage and reproductive habits. We do not see this. The few cases of lullabies cited here are suggestive of patterns that go beyond mere cultural facades. Culture and language don’t shape the brain. They refine its innate abilities and capacities.^{xxv}

What evolutionary aesthetics, in its variant forms, is trying to do is tease out the connections between the human evolutionary past and the relationships to literature. Some of the better-known champions of the evolutionary aesthetic camps do differ in their exact modeling, some arguing that art is an adaptation while others see it as a byproduct of evolutionary forces. Ellen Dissanayake and Brian Boyd see the former, while Joseph Carroll sees the latter as more likely. Carroll in fact notes, fallibilistically, that “(a)t this level of explanation, all these arguments are structurally parallel. To make further progress in understanding, we have to move from that level of conceptual parallelism into the contexts of paleoanthropology and psychological mechanism” (2011: 49). The jump suggested here into a neurobiological account might seem at

first glance to have little if no bearing on literary studies until one stops to examine the chain of intermediating logic. Evolution by natural selections shaped, over hundreds of thousands of years, the modern human brain. This is a fact, and literary studies would be best suited to accept it and adopt it – else to parallel inaction with evolutionary trends – it will simply become irrelevant and disappear from record. Perhaps a prescient quotation from Charles Peirce, writing in 1913, would be sufficient to close this paper. Peirce says,

For although there is as much reason to believe in the unity of origin of human-kind...the extraordinary variety of languages, customs, institutions, religions, as well as the many revolutions [these] have undergone in the brief half-dozen of millennia to which our acquaintance with them is as yet limited, as compared with the almost insignificant variations, – these facts, I say, make the old-fashioned notion that because there is no immediate appeal from instinctive ratiocinative conviction that there can be no improvement or growth in fundamental ratiocinative procedure, appear to a modern a good deal in the attitude of a schoolboy perched on a stool with a fool's cap on his head. (1998: 468)

What literary studies avoid in eschewing the natural sciences is nothing less than the origin of the species' humanity, the font of dignity from which we may be better equipped to understand ourselves through our artistic endeavors, not just understanding what these books and poems and paintings mean, but why they have meaning to us in the first place.

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Notes

ⁱ No pun.

ⁱⁱ Peirce would say that the denial of 'Truth' as a quality of reality is trapped in a logical contradiction and thus cannot be entertained. He says, "Every man is fully satisfied that there is such a thing as truth, or he would not ask any question. *That* truth consists in a conformity to something *independent of his thinking it to be so*, or of any man's opinion on that subject. But for the man who holds the second opinion, the only reality, there could be, would be conformity to the ultimate result of inquiry. But there would not be any course of inquiry possible except in the sense that it would be easier for him to interpret the phenomenon; and ultimately he would be forced to say that there was no reality at all except that he now at this instant finds a certain way of thinking easier than any other. But that violates the very idea of reality and truth [Peirce's emphases]" (1975: 129).

ⁱⁱⁱ Though he is not suggesting that the arts somehow evolve autopoieically and autonomously. He outlines first- through third-level Darwinian machines (2009: 403-407) and says, "I mean only that art involves highly deliberate human choices, both individual and cultural, even if our choices derive ultimately from nature" (406). There's no fallacy of equivocation here in use of the term 'evolve'. For more on Darwinian Machines, see Plotkin.

^{iv} This sensitivity to rhythm is not particular to humans. Hattori, et al. (2013) note that chimps can spontaneously synchronize their tapping to rhythmic music.

^v And is very similar to the argument Socrates uses against Protagoras in the dialogue of that name (Plato).

^{vi} Relativism can be easily avoided by adopting a fallibilistic methodology. For this, see Peirce, 1998: 42-56.

^{vii} Churchland (2013: 251) discusses the disruption of language centers in the brain using navigated transcranial magnetic stimulation (nTMS), inhibiting patients' ability to speak yet had no effect on the patients' consciousness, showing that consciousness does not derive from language.

^{viii} And this would also suggest a narrowing of the population per some extinction event in our species' past.

^{ix} And as with any gene, it cannot be reduced to a simple cause-effect chain. No one gene codes for any one phenotype or behavior (Churchland, 2013: 153-161).

^x Currently, I am finishing a book, *World Enough* (forthcoming from Atropos Press), which will deal with this issue adapting Peirce's semiotic system and philosophy as an experimental connective language.

^{xi} Peirce was to later rename his philosophy Pragmaticism to distinguish it from William James' version of Pragmatism. Peirce would almost certainly disagree with recent trends in neo-pragmatism like Rorty's 'linguistic turn'. For an account of Peirce's development away from James, see Karl-Otto Apel.

^{xii} Narrative here to mean cultural products like art as something diametrically opposed to natural science.

^{xiii} Though I think one can take issue with the straw hominid Lyotard presents on page 27 of the scientist who deems narratives (myth, stories, fables, legends) as fit only for women and children. This seems unfair in comparison with his other more salient assessments.

^{xiv} Nor to debate how these particular movements define or name themselves. They are adequately understood by their common monikers.

^{xv} Or whatever particular aesthetic concern is deemed worthy of discussion.

^{xvi} Also, mirror neurons seem to be involved in action anticipation in infants (Hernick, et al., 2014), and others have argued that mirror neurons form the basis for human empathy (Keyesers, 2011).

^{xvii} It is staggeringly easy to overstate the function of mirror neurons in the human brain. They are presented here as possibilities, but fallible ones. Pinker (2011) downplays their importance, and Hickok's book does much to undo many of the extraordinary claims about mirror neurons. Until scientific consensus is reached, I will merely follow the information stemming from the labs and experiment center.

^{xviii} Of course one can say the conflation here is mere equivocation, but my article's fallible ethos should help to at least roughly stitch these together.

^{xix} Winkler, et al. (2008) found that newborn infants detect beat patterns in music and when certain beats are omitted it causes neural activity associated with expectation violations.

^{xx} Perhaps an overly broad statement, but it does hold up under scrutiny of poetic traditions from language to language and culture to culture. Deviations from this general rule are innovations and reactions against convention which only undergird the statement's truth.

^{xxi} Farber notes (f. 140) that the pronunciation is similar enough to German.

^{xxii} It should also be noted that deviations from this trend are normal and show innovation and plasticity in form and attention by humans. This is nothing surprising and the deviations only serve to highlight the statistical tendencies from which the deviations move.

^{xxiii} For example, I'm counting line 19 as seven beats with 'and the rocks' read as a single iambic foot. Note that line 20 does not allow for such elision and contains 8 beats, making it trochaic tetrameter.

^{xxiv} Consonants at the beginning of particular syllables are called onsets, while the vowel sounds following are called rimes in linguistic terminology.

^{xxv} Pinker (2007: 136-148) argues against the vaguely Sapir-Whorfian flavor of certain constructivist arguments, or what Casasanto (Pinker 139) calls, 'crying Whorf.' Discussing the

lack of complex number systems in hunter-gatherer societies, Pinker notes that “both number words and numerical reasoning...developed from existing cognitive resources” (139). It is not the other way around. Language and abstract reasoning -like number concepts- are products of brain states (thus evolved), like sensitivity to rhythm and pattern.

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Sixth International Conference on Consciousness, Theatre, Literature and the Arts, St. Francis College, N.Y., 10-12 June 2015. Details:

<https://blackboard.lincoln.ac.uk/bbcswebdav/users/dmeyerdinkgrafe/conference2015.html>

Third Moral Sense Colloquium expected Spring of 2017, St. Francis College, N.Y. to mark the thirtieth anniversary of the publication of Richard Alexander's *The Biology of Moral Systems*. Information, a Call, and Updates will appear on the ASEBL blog beginning at some point in 2016.