

JONATHAN GOTTSCHALL AND MARCUS NORDLUND\*

## ROMANTIC LOVE: A LITERARY UNIVERSAL?

### I

TO LOVE SOMEONE ROMANTICALLY is—at least according to innumerable literary works, much received wisdom, and even a gradually coalescing academic consensus—to experience a strong desire for union with someone who is deemed entirely unique. It is to idealise this person, to think constantly about him or her, and to discover that one's own life priorities have changed dramatically. It is to care deeply for that person's well-being and to feel pain or emptiness when he or she is absent.

But is this intense emotional experience a universal experience, something that is characteristically and quintessentially human, or is it merely a sociocultural construct that belongs to a particular time and place? On this point there is less agreement, both within and between different academic disciplines. The audacious question we want to raise in the pages that follow is whether literature—or more specifically, a large-scale, multiple-coder content analysis of thousands of folk tales drawn from diverse corners of the planet—can contribute something to this difficult question about love, culture, and human nature.

Let us first look briefly at the theoretical problem that we aim to address. A widespread view among literary scholars and social scientists over the last decades has been that romantic love is a social construction specific to Western culture. This is part of a relentless skepticism

\*Research collaborators for this project include Liana Boop, Lance Branch, Daniel DeLorme, Mackenzie Ewing, John Forrette, Jared Fostveit, Erica Guralnick, Julia Jones, Sarah MacFarland, Maia Moyer, Kevin O'Connor, Spencer Paige, Ann Sargent, Linnea Smolentzov, Michael Stafford, Adam Tapply, Lindsey Taylor, and Sammie-Jo Therrien.

toward assumptions that important categories of human psychology and emotion—romantic and parental love, gender, sexual orientation, and so on—are “natural” rather than constructed. And this position is often, if not always, linked to an ideological concern to demystify (or at least problematize) what is perceived as an essentially destructive or oppressive emotion or belief. Taking her cue from Simone de Beauvoir, Marilyn Friedman gives no less than ten reasons why it may be problematic for women to fall in love with men.<sup>1</sup>

Of course, no argument of any kind can be strictly ideological in nature since it always involves empirical assumptions—either explicit or implicit—about the nature of things. For example, the psychoanalyst E. S. Persons opines that the “best evidence that romantic love is not hard-wired into the emotional repertoire of humanity but is a cultural construct is the fact that there are so many cultures in which it is virtually absent.”<sup>2</sup> Another frequent argument for love’s constructedness has been that “there is no definition that describes love throughout the ages or across cultures.”<sup>3</sup>

In some literary-critical accounts, it is even argued that romantic love is a cultural invention that can be traced back with precision to the courtly *troubadour* culture of twelfth-century France.<sup>4</sup> According to yet another school, represented by the influential literary theorist Jonathan Culler, “the notion of romantic love (and its centrality to the lives of individuals) is arguably a massive literary creation.”<sup>5</sup>

While the social constructivist position on romantic love typically involves a strong commitment to cultural specificity, a weaker version is held even by some cognitive theorists who grant more to biology and panhuman traits. From the perspective of their communicative theory of emotion, Philip Johnson-Laird and Keith Oatley argue that the “components [of romantic love] exist separately in different societies, but their integration into a recognizable complex is a cultural accomplishment [by the West].”<sup>6</sup>

At the other end of the romantic love continuum we find those who argue that this emotion belongs to a universal human nature: or, more specifically, that it can be attributed to specialised neural circuits whose ultimate purpose is to enhance reproductive success. Not surprisingly, this has been a favorite position among evolutionary psychologists, and it has recently received some support from neuroscientific studies.

For example, the neuroscientists Andreas Bartels and Samir Zeki claim to have uncovered a “functionally specialised system” that lights up in fMRI (magnetic resonance) scans of brains whose owners claim to be

enamoured.<sup>7</sup> Among other things, these studies lend unexpected support to the proverbial idea that “love is blind” since the experience of romantic love can be correlated with the deactivation of brain regions concerned with critically assessing other people’s intentions and making moral judgements.<sup>8</sup> Another research team (Helen Fisher and associates) has drawn extensively on similar neuroscientific evidence in support of the hypothesis that human beings come equipped with a tripartite system of attraction, attachment, and sexuality.<sup>9</sup>

The neuroscientific perspective certainly promises strong support for love’s universality. If our emotional experience can be correlated with distinct neural circuits that, in turn, are continuous with our mammalian heritage, then it seems likely that this experience is also somehow part of an evolved human nature. However, given the considerable environmental plasticity of the human brain, pointing to specialised circuits in the brains of Western subjects will hardly persuade anyone who believes that romantic love itself is a Western innovation. At least in principle, a neurophysiological trait can be genotypically *continuous* with other species and still be heavily modulated by environmental factors.

For this reason, a successful case for love’s universality would also seem to require solid cross-cultural studies that disproved the standard social constructivist argument that romantic love is absent in a large number of cultures. The matter can only be resolved by integrating cross-cultural analyses with neuroscientific evidence.

Some cross-cultural arguments to this effect have already been put forward. In 1992, the anthropologists Jankowiak and Fischer scrutinised the ethnographic record and uncovered instances of RL in almost 90% of the cultures studied.<sup>10</sup> Three years after the study, Jankowiak published a collection of essays that fleshes out the argument and adds more empirical material in the form of case studies, but whose title still ends with a quotation mark: *Romantic Passion: A Universal Experience?*<sup>11</sup>

## II

The lead authors of this study (Gottschall and Nordlund) are strongly committed to the view that romantic love must be understood with reference to an evolved human nature. This is not to say that the emotion can necessarily be *reduced* to a hard-wired instinct, impervious to cultural influence, but rather that any satisfying explanation of its nature—including the rather improbable view that it arose in twelfth-century France,

alongside the game of tennis—would need to be *anchored* in evolved psychological dispositions that are common to *Homo sapiens*.

Nevertheless, more precise questions about love's nature and origin can be bracketed here since they do not impinge directly on the empirical question of its prevalence. Our precise objective has been to further test the hypothesis of romantic love's universality, and thus to attempt to replicate the findings of Jankowiak and Fischer in a different cultural medium, through a systematic content analysis of dozens of collections of folk tales drawn from diverse world populations.

Using folk tales as empirical evidence about human nature is not an uncomplicated matter. The stories people tell across the world—particularly in oral literature, or 'orature' as it is sometimes called—unabashedly mix factual events with the stuff of fiction, myth, and legend. Many tales are about animals rather than humans, albeit animals endowed with human attributes. This naturally makes it impossible to read these tales as straightforward representations of human emotions. On the other hand, it would be equally unwise to assume the opposite: that this global repository of cultural wealth is entirely undependable, as if the stories people tell can tell us nothing about the people who tell them.

It is our view that folk tales can give valuable information about the ideas, beliefs, dreams, wishes, and fears of people around the world. As long as we respect the complexities involved there is an important role for literature departments to play in the scientific study of human nature.

Indeed, this study is not the first empirical exploration of love in world literature. In *The Mind and its Stories*, Patrick Colm Hogan surveys a large swathe of world literature and suggests that "romantic union" may be a universal generic prototype.<sup>12</sup> Strictly speaking, our study is not an attempt to replicate Hogan's findings since we are not in search of a literary subgenre but representations of a human emotion. We also hope to contribute a somewhat more systematic and transparent methodology. But in spite of these differences we think of both studies as joint contributions to the larger question of love's literary universality.

To suggest that romantic love may be universal naturally requires a definition of the emotion itself. In their ethnological study, cited above, Jankowiak and Fischer understood romantic love as "any intense attraction that involves the idealization of the other, within an erotic context, with the expectation of enduring for some time into the future."<sup>13</sup> This is a practical definition that covers three important aspects of romantic

love (idealisation, desire, commitment), but it also appears to leave out as much as it includes. A more complete account is offered in Helen Harris's detailed synthesis of previous academic definitions:

1. Desire for union or merger, both physical and emotional
2. Idealization of the beloved
3. Exclusivity (reciprocal)
4. Intrusive thinking about the love object
5. Emotional dependency
6. Reordering of motivational hierarchies or life priorities
7. Powerful empathy and concern for the beloved<sup>14</sup>

In our view this is an impeccable definition, but for the benefit of our content analysts we also produced a more concrete and accessible version that would not require additional definitions of the key components. Romantic love is “*a feeling expressed in a romantic context between two people; it has a dimension of sexual attraction, even lust, but it is not limited to that; it is an emotion that is typically reserved for only one person (though romantic love is not necessarily inconsistent with sexual promiscuity); it carries the expectation of lasting duration; it involves intense attraction to the beloved's whole person and is not just about attraction to the body.*”

The qualifier about sexual promiscuity was intended to detach the emotional content of romantic love from its moral implications and evaluations. Since recent neuroscientific research lends support to the view of romantic passion as an intensely goal-oriented state whose initial phase may even be at cross-purposes with empathy, we also decided to remove this dimension as a necessary defining criterion.<sup>15</sup> While empathy and concern typically play an important part in romantic love—to love someone romantically is also to care for that person—extreme states of infatuation may not be conducive towards it.

Perhaps less obviously, a study of this kind also presupposes a concept of universality, and we have used the word in accordance with two basic distinctions. The first distinction is that between *cultural* and *human* universals, where a cultural universal is one that can be found in all cultures while a human universal characterises all humans. The second necessary distinction is that between *absolute universals* (that admit no exceptions) and *statistical universals* (that admit exceptions and hence constitute broad patterns rather than absolute rules).<sup>16</sup> Even though we suspect hypothetically that romantic love may be a *statistical human universal* (more specifically, a biological potential in almost every

human being)—and therefore most likely an *absolute cultural universal* (that exists in all cultures)—a study of this scope and nature can only produce evidence that is indicative of *statistical cultural universals*.

### III

*Data and Methods.* Collections of tales were chosen with the intent of producing a maximally diverse sample. Our sample is comprised of seventy-nine folk tale collections from all inhabited continents, from different historical periods, and from societies vastly differing in ecology, geography, ethnic composition, religious beliefs, and degree of political organization (for a list of all collections used contact the lead authors).

Because our method required digitized tales, approximately two-thirds of our sample is comprised of copyright-expired collections that are freely available through an assortment of reputable internet libraries (e.g., [gutenberg.org](http://gutenberg.org), [sacred-texts.com](http://sacred-texts.com), and various university collections). We filled the final third of our sample by using a scanner to digitize collections of folk tales from traditions that were under-represented online. All collections were of traditional tales, originally transmitted through the oral tradition. All non-English tales had been translated into English, and the sample ran the gamut from polished fairy tales to literal transcriptions of tales told in traditional contexts. Once our sample was compiled, coding proceeded in two steps.

Step one. With the help of a thesaurus, we generated a list of all the words we could think of which, in English, are regularly associated with romantic love: love, longing, romantic, dear, beloved, married, adore, affection, and so on. Then, using our word processor's "find and replace" function, we "tagged" all of the fifty nine keywords in the collections, and all of their relevant variants (e.g., love, loved, lover, loving, etc). Finally, seventeen undergraduate members of a St. Lawrence University seminar in research methods coded roughly equal proportions (in page counts, not numbers of collections) of the total sample. Coders were able to move with speed and precision through the collections by using our word processor's "find" function to locate the keyword tag (>>). After locating a tagged keyword, coders then used as much of the surrounding context as was necessary to judge (1) if the reference met our definition of romantic love, (2) if it did not, or 3) if the reference was ambiguous.

Coders were, in content analysis parlance, kept “naïve”: they were not appraised of the theoretical controversies about romantic love or about its relationship to larger debates about human nature, and they were not privy to the expectations of the lead authors. They were only told that our investigations—whatever we discovered—would help to resolve questions about the prevalence of romantic love across cultures. It was emphasized that there was no favored outcome: whatever we revealed would represent a valuable contribution. Coding decisions were made independently; coders were told not to discuss judgments with colleagues. Coding was conducted in one-hour lab sessions to allow for procedural questions, to minimize inter-coder discussion, and to limit coder fatigue and distraction.

Step two. Content analysis depends on the fallible judgments of human coders. Coders were repeatedly reminded to hold closely to our shared definition of romantic love and to avoid the tendency to respond based on personal intuitions. But the possibility remains that the judgments of individual coders were compromised through subjectivity bias or simple errors. To guard against this possibility, all 536 potential references to romantic love identified in the first stage of coding were subjected to additional scrutiny.

In the second phase of coding, all potential references (including the key words and all relevant context) were cut and pasted into three documents of equal length. Then three teams (two with six members, one with five) considered all potential references and simply indicated whether they believed that the reference was clearly consistent with our definition of romantic love or whether it was not. We applied a strict standard: references to romantic love were accepted as authentic only if coders were unanimous or if there was only one dissenter.

All of these steps were designed to minimize various kinds of bias. The coding task was performed by a team of naïve coders, rather than by the lead authors, to minimize the likelihood that the results would be shaped—consciously or not—by the biases of interested professional researchers (in other words, for the same reason that psychologists do not fill out their own surveys). We formalized our definition of romantic love and included the second coding phase to ensure that our results were based not on the potentially idiosyncratic responses of individual coders but on a rigorous standard of intersubjectivity. Potential biases remain in our results, some of which will be discussed in more detail below. We hope, however, that the principal bias in this study is a conservative bias purposefully introduced by the researchers. In seeking to

shield against the possibility of false positives (accepting a false reference to romantic love) we have heightened our vulnerabilities to false negatives (overlooking legitimate references).

#### IV

*Results.* For the purposes of data analysis collections were grouped into 7 major cultural areas, ranging in size from 5–25 collections and 11 sub-groupings (variance in sample sizes are a result of availability of collections, not a methodological choice). Collections were placed into sub-groupings only if there were at least three collections from that cultural area. Cultural groupings were based on salient geographic, linguistic, and cultural affinities and was guided by anthropological convention.<sup>17</sup>

In the 79 collections coders identified 263 references that met our shared definition of romantic love: 55 collections had at least one reference to romantic love; 39 of the collections included multiple references. On average, there were 3.32 references to romantic love per collection. Two-thirds of the accepted references enjoyed unanimous coder agreement; for the other third there was one dissenter. References to romantic love were not limited to European tales but were found across highly diverse and isolated culture areas (see Table 1). In fact, while not every collection included an unambiguous reference to romantic love, every culture area did except for the Philippine subgroup. While the European total of 3.75 references per collection was slightly higher than the sample average, several cultural areas included more references on average. By far the highest averages were not found in Europe but in large samples of tales from Japan, from North West Coastal Indian populations, and from India. Among the collections that could not be efficiently placed into cultural sub-groups, the single Ainu collection (with ten references to romantic love) and the single Western Yugur collection (with five) stand out.

#### V

This study therefore offers staunch support to the existing evidence that romantic love is a statistical cultural universal. It would also seem to increase the probability that romantic love may be an absolute cultural universal. While the coders found no clear romantic love references in the three collections from the Philippines it would be rash to conclude,

Table 1. Results by broad cultural groupings and sub-groupings

	References to Romantic Love	Average References Per Collection
OVERALL (N=79)	263	3.32
Asia (N=16)	94	5.88
India (N=8)	28	4.67
Japan (N=6)	37	6.17
Africa (N=5)	8	1.60
Hausa (N=3)	6	2.00
Europe (N=8)	31	3.75
Middle East (N=6)	23	3.83
Oceania (N=10)	19	1.90
Aboriginal Australia (N=4)	7	1.75
Hawaii (N=3)	6	2.00
Philippines (N=3)	0	0.00
North Amer. Indian (N=25)	75	3.00
Arctic Coast (N=5)	4	0.80
Northwest Coast (N=11)	68	6.18
Pueblo (N=3)	3	1.00
South America (N=9)	13	1.44
Maya (N=4)	8	2.00
Yanomamö (N=3)	3	1.00

N=Number of collections per grouping.

*Note: The sample size for the broad cultural grouping is often larger than the sum of the sub-groups. This is because many collections could not be efficiently placed in sub-groups. For results for each collection contact the lead authors.*

on this basis, that romantic love either does not exist in this culture or is of minimal importance. Obviously, not every collection of folk tales will convey information about every aspect of a given culture. It could be that if we had considered more Philippine collections we would have discovered unambiguous examples. After all, Japan had the most romantic love references per collection; but if we had only considered three Japanese collections (as in the Philippine case) we might have found no love references at all. Every one of the Japanese examples accepted by coders was found in just three of our six collections.

In a similar vein, while we have taken the trouble to produce statistics on the number of references per cultural grouping, it would be unwise to assume, based on these numbers, that romantic love is, for instance, three times as central to Japanese culture as it is to Hawaiian. Folk tales

can be used as one source of data to see if romantic love is represented in a culture, but they are a relatively poor index of cultural importance. Variance in numbers of love references across culture areas may reflect cultural importance, but it is also likely to reflect random variance in the contents of collections, non-random variance (e.g., collections happening to focus on tales of young lovers versus those focusing on myths of cosmology and origins), and variances among individual coders during the first coding stage.

## VI

The fact that we have used English translations raises some questions, one of which concerns the quality of the translations used. Due to the extent of our material and the sheer variety of original languages represented there we have simply been at the mercy of our translators. A second and perhaps more interesting issue is that of potential linguistic incommensurability. Is it even possible in principle to translate successfully from one language to another if the languages in question differ markedly in their terms for love and affection?

As we saw above, different cultural definitions of love have been used as a central argument for love's status as a social construction. In our view, the important grain of truth in this position—that the way a culture talks about love can reveal important things about how the emotion is understood, conceptualised, and even experienced—is too often buried under a mound of overstated inferences. To posit anything like a direct link between love and linguistics, between what people say and what they feel, is to suggest that (i) human thought and emotion are solely or mainly determined by language and that (ii) cultures are unlimited in their capacity to regulate and define individual experience and behaviour by linguistic means. While precisely these notions have been widely propounded by humanists, they enjoy little in the way of empirical support or scientific credence.<sup>18</sup> A culture may prescribe strict “feeling rules” for its members, but life will always be lived in tension with prescription.<sup>19</sup>

According to William Jankowiak, cultural attitudes towards romantic love are indeed highly diverse, with some cultures simply rejecting romantic love “as an evil and frighteningly emotional experience. In others it is tolerated but not celebrated or asserted, and, in still others, romantic passion is praised as an important and cherished cultural ideal.”<sup>20</sup> The important point here is that even someone who does not

concede Jankowiak's *empirical* argument will be hard pressed to refute its *logical* consequences for the translation problem under scrutiny here.

If Jankowiak is right, then we can certainly expect notable differences between the languages of love in different cultures, particularly as concerns love's moral status and implications. But for the very same reasons it will also be extremely hazardous to extrapolate emotional realities from linguistic realities. If it is the case that different cultural attitudes generate different vocabularies for the same emotion, then focusing on language is just as likely to *obscure* as to *clarify* the question of love's universality. Linguistic diversity is simply an insufficient argument for love's supposed constructedness.

On a purely *practical* level, however, the problem of translation still remains, and this is the case regardless of whether we ascribe it to faulty translations, cultural bias, or linguistic incompatibility. Since our study is based on key-word-in-context analyses of short passages rather than summarised accounts of entire texts, it follows that the precise meaning of individual words becomes all the more important. It matters, for example, when a Chinook storyteller informs us that a man has married several women but "loved only the youngest one," and our coders interpret this passage as an instance of romantic love (albeit with reference to a broader textual context than the quotation reproduced here).<sup>21</sup> If the original Chinook word was closer to "like" than "love" this would drastically change the significance of the passage. One way to assess how serious this translation problem has been is to move from statistical analysis to closer, more qualitative consideration of a few examples.

## VII

Considered as a whole, our material covers all the attributes of romantic love. "Falling in love" is described as a distinct and recognizable process in tales from regions as diverse as West Africa, Japan, North and South America, the Middle East, Polynesia, China, and Europe. Our instances of *intrusive thinking* come from cultures so diverse as Hawaii (where a young woman professes to love the King so much that she thinks of him day and night, and even in her dreams, and another woman weeps bitterly because the thought of her absent lover never leaves her); Punjab in northern India (where an enamoured youth cannot eat or sleep for love of a beautiful princess); and the Western Yugur steppe of China (where a boy suffers from "lovesickness" and is eventually cured). Wherever lovers are separated for long, intrusive thinking is attended by pain or

even despair. This *emotional dependence* takes on cosmic proportions in a Maori tale of creation where the Sun weeps so hard over his separation from his mistress Earth that his tears eventually turn into oceans.

We have also found examples of *emotional commitment*, *empathy*, and *exclusivity* so strong that lovers are either prepared to sacrifice their own lives for their loved ones (as in a Japanese tale) or continue their relationship beyond death (in a tale from the Heiltsuk Nation of British Columbia, two lovers swear that the one who dies first will return to bring the other to the kingdom of the dead). Other examples are more complex. One tale from the Middle East provides a particularly unpleasant example of how strong love can coexist, without apparent contradiction, with moral judgements that seem diametrically opposed to it. A husband loves his wife so much that he is “ready to sacrifice his life to satisfy her whim.” He is, however, also prepared—on the advice of none other than his trusty dog, who has ten wives and controls them all perfectly—to take a heavy stick and give her a good beating across the back because she is too curious about his secrets.<sup>22</sup>

In most cases, at least two or more of the defining characteristics of romantic love can be found in a given passage. But an important limitation of this study has been that our coders were provided with a multi-factor definition of romantic love but were not given detailed instructions about which, or how many, factors had to be present in order for a particular emotional representation to qualify as “romantic.”

On the one hand, it seems unreasonable to expect that a single passage must exhibit all seven factors in the full definition (desire for union, etc) in order to qualify as fully “romantic.” On the other hand, it is likely that our investigation would have benefited from a formalised multi-factor approach of the kind employed, for example, in clinical psychology: that is, if a person’s emotional experience meets a *specified* number of criteria associated with romantic love, then that person can be said to be experiencing romantic love. Perhaps future studies will want to pursue this approach in order to increase the scientific precision of their findings.

What are the consequences of this methodological limitation? At first sight, it would seem that our findings can still be explained in terms of the moderate constructivist hypothesis espoused by Johnson-Laird and Oatley above: that while the *components* of romantic love exist across the planet, the *integration* of these components into a complex whole is a distinctive Western achievement. When we proceed to examine individual passages, however, the case for the “Western integration” hypothesis

becomes shakier and the case for universality stronger. Consider, as an example, this charming story from a collection of Australian Aboriginal stories, originally documented by the anthropologist W. Ramsay Smith. Since the original story is several pages long we give a condensed version of its plot here:

A male peewee (a species of small magpie) returns to his nest after a long day of food gathering and is surprised to find a beautiful female peewee sitting there. She is lost and very tired, so he offers her to take a nap in his nest. As he watches her sleep he falls in love with her. When she wakes up she is first distraught at finding herself alone with a stranger and starts to cry. He comforts her with kind words and then helps her find her way back to her parents in the south before returning back home.

Three months go by, and all this time the male yearns for his loved one as he watches other animals mate in his surroundings. One night he thinks he hears her voice in a dream and finally decides to fly south again to woo her with his song. When she doesn't appear he worries that she may have been claimed by another peewee, but then he reassures himself. Her eyes spoke clearly of love for him when they first met, so how could she possibly forget him and marry someone she did not love?

Finally, to his great joy, the female appears again, and they sing a hymn to the Sun Goddess before spending the night together in silent communion. In the end they become husband and wife and raise a large family whose grown-up members migrate to other parts of the country.<sup>23</sup>

In this story about bird love—which is well worth reading in its entirety—not one of the seven key ingredients of romantic love is missing. The male peewee finds the female beautiful and desires her, but his feelings clearly go beyond mere physical attraction. He is concerned for her well-being, he depends on her for his own happiness, and her absence is accompanied by intense feelings of loneliness. He thinks constantly about her for three months, and since his feelings appear to be requited he is also convinced that she cannot love anyone else. How appropriate, then, that after this *idealization, exclusivity, intrusive thinking, emotional dependency, powerful empathy, and desire for union*, these avian-Australian lovers should also *rearrange their life priorities* by consummating their love in marriage!

What we have here, then, is a near-perfect example of romantic love from a Native Australian tribe. The anthropologist who collected it at the beginning of the twentieth century claims to have made only “few and slight” alterations to it, and these were deemed necessary “to make clear the meaning, or to give some degree of grammatical correctness to

the text without changing the ‘aroma’ of the story when using equivalent English terms or phrases.”<sup>24</sup> In spite of these precautions, it is of course impossible to control fully for the manifold cultural influences and biases that may have crept into its contents. But such doubts—like any proposed certainties or probabilities—must also be put into perspective, and this will be our final objective in this essay.

## VIII

Science, including literary science of the kind we have practiced here, is not a method for providing metaphysical certainty. It is a systematic and probabilistic way of determining where the preponderance of evidence lies. The best science can do is provide evidence that exceeds all reasonable doubts—as in the cases of evolution, heliocentricity, and continental drift. At the conclusion to this study, however, reasonable people may still doubt that romantic love is an emotion that has emerged independently in all human populations. For instance, while it is for many reasons unlikely that cross-cultural diffusion of folk tales or western socio-political hegemony can explain the full breadth of our findings,<sup>25</sup> we cannot absolutely rule out these possibilities. What we *can* assert is that a clear preponderance of evidence derived from systematic studies of ethnography, neuroscience, folk tales, and even ethology converges to support romantic love’s universality.

We began this paper with “an audacious question.” Can a systematic study of literary works make a significant contribution to a scientific question? It is obvious by now that we think it can. But an equally audacious question can be formed by rearranging the original question: Can scientific analysis make important contributions to literary analysis? Again, we think it can, and we intend for this research to serve as one model of how a scientific approach can provide more reliable and efficient responses to certain broad classes of literary questions.

Many literary scholars are wary of scientific approaches to literary study. There are good reasons for this. Foremost among them is the inescapable truth that for more than a hundred years almost every self-described “scientific” or “more scientific” approach (Russian formalism, psychoanalysis, structuralism and so on), while importing concepts and impressive vocabulary, has lacked the one truly indispensable element of science: the method. While scientific methodology is all but absent in the mainstream of literary study, there are a substantial number of good studies demonstrating that there is no epistemological brick wall

dividing the realms of the humanities and the sciences, so that all the power of the scientific method wilts to nothing when confronted with humanities questions. Moreover, psychologists, anthropologists, political scientists, and sociologists have developed an improving suite of methods for dealing with text data in a quantitative, scientific fashion.<sup>26</sup> On this point we agree with the structuralist literary scholar Tzvetan Todorov: “the crude opposition” that the sciences are objective and the humanities subjective (and therefore almost wholly outside the reach of scientific method) “is untenable.”<sup>27</sup>

The sciences have been spectacularly successful in their slow accumulation of reliable and durable knowledge. No comparable fund of accumulated knowledge exists in literary study. Our proposal is that by applying the scientific method where it can be applied, literary scholars can make long strides toward building a more impressive fund of accumulated, testable knowledge. This is very far from arguing that scientific quantification is, as a rule, superior to traditional humanistic methods of careful reading and reasoning. Both sets of methods are tools: like hammers and screwdrivers they are exquisitely fashioned to address specific and narrow ranges of tasks. For the scholar and the scientist, the challenge is to select the right class of methodological tools for the given problem. Sometimes the hammer is called for, sometimes only the screwdriver will do, and for complex problems a diverse methodological toolkit is often needed to do the job right.

The present study also serves as a reminder that qualitative and quantitative methods are complementary and mutually dependent. The quantitative elements of our investigation were designed to do what science does best: systematically address and diminish the power of various species of bias (e.g., selection, confirmation, subjectivity) to radically distort perception. On the other hand, the qualitative elements were also indispensable since they allowed us to pursue and problematize aspects of our question that could not be represented in numbers. While there are classes of literary investigation that resolutely resist scientific methodology, we believe that there are other classes where questions can usually be given testable formulations and addressed, at least in part, in a methodologically scientific fashion. We hope that our investigation, for whatever shortcomings it possesses, will serve as a testament to the potential of this approach.

WASHINGTON AND JEFFERSON COLLEGE (JG)  
GÖTEBORG UNIVERSITY (MN)

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13. Jankowiak and Fischer, p. 52.
14. *Pace* Helen Harris, "Rethinking Polynesian Heterosexual Relationships: A Case Study on Mangaia, Cook Islands," in Jankowiak, *Romantic Passion*, pp. 95–127, 102–3.

15. According to Bartels and Seki (2004) romantic love is correlated with deactivations in brain areas associated with assessment of other people's intentions and moral judgment. A literary reading of this phenomenon in Shakespeare's works will be offered in chapter four of Marcus Nordlund, *Shakespeare and the Nature of Love: Literature, Culture, Evolution* (under review).
16. For discussion see Donald Brown, *Human Universals* (New York: McGraw-Hill, 1991). For discussion of various kinds of literary universals see Patrick Hogan, "Literary Universals," *Poetics Today* 18 (1997): 223–49. Also see Jonathan Gottschall, "The Heroine with a Thousand Faces: Universal Trends in the Characterization of Female Folk Tale Protagonists," *Evolutionary Psychology* 3 (2005): 85–103.
17. See G. P. Murdock, "World Ethnographic Sample," *American Anthropologist* 59 (1957): 664–88.
18. For diverse and penetrating critiques of these positions see Daphne Patai and Will Corral, eds., *Theory's Empire: An Anthology of Dissent* (New York: Columbia University Press, 2005).
19. Peter Stearns, "History of Emotions: Issues of Change and Impact," in Lewis and Haviland-Jones, *Handbook of Emotions*, pp. 16–29, 20.
20. Jankowiak, "Introduction," *Romantic Passion*, p. 17, n2.
21. Charles Cultee, ed., *Chinook Texts*, trans. Franz Boas (U.S. Government Printing Office, 1894), unpag.
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23. W. Ramsay Smith, *Myths and Legends of the Australian Aboriginals* (New York: Johnson Reprint, 1970), pp. 41–44.
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25. Experts in folk tales consider diffusion to be a highly unsatisfactory explanation for folk tale universals. For references, and discussion of the possibility of western biases in a data set very similar to the one used here, see Jonathan Gottschall, "Quantitative Literary Study: A Modest Manifesto and Testing the Hypotheses of Feminist Fairy Tale Studies," in Gottschall and Wilson, *The Literary Animal*, pp. 199–224.
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*Appendix: List of Folktale Collections*

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