

LAUGHTER REDEFINED

John Charles Simon*

Abstract

Most modern scholars accept the contention that a single, comprehensive, scientific theory to explain laughter's proximate and ultimate causes does not yet exist. I offer an outsider's view of some of the factors inhibiting progress in this field of inquiry, and then present arguments to support the claim that the Mutual Vulnerability Theory of Laughter meets all the criteria for just such a conceptual model. A brief summary of the theory is provided, as are lists of some of the fundamental questions it answers, and predictions with which it can be tested.

Key words: laughter, amusement, humor, mutual vulnerability theory

1. Introduction

Few topics in the realm of human behavior have spawned as much debate as laughter. The causes, meaning, and purpose of this enigmatic vocalization have drawn the attention of scholars going back to ancient Greece¹ and they continue, along with its evolutionary origins, to fascinate curious minds today.² Despite this long history and the widespread interest of both lay and scientific communities, most modern scholars concede that a complete understanding of laughter's core nature continues to evade us.³

The search for a comprehensive laughter theory has been hampered by a number of factors. The subject continues to be approached from multiple, diverse scientific disciplines (Maryanski et al. 2013), including psychology, psychiatry, cultural anthropology, communication, neurology, and evolutionary biology. Each tends to use different techniques and pursue different problems, ultimately scattering their results across a wide range of academic publications. Moreover, investigations that

¹ Halliwell 2008; Keith-Spiegel 1972; Perks 2012.

² e.g., Bryant and Aktipis 2014; Davila-Ross et. al. 2009; Gervais and Wilson 2005; Mehu and Dunbar 2008; Owren and Bachorowski 2003.

³ Apte 1985; Halliwell 2008; Kozintsev 2010; Provine 2000.

* **John Charles Simon**, Independent scholar, Ann Arbor, Michigan, United States.
jsimon.wvl@gmail.com

focus on laughter's proximate causes, along with various attributes such as contagiousness or aversion⁴, are either descriptive in nature or else test hypotheses with the hope of amending or refining current conceptual models rather than falsifying them. That is to say, they employ inductive reasoning rather than deductive.

And yet there are well-understood limitations inherent to empirical studies, particularly in the realm of human behavior (Indick 2002). In the so-called "hard" sciences, most notably physics, it is widely acknowledged that new theoretical models rarely emerge directly from empirical observations (Deutsch 2011). Rather, they typically precede and then inform the experiments designed to refute them. Provine (2000: 9) expressed this sentiment with respect to laughter, arguing that one "will not find a tidy series of experiments that drive inexorably (and with an intellectual flourish)" to the aforementioned unified theory.

If his statement was, as I believe, intended to stimulate new theoretical approaches, it has been checked by a formidable adversary. More significant than all the barriers noted above may be the perception that a comprehensive theory of laughter (or even humor) is simply unachievable.⁵ It is naïve to believe such attitudes do not act to suppress original thinking in this arena.

Experts in any field are naturally skeptical of those who are not. Yet, there are certain advantages to being an outsider when it comes to approaching recalcitrant problems in novel ways (Deacon 1998). In 1996, I formulated a succinct definition for laughter that would give rise to what I believe is a comprehensive conceptual model—the Mutual Vulnerability Theory, or MVT—to explain the fundamental nature of this multifaceted behavior. I later published my conclusions and supporting arguments in *Why We Laugh: A New Understanding* (Simon 2008). Choosing a book format for this task is not unusual,⁶ as "grand" theories, unified or not, cannot be effectively conveyed in the limited space of a journal article. Nevertheless, reviews of books proffering such large claims are rarely favorable, and thus fresh perspectives on the subject tend not to reach large numbers of empiricists. My aim here is to remedy this situation to the degree possible.

⁴ e.g., Apte 1985; Arroyo et al. 1993; Davila-Ross et al. 2009; Dezechachea and Dunbar 2012; Hertzler 1970; Provine 1992; Ruch et al. 2013.

⁵ Apte 1985; Davies 2012; Halliwell 2008; McGee 1979.

⁶ e.g., Hurley et al. 2011; Nelson 2012; Weems 2014.

In this article, I will: 1) present a concise definition for laughter that, if correct, would account for all its proximate causes, its many consequences and, by extension, the humor designed to solicit it; 2) establish the MVT's utility by listing some of the central questions asked by laughter and humor scholars over the centuries and which are answered by the theory; 3) briefly summarize the theory derived from the definition; 4) show that foundation of the theory is familiar to a wide range of theorists and yet sufficiently novel to justify empirical tests; and 5) demonstrate its falsifiability.

2. Theoretical foundations of the Mutual Vulnerability Theory of Laughter

The MVT is founded on the supposition that laughter evolved as one of a suite of conscious, nonverbal, vocal communications and, further, that laughter's most comprehensive and parsimonious definition is *a vocal affirmation of mutual vulnerability*. Roughly translated into English, its message is, "I'd like to remind you that we share some degree of vulnerability."

Whether considered a primary (as I and many others argue) or secondary attribute, most scholars agree that laughter has a significant communicative function. As for vulnerability, the intimate relationship between laughter and tickling is well established for both humans and nonhuman apes,⁷ and feelings of vulnerability have been explicitly linked to tickle responses by Hall and Allin (1897). It is logically consistent, therefore, to include as potential stimuli those intimations of susceptibility that originate at "higher" operational levels (emotional, cognitive, and social; Harris and Alvarado 2005), since inadequacies in these realms ultimately have physical/reproductive consequences (Alexander 1989). This conclusion is further supported by observations suggesting so-called "tickle laughter" is not reflexive but rather influenced by emotional, cognitive, and social factors in both humans and apes.⁸ The same appears true for other physical stimuli such as rough-and-tumble play, play chases, and mock aggression (Humphreys and Smith 1984). Indeed, it is likely the *absence* of a feeling of vulnerability that best explains why we, generally speaking, cannot tickle ourselves into bouts of laughter, whereas the mere threat of tickling by others often can, even in the apes (Fossey 1983).

⁷ Darwin 1872; Davila-Ross et al. 2009; Fry 1977; Van Hooff 1972, Van Lawick-Goodall 1971.

⁸ Darwin 1872; Keith-Spiegel 1972; Provine 2004; Washburn 1929.

Because of the demonstrated capacities for empathy and “theory of mind” (Humphrey 1992, 1976) or “orders of intentionality” (Dennett 1988) in humans and, to a lesser degree, in apes,⁹ we would expect a message of *mutual* vulnerability to be applicable not only when the limitations of the potential vocalizer (PV) are highlighted, but also those exhibited by others with whom the PV is relating.

Interestingly, mine is not the only instance of the term “mutual vulnerability” being applied to laughter. Stewart (1997) adapted Brown and Levinson’s (1987: 61) concept of “mutual vulnerability of face” to suggest that conversational laughter can act as a face-saving mechanism, both for oneself and for others. She, too, understood that “laughter has multiple faces that are subject to interpretation based on context and the relationship between the parties involved” (Stewart 1997: 3). Unfortunately, Stewart proposed this hypothesis in a short oral presentation¹⁰ and never developed it into a comprehensive theory. I found neither the mention of, nor empirical tests for, this premise in the peer-reviewed literature.

3. A Laughably Terse Summary of the Mutual Vulnerability Theory

A full description of the MVT is available online and may be accessed without charge by contacting the author. A very brief summary follows.

3.1 Vulnerability, Status, and Amusement

According to the MVT, laughter is an innate communicative behavior shared with all extant members of the great ape family (Hominidae), although each species’ expression is characterized by somewhat different, yet recognizable, vocal qualities.¹¹ Its essential causal constituent is the perception—that is to say, a heightened awareness—of vulnerability.

Vulnerability is generally defined as 1) “capable of being physically or emotionally wounded”; 2) “open to attack or damage”; “assailable” (Merriam-Webster Online Dictionary). For the purposes

⁹ De Waal 1997, 2010; Galdikas 1995; Herrmann 2010; O’Connell 1995.

¹⁰ I was not aware of Stewart’s presentation notes nor Brown and Levinson’s paper until after the publication of my book, *Why We Laugh: A New Understanding* (Simon 2008).

¹¹ Darwin 1872; Davila-Ross et al. 2009; Fitch and Zuberbühler 2013; Provine 1996; Provine and Yong 1991.

of understanding laughter, however, vulnerability must be further delineated based on several testable assertions: First, although vulnerabilities are virtually ubiquitous (i.e., inherent in everything we can imagine as having some purpose or goal), individuals will recognize qualitative states they subjectively characterize as being “normal.” Someone walking in the snow is constantly vulnerable to slipping and falling, for example, but it is only when we observe this outcome that we tend to consciously reflect on this limitation. Second, there are greater degrees of vulnerability that they will characterize as constituting “deficiencies” whereby the achievement of the goal is considered either “improbable” or “impossible.” In this case, a fall that results in substantial, noticeable head trauma. And third, however vulnerabilities are evaluated, they will be generally understood as falling along a continuum.

With these three caveats in mind, as it relates to laughter, I will hereafter use the term “vulnerability” to connote *a trait* (a physical characteristic, behavior, or combination thereof), *or the absence of a trait, that makes success less probable than normal, but not improbable or impossible*. Furthermore, I will use the term “status” to indicate degrees of vulnerability, in that diminished status represents increased levels of vulnerability and higher status signifies decreased vulnerability. Note, too, that vulnerabilities may be highlighted by both internal and external factors (e.g., being forgetful versus having a pine cone fall on one’s head).

Although there is no single, ideal word (at least in English), the term best suited to describe one’s desire to affirm a sense of mutual vulnerability is “amusement.” (The laughter motivated by joy, anxiety, nervousness, and mild fear arguably being somewhat less precisely designated.) While all laughter expresses this emotion, below the threshold of arousal required to initiate laughter, amusement may additionally be communicated with a smile (Hertzler 1970). Smiles can be interpreted as nonvocal expressions of low to moderate feelings of personal vulnerability (Simon 2008). Thus, when perceiving vulnerability in others, or when hoping to solicit a response from them when one’s own limitations are highlighted, a signal of personal vulnerability effectively implies shared vulnerability.

3.2. Proximate causation

Affirmations of mutual vulnerability can be inspired whenever the PV consciously perceives a shift in his/her status relative to one or more other individuals. It may, therefore, result from one, or a combination, of the following experiences: 1) from the PV’s point of view, someone else’s status is

perceived to have decreased; 2) from the PV's point of view, someone else's status is perceived to have increased; 3) the PV perceives his/her own status to have decreased; or 4) the PV perceives his/her own status to have increased.

The laughter resulting from these various stimuli could be, for convenience sake, referred to as "Lifting Laughter" (colloquially referred to as laughing sympathetically "with" someone), "Lowering Laughter" (laughing derisively "at" someone held in low regard—even if only at that moment—whose higher status is brought into question by virtue of some inadequacy), "Self-Lifting Laughter" (resulting from one's own vulnerabilities becoming apparent, as when being tickled, or from the good fortune/superior performance of someone else), and "Self-Lowering Laughter" (whereby one diminishes the significance of one's own abilities or good fortune, as when being effusively complimented or following an unexpected or undeserved victory). Note, however, that these do not constitute different "types" or "varieties" of laughter (e.g., tickle, joyous, nervous, surprised, victory, sardonic), but merely different motivations for communicating a sense of shared vulnerability with the intent to reestablish a prior status relationship. Moreover, because our cognitive processes are functionally predictive by nature, laughter may be prompted by *anticipated* changes in such relationships (e.g., at the initiation of an anecdote one knows will be embarrassing).

3.3. Variation

To explain differences in laughter's usage and intensity, the MVT postulates that variation in the laugh response is derived from four basic sources: 1) The PV's understanding of a relevant goal and its importance; 2) whether the PV distinguishes a trait, or its absence, as representing a vulnerability as opposed to normality or deficiency; 3) the degree to which the PV is emotionally, psychologically, and physiologically receptive to amusement, and 4) the degree to which the PV believes an expression of mutual vulnerability is prudent given his or her relationship to the individual(s) whose vulnerability is being evaluated and the social context in which the communication is to be offered. Although most of these variables are established, some consciously and some not (following Farthing 1992), well before "trigger" stimuli are perceived, one's laugh response, while often sudden and involuntary, should not be considered a nonconscious act. Furthermore, sincere laughter and smiles, like other forms of intentional communication, can be inhibited or exaggerated to varying degrees, including a complete counterfeiting (i.e., purely volitional expressions) when one believes such deception will be advantageous.

Expanding briefly on two main sources of variation, the process of identifying goals and evaluating vulnerability is shaped by numerous factors, including: the PV's age, sex and gender; personality; personal history/experience; religious belief or non-belief; sociopolitical ideology; national identity; mood; health; and current life status. Whether one believes that affirming a sense of mutual vulnerability would be appropriate in any given circumstance is likewise dependent on multiple influences, including: the number of, and relative social positions occupied by, others with whom the PV is interacting; their emotional/physical maturity and health status; their relationship to the PV; their mood; and the immediate social context.

As with motivations for other nonverbal communications, amusement must reach a critical (and variable) threshold level to trigger laughter which, once initiated, may be expressed in varying intensities and durations (single snorts and barely audible chuckles, all the way up to intense, eye-watering, knee-buckling "belly" laughter) depending on the level of amusement and any facilitative (e.g., affiliation/distancing techniques or alcohol/drug effects) or inhibitory factors (e.g., social taboos) (Argyle 1972).

3.4. Laughter and Humor

Because laughter reflects important aspects of an individual's personality, priorities, beliefs, social status, emotional state, sympathies, and so on, we would expect selective advantages conferred upon those able to successfully solicit it. The most inclusive definition of humor would be *a deliberate attempt to inspire a feeling of amusement by creating, manipulating, or highlighting the vulnerability of a character with whom the audience (which may include the humorist and/or referent) can identify*. Humor may be divided into informal humor, such as spontaneous physical playfulness, witticisms, wordplay, sarcasm, insults, etc. and formal humor, which typically involves more foresight and planning. "Finding the humor" in a situation likewise implies a purposeful process of reevaluation and reinterpretation. Humor may act as a medium for communicating other important sentiments (such as disgust, attraction, anxiety, or concern) as well as information, thus generating a feeling of amusement may be one, yet not the primary, objective. In such instances, the absence of a laugh response, or even a smile, would not necessarily designate these humor attempts as "failed."

3.5. Origins

Laughter's antecedent behavior is posited to be crying (i.e., sobbing), an attribute possessed by at least one other extant Hominid (Fossey 1983). Crying can be considered as expressing an affective state of moderate to intense personal vulnerability that may be highlighted by negative and, in some instances, positive experiences. As with the smile and low-level vulnerability, crying in response to that of another individual would effectively communicate shared feelings of moderate and higher levels of vulnerability. Neurophysiologically similar utterances, numerous individuals have displayed crying and laughing simultaneously (Duchowny 1983). In some cultures, laughter is considered a normal response to gentle crying or to cries perceived as unwarranted, noticeably exaggerated, or altogether faked. Crying and laughter (as well as smiles), while individually variable and culturally modulated, are deeply ingrained, multifaceted communicative implements that may be drawn upon even when we're alone (Lutz 1999).

Laughter provides an evolutionary advantage to those who convey it. An affirmation of mutual vulnerability, among other important functions, fosters cooperative social interaction and reciprocity critical to our success as individuals and family groups; facilitates learning and play by, among other things, mollifying setbacks; serves as a social corrective; and provides information about the vocalizer's sensitivity, personality, emotional state, intellect, knowledge base, priorities, loyalties, and opinion of themselves and others.

4. Explanatory Scope of the Mutual Vulnerability Theory of Laughter

One measure of the viability of a conceptual model relates to its explanatory scope. That is, how many seemingly unrelated questions or observations does the theory answer or explain? The following are fundamental questions raised or repeated by researchers from a variety of disciplines within the last several decades (Simon 2020), all of which are answered by the MVT:

1. For what function did laughter principally evolve?
2. To what extent is laughter an instinctive versus learned behavior?
3. If laughter is communication, what message or messages does it convey?
4. Do other animals display "true" laughter that is functionally equivalent to ours?
5. Are there different varieties of laughter and does each have a different message or convey a different emotional state?

6. How do we account for laughter's dual nature, in that most people recognize a qualitative difference between laughing sympathetically *with* someone and laughing derisively *at* someone? Which is the default, or most common, motivation?
7. Why do bouts of laughter vary in intensity and duration?
8. How can we explain observed differences in the laugh response, within the same individual over short and long timescales, and between individuals, groups, and cultures?
9. What is humor and its relationship with laughter?
10. How and why do laughter and humor influence group composition, group dynamics, and the uptake and/or transfer of knowledge?
11. Why are laughter and humor often used as weapons by bullies?
12. How/why do feelings of amusement bolster our emotional resilience and well-being?
13. Why, if we typically delight in the laughter of our friends and peers, do we sometimes (for gelotophobes, often) find it distressing, apparently misinterpreting the laugher's intent?
14. Why are expressions of laughter so closely associated with smiling?
15. What is laughter's relationship to crying (sobbing), especially in its physical manifestation, and why do we occasionally laugh and cry at the same time?
16. Why does laughter have the distinctive vocal properties that it does?
17. Why do we sometimes purposefully feign, exaggerate, or inhibit our laughter?
18. Why is laughter sometimes, but not always, contagious?
19. Why do many people laugh when tickled by another individual and some rarely or never do? Why can we not, generally speaking, tickle ourselves into a bout of sincere laughter?
20. What explains laughter's strong association with play, both in humans and great apes?
21. Why do we sometimes laugh in response to our own misfortune or shortcomings in addition to those of others?
22. Why do we sometimes laugh in response to our own and others' good fortune and triumphs, e.g., clever remarks or displays of exceptional skill?
23. Why do we sometimes laugh in response to nonhuman animals and inanimate objects?
24. Why do we sometimes laugh even when we are alone?
25. Why do we typically experience a positive affect when we engage in the act of laughing?
26. How can we best understand the sensation we refer to as amusement (or mirth) and explain its relationship with the behavior of laughter?

5. The Mutual Vulnerability Theory as a Falsifiable Scientific Model

Existing theories of laughter and humor, though seemingly incompatible with one another, have been scrutinized for centuries, even millennia, yet persist to this day. They have undergone modification but remain as foundational concepts either because scholars cannot falsify them or, lacking better alternatives, choose not to. I believe the MVT is an exception in that it is entirely and easily falsifiable.

5.1. Semantics

Conceptual models typically operate within certain semantic boundaries. Key concepts must be explained using terms whose definitions are generally accepted by linguists and, in this case, members of scientific community interested in animal and human behavior. For example, to propose that laughter is a play signal without defining “play,” or use a description that is not widely agreed upon or unreasonably malleable, is to provide nothing with which one can advance understanding. Similarly, to claim that laughter results when something is perceived as “absurd” without identifying the qualities that differentiate “absurd” from “non-absurd” is to simply exchange one unknown for another. Therefore, one means of disproving the MVT would be a finding by a significant proportion of linguists and ethologists that the terms employed to define or explain laughter and humor are themselves used incorrectly or that they are so nonspecific as to be meaningless (at least when compared to those used for similar behavioral patterns).

5.2. Dissonance

Assuming it is not internally contradictory, circular in its logic, or exceedingly vague, any explanation of natural phenomena can be falsified if contradicted by existing observational or experimental evidence. Any past finding that is demonstrably incompatible with an interpretation of laughter as a vocal affirmation of mutual vulnerability would constitute a refutation of the theory. As it is much less reasonable to expect a single theorist to become familiar with thousands of scientific findings (and the methods by which they were obtained) than for hundreds of investigators to become familiar with a single new, readily available conceptual model, the burden typically falls on the broader scientific community to invalidate new models. This protocol, of course, also helps guard against inherent confirmation biases.

Testing the MVT is relatively simple and straightforward as it predicts all laughter bouts are preceded by a perceived shift in the status relationship between the PV and one or more others. (Assessing factors affecting the desire to express mutual vulnerability is a somewhat more complex process but quite achievable.) Where a specific goal is discerned, does the trait (or its absence) that triggered the laughter make attaining it less likely but still not impossible? Where no specific goal is recognized, is a negative trait, for example, something we would wish for ourselves, our mate, our children, friend, employer, etc.? Would a perceived positive status shift make us or others feel inadequate or envious? These sorts of questions and answers are not difficult to produce and gauge.

5.3. Predictions

Although I proposed none explicitly in *Why We Laugh*, various predictions can be deduced from both the central premise of the MVT and the logical inferences relating to laughter's proximate and ultimate causes, its effects on social relationships, and the multiple sources of variation governing its expression. As would be the case for all general theories of human behavior, these predictions are made for mentally and physically healthy individuals who have not been persistently instructed on the appropriateness or inappropriateness of laughter, either in general or under specific circumstances.

Culture invariably shapes one's behavioral responses, but individuals inculcated with the view that, for example, laughter conveys servility, idiocy, or genuine hostility may not express it in a way that accurately represents its evolved function. The ways in which culture regulates an individual's laugh response is fertile ground for subsequent studies guided by the MVT (as are many laughter-related pathologies, including gelotophobia), but they would needlessly complicate efforts to establish the theory's falsifiability.

Some predictions made by the MVT include:

1. Laughter possesses all the criteria for classification as a consciously-generated, vocal, nonverbal communication. (Note that involuntary does not equate with nonconscious.)
2. The concepts of vulnerability (status), mutuality (shared traits), and affirmation are universal and of central concern to all human cultures.
3. A significant majority of people will recognize that attributions of vulnerability extend to traits/behaviors not directly linked to one's immediate survival or reproduction.

4. There will be a strong correlation between the perception of a trait (or its absence) as a vulnerability and its utility as a proximate stimulus for amusement.
5. There will be general agreement across cultures that an individual's overall status is an amalgamation of multiple, lower-level status evaluations, and influenced by the statuses of those with whom he or she chooses to associate.
6. The laughter that results from tickling is predominantly non-reflexive. There are emotional, cognitive, and social variables that influence one's laugh response, if any.
7. Sincere (Duchenne) laughter and crying will originate in the same or adjacent areas of the brain, and they will differ in their point of origin from insincere (non-Duchenne) expressions.
8. One's life experiences, knowledge, sociopolitical viewpoints, social status, mood, mode, personality, mental and physical health will influence the categorization of traits as being normal, vulnerabilities, or deficiencies.
9. Social environment and personal interrelationships (among other factors) will influence the conscious inhibition or exaggeration of laughter's expression.
10. A significant majority of people will agree with the premise that the act of laughing can be uncontrollable, debilitating, poorly timed, out of place, odd in its expression, too intense, and potentially embarrassing.
11. Comparatively speaking, there will be fewer instances of ambiguity about the motives behind a bout of laughter (especially Lifting vs Lowering) when it is shared among friends, those with a similar personal history, or in the same cultural environment.
12. Play, including among adults, is facilitated by feelings of respect, equality, and fairness.
13. All successful humor will involve a perception of vulnerability and the resulting (or anticipated) shift in status.
14. Those thought of as bullies will not be considered as having a good sense of humor regardless of the number of laughs they solicit from their audience.
15. A significant majority of people will agree that someone's sense of humor can provide clues to many aspects of their personality, including viewpoints, maturity level, intelligence, benevolence, self-confidence, and personal history.
16. For jokes, riddles, puns, wordplay, and pranks, there will be a positive correlation between a rating of the humor's ability to amuse and its rating of cleverness.

17. The great apes experience empathy, compassion, friendship, and joy, and have the capacity to comprehend status, equality, security, justice, failure, loss, betrayal, and desperation.

6. Retrodictions

I have argued for the utility, universality, and falsifiability of the MVT. Some examples of retrodiction may also be instructive. There are numerous aspects of laughter and humor that make sense only in light of this theoretical model, but three are illustrative.

Contagiousness is a property of laughter that is easily explained by the MVT. The phenomenon has been described by many scholars¹², but existing theories provide no widely accepted rationale for why one person's laughter sometimes triggers the laughter of another. In my book, I offered a detailed account of how, like other behaviors we engage in, the act of laughing itself can highlight one or more vulnerabilities—for example, physical debilitation, emotional overreaction, a cognitive failure to adequately suppress its expression, and the social consequences of having it misinterpreted by onlookers. Even the vocal characteristics of the laugh can be found highly atypical (e.g., the “horse” laugh or squeaky laugh) or so loud as to startle bystanders. I then go on to cite two exceptions, severely pathological laughter and the laughter associated with “unwarranted” bullying (i.e., deficiencies), to show why laughter in certain contexts tends not to be contagious.

Another challenge for current theories is conversational laughter. Provine (1993, 2000) and Vettin and Todt (2004) observed that such laughter, frequently exhibited by both the speaker and the listener, often follows seemingly innocuous statements or questions. These exchanges generally lack incongruity/resolution set-up and punch line formats, and may contain nothing that would indicate feelings of superiority or tension. Such expressions have been dismissed by some scholars as being “non-Duchenne” or feigned¹³ however, there are no empirical studies to support this interpretation. The MVT, by contrast, shows how certain dynamics can lower one's threshold for laughter such that even slight perturbations in status, perhaps recognized by only one or two individuals, can suffice as trigger stimuli and be transmitted with as little as a raised eyebrow. Moreover, if the simple statement, “I'm going home” is understood by the receiver to mean, “I wish I could go to the movies with you guys but I have no money...or I have to babysit my bratty little sister...or my mother will ground me

¹² e.g., Provine 1992; Smoski and Bachorowski 2003.

¹³ e.g., Hurley et al. 2011; Kozintzev 2010; Nelson 2012.

if I stay out...so I'm going home," then one or more vulnerabilities may indeed be brought to the PV's attention. Conversational laughter can reference experiences from weeks, months, or even years in the past, as well as those merely anticipated in the future. It may be, too, that the speaker's actions, rather than being purposefully humorous, simply revealed his or her own shortcomings, for example, through an unintended slight, the raising of a personally taboo subject, or just being at a temporary loss for words.

We can also better understand why certain recollections and activities that lack the structure of typical humor stimuli nevertheless often elicit our laughter or, at the very least, our smiles. Heightened feelings of vulnerability permeate nearly all moments of "exhilaration" which are so often associated with feelings of amusement (Hertzler 1970; Ruch and Köhler 1998). Consider young children engaged in playful chases or tree climbing, and a pre-teen's tentative journey through a Halloween "haunted" house. The same could be said of participating in or viewing public exhibitions of singing, dancing, musical, and street magic; travelling with friends to unfamiliar lands; and vicarious pleasures like watching game show contestants. So much of what we take delight in involves stepping outside our comfort zones and putting ourselves at risk—physically, emotionally, cognitively, and/or socially—either personally or through surrogates.

7. Conclusion

From an evolutionary perspective, the MVT has distinct advantages over other theories. It assigns a single message to a single expression, and yet still accommodates both uplifting and dispiriting motivations and interpretations. It offers continuity with the homologous laughter of other hominids, providing an explanation for its expanded scope and frequency, but requiring nothing in the way of behavioral "cooption" (Gervais and Wilson 2005; Hurley et al. 2011). The theory accounts for the tremendous diversity of potential stimuli, be they intentionally produced or not, and offers insight into the many factors which act to either strengthen or inhibit the resulting laugh response. The MVT resolves some of the most puzzling associations we see with laughter, including play, humor, smiles, joyfulness, confusion, anxiety, deception, and even bullying behavior. Most important, it clearly illustrates how laughter benefits both senders and receivers in their struggle to survive and reproduce.

Unfortunately, the process of weeding out nonviable conceptual models, the cornerstone of the scientific method, has been restrained in the case of laughter. As a general rule, new theories compete with the one "best" prevailing account for a given phenomenon, displacing the old model if they are

more comprehensive and parsimonious, and being dispassionately discarded if tested and found wanting—and preferably not before. Yet there exists no null hypothesis in this domain. There is no single, broadly accepted explanation for why we, and our great ape relatives, engage in laughter. We have, instead, multiple disparate and incomplete theories—ones that have generated many interesting debates, but seem to have fallen short in the quest for true understanding.

All models are approximations of the real world. Because of their complex and subjective nature, the MVT will not provide perfect clarity in deciphering every individual expression of laughter. The question is whether it is better than the alternatives. Traditional theories have had centuries, if not millennia, to get us to our destination. Until it is falsified, I would argue the Mutual Vulnerability Theory of Laughter should be provisionally accepted as the best working explanation and serve as a roadmap for future inquiries into this remarkable behavior.

References

- Alexander, R. D. 1989. Evolution of the human psyche. In P. Mellars and C. Stringer (eds.), *The human revolution: Behavioral and biological perspectives on the origins of modern humans* (pp. 455–519). Edinburgh: Edinburgh University Press.
- Apte, M. 1985. *Humor and laughter: An anthropological approach*. Ithaca: Cornell University Press.
- Argyle, M. 1972. Non-verbal communication in human social interaction. In R. A. Hinde (ed.), *Nonverbal communication*. Cambridge University Press, 243–269.
- Arroyo, S., Lesser, R. P., Gordon, B., Uematsu, S., Hart, J., Schwerdt, P., Andreasson, K. and Fisher, R. S. 1993. Mirth, laughter and gelastic seizures. *Brain*, 116, 757–780.
- Brown P. and Levinson, S. 1987. *Politeness: Some universals in language usage*. Cambridge University Press.
- Bryant, G. A. and Aktipis, C. A. 2014. The animal nature of spontaneous human laughter. *Evolution and Human Behavior*, 35, 327–335.
- Darwin, C. 1872. *The expression of the emotions in man and animals*. London: Murray.
- Davies, C. 2012. Book Reviews. *Humor: International Journal of Humor Research*, 25(1), 108–113.
- Davila-Ross, M., Owren, M., and Zimmermann, E. 2009. Reconstructing the evolution of laughter in great apes and humans. *Current Biology*, 19(13), 1106–1111.

- Deacon, T. W. 1997. *The symbolic species: The co-evolution of language and the brain*. New York: W. W. Norton and Company.
- Dennett, D. 1988. The intentional stance in theory and practice. In R. W. Byrne and A. Whiten (eds.) *Machiavellian intelligence: Social expertise and the evolution of intellect in monkeys, apes and human* (pp. 180-202). Oxford: Clarendon Press.
- Deutsch, D. 2011. *The beginning of infinity: Explanations that transform the world*. UK: Penguin.
- De Waal, F. 1997. *Bonobo: The forgotten ape*. University of California Press.
- , 2010. *The age of empathy: Nature's lessons for a kinder society*. New York: Harmony Books.
- Dezecachea, G. and Dunbar, R.I.M. 2012. Sharing the joke: The size of natural laughter groups. *Evolution and Human Behavior*, 33, 775–779.
- Duchowny, M. S. 1983. Pathological disorders of laughter. In P. E. McGhee and J. H. Goldstein (eds.), *Handbook of humor research* (pp. 89–108). New York: Springer-Verlag.
- Farthing, G. W. 1992. *The psychology of consciousness*. Englewood Cliffs, NJ: Prentice Hall.
- Fitch, W. T. and Zuberbühler, K. 2013. Primate precursors to human language: Beyond discontinuity. In E. Altenmüller, S. Schmidt, and E. Zimmermann (eds.), *Evolution of emotional communication: From sounds in nonhuman mammals to speech and music in man* (pp. 26–48). Oxford, UK, Oxford University Press.
- Fossey, D. 1983. *Gorillas in the mist*. Boston: Houghton Mifflin.
- Fry, W. F., Jr. 1977. The appeasement function of mirthful laughter. In A. J. Chapman and H. C. Foot (eds.), *It's a Funny Thing, Humour* (pp. 23–26). Oxford, England: Pergamon.
- Galdikas, B. M. 1995. *Reflections of Eden: My years with the orangutans of Borneo*. Boston: Little, Brown and Co.
- Gervais, M., and Wilson, D. S. 2005. The evolution and functions of laughter and humor: A synthetic approach. *Quarterly Review of Biology*, 80, 395–430.
- Hall, G. S. and Allin, A. 1897. The psychology of tickling, laughing, and the comic. *American Journal of Psychology*, 9(1), 1–41.
- Halliwell, S. 2008. *Greek laughter: A study of cultural psychology from Homer to early Christianity*. Cambridge University Press.
- Harris, C. R., and Alvarado, N. 2005. Facial expressions, smile types, and self-report during tickle, humour, and pain. *Cognition and Emotion*, 19(5), 655–699.

- Herrmann E., Hare B., Call J., Tomasello M. 2010. Differences in the Cognitive Skills of Bonobos and Chimpanzees. *PLoS ONE*, 5(8), e12438.
- Hertzler, J. O. 1970. *Laughter: A socio-scientific analysis*. New York: Expedition Press.
- Humphrey, N. 1976. The social function of intellect. In P. P. G. Bateson and R. A. Hinde (eds.), *Growing points in ethology* (pp. 303-321). Cambridge: Cambridge University Press.
- 1992. *A history of the mind*. London: Chatto and Windus.
- Humphreys, A. P. and Smith, P. K. 1984. Rough-and-tumble in preschool and playground. In P. K. Smith (ed.), *Play in animals and humans* (pp. 241–266). New York: Basil Blackwell.
- Hurley, M. M., Dennett, D. C., and Adams Jr., R. B. 2011. *Inside jokes: Using humor to reverse-engineer the mind*. Boston, MA: Massachusetts Institute of Technology.
- Indick, W. 2002. Fight the power: The limits of empiricism and the costs of positivistic rigor. *The Journal of Psychology: Interdisciplinary and Applied*, 136(1), 21–36.
- Keith-Spiegel, P. 1972. Early conceptions of humor: Varieties and issues. In J. H. Goldstein and P. E. McGhee (eds.), *The psychology of humor: Theoretical perspectives and empirical issues* (pp. 3–39). New York: Academic Press.
- Kozintsev, A. 2010. *The mirror of laughter*. Translated by Richard P. Martin. New Brunswick and London: Transaction Publishers.
- Lutz, T. 1999. *Crying: The natural and cultural history of tears*. New York: W. W. Norton and Company.
- Maryanski, A. M., Molnár, P., Segerstråle, U., and Velichkovsky, B. M. 2013. The social and biological foundations of human communication. In P. Weingart, S. D. Mitchell, P. J. Richerson, and S. Maasen (eds.), *Human by nature: Between biology and the social sciences* (pp. 181–200). Psychology Press.
- McGhee, P. E. 1979. *Humor: Its origin and development*. San Francisco: W. H. Freeman.
- Mehu, M., and Dunbar, R. I. M. 2008. Naturalistic observations of smiling and laughter in human group interactions. *Behaviour*, 145, 1747–1780.
- Nelson, J. K. 2012. *What made Freud laugh: An attachment perspective on laughter*. New York: Routledge.
- O’Connell, S. M. 1995. Empathy in chimpanzees: Evidence for theory of mind? *Primates*, 36(3), 397–410.

- Owren, Michael J. and Bachorowski, Jo-Anne. 2003). Reconsidering the evolution of nonlinguistic communication: The case of laughter. *Journal of Nonverbal Behavior*, 27(3), 183–200.
- Perks, L. G. 2012. The ancient roots of humor theory. *Humor: International Journal of Humor Research*, 25(2), 119–132.
- Provine, R. R. 1992. Contagious laughter: Laughter is a sufficient stimulus for laughs and smiles. *Bulletin of the Psychonomic Society*, 30(1), 1–4.
- . 1993. Laughter punctuates speech: Linguistic, social, and gender contexts of laughter. *Ethology*, 95, 291–298.
- . 1996. Laughter. *American Scientist* 84, 38–44.
- . 2000. *Laughter: A scientific investigation*. New York, NY: Penguin Press.
- . 2004. Laughing, tickling, and the evolution of speech and self. *Current Directions in Psychological Science*, 13(6), 215–218.
- Provine, R. R. and Yong, Y. L. 1991. Laughter: A stereotyped human vocalization. *Ethology*, 89, 115–124.
- Ruch, W., Hofmann, J., Platt, T., and Proyer, R. 2013. The state-of-the art in gelotophobia research: A review and some theoretical extensions. *Humor: International Journal of Humor Research*, 27(1), 23–45.
- Ruch, W. and Köhler, G. 1998. A temperament approach to humor. In W. Ruch (ed.), *The sense of humor: Explorations of a personality characteristic* (pp. 203–330). New York: Mouton de Gruyter.
- Simon, J. C. 2008. *Why We Laugh: A New Understanding*. Carmel, Indiana: Starbrook Publishing.
- . 2020. Essential elements of a comprehensive theory of laughter. *European Journal of Humour Research*, 8(1), 45–54.
- Smoski, M. J. and Bachorowski, J.-A. 2003. Antiphonal laughter between friends and strangers. *Cognition and Emotion*, 17, 327–340.
- Stewart, S. 1997. The many faces of conversational laughter. Paper presented at 9th Conference on Linguistics and Literature. Denton, Texas. February 7–9. (Available online.)
- Van Hooff, J. A. 1972. A comparative approach to the phylogeny of laughter and smiling. In R. A. Hinde (ed.), *Non-verbal communication* (pp. 209–241). Cambridge, England: Cambridge University Press.
- Van Lawick-Goodall, J. 1971. *In the shadow of man*. Boston: Houghton Mifflin Company.

- Vettin, J. and Todt, D. 2004. Laughter in conversation: Features of occurrence and acoustic structure. *Journal of Nonverbal Behavior*, 28(2), 96–115.
- Washburn, R. W. 1929. A study of the smiling and laughing of infants in the first year of life. *Genetic Psychology Monographs*, 6, 397–535.
- Weems, Scott. 2014. *Ha!: The science of when we laugh and why*. New York: Basic Books.