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# The stability of laughter

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**Abstract:** This article synthesizes a broad body of research in order to propose a concise overview of how laughter functions as a heuristic for social situations and cultural artifacts. It argues that all laughter is indelibly associated with positivity. Phenomena traditionally interpreted as contradicting this claim – such as malicious laughter and pathological laughter – only serve to reinforce an understanding we are born with which connects laughter to positivity. I argue that laughter is perceived as positive or otherwise because context either reinforces an innate understanding that links laughter to positivity, or else forces that understanding into some degree of contradiction. Either way, the link is never dissolved. Basing its claims on evolutionary theory and emotion research, and informed by the two-thousand-plus-year history of the philosophy of humor, this study is the first to systematically discuss those aspects of laughter that transcend context and subject.

**Keywords:** laughter, smiles, emotion, comedy, humor

## 1 Introduction

By now most researchers studying emotions and non-verbal communication agree that laughter and smiles function as social signals. However, opinions diverge regarding the evolutionary origins of these extra-linguistic communiqués, their connection to affect, the extent to which social factors influence them, and the level to which they remain under conscious control. A key point of contention also involves the content of the message these signals communicate. Is a laugh an expression of joy, a smile a less intense variety of the same type of emotion? Is “joy” even an accurate description of this content, or would a term like “pleasure” or “amusement” be more accurate?

Underlying these questions is the truism that people smile and laugh because something positive has inspired them to do so. Despite the relative ubiquity of this idea, arguing for an indelible link between positivity and laughter and smiles is controversial. This has particularly been the case in

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cultural studies, where scholars emphasize the ambivalence of humor in their work on genres related to laughter – such as dramatic comedy, satire, or the grotesque. Meanwhile in the sciences, much research points to the multiplicity of meaning smiles and laughter produce, as well as to the way culture and context influence this production. As a result, the link to positivity has been called into question by those studying real-world contexts as much as by those researching works of art.

While laughter is capable of communicating many aspects of human experience not necessarily indicative of positivity (nervousness, ill will, and fear being but a few examples), this article argues that laughter's ability to do so derives from its ineluctable association with positivity. Any account of laughter that does not grant positivity a foundational position misrepresents *why* laughter and smiles function as such potent communicators of social complexity. Laughter can be such a powerful heuristic for understanding human character both within social interaction and cultural artifacts because of its baseline association with positivity, not in spite of it.

"Positivity" is being used as a blanket term to cover the range of experiences we qualify favorably. Whether or not "joy" or "amusement" is an appropriate way to describe the emotion inciting laughter, whether or not we should consider a more varied set of affective causes, whether or not all laughter is even necessarily produced by affect – these are important questions which this paper will elide.<sup>1</sup> My aim here is to account for the ways laughter and smiles create interpersonal meaning, which is not dependent on the definitions we assign to the relationship between the subject and her laughter.

Caveat: Though the distinctions between laughter and smiles will be discussed, unless otherwise stated, my statements regarding laughter relate to smiles as well. I follow research that demonstrates the prevalent tendency to interpret these phenomena as representative of different degrees of positivity, rather than as responses to stimuli of different affective valences (Messinger et al. 2008; Messinger et al. 2001; Ruch 1994).

In addition, some have warned of conflating the laughter produced by humor appreciation with the kind of laughter we employ in everyday situations (Warner-Garcia 2014). While not disagreeing with this distinction, I will speak of both kinds of laughter simultaneously. For despite the nuances of each, our frame of reference for laughter in all situations encompasses its myriad forms; i. e., the laughter inspired by a comedian automatically evokes the laughter we employed in conversation, and vice versa.

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<sup>1</sup> See Martin (2006) for a review of this debate.

## 2 The four stabilities of laughter

There are four aspects to laughter and smiles that apply universally:

1. Laughter communicates information to others.
2. The form of this communication is mostly invariable.
3. The content of this communication is highly variable.
4. Underlying this variability rests an ineluctable *association* with positivity.

I will attempt to demonstrate the first three aspects rather quickly before proceeding to an extended argument in favor of point four.

### 2.1 Laughter communicates information to others

Laughter evolved as a social signal whose primary purpose is to communicate to other people. As a result, we are much more likely to laugh and smile in social situations, and when we do grin and guffaw while alone, it is usually in response to a stimulus that imitates sociality, such as a book or the television (Scott et al. 2014; Provine 2001). Even when isolated from friends and media, we smile and laugh, because we are treating ourselves as interactants and acting as though others were present. In other words, laughter depends upon an expectation of either explicit or *implicit* sociality (Fridlund 1994). This idea underlies everything we think we know about laughter, from its evolutionary rationale to why we laugh and how laughter relates to forms of culture intended to make us laugh.

### 2.2 The form of this communication is mostly invariable

All human beings laugh in a relatively uniform way. Laughs are not identical, but anatomical restrictions enforce an underlying degree of invariance. Our nervous systems and vocal tracks are to blame for the short bursts of sound that classify the audible element of all human laughter (Provine 2001). Smiles, meanwhile, lack the vocal component of laughter but involve the same facial changes. Both smiles and laughter call into action the zygomatic major (forcing the corner of the mouth to upturn) and, oftentimes, the orbicularis oculi (creasing the corners of the eyes). Laughter and smiles function as reliable social signals, in part, because of this relative anatomical uniformity.<sup>2</sup>

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<sup>2</sup> Provine (2001) has done the most to demonstrate the formal uniformity of laughter. For a response to those who challenge his claim see Provine (2012).

## 2.3 The content of this communication is highly variable

Laughter communicates subjectivity and situational complexity. Whether or not one laughs or smiles in a certain situation communicates a wealth of information about the subjects involved and their roles within that context.

## 2.4 Laughter is always *associated* with positivity

Thus far I have not argued anything that does not fall under the umbrella of traditional arguments regarding the correlation between facial expression and affect. Since the 1990s the view that facial movements represent public presentations of private, authentic emotions has been challenged by researchers proposing instead that what facial expressions do is communicate intentions, or “social motives” (Parkinson 2005). However, as I will now argue, the fact that low correspondence rates have been reported between positive affect and smiles and laughter does not necessarily disqualify connecting laughter and positivity ineluctably.<sup>3</sup>

If any of points one, two, or four are removed the truism of point three becomes meaningless. If laughter had not evolved as a social signal, it would not be a useful means of communicating aspects of subjectivity. Likewise, if its form varied too greatly across subjects, it would not be readily identifiable as laughter, which means it could not function as a reliable social signal.

A signal with a limited degree of formal variety can only function socially if some degree of uniformity underlies its qualitative interpretations – in a similar way that a sense of humor communicates intersubjectively because it implies what one considers funny. But if “funny” lacked a fundamental qualitative invariability across most subjects, humor would be a hollow form of communication. If “funny” were not something that is *supposed* to be positive the variances in humor appreciation from person-to-person and culture-to-culture would not come across as variances but as responses to incomparably different phenomena. Laughter, like humor appreciation, strays from positivity when someone considers the context of its appearance to be inappropriate to positive affect.

My contention is that there is enough evidence to have emerged from the fields of evolutionary theory and emotion research to point to an underlying and cross-cultural connection between positivity and laughter and smiling. I will argue that laughter is perceived as positive or otherwise because context either

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Within this uniformity, however, there are significant differences between voiced and unvoiced laughs. For more see Bachorowski and Owren (2001).

<sup>3</sup> A review of the history of this debate can be found in Parkinson (2005).

reinforces an innate understanding that links laughter to positivity, or else forces that understanding into some degree of contradiction.

### 3 Duchenne vs. non-Duchenne

All facial expressions that observers reliably identify as smiles or laughter include a subtle upturn in the corner of the mouth produced by the zygomatic major. However, there is a distinction to be made when the smile or laugh also includes the contraction of the orbicularis oculi muscle, creating that tell-tale wrinkle around the eyes. The first to notice the prominent role played by this muscle was the French anatomist G.B. Duchenne in 1862 (Darwin references him in *The Expression of Emotions in Man and Animals*). Since then numerous studies, particularly those by Paul Ekman using the Facial Action Coding System (FACS), have sought to demonstrate that what distinguishes Duchenne from non-Duchenne laughter also justifies coding smiles along with laughter as markers of enjoyment. According to Ekman and others, the Duchenne smile is a sincere expression of positive emotion, while the non-Duchenne smile not necessarily so.<sup>4</sup>

Ekman's Duchenne/non-Duchenne distinction is supported by research that implies that Duchenne smiles are harder to fake than non- (Frank et al. 1993; Ekman et al. 1988). In addition, studies show that laughter – which is generally considered an expression of higher intensities of positive emotion – is under less voluntary control than smiles (Provine 2001). The idea that the more sincerely and intensely one experiences positive affect, the more automatically (unconsciously) one is inspired to smile and laugh, is supported by work in neuroscience which suggests that sincere and fake laughter have their own, partially distinct neural pathways (Gervais and Wilson 2005; Frank and Ekman 1993). This argument informs theories that view genuine laughter as automatic behavior which gives away information about the subject to observers (Hurley et al. 2011).

However, the Duchenne/non-Duchenne distinction has been challenged by those who claim that there is no evidence to prove that a) only Duchenne smiles are genuine and b) either smile is always an outgrowth of affect (Krumhuber and Manstead 2009; Parkinson 2005; Messinger 2002; Fridlund 1994). While studies have shown that non-expert onlookers consider smiles to be more sincere when the Duchenne marker is present (Messinger et al. 2008), research has also demonstrated that non-experts' ability to make this distinction is no greater than chance (Frank et al. 1993). In addition, the relative ease with which some people are able to

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4 A review of Ekman's work and its legacy can be found in Ekman & Rosenberg (2005).

fake smiles and laughs that onlookers deem to be sincere expressions of positive emotion also seems to call into question the direct relationship between the anatomical distinction of the Duchenne marker and genuine expressions of affect. To complicate matters further, a smile's perceived authenticity is influenced by a multitude of factors, including gender (McKeown et al. 2015), the temporal dynamics of the smile's appearance (Krumhuber et al. 2007; Krumhuber and Kappas 2005), other synchronous facial actions (Johnston et al. 2010; Messenger et al. 2008; Krumhuber et al. 2007), as well as whether or not perceivers are able to physically mimic the smiles they perceive (Korb et al. 2014; Rychlowska et al. 2014; Maringer et al. 2011). Meanwhile FACS has been used to show that there are more varieties of smiles than just fake and sincere (Ekman et al. 1988).

## 4 Social laughter

But the existence of a multiplicity of smiles or of an insincere laugh assumed to be authentic does not necessarily dissolve the link between smiles/laughs and positivity. For example, professional actors are capable of presenting expressions that come across as genuine representations of emotions (Gosselin et al. 1995). But whether or not actors are actually experiencing “genuine” emotion during a performance is irrelevant for our purposes. The fact that research has distinguished between “experienced” emotions and “performed” ones only reinforces the importance of audience expectations.<sup>5</sup> An actor would only ever feel the need to manipulate his mind and body into creating a smile or laugh because he understands that the *initial*, or *most prevalent* interpretation of his laugh will link it to positivity. That an actor has this tool in his repertoire underscores its use value, which is reliant on a basic level of interpretative invariability. This logic applies equally to the evolutionary value of the smile in pre-modern contexts as it does to more socially complex situations, like dramatic performances. Ceccarelli says it best: “The capacity to lie has nothing to do with the message that the smile communicates. Only because it has an invariable signification can I use it in order to lie” (Ceccarelli 1988).<sup>6</sup>

In everyday life, a smile or a laugh is more often a strategy of social communication than a response to something funny (Scott et al. 2014; Holt 2011; Provine 2001). “Conversational” laughter, that is, all laughter that emerges in social situations not formally organized around a performance with an audience, is an extra-linguistic means of communication. It helps facilitate the conversation by

<sup>5</sup> For more on emotions and actors see Saint (2014).

<sup>6</sup> Translation mine.

acting as a turn-taking cue, a display of understanding, an orienting cue, and an instruction to hear (Madden et al. 2002). This kind of laughter is oftentimes deemed strategic, less an unconscious response to positive emotion and more a means to an end. As with all aspects of social communication, conversational laughter is influenced by the hierarchy of social relations, hence why it oftentimes functions as a signal of dominance or subservience, which can aid in facilitating friendliness, avoiding misunderstandings, and punctuating speech (Glenn 2003; Provine 2001). Overall, conversational laughter communicates to others a willingness for interaction, and therefore serves to facilitate bonding (Gervais and Wilson 2005; Provine 2001).

Conversational laughter then would be a more developed form of the kind of laughter we find among children at play and between infants and caregivers. Both mature conversational laughter and infant laughter indicate “non-aggression.” Researchers connect this social signal to similar phenomena found across nonhuman primates, which is why evolutionary researchers hypothesize that our laughs evolved from social play as part of a system of nonverbal communication (Ross et al. 2010; Owren and Bachorowski 2001; Provine 2001). For example, tickling and the laughter it produces, are interpreted as a kind of “false alarm” signal which informs others that such intimacy is desired (Ramachandran 2011).<sup>7</sup> Infant play laughter is an early, less complex variety of the kind of socially-structured laughter one finds in adult conversation. Infant laughter and smiles begin as responses to pleasurable stimuli and develop in conjunction with infant/caregiver interaction and childhood play behavior.

It is a truism that what incites a laugh or grin is more simple in childhood than in adulthood (Picardo et al. 2016). As we mature we grow more capable of manipulating our bodies into ambivalent smiles and nuanced laughs. This has led many to propose that laughter first evolved purely as an expressive marker of positive affect and our ability to manipulate our laughs – our ability to manipulate through laughter our expectations of others – evolved later (Gervais and Wilson 2005).

However, the fact that we should distinguish between infant and adult laughter does not mean we should dissociate them. If one kind of behavior was later co-opted for more complex situations, this does not mean that our understanding of the initial behavior is necessarily discarded. This is especially the case with laughter, which we first come to know through its use in infant and childhood situations. Our understanding of the complexities inherent to mature laughter derives from our understanding of laughter’s simpler early

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<sup>7</sup> For reviews of evolutionary theories of laughter see Gervais & Wilson (2005), Provine (2001) and Martin (2006). Two alternative theories are those of Hurley et al. (2011) and Owren and Bachorowski (2001).

childhood iterations, which are more regularly accepted as invariably communicative of positivity.

Studies involving infants are particularly fruitful for solidifying an innate connection between smiles/laughter and positivity. Since infants are less likely to be influenced by cultural factors, their behavior may point to universal *a priori* mechanisms. So what do we know about our most youthful expressions of positivity?

Laughter is one of our first social vocalizations, emerging anywhere between two and six months of age (Gervais and Wilson 2005). Researchers know from cases of gelastic (laughter-producing) epilepsy in newborns that the brain mechanisms that produce laughter are present at birth; congenitally deaf and blind infants have been known to respond to positive stimuli with laughter and smiles (Martin 2007; Panksepp 1998). Meanwhile, research implies that infants respond to expressions of emotion – and of positive emotion in particular – less by inferring affect from specific facial and vocal expression and more by abstracting invariant properties common to facial and vocal expressions as a whole (Vaillant-Molina et al. 2013; Brenna et al. 2012). All this points to an inborn tendency to associate specific affect with particular expressions.

Laughter and smiling are attachment behaviors that have been interpreted to be as important as crying in solidifying connections between infants and caregivers. As a result, some have argued that infant laughter is less an expressive non-verbal marker of enjoyment and more a behavior adapted primarily to connect infants with caregivers (Kay Nelson 2012). Nonetheless, the association the caregiver makes between the infant's smile and enjoyment seems to positively reinforce this attachment. For example, evidence suggests that newborns prefer a smiling face to a fearful one, that four-month-olds look longer at a smiling face than at an angry one, and that infants between 9- and 12-months-old orient more quickly towards happy faces than angry ones (Niedźwiecka and Tomalski 2015).

We also know that adults tend to react to an infant's smile or laugh similarly. Infant smiles that display the Duchenne marker are consistently rated more positive than those without, both by parents and by naïve onlookers (Messinger et al. 2008). And even infants in cultures which consider eye contact to be dangerous persist in their attempts to engage with their mothers by laughing and smiling, despite the mother's refusal to return the child's smile. This suggests that though caregiver behavior varies from culture-to-culture, infant attachment behavior does not (Kay Nelson 2012).

Of course, this does not mean that cultural influence should be discarded. What all this evidence suggests is that early in life, before culture has begun to exert the bulk of its influence, the smile and the laugh serve a variety of



purposes – to facilitate togetherness, to encourage certain forms of behavior – and they do so *through* their automatic association with positivity.

As we mature, the complexity of culture begins to modify the subtleties of these gestures. Hence why one would argue for a distinction between the less complex laughs of infancy and the mystifying gestures of adulthood. As if to say, just because we associate infant smiles with happiness, this does not mean that we invariably continue to connect smiles to positivity even into adulthood. In other words, why should we assume that an early-childhood instinct could not lose its link to positivity later in life?

However, even the nuances of adult social laughter rely on this initial link. If we come from a culture that interprets adult smiles as indicative of stupidity or dishonesty – as certain cultures do – this does not necessarily mean that the culture has collectively disregarded laughter's link with positivity. For example, Krys et al. (2016) look at adult responses to adult smiles in cultures known to distrust the gesture when encountered among strangers. Their results indicate the extent to which cultural expectations and gender influence an adult's reception of a smile. But their results also point to the way a culture's distrust of smiling derives from a broad societal context whose connotations conflict with the positivity we automatically associate with smiling. They hypothesize that widespread corruption in the culture serves to undermine a smile's trustworthiness, thereby weakening the smile's evolutionary meaning. It is important to establish an indelible link between smiling and positivity, then, because without it we misunderstand the ways adult smiles communicate subtle cultural expectations.

Conversational laughter functions similarly. If the laughter we employ in adult interaction can be called strategic, it is because of how reliably it directs interaction away from negativity, promoting those points on which interlocutors are more like-minded, and mitigating the potential effects of discord (Scott et al. 2014; Glenn 2003). As such, laughter functions as a resource for managing tricky situations (Glenn and Holt 2013; Shaw et al. 2013). One example of this is so-called “coping” laughter, employed during moments of disagreement as a kind of “safety valve” which reframes the debate as laughable rather than serious (Warner-Garcia 2014). It is true that in such situations the overall mood might point more to disagreement than to solidarity. However, the very presence of laughter in these moments only highlights its association with positivity. Otherwise, what reason would there be for the laugh to have been employed, and how could this laugh have been interpreted as rendering the exchange less severe?

Laughter's ability to frame a situation as non-serious is well known (Holt 2013). Glenn (2003) has argued that laughter promotes intimacy in conversation

by framing the context as playful, that is, by bracketing messages as “nonserious.” This aspect of conversational laughter is very much related to childhood play behavior. For when we say, “I wasn’t being serious” or “Don’t take things so seriously,” we attempt to render the incongruities and norm violations of a situation harmless. In a similar way that childhood play uses laughter as a “false alarm” signal which sanctions the kind of interaction that would be deemed improper in other situations, so adult conversation oftentimes employs laughter as a means of diffusing potential offense. The result is that in both childhood play and adult conversation, laughter facilitates social bonding through its association with *non-negativity*.

Some have gone so far as to argue that laughter’s primary purpose is not just to communicate an idea of positivity to others but to induce positive affect in them (Owren and Bachorowski 2003). Laughter’s “contagious” nature seems to support this thesis, as does the idea that the physical act of laughter releases endorphins, which are thought to play a role in social bonding (Dunbar et al. 2011). But as the research on laughter and humor shows, in real life, a laugh’s evolutionary goal is not always realized. If a stranger’s ambiguous smile fails to lift our spirits as easily as our child’s artless laugh does, it is not because infant laughter retains something that gets lost in adulthood. It is because adult contexts force us to negotiate our assumptions in light of our understanding that what motivates our emotions is complex and highly individual. In other words, it is not just that adult laughter and smiles are nuanced because we can deliberately fake them – a sincere laugh can come across just as ambiguously as an imitated one – it is that laughter is forced into ambiguity by the sheer complexity of human cognition and interaction. If laughter and smiles did not retain some qualitative invariability into adulthood, our interpretations of them would depend *only* on context. Since the contexts in which we employ these gestures are so varied, our potential interpretations of their messages would be infinite, and thus, socially useless.

The meaning we ascribe to laughter is always the product of considering our a priori expectation for positivity in light of the situation at hand. Too often we conflate the message associated with the laughter, with the message produced by the context in which the laughter emerged. This is a common mistake, and it is committed most often when a truthful perception of laughter accompanies emotions traditionally considered antithetical to enjoyment. What I am talking about is laughter perceived as truthful that emerges in a situation construed negatively. I will refer to these phenomena as *non-Duchenne contexts*. They differ from the kind of laughter interpreted as strategic in that, in the latter, the laugh is interpreted as a tactic of social communication. In the former, the laughter is seen as a truthful expression of interiority.

This does not mean, though, that the laughter of non-Duchenne contexts always emerges away from conversation, and therefore should never be interpreted as, at least in part, strategic. I am distinguishing between non-Duchenne contexts and conversational laughter and fake laughter, because non-Duchenne contexts are the ones that provide the most common pool of examples for those who object to my thesis that laughter is always associated with positivity. It is not my contention that real-world laughter can be categorized so neatly as I am doing here. The misleading independence of these categories is merely a means for arguing that while a sincere laugh or smile may not be benevolent, it is always, at least partially, positive.

## 5 Non-Duchenne contexts: Malicious, nervous, and pathological

### 5.1 Malicious

One of the most prominent theories of humor asserts that we laugh because of a feeling of superiority over another. Plato says this in *Philebus* and Aristotle relies on this idea in his discussion on comedy in the *Poetics*. Hobbes then reiterates the theory in *Human Nature*, and later Bergson grants it further credence by reframing laughter as a means of promoting in-group behavior – laughter as a medium of social exclusion.<sup>8</sup> The classic example of this phenomenon is the mockery associated with bullying. In the world of art this type of laughter is associated with the ubiquitous banana-peel bit and satire, from Aristophanes and Molière to political cartoons and the sardonic laugh of fictional villains like the Joker.

What is most disturbing about these phenomena is that a smile or a laugh emerges within a context that involves suffering – or worse yet, the laugh is perceived to have been stimulated by suffering. There are two strains of this phenomenon, the *exclusive* and *inclusive*.

The exclusive variety leads to disgust at the laugher. The laughter or smile of the murderer is perhaps the best example of this. In 2011, United States Congresswoman Gabrielle Giffords was shot at a public rally and a photo taken not long after of the culprit smiling graced many a magazine cover.<sup>9</sup> This would not be a disturbing image if we did not automatically associate a smile with positive affect and then

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<sup>8</sup> See Plato (1963), Aristotle (1995), Hobbes (1994), and Bergson (1956). The most succinct review of the various theories of humor that will be mentioned can be found in Morreall (1987).

<sup>9</sup> <http://content.time.com/time/covers/europe/0,16641,20110124,00.html>, the reference is to Time Magazine. January 24, 2011.

interpret such a sentiment as grossly inappropriate to the context of Giffords' suffering. Malicious non-Duchenne contexts condemn an individual laugher or a group of laughers for taking pleasure in the suffering of others.

The inclusive variety of malicious laughter is best seen in slapstick and satire. In these cases an audience is incited to engage in laughter at the expense of another. What Plato and Aristotle famously pointed out, is that this kind of laughter automatically implicates the laugher. We laugh, because we are enjoying the mishaps of the spectacle. If these mishaps are deemed relatively innocuous – think of, for example, Donald Duck's misfortunes – rarely is the context considered malicious.<sup>10</sup> Those who interpret such laughter as less harmless, i. e., as indicative of mankind's tendency to enjoy another's misfortune, deem such laughter malicious and oftentimes damning of humankind as a whole (see, for example, [Baudelaire 2006] on the topic).

In both the exclusive and the inclusive variety of malicious non-Duchenne contexts, the interpretation hinges on the understanding that whoever is laughing is communicating enjoyment within a context of suffering. Oftentimes the underlying implication of enjoyment gets forgotten in situations involving mockery and belittlement, especially when considered from the perspective of the person getting laughed at. When laughter becomes irredeemably linked to social exclusion, we strain to maintain any association between this specific laughter and positivity.

Consider gelotophobia, a disorder which the psychologist Michael Titze first defined in 1995 as the pathological fear of appearing ridiculous to social partners (Titze 1995). For gelotophobes, laughter has lost its connection to joy. They perceive all laughter as a threat and even a friendly smile as offensive (Ruch et al. 2009). However, the assessment criteria upon which a diagnosis of gelotophobia is based rely on the assumption that laughter should be positive. After all, why would it be pathological for someone to associate laughter with offense if offense were universally understood as essential to all laughter – as the superiority theory implies? A disorder like gelotophobia then, can be understood as an extreme consequence of considering oneself the spectacle in malicious non-Duchenne contexts, and a gelotophobe merely prone to the universal fear that assails us all at one time or another – that “others find [us] odd and *enjoy* laughing at [us]” (Ruch and Proyer 2008).<sup>11</sup>

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**10** McGraw and Warren argue that humor is stimulated when one deems a violation of a social or moral norm “benign.” I do not mean to argue that all “benign violations” elicit humor – I believe this is too sweeping a claim. But I do agree that any perceived incongruity/violation must be deemed harmless if one is to find something funny. See McGraw and Warren (2010).

Relatedly, Freud spoke of the the way affect interferes with humor appreciation (Freud 1989).  
**11** My emphasis.

To label laughter simply violent disregards what makes it violent. To deny violent laughter its fair share of positivity diminishes the phenomenon's complexity by ascribing to it a signification that is only context-based and therefore uninformed by the ontogenetic history that drives our context-driven interpretations of laughter in our lives.

## 5.2 Nervous

If malicious laughter is oftentimes distinguished as a laughing *at* misfortune, nervous laughter is laughing *with* misfortune. Whether we are speaking of cultural products or real life situations, the distinguishing factor is the confluence of laugher and sufferer. The theorist most associated with this phenomenon is Freud, who defines the laughter associated with humor as the release of a subject's unwanted cathectic energy (Freud 1989). Unsurprisingly, his is sometimes referred to as "relief theory" (Provine 2001). Nervous laughter is associated in art with antiheroes, tragicomedy, and Jewish humor, and in real life situations with sombre events like funerals.

As with malicious laughter, nervous laughter is perceived to be truthful. The subject is not willingly attempting to mislead, though the stimulus that produced the laugh did not produce positive affect either. In this case I am speaking about an unconscious response to uncomfortable situations – not about uncomfortable situations in which the laugher is willingly attempting to hide his discomfort through laughter (in which case, we are speaking about fake Duchenne laughter).

This species of laughter is the least understood, even if it has been studied immensely. Its popularity with humanists as a research question – less so within the sciences – is owed to the prevalence of nervous laughter in much modern art and to the argument that nervous laughter is indicative of the predicament of modernity. A recent statement of this idea was made by James Wood, who connects laughing *at* to a pre-modern sensibility, and laughing *with* to a modern one (Wood 2005). Before him, André Breton links this kind of laughter to what he terms *dark humor*, which he then ties to trends in much of modern art (Breton 1966).

What makes nervous laughter so challenging to my argument is that the laughter is interpreted as an unconscious means of deflecting negative emotions. Thus an uncomfortable stimulus incites negative affect, which produces laughter. How then could this be associated with positivity even when onlookers perceive, oftentimes correctly, that the subject is not laughing out of enjoyment?

What frequently emerges in such a situation is embarrassment and confusion. This is because the subject realizes he should not be laughing in this

context. Often nervous laughter is uncomfortable for onlookers as well, precisely because the context does not seem to fit with the presence of positive affect. A similar thing occurs when the laughter is caused by electronic stimulation or pathologies that lead to uncontrollable laughter, such as gelastic epilepsy. In both situations, the patient self-reports feeling confused, because no positive affect accompanied the display of laughter (Hurley et al. 2011; Provine 2001). This shows that we are intrinsically evolved to associate the two. i.e., confusion emerges because a signal is interpreted as associated with positive affect, in a context that is interpreted as negatively or neutrally valenced.

In cases of nervous laughter, we are dealing with the mismatch between the positivity associated with laughter and a perceived stimulus for that laughter not associated with positivity. This differs from malicious contexts in that the subject's laughter is not perceived as deriving from another's suffering or discomfort, but from his own. That anyone would ever call this species of laughter a form of self-defense, as Freud famously does, points to the connection between laughter and positivity, for without this link why would a laugh serve to deflect feelings of discomfort? And while Freud's relief theory is too narrow to prove relevant to all forms of laughter, it is not without its veracity. Consider that laughter is quite common during periods of bereavement. In these situations, the laughter is interpreted as a means of shifting one's emotional attention away from loss and towards something desirable (Bonanno 1999). When a speaker laughs while recounting his troubles, he relies on laughter's positivity to shift the focus from defeat to victory; he shows that he is capable of taking control of his sorrow (Glenn 2003; Jefferson 1984).

Nervous laughter is complicated, because it seems to simultaneously inhibit and promote social bonding. When a widow punctuates her grief with laughs, couldn't this be taken as a signal to the observer not to respond with support, since her laughter might imply that she is coping well enough on her own? At the same time though, such laughter can also be seen as encouraging further interaction. For example, Haakana (1999)<sup>12</sup> reports of patients laughing during medical interviews in which they discuss their symptoms. In such cases, the doctors do not respond with laughter but instead offer serious diagnostic feedback. Haakana argues that the patients' laughs serve to orient the discussion towards the non-serious. Another way of considering this is that the laughter places the patient's suffering within a playful frame. This could be interpreted then as eliciting greater social interaction, since it indicates that the patient's suffering – a potentially touchy subject matter for an observer – can be addressed without fear of offense. In such cases, nervous laughter is as much

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<sup>12</sup> Cited from Glenn (2003).

a sign of resilience that implies self-sufficiency as it is a promise that invites an interlocutor to address ambivalent subject matter.

In both real life and art, nervous laughter is produced by aligning misfortune with positivity. In both, laughter is perceived as deriving from misfortune, but unlike in malicious laughter, it is a communal misfortune. In malicious laughter the laugher is immune from the other's misfortune. In nervous laughter the laugher does not feel immune, or is not perceived as feeling immune, from misfortune. For this reason is nervous laughter so complicated. Malicious laughter provides easy scapegoats: Laughter's positivity is enjoyed by those included in an act of social cohesion, and suffered by those excluded. With nervous laughter, there is often no easy dividing line, making it a gesture that could invite interaction or discourage it, depending on if a third party aligns his expectations of positivity with his interpretation of the laugher's suffering – depending on whether the laugher's joy comes across as triumphant or affecting, inviting or defensive.

Any understanding of nervous laughter hinges on an inherent expectation of positivity; this is just as much the case when considered from the perspective of the person laughing as from an onlooker. For if the laughter were not automatically associated with positivity, you could never have nervousness or discomfort but a purely negatively valenced affect.<sup>13</sup> You would not have comedy or tragicomedy, but tragedy, and the laughter that seems so out-of-place would make no sense as a signal of discomfort.

### 5.3 Pathological

Pathological laughter is the evil twin to sincere Duchenne laughter. If the latter is an unconscious reaction which signals to observers what we find enjoyable, the former is an unconscious reaction signaling disease. "Pathological," then, is being used in a strict, clinical sense denoting diagnosed disorders; i. e., the term is not to be conflated with everyday attributions of mental illness – as in "the pathological liar." Pathological laughter is oftentimes grouped with pathological crying; the two are characterized by "frequent, brief, intense paroxysms of uncontrollable crying and/or laughing due to a neurological disorder" (Wortzel et al. 2008).

A wide variety of neurological conditions have been known to cause pathological laughter. These include gelastic epilepsy and strokes (Dabby et al. 2004),

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<sup>13</sup> Hurley et al. (2011) argue that in such situations the positivity associated with humor, while still present, gets interfered with by conflicting emotions.



as well as multiple sclerosis, tumors, Alzheimer's, Parkinson's, neurosyphilis, and others (Wortzel et al. 2008). Oftentimes, such laughter accompanies an inappropriate sense of humor. Conditions that impair the cortical and subcortical structures involved in resolving incongruity and reward and salience processing – all of which are involved in humor appreciation – have also been linked to pathological laughter. These disorders include schizophrenia and autism (Vrticka et al. 2013), as well as dementia (Clark et al. 2016; Vrticka et al. 2013).

What is most important to consider is that pathological laughter does not always come accompanied by congruent emotion. Sometimes the difference is simply one of degree, where the laughter is more forceful than the accompanying, relevant emotion. Oftentimes, though, the patient reports that the emotional valence does not correspond to the behavior – the patient laughs but reports no positive emotions. As was mentioned in the case of gelastic epilepsy, the patient feels confused as a result. This happens quite often with patients suffering from pathological laughter and inappropriate humor appreciation. Said laughter becomes a source of embarrassment for the patient's family and a source of confusion for the patient (Clark et al. 2016; Vrticka et al. 2013; Hurley et al. 2011; Wortzel et al. 2008).

The existence of pathological laughter only seems to call into question the link between laughter and positivity. The fact that this disquieting phenomenon causes such embarrassment for the patient's family and confusion for the patient points to an enduring tendency to associate laughter with positivity, even after laughter has become a symptom of disease. The very definition of pathological laughter is reliant on its connection to positivity. Pathological laughter is diagnosed when a patient's laughter is perceived as contradicting its context, i. e., when the patient's laughter is provoked by “nonsentimental or trivially-sentimental stimuli” (Wortzel et al. 2008). Likewise, “inappropriate” humor is identified by families when the patient laughs in response to stimuli deemed unrelated to positivity, either because the stimulus is considered negative or because it is neutral. For example, dementia sufferers have been reported to laugh at everything from a loved one's asthma attack to a barking dog (Clark et al. 2016). Pathological laughter therefore can only be considered a symptom of disease if onlookers deem its stimuli to be unrelated to a patient's specific sense of humor and to some notion of positivity overall.

## 6 Conclusions

All laughter is nonverbal social communication. The full content of what it communicates is highly variable and context-specific, but how it communicates is relatively stable. The invariable form of laughter communicates the variability



of the specific situation at hand by coloring this communication with a positive hue. As we have seen in our discussions of non-Duchenne contexts and of the uses of laughter in social interaction, laughter is only ever deemed negative when the context that produced it is deemed irreconcilable with positivity. However, the initial social meaning of laughter – which we are born understanding, and which infant-caregiver interaction reinforces – is never irredeemably altered. It does get complicated as our social lives grow more complex, but the basic association between laughter and positivity is never lost. Laughter is capable of communicating the immense complexity that we find in social interaction *because* its association with positivity is never completely severed. Any interpretation that does not take into account this association disregards *how* laughter signifies and diminishes the complexity of the signification. For in ascribing to laughter a meaning which is solely determined by a specific context, one neglects the long evolutionary history that informs how laughter weaves its way into our lives beginning from birth.

Establishing an indelible link between laughter and positivity is important, because laughter functions as a heuristic for understanding social situations and cultural products through this link. The fact that romantic partners connect through a shared sense of humor and that children are often traumatized by their peers' laughter, the fact that the work of artists as different as a Samuel Beckett and a Woody Allen has both been called paradigmatic of modernity, derives from how we interpret the contexts of these social interactions and the texts of these artists in light of an unwavering positivity. Unwavering, if albeit fragile, because the connection we inherit between laughter and joy is but a promise that the vagaries of our lives work so hard to call into question.

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## Bionote

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